

Materials Management (MM)

Curriculum: Introduction to S/4HANA using Global Bike

Teaching material - Information



Teaching material - Version

- 3.1 (July 2017)
- Software used
 - SAP ERP 6.08
- Model
 - Global Bike
- Prerequisites
 - No Prerequisites needed

Module Information



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Target Audience

- Beginner

Module Information



Learning Objectives

- Describe the purchase-to-pay business process
- Identify the organizational levels that support the purchase-to-pay business process
- Create a material master record
- Create a vendor master record
- List other vendor-specific master data
- Create a purchase requisition for stock and consumable materials
- Create a purchase order by referencing a purchase requisition
- Post a goods receipt for a purchase order
- Explain the warehouse structure in Warehouse Management (WM)
- Perform a putaway in WM using a transfer order (TO)
- Enter a vendor's invoice
- Process the automatic payment run
- Explain the integration points of the purchase-to-pay business process

Functionality

- Inventory Management
- Purchasing
- MRP
- Physical Inventory
- Valuation
- Service Master
- Invoice Verification
- Product Catalogs

Unit Overview

- Innovations in S/4HANA compared to ERP in Materials Management
- MM Organizational Structure
- MM Master Data
- MM Processes
 - Procure-to-Pay Process

Innovations in S/4 HANA compared to ERP in Materials Management

- 1) Business Partner (BP) is the Single Point of Entry for master data such as customer, vendor or contact person
 - ➔ Transaction BP replaces: FD01, FD02, FD03, FD05, FD06, FD0 FK01, FK02, FK03, FK05, FK06, FK08 MAP1, MAP2, MAP3, MK01, MK02, MK03, MK05, MK06, MK12, MK18, MK19, V-03, V-04, V-05, V-06, V-07, V-08, V-09, V-11, V+21, V+22, V+23, VAP1, VAP2, VAP3 VD01, VD02, VD03, VD05, VD06 XD01, XD02, XD03, XD05, XD06, XD07 XK01, XK02, XK03, XK05, XK06, XK07
- 2) The maximum length of the material field (material number) has been extended from 18 to 40 characters
- 3) Simplifications in transactions MM01/02/03
- 3) Simplification in transaction Request for Quote
- 4) In Output Management, the target architecture is based on Adobe Document Server and Adobe Forms
- 5) Change in the data model in MM Inventory Management
- 6) Transactions for executing and displaying goods movements are replaced by transaction MIGO
 - Transaction MIGO replace: MB01, MB02, MB03, MB04, MB05, MB0A, MB11, MB1A, MB1B, MB1C, MB31, MBNL, MBRL, MBSF, MBSL, MBST, MBSU

Innovations in SAP S/4HANA

Business Partner

- The core function of SAP S/4HANA is the simplification of data structures
- ➔ various transactions, such as the management of customers or suppliers, are brought together
- It is (so far) still possible to navigate through the well-known tree paths

Display Vendor: Initial Screen

Vendor: 114000 Pyramid Biking GmbH
Company Code: DE00 GBI Deutschland GmbH
Purch. Organization: DE00 GBI Germany

Display Vendor: Address

Vendor: 114000

Name: Pyramid Biking GmbH

Street Address: Hofstraße 12, 33647 Bielefeld, DE Germany, Region 05, North Rhine Westf...

Display Organization: 37001, role FI Vendor

Business Partner: 37001 Pyramid Biking / 33647 Bielefeld
*Display in BP role: FI Vendor

Company Code: DE00 Global Bike Germany GmbH
Customer:
Vendor: 114000

Vendor: Account Management Vendor: Payment Transactions Vendor: Correspondence Vendor: Status

Account Management
Reconciliation acct: 300000

A unique business partner number is assigned to creditor 114000. This business partner number is assigned to various roles such as the customer, creditor, contact person.

Relationship: n:m

Innovations in SAP S/4HANA

- The maximum length of the material field (material number) has been extended from 18 to 40 characters

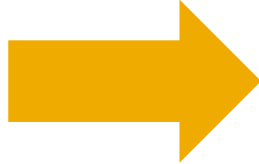
Create Material (Initial Screen)

Select View(s) Org. Levels Data

Material:

Industry Sector:

Material Type:



Create Material (Initial Screen)

Select View(s) Org. Levels Data More

Material:

Industry Sector:

Material type:

- Simplifications in transactions MM01/02/0
 - Relevant views are displayed only for material type, e.g. Material type SERV (Service material)

Material: TEST000

Industry Sector: Mechanical engineering

Material type: Finished Product

Change Number:

m...

Material:

Select View(s)

- ☐ View
- ☐ Basic Data 1
- ☐ Basic Data 2
- ☐ Sales: Sales Org. Data 1
- ☐ Sales: Sales Org. Data 2
- ☐ Sales: General/Plant Data
- ☐ Foreign Trade: Export Data
- ☐ Sales Text
- ☐ MRP 1
- ☐ MRP 2
- ☐ MRP 3
- ☐ MRP 4
- ☐ Advanced Planning
- ☐ Forecasting
- ☐ Work Scheduling
- ☐ General Plant Data / Storage 1
- ☐ General Plant Data / Storage 2
- ☐ Warehouse Management 1
- ☐ Warehouse Management 2
- ☐ Quality Management
- ☐ Accounting 1
- ☐ Accounting 2



Material: TEST000

Industry Sector: Mechanical engineering

Material type: Service Materials

Change Number:

om...

Material:

Select View(s)


- ☐ View
- ☐ Basic Data 1
- ☐ Sales: Sales Org. Data 1
- ☐ Sales: Sales Org. Data 2
- ☐ Sales: General/Plant Data
- ☐ Foreign Trade: Export Data
- ☐ Sales Text
- ☐ Purchasing
- ☐ Foreign Trade: Import Data
- ☐ Purchase Order Text
- ☐ Accounting 1

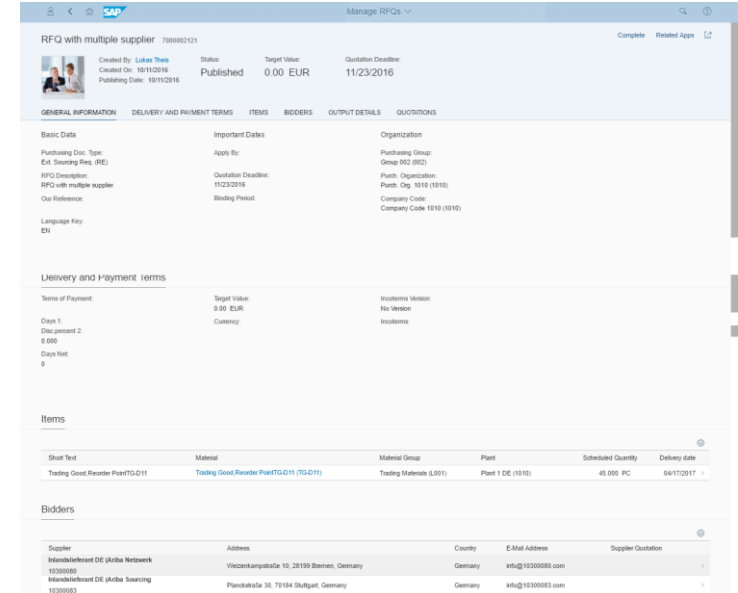
☐ View selection only on request

☐ Create views selected

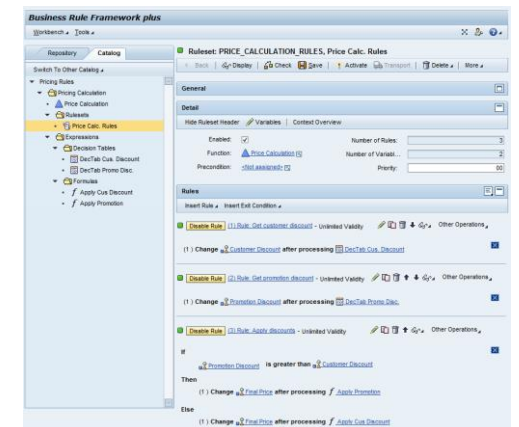
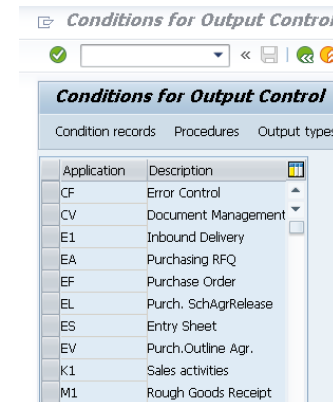
Org. Levels Data Default Setting

Innovations in SAP S/4HANA

- Simplification of the Request for Quote transaction
- So far supplier field is mandatory
 - Only one supplier offer per request could be maintained
 -  Now you can send one RFQ via Fiori App to different suppliers

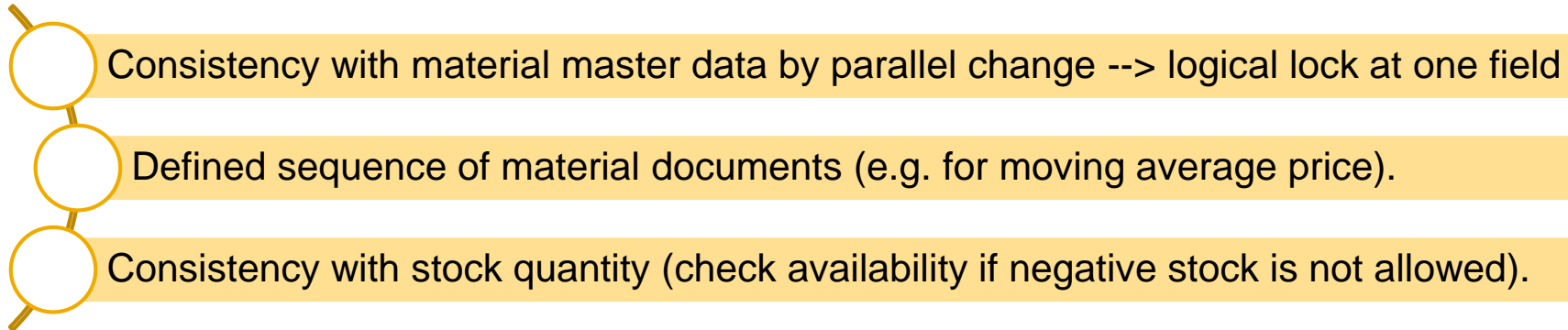


- Output Management in S/4HANA is based solely on Adobe Document Server and Adobe Forms
 - NAST (message control) is not supported any further
 - *BRFplus* (Business Rule Framework plus) is the new standard
 - Intrasytem, can be used by all SAP applications that are based on SAPNetWeaver
 - Also generate web services that can be offered in SOA principle in system landscape, regardless of the software platform



Innovations in SAP S/4HANA

- Performance optimizations within Material Document Processing - lock behaviour
 - no UPDATE processes on the actual stock quantity fields → INSERT Only
 - from a data base perspective there are no locks → enables - from a DB perspective - parallel execution of material document processing
 - logical locks still required because:



- The consistency check with master data and stock quantity (1 + 3) is necessary in any case. The defined sequence of material documents (2) is ensured only in the case that exclusive lock is chosen in the customizing
- Transactions for executing and displaying goods movements are replaced by transaction MIGO
Transaction MIGO replace: MB01, MB02, MB03, MB04, MB05, MB0A, MB11, MB1A, MB1B, MB1C, MB31, MBNL, MBRL, MBSF, MBSL, MBST, MBSU

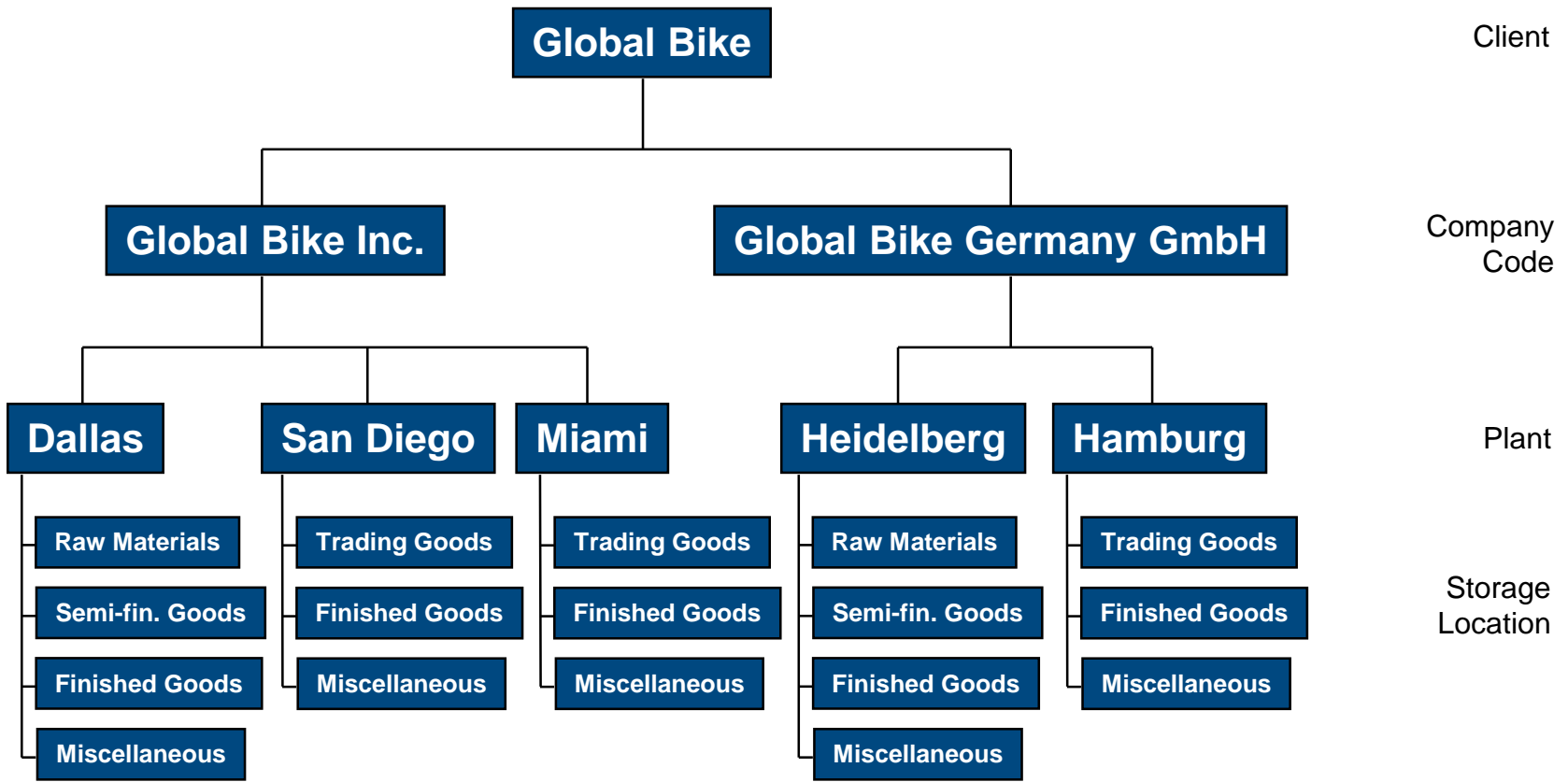
MM Organizational Structure (Materials Mgmt.)

- Client
 - An independent environment in the system
- Company Code
 - Smallest org unit for which you can maintain a legal set of books
- Plant
 - Operating area or branch within a company
 - Manufacturing, distribution, purchasing or maintenance facility
- Storage Location
 - An organizational unit allowing differentiation between the various stocks of a material in a plant

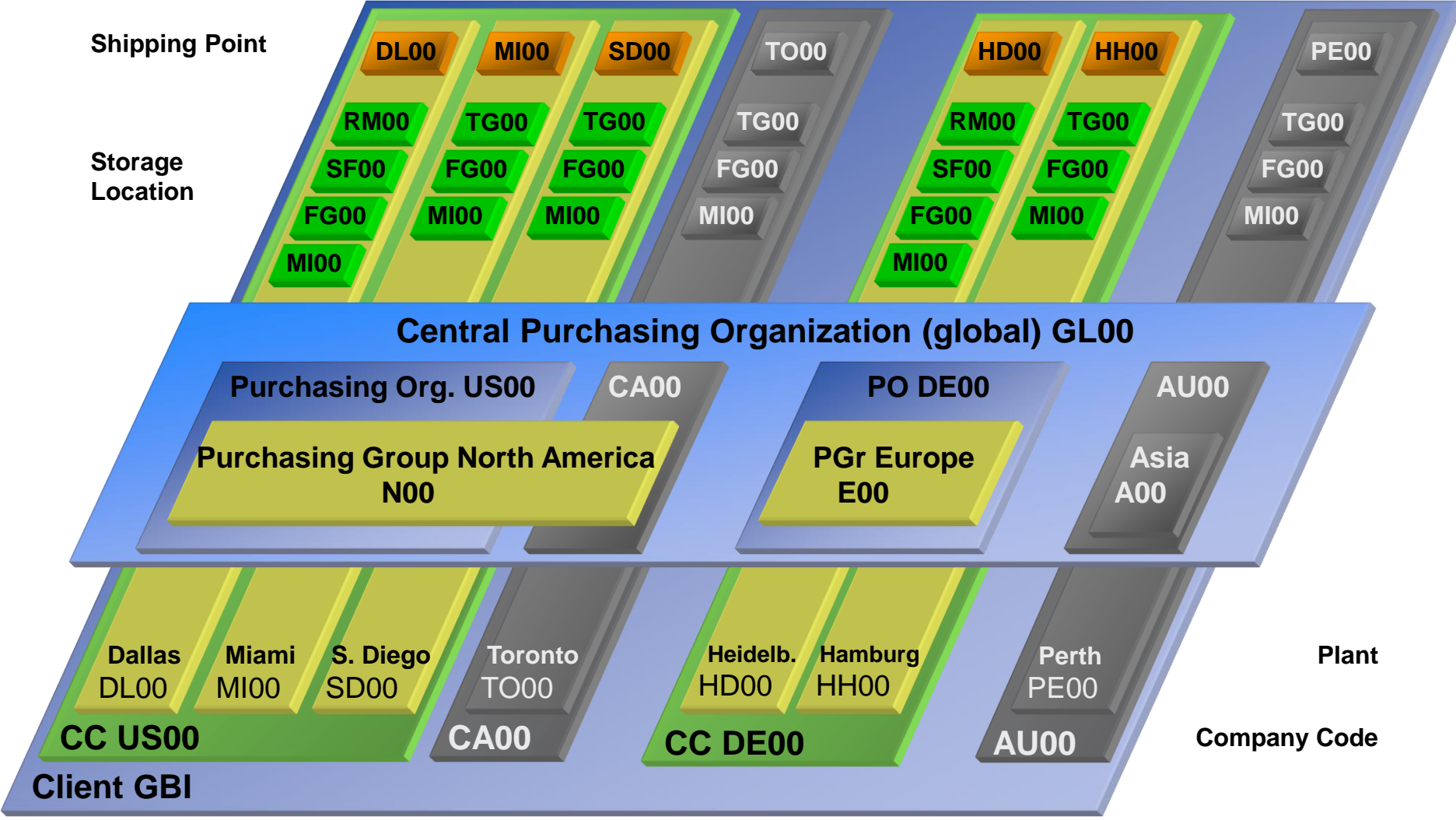
MM Organizational Structure (Purchasing)

- Purchasing Organization
 - The buying activity for a plant takes place at the purchasing organization
 - Organization unit responsible for procuring services and materials
 - Negotiates conditions of the purchase with the vendors
- Purchasing Group
 - Key that represents the buyer or group of buyers who are responsible for certain purchasing activities
 - Channel of communication for vendors

GBI Structure for Materials Management



GBI Enterprise Structure in SAP ERP (Logistics)



MM Master Data

Purchase Order Edit Goto Environment System Help

Create Purchase Order

Document Overview On Hold Print Preview Messages Personal Setting

NB Standard PO Vendor 135000 Mid-West Supply Doc. date 04/29/2010

Delivery/Invoice Conditions Texts Address Communication Partners Additional Data Org. Data Status

Purch. Org. US00 GBI US
Purch. Group N00 North America
Company Code US00 Global Bike Inc.

S. Itm	A	I	Material	Short Text	PO Quantity	O...	C Deliv. Date	Net Price	Curr...	Per	O...	Matl Group	Plant	Stor. Loc
10			CHLO1000	Chain Lock	200 EA	D	07/29/2010	32.00 USD	USD	1	EA	Utilities	DC San Diego	Trading

Default Values Add Planning

Item 1 [10] CHLO1000, Chain Lock

Material Data Quantities/Weights Delivery Schedule Delivery Invoice Conditions Texts Delivery Address Confirmations Condition Control

Qty 200 EA Net 6,400.00 USD

N.	CnTy	Name	Amount	Crcy	per	U...	Condition value	Curr.	Status	NumC...	OUn	CCon...	Un	Condition value	CdCur	Stat
1	PB00	Base Price	32.00	USD		1 EA	6,400.00 USD	USD		1 EA	1 EA		1 EA	0.00		
		Net value incl. disc	32.00	USD		1 EA	6,400.00 USD	USD		1 EA	1 EA		1 EA	0.00		
1	NAVS	Non-Deductible Tax	0.00	USD			0.00 USD	USD		0	0		0	0.00		
		Net value incl. tax	32.00	USD		1 EA	6,400.00 USD	USD		1 EA	1 EA		1 EA	0.00		
1	SKT0	Cash Discount	0.000	%			0.00 USD	USD		0	0		0	0.00		
		Actual price	32.00	USD		1 EA	6,400.00 USD	USD		1 EA	1 EA		1 EA	0.00		
1	W0TB	OTB Procurement	32.00	USD		1 EA	6,400.00 USD	USD		1 EA	1 EA		1 EA	0.00		

Condition rec. Analysis Update

SAP A64 (1) 998 a64z INS

Vendor Master Data

Material Master Data

Purchasing Info Record

Condition Master Data

Output Master Data

Vendor Master Data

- Vendor Master
 - Contains all the necessary information needed to business with an external supplier
 - Used and maintained primarily by the Purchasing and Accounting Departments
 - Every vendor MUST have a master record

The screenshot displays the 'Create Vendor: Address' form in SAP. The form is organized into several sections: 'Vendor' (with a dropdown set to 'INTERNAL'), 'Name' (with fields for 'Title' set to 'Company' and 'Name' set to 'Mid-West Supply'), 'Search Terms' (with 'Search term 1/2' set to '000'), 'Street Address' (with fields for 'Street/House number' set to '335 W Industrial Lake Dr', 'Postal Code/City' set to '68528 Lincoln', 'Country' set to 'US', 'Region' set to 'NE', and 'Time zone' set to 'CST'), 'PO Box Address' (with fields for 'PO Box', 'Postal code', and 'Company postal code'), and 'Communication' (with 'Language' set to 'EN English'). Each section includes a small icon for additional actions.

Create Vendor: Address	
Vendor	INTERNAL
Name	
Title	Company
Name	Mid-West Supply
Search Terms	
Search term 1/2	000
Street Address	
Street/House number	335 W Industrial Lake Dr
Postal Code/City	68528 Lincoln
Country	US
Region	NE
Time zone	CST
PO Box Address	
PO Box	
Postal code	
Company postal code	
Communication	
Language	EN English

Vendor Master Views

- Client Level
 - Address
 - Vendor Number
 - Preferred Communication
- Company Code Data
 - Reconciliation Account
 - Terms of Payment
 - Bank Account
- Purchase Org Data
 - Purchasing Currency
 - Salesman's Name
 - Vendor Partners

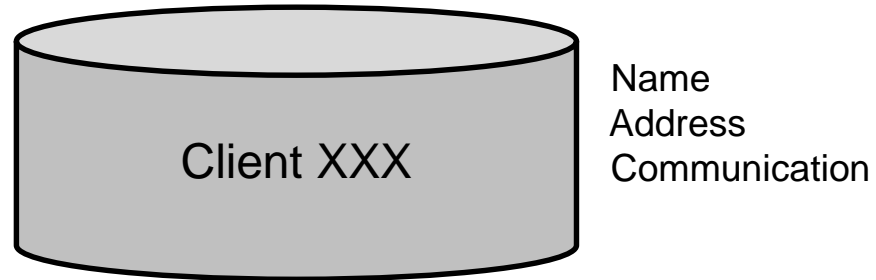
General Data

Company Code Data
Financial Accounting (FI)

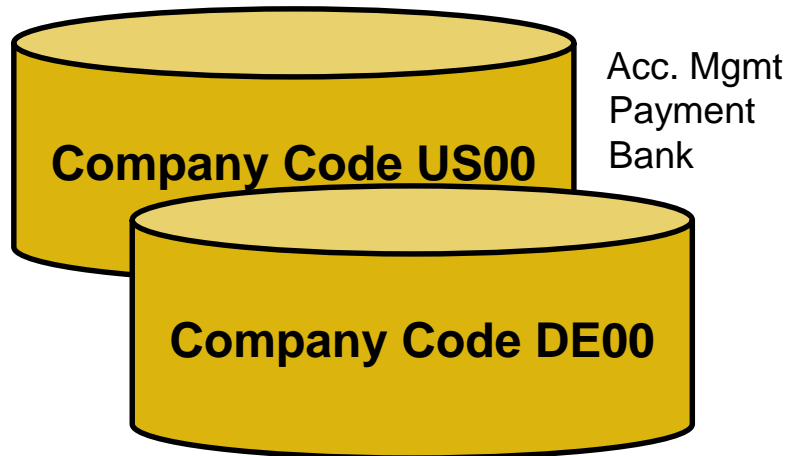
Purchasing Data
Materials Mgmt (MM)

Vendor Master

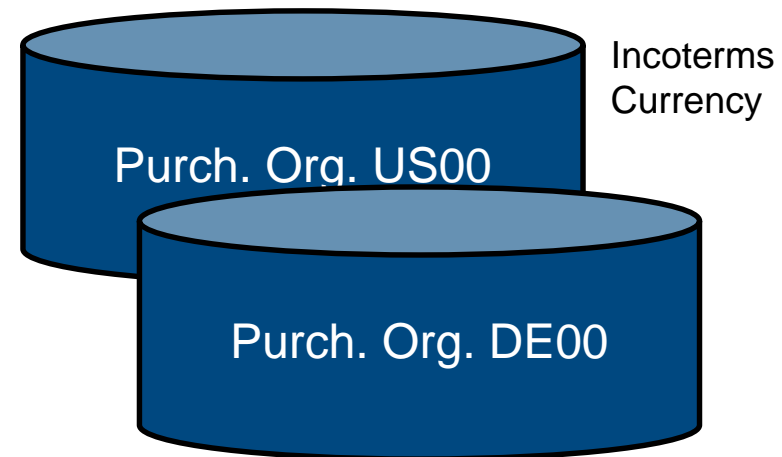
General Information relevant for the entire organization:



Company Code specific information:



Purch. Organization specific information:



Material Master Data

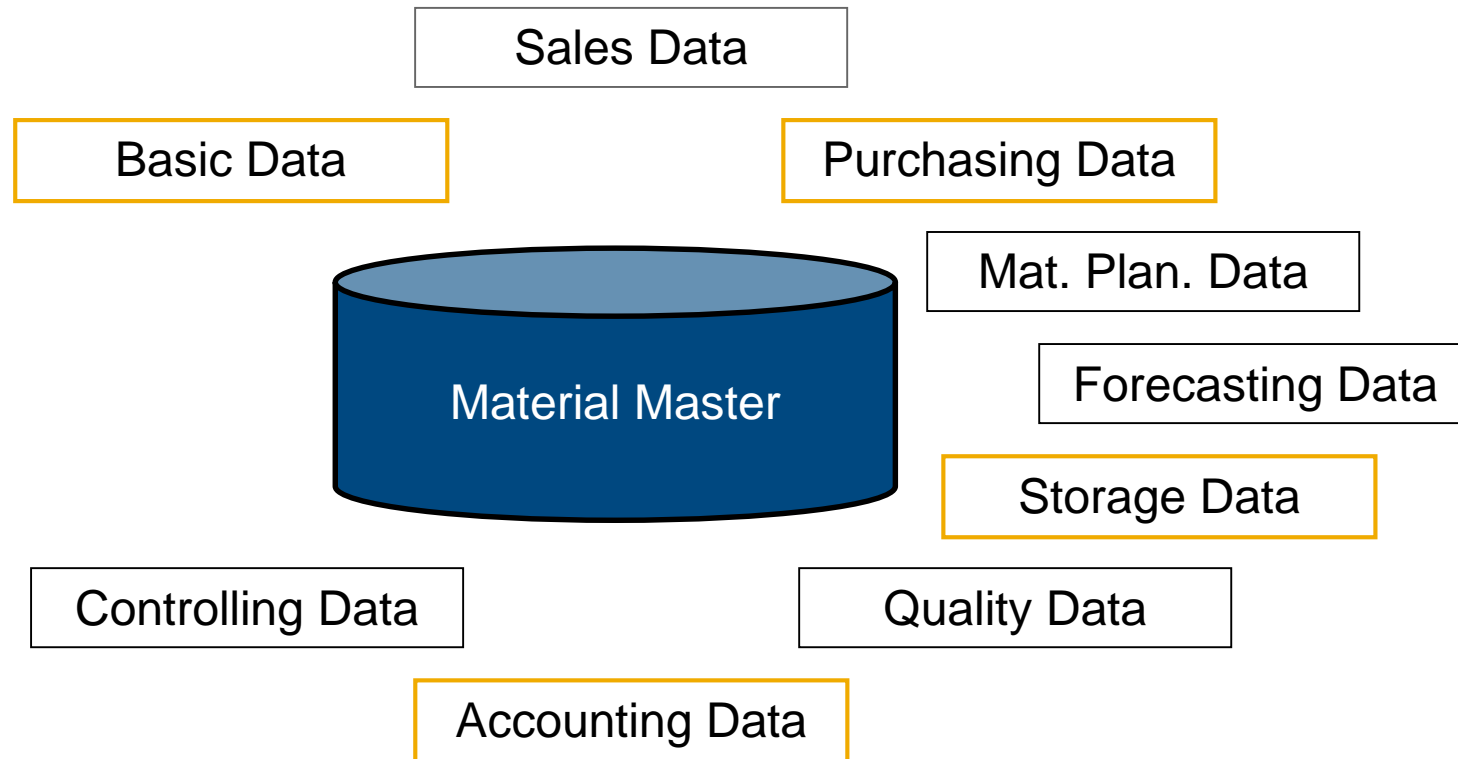
■ Material Master

- Contains all the information a company needs to manage about a material
- It is used by most components within the SAP system
 - Sales and Distribution
 - Materials Management
 - Production
 - Plant Maintenance
 - Accounting/Controlling
 - Quality Management
- Material master data is stored in functional segments called Views

The screenshot shows the SAP 'Display Material' screen for material DXTR1000, a 'Deluxe Touring Bike (black)'. The interface is organized into several tabs: 'Basic data 1', 'Basic data 2', 'Sales: sales org. 1', 'Sales: sales org. 2', and 'Sale...'. The 'Basic data 1' tab is active, displaying various data fields grouped into sections. The 'General data' section includes fields for Base Unit of Measure (EA), Old material number, Division (BI), Product allocation, X-plant matl status, and GenItemCatGroup (NORM). The 'Material authorization group' section shows the Authorization Group. The 'Dimensions/EANs' section includes Gross Weight (8,510), Net Weight (8,510), Volume (0.000), Size/dimensions, and EAN/UPC. The 'Packaging material data' section shows Matl Grp Pack.Matls. The 'Basic Data Texts' section shows Languages Maintained (0) and a Basic Data Text field. The top of the screen displays the material number and name, and the bottom right shows the language dropdown.

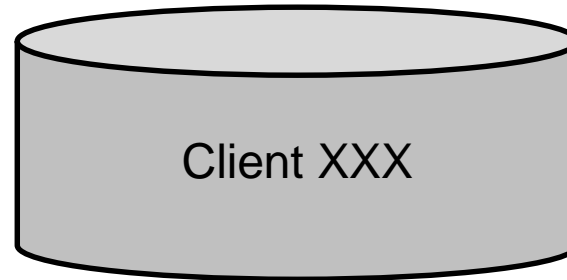
Display Material DXTR1000 (Finished Product)			
Additional Data Org. Levels			
Basic data 1 Basic data 2 Sales: sales org. 1 Sales: sales org. 2 Sale...			
Material		DXTR1000 Deluxe Touring Bike (black)	
General data			
Base Unit of Measure	EA	each	Material Group
Old material number			Ext. Matl Group
Division	BI		Lab/Office
Product allocation			Prod.hierarchy
X-plant matl status			Valid from
<input type="checkbox"/> Assign effect. vals		GenItemCatGroup NORM Standard item	
Material authorization group			
Authorization Group			
Dimensions/EANs			
Gross Weight	8,510	Weight unit	6
Net Weight	8,510		
Volume	0.000	Volume unit	
Size/dimensions			
EAN/UPC		EAN Category	
Packaging material data			
Matl Grp Pack.Matls			
Basic Data Texts			
Languages Maintained	0	Basic Data Text	Language:

Material Master Views



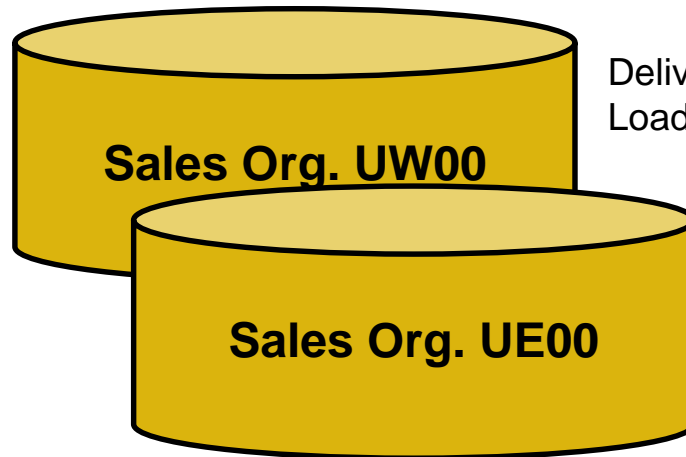
Material Master

General Information relevant for the entire organization:



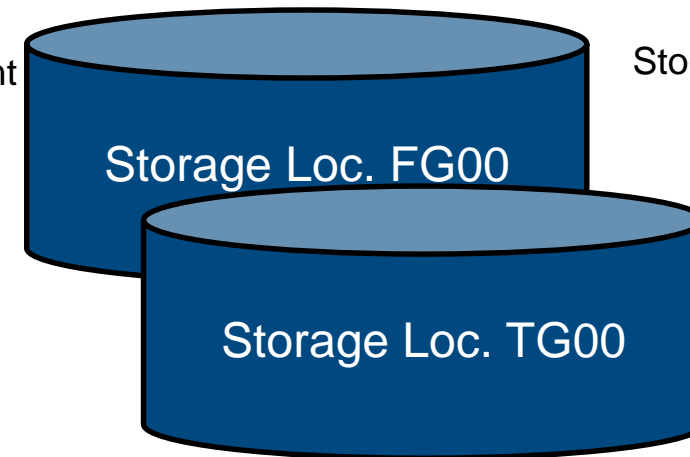
Name
Weight
Unit of Measure

Sales specific information:



Delivering Plant
Loading Grp

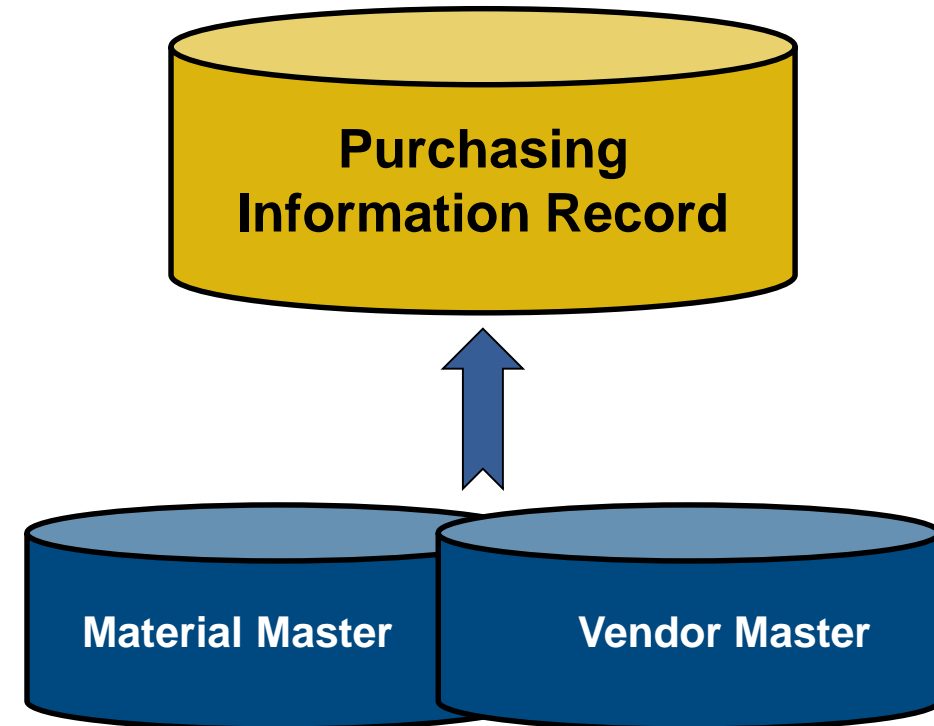
Storage Location specific information:



Stock Qty

Purchasing Information Record

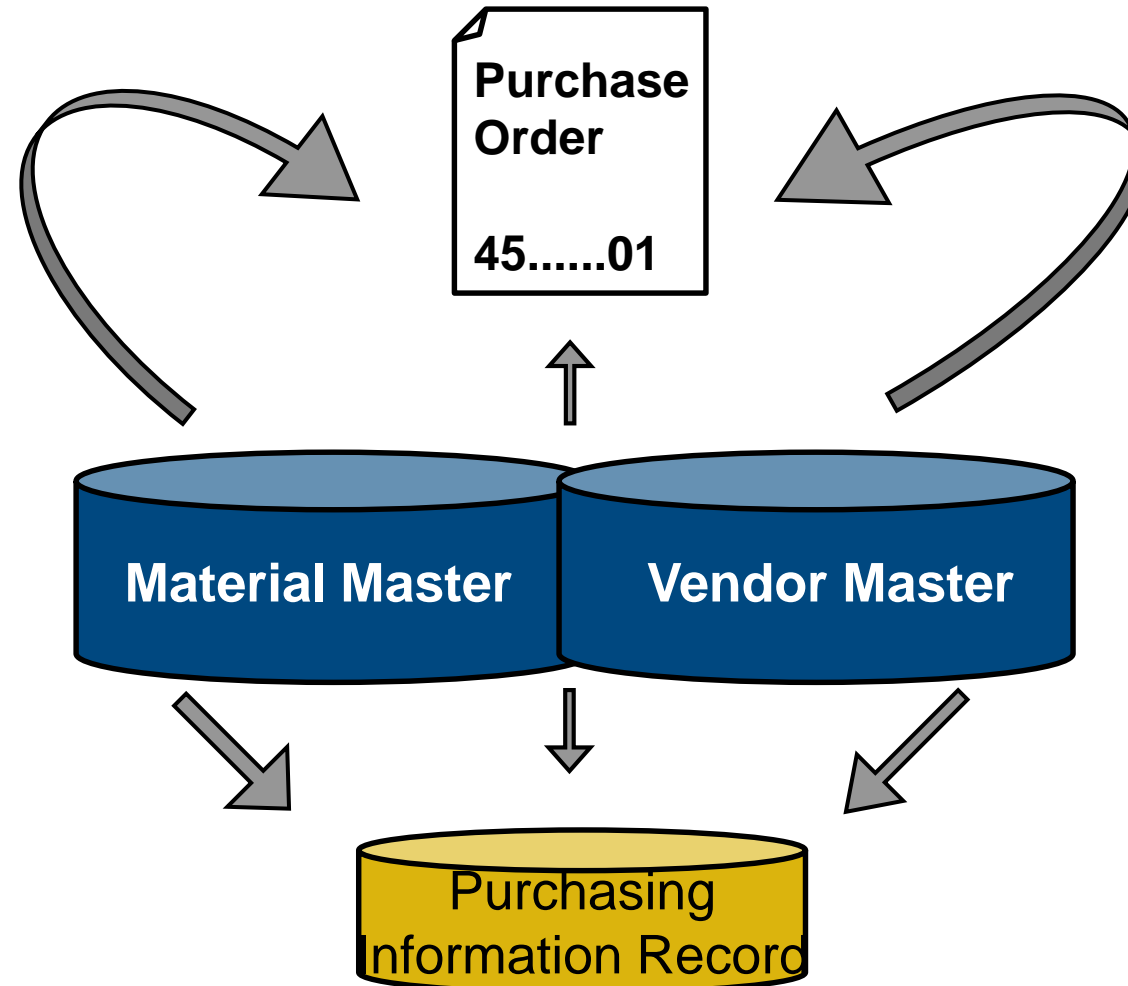
- Framework for Purchase Order
 - Contains the relationship between a vendor and a material
- Can be created:
 - Manually
 - Automatically – Quotations
 - Automatically – Purch. Orders
- Reporting
 - Vendor Evaluation



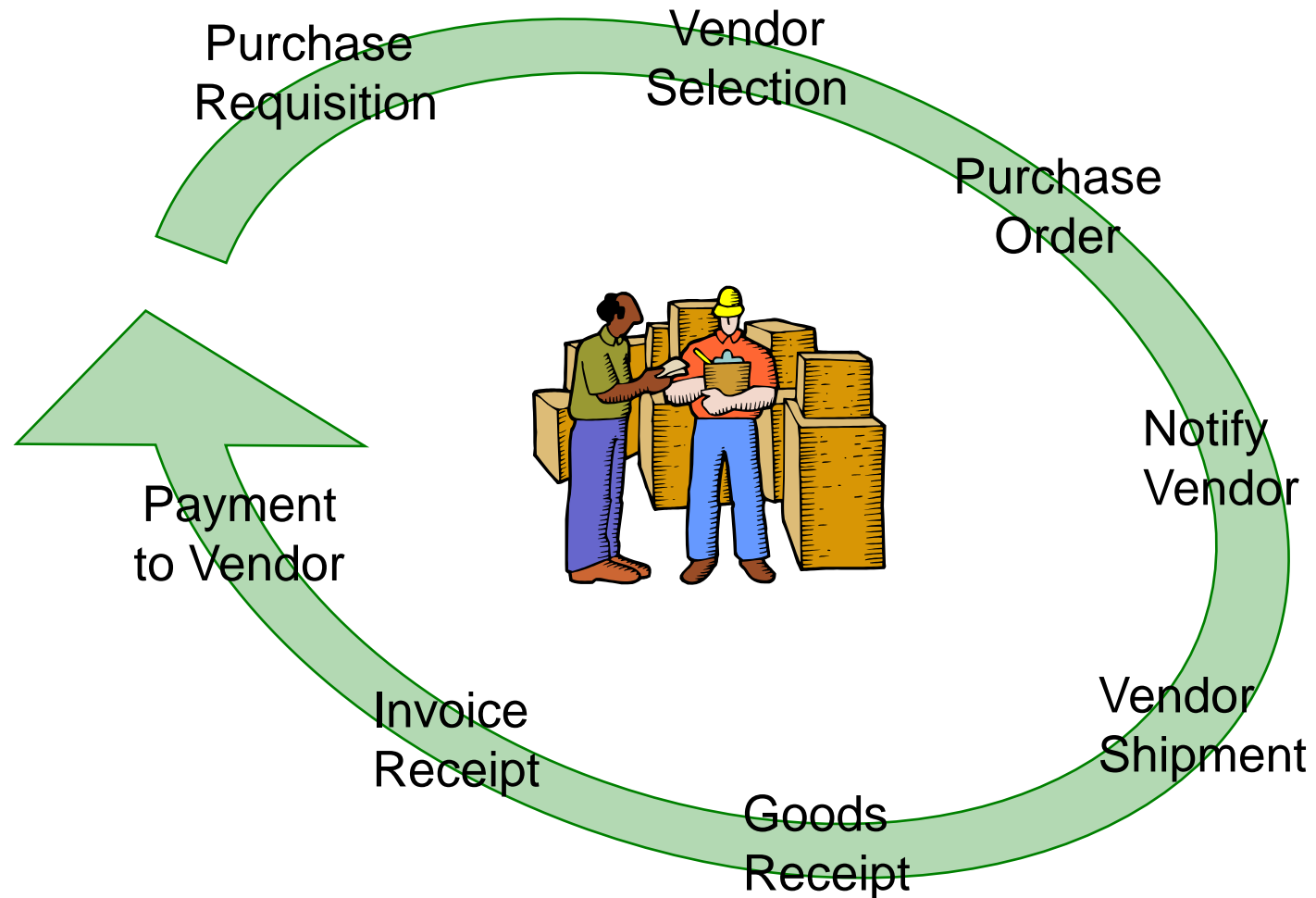
Purchasing Information Record

- Allows buyers to quickly determine:
 - Which vendors have offered or supplied specific materials
- Info Records contain:
 - Data on pricing and conditions
 - Last purchase order
 - Tolerance limits for deliveries
 - Specific lead times
 - Availability periods
 - Vendor Evaluation data
- Serves as default information for Purchase Orders

Master Data in Use



Procure-To-Pay Process



Purchase Requisition

- Internal Document instructing the purchasing department to request a specific good or service for a specified time
- Requisitions can be created two ways:
 - Directly - Manually
 - person creating determines: what, how much, and when
 - Indirectly - Automatically
 - MRP
 - Production Orders
 - Maintenance Orders
 - Sales Orders

Requisition Sourcing

- Once the requisition has been assigned a source of supply it can be released for processing
- There are a variety of ways that a purchasing department can process a requisition to determine the appropriate Source of Supply:
 - Internal Sourcing Requirements
 - Source List
 - Outlined Agreement
 - RFQ

Internal Sourcing

- The requisition for materials could be satisfied by sources within our company.
 - It is possible that a plant within your firm could represent a potential source of supply for the material needed (centralized warehouse)
 - If an internal source is identified the requirement is covered by an internal procurement transaction (stock transport order)

Source List

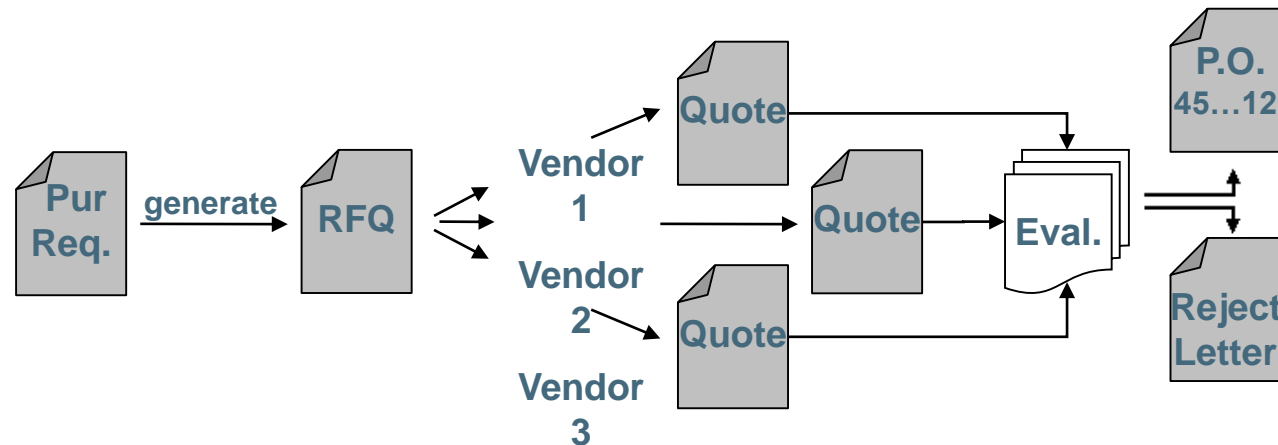
- A source list is a record that specifies the allowed means for procuring a material for a certain plant within a given time period.
 - If the list contains a sole source the system will assign the vendor to the requisition.
 - If several options exist the system will display a list of vendors for you to choose from.
 - If no source has been established the system will revert to search information records and outline agreements.

Outline Agreement

- Requisitions can be satisfied through existing longer-term purchasing agreement
- These agreements are subdivided into:
 - Contracts
 - Consists of items defining the individual materials, material groups, or services with prices and in many cases quantities
 - Quantity
 - Value
 - Scheduling Agreements
 - Total quantity of material is spread over a certain period in a delivery schedule, consisting of line items indicating quantities and their planned delivery date

Request for Quotation

- If nothing exist in the system we may need to submit a request for quotation to our vendors. An RFQ is an invitation to a vendor by a Purchasing Organization to submit a bid for the supply of materials or services
 - The accepted quotations will generate Purchasing Information Records
 - Perform Quotation Price Comparisons
 - Finally Select a Quotation



Quotation from Vendor

- The quotation received by your company is a legally binding offer, should decide to do business with the vendor, containing price's and conditions for the materials specified in the RFQ for a predefined period of time.
- In SAP the RFQ and the Quotation will be become a single document, you will enter the vendor's response in the RFQ you created.

Vendor Evaluation once Identified

- Vendor evaluation helps purchasing evaluate vendors for sourcing while also enabling the company to monitor vendor relationships through performance scores and criteria you put in place.
 - Supports a maximum of 99 main criteria and 20 sub criteria for each main:
 - Price
 - Price Level
 - Price History
 - Quality
 - Goods Receipt
 - Quality Audit
 - Complaints/Rejection level
 - Delivery
 - On-time delivery performance
 - Quantity reliability
 - Compliance with shipping instructions
 - Confirmation Date
 - You then must establish a scoring range (1 -100) and determine the weight factors of scores for each.

Purchase Order

- A purchase order is a formal request to a vendor for a specific material or service under the stated conditions
- Purchase Orders can be created manually
 - Reference a Purchase Order
 - Reference a Purchase Requisition
 - Reference a RFQ/Quotation
 - Without Reference
- Purchase Orders can be create automatically

Purchase Order

- A purchase order can be used for a variety of purposes, the item category (procurement type) defined in the PO will dictate the use of the order and the process that the order will follow:
 - Standard
 - Stock or Consumption
 - Services
 - Subcontracting
 - Third-Party
 - Consignment

Create Purchase Order

Document Overview On | Hold | Print Preview | Messages | Personal Setting

View NB Standard PO | Vendor: 135000 Mid-West Supply | Doc. date: 04/29/2010

Delivery/Invoice | Conditions | Texts | Address | Communication | Partners | Additional Data | Org. Data | Status

Purch. Org.: US00 GBI US
Purch. Group: N00 North America
Company Code: US00 Global Bike Inc.

Item	S...	Item	Material	Short Text	PO Quantity	O...	C Deliv. Date	Net Price	Curr...	Per	O...	Mat
10			CHLO1000	Chain Lock	200 EA	D	07/29/2010	32.00 USD	USD	1	EA	Utili
								USD				
								USD				
								USD				
								USD				

Default Values | Add Planning

Item: 1 [10] CHLO1000, Chain Lock

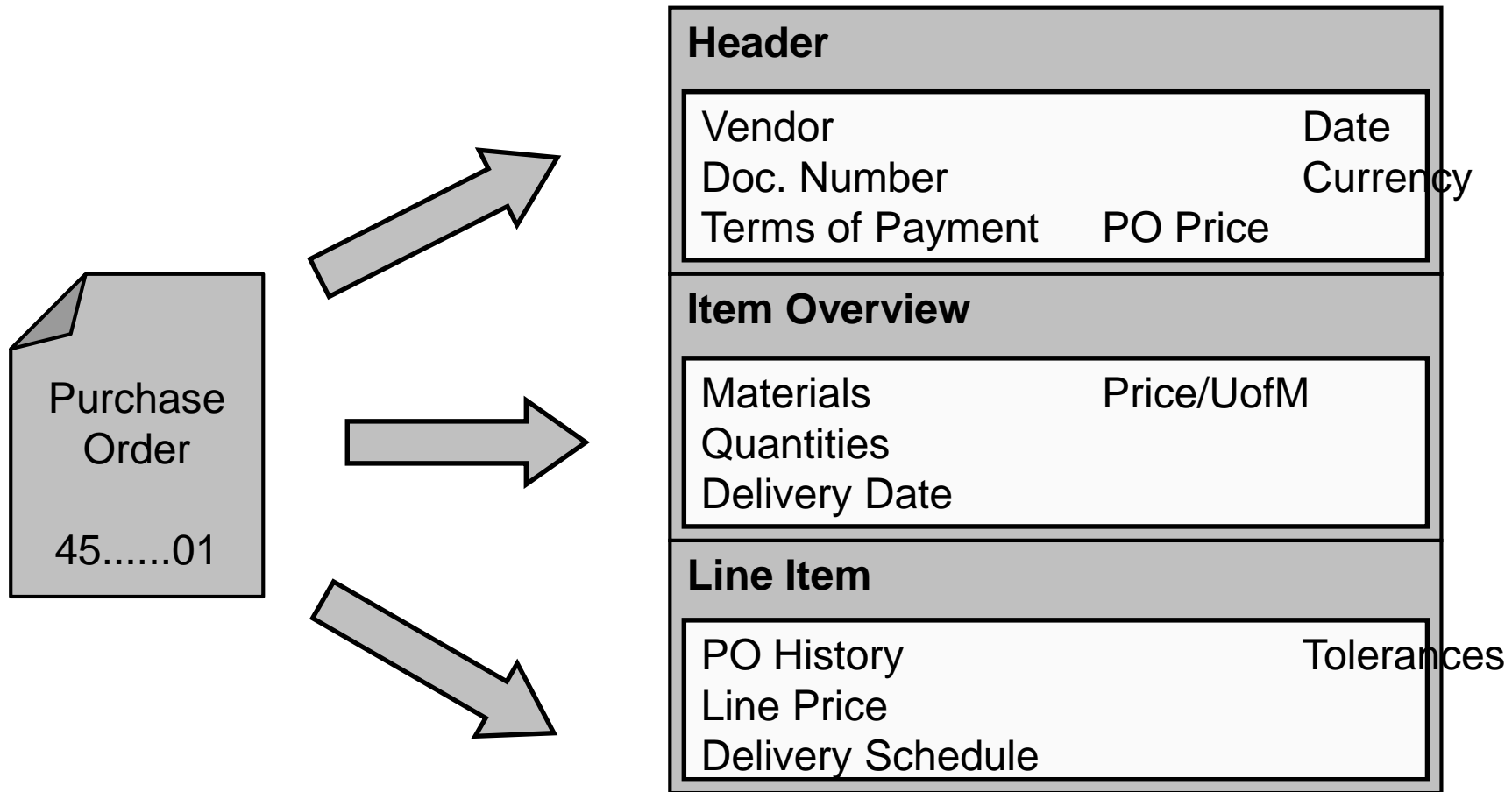
Material Data | Quantities/Weights | Delivery Schedule | Delivery | Invoice | Conditions | Texts | Delivery Address | Conf

Qty: 200 EA | Net: 6,400.00 USD

N...	CnTy	Name	Amount	Crcy	per	U...	Condition value	Curr.	Status	NumC...	OU	CCon...	Un
P800		Net Price	32.00	USD		1 EA	6,400.00	USD		1 EA			1 EA
		Net value incl. disc	32.00	USD		1 EA	6,400.00	USD		1 EA			1 EA
NAVS		Non-Deductible Tax	0.00	USD			0.00	USD		0			0
		Net value incl. tax	32.00	USD		1 EA	6,400.00	USD		1 EA			1 EA
SKT0		Cash Discount	0.000	%			0.00	USD		0			0
		Actual price	32.00	USD		1 EA	6,400.00	USD		1 EA			1 EA
W0TB		OTB Procurement	32.00	USD		1 EA	6,400.00	USD		1 EA			1 EA

Condition rec. | Analysis | Update

Purchase Order Structure

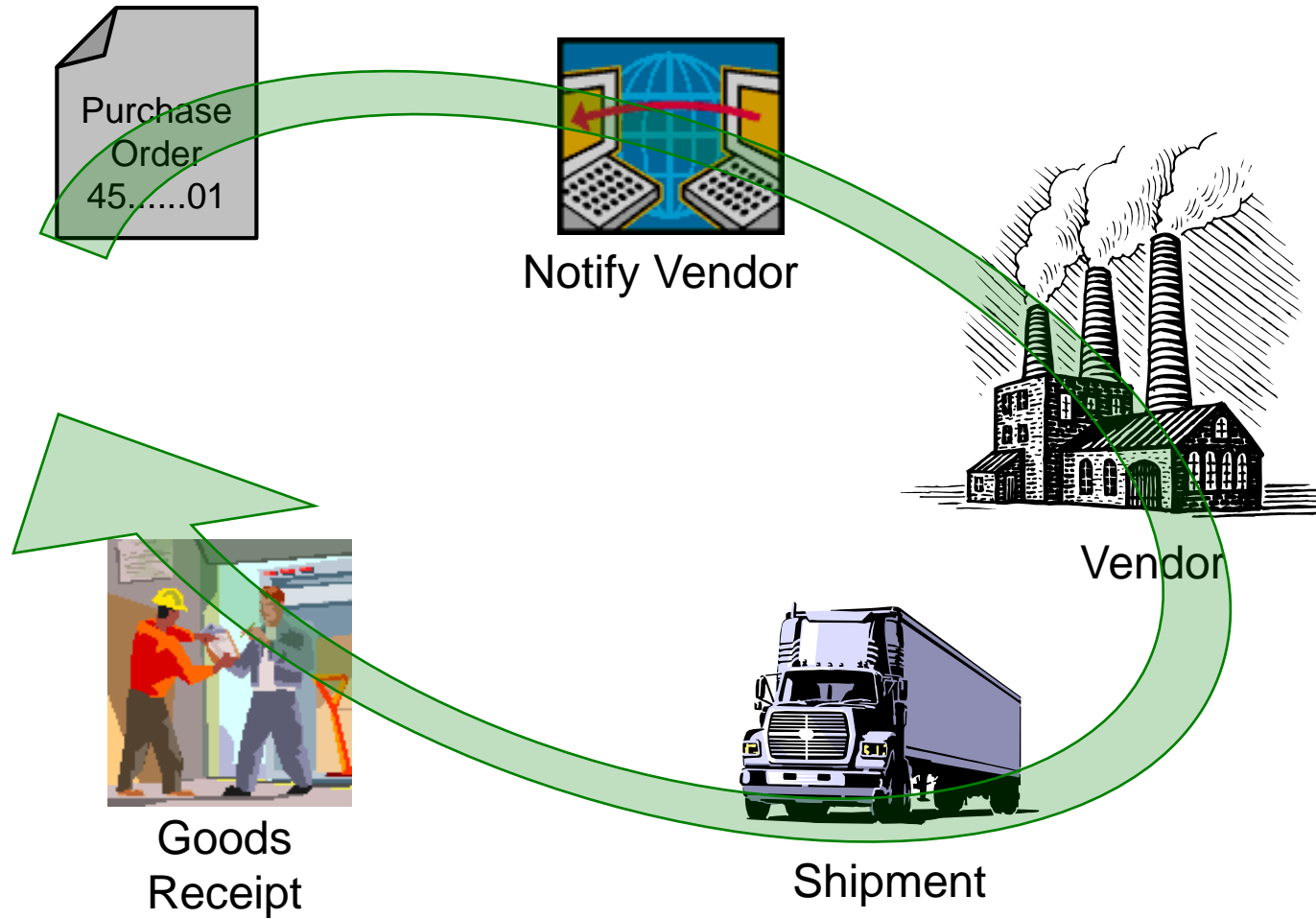


Purchase Order Output

- Once a Purchase Order has been created the vendor needs to be notified
 - Printed
 - E-mail
 - EDI
 - Fax
 - XML

- There are a variety of forms that aid in the purchasing process and are generated from the Purchase Order
 - Purchase Order Output
 - Order Acknowledgement Forms
 - Reminders
 - Schedule Agreements

Goods Receipt



Goods Receipt

- Goods movement in which we accept goods into our system
- If materials are delivered against a Purchase Order we will reference that Order
 - Determine if we got what we ordered
 - System can purpose data for us from the PO
 - Material, quantity
 - Purchase Order History is update with the receipt
 - Updates Physical Inventory
 - Updates Inventory G/L Account

Material Movements

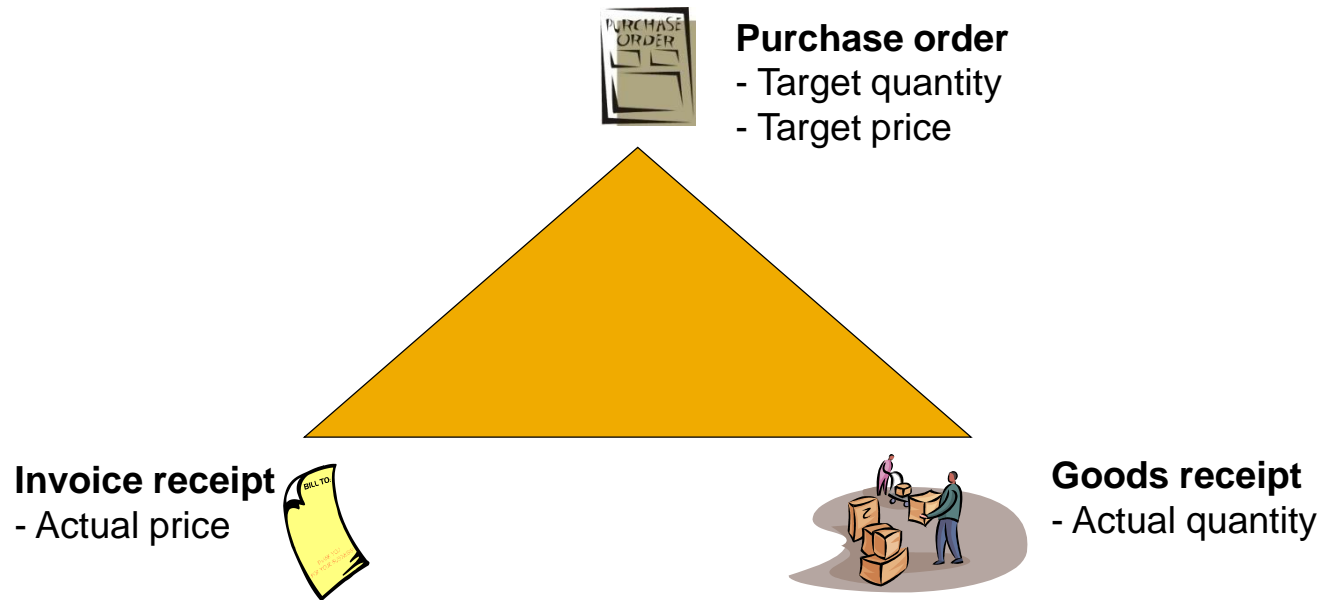
- When a goods movement takes place it is represented by a Movement Type
 - Movement types are three-digit keys used to represent a movement of goods
 - 101 – goods receipt into warehouse
 - 103 – goods receipt into GR blocked stock
 - 122 – return delivery to vendor
 - 231 – consumption for a sales order
 - 561 – initial entry of stock
- Destinations for Receipt of Goods
 - Warehouse – Unrestricted, Quality, Blocked
 - Quality
 - Goods Receipt Blocked Stock

Effects of a Goods Receipt

- When a Goods Movement for the receipt of goods takes place a series of events occur
 - Material Document is Created
 - Accounting Document is Created
 - Stock Quantities are Updated
 - Stock Values are Updated
 - Purchase Order is Updated
 - Output can be generated (GR slip / pallet label)

Invoice Processing

- Incoming Invoices are reference against a Purchase Order to verify their content, prices, and arithmetic.
- If discrepancies arise between the purchase order or goods receipt and the invoice the system will generate a warning or an error
 - Depending on system configuration the difference could cause the system to Block the Invoice



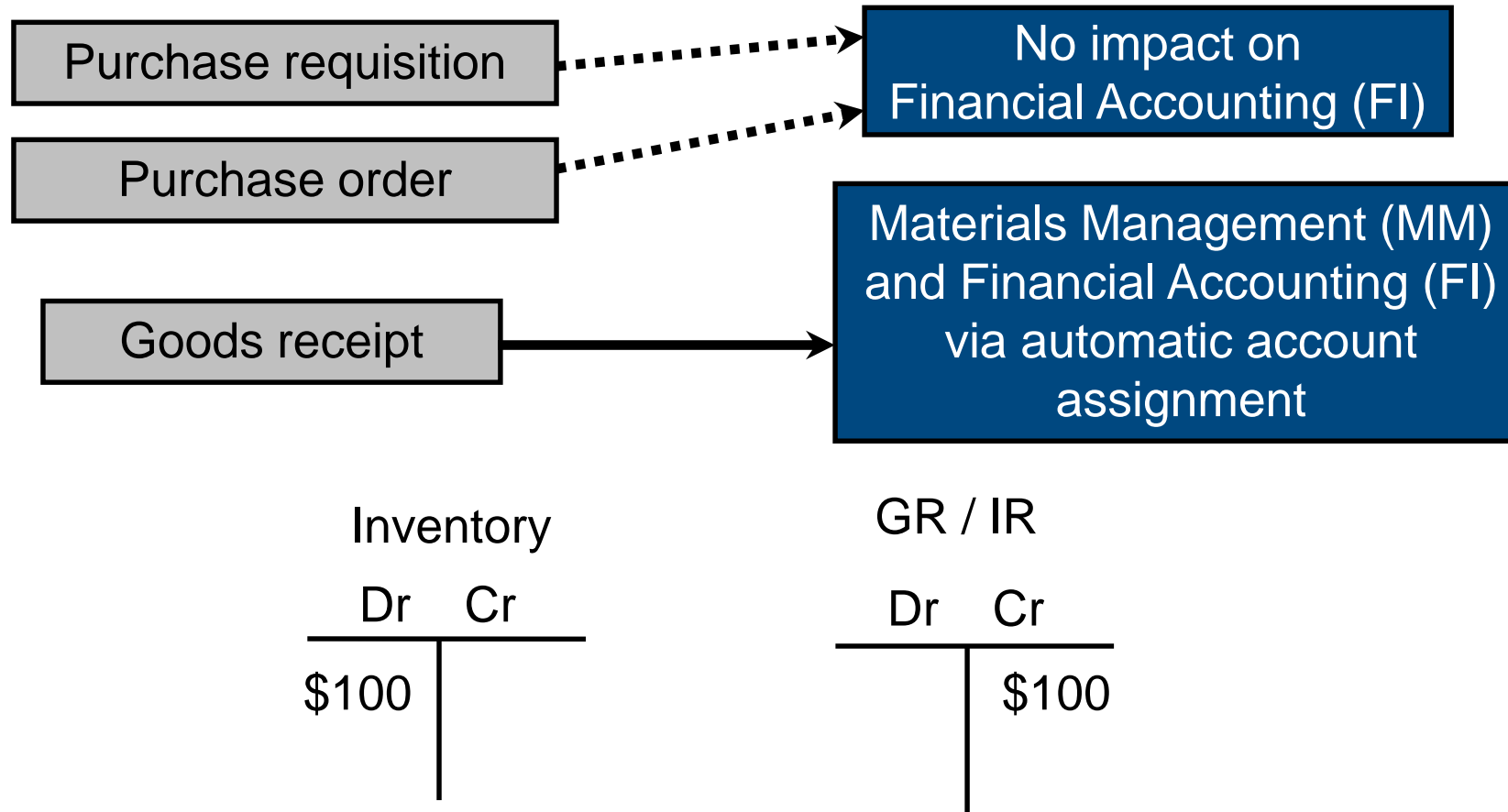
Invoice Processing

- When an invoice is saved it applies the liability from the Goods Receipt of our Purchase Order to a Vendor
- Upon verification the:
 - Purchase Order is updated
 - Material Master is Updated (MAP)
 - Accounting Document is created
- Once the Invoice has been posted the verification process is completed and the payment process is initiated within Financial Accounting

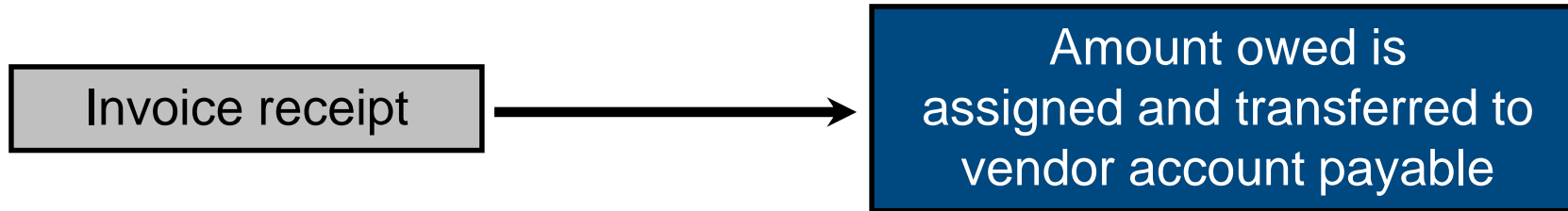
Payment to Vendor

- Can be done automatically or manually
 - Post Outgoing Payment vs. Payment Program
- Elements of the Payment Transaction:
 - Payment Method
 - Bank from which they get paid
 - Items to be Paid
 - Calculate Payment Amount
 - Print Payment Medium
- Process will create a financial accounting document to record the transaction

Goods Receipt / Invoice Receipt Reconciliation Account



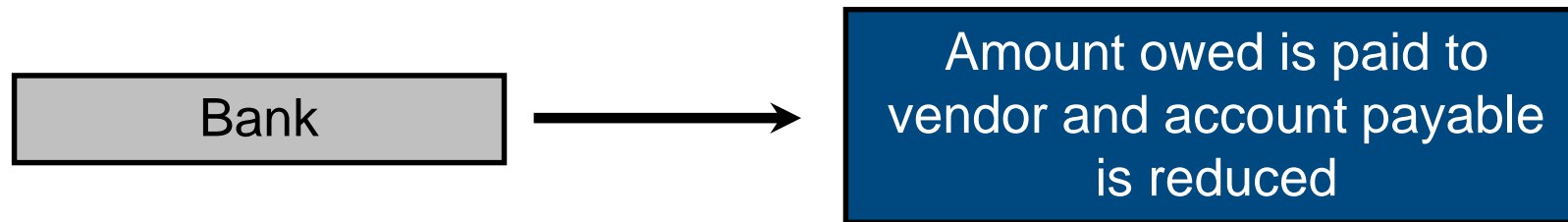
Goods Receipt / Invoice Receipt Reconciliation Account



GR / IR	
Dr	Cr
\$100	

Vendor A/P	
Dr	Cr
	\$100

Vendor Payment



Bank	
Dr	Cr
	\$100

Vendor A/P	
Dr	Cr
\$100	

FI – MM Integration Point

