ACS-1803
Introduction to Information Systems

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Functional Area Systems – Accounting Transaction Systems

Lecture Outline 4, Part 1

Functional Area Information Systems

Functional Area	Information System	Examples of Typical Systems
Accounting and Finance	Systems used for managing, controlling, and auditing the financial resources of the organization	▮ Inventory management ▮ Accounts payable ▮ Expense accounts ▮ Cash management ▮ Payroll processing
Human Resources	Systems used for managing, controlling, and auditing the human resources of the organization	▮ Recruiting and hiring ▮ Education and training ▮ Benefits management ▮ Employee termination ▮ Workforce planning
Marketing	Systems used for managing new product development, distribution, pricing, promotional effectiveness, and sales forecasting of the products and services offered by the organization	▮ Market research and analysis ▮ New product development ▮ Promotion and advertising ▮ Pricing and sales analysis ▮ Product location analysis
Production and Operations	Systems used for managing, controlling, and auditing the production and operations resources of the organization	▮ Inventory management ▮ Cost and quality tracking ▮ Materials and resource planning ▮ Customer service tracking ▮ Customer problem tracking ▮ Job costing ▮ Resource utilization

Accounting Transaction Cycle
• Revenue
• Expense

Transaction Processing Systems (TPS) for Accounting

▸ Order entry, Accounts Receivable, Accounts payable, purchasing and receiving, inventory, Fixed Assets are all information systems that support the accounting operation.
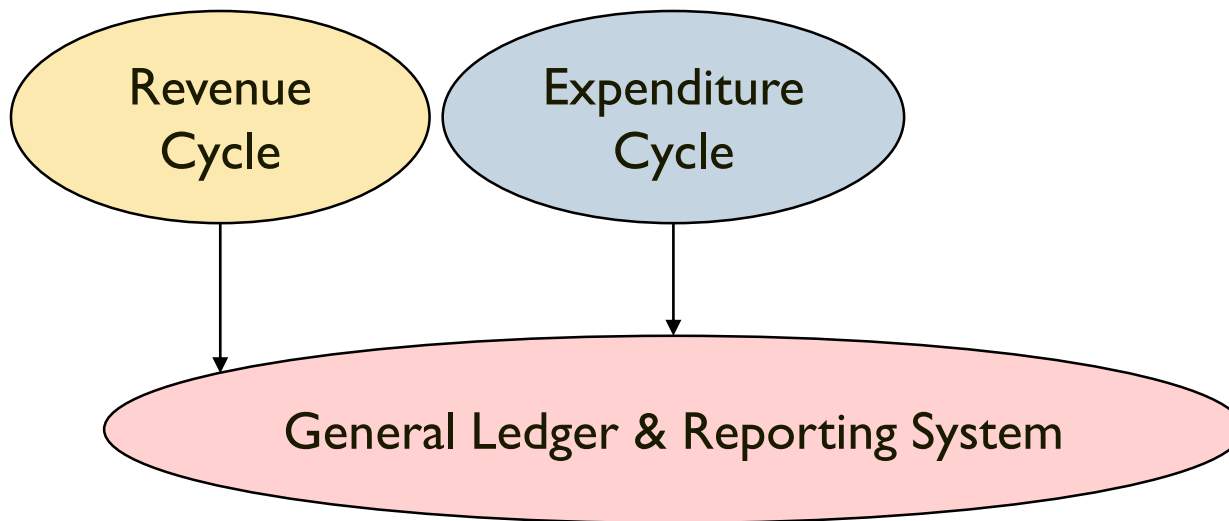
Transaction Processing Cycle

The transaction processing cycle is a process:

▶ Begins with capturing data about a transaction

▶ Ends with an information output, such as financial statements

Accounting Transaction Cycle

▶ The two major transaction cycles.
1. Revenue cycle
2. Expenditure cycle

Revenue Cycle

Expenditure Cycle

General Ledger & Reporting System

Accounting Transaction Cycle

1. The *revenue cycle:* involves activities of selling goods or services and collecting payment for those sales.

2. The *expenditure cycle:* involves activities of buying and paying for goods or services used by the organization.

Baseline Accounting Transaction Cycles

Each transaction cycle is expanded to show the transactions in the cycle.
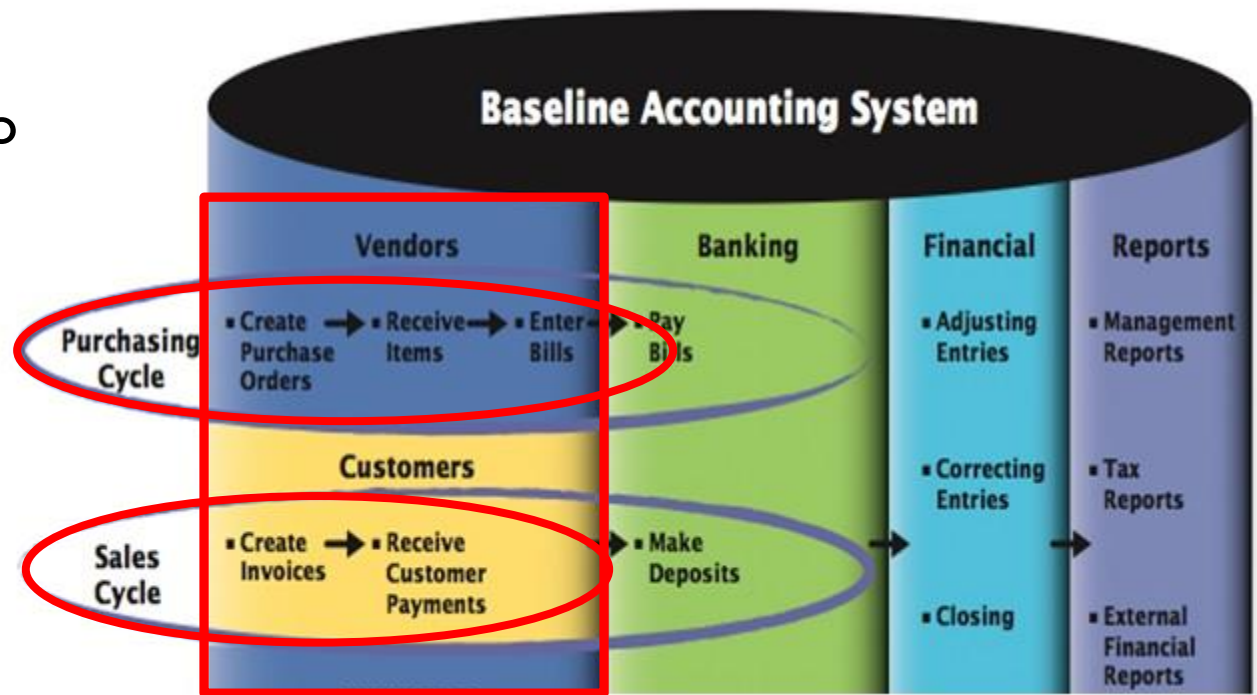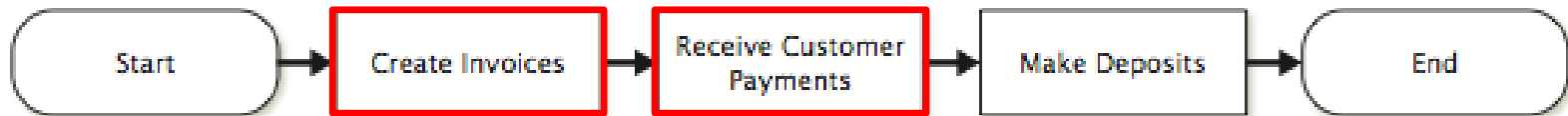
Accounting Transaction Cycles

Revenue (Sales) Cycle

| Source Document	Function
Sales order	Take customer order.
Delivery ticket	Deliver or ship order
Remittance advice	Receive cash.
Deposit slip	Deposit cash receipts.
Credit memo	Adjust customer accounts

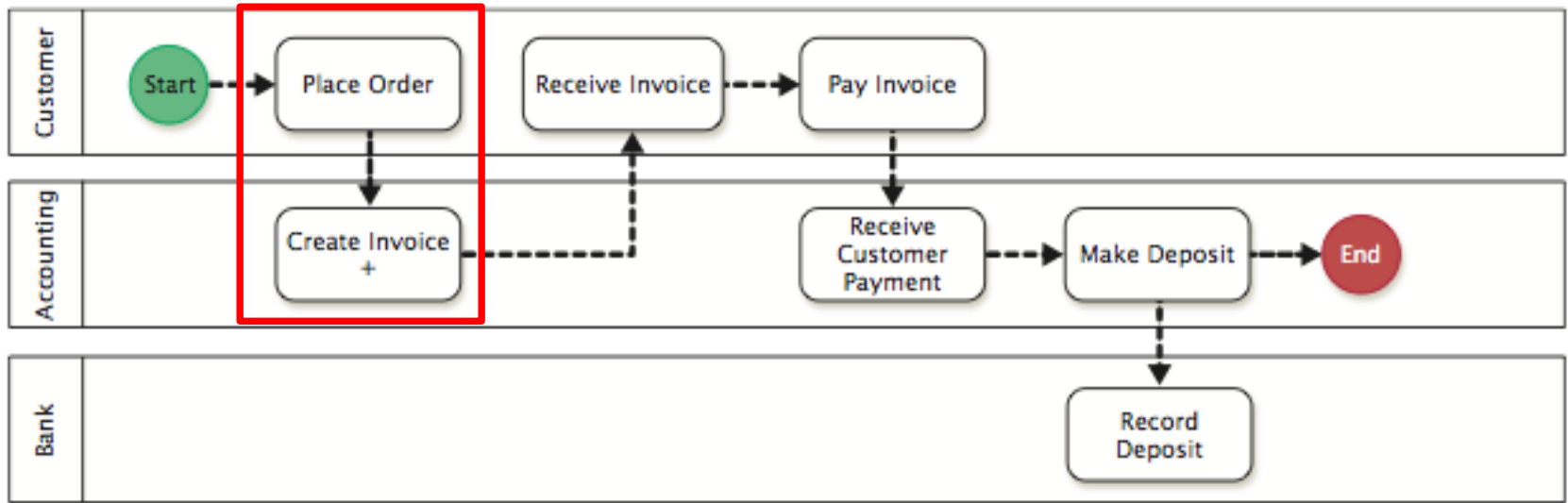# Baseline Accounting Transaction: Revenue (Sales) Cycle
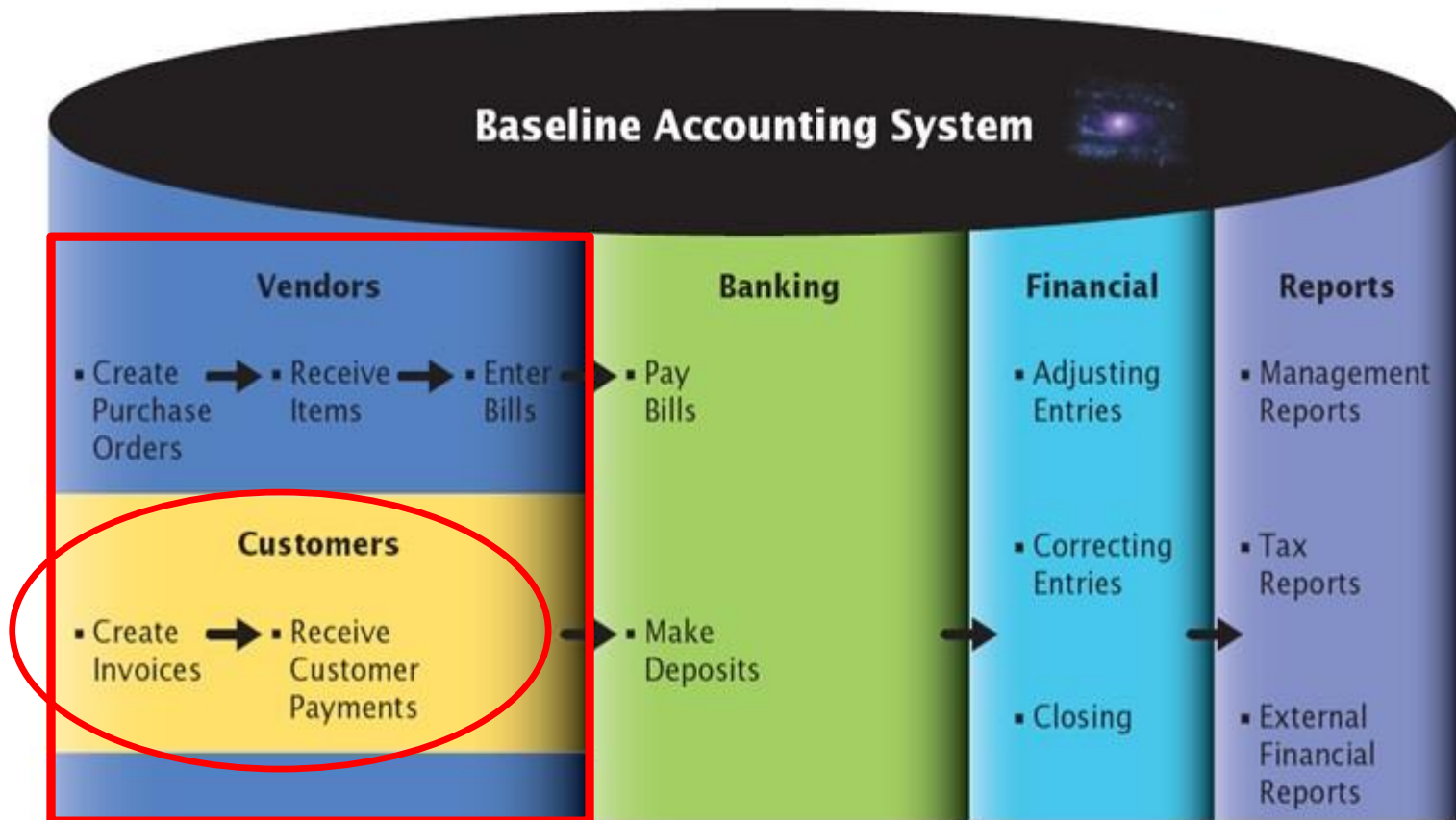
Flow Chart Diagram for Sales Cycle Activities

Start → Create Invoices → Receive Customer Payments → Make Deposits → End

Business Process Modeling Notation (BPMN)
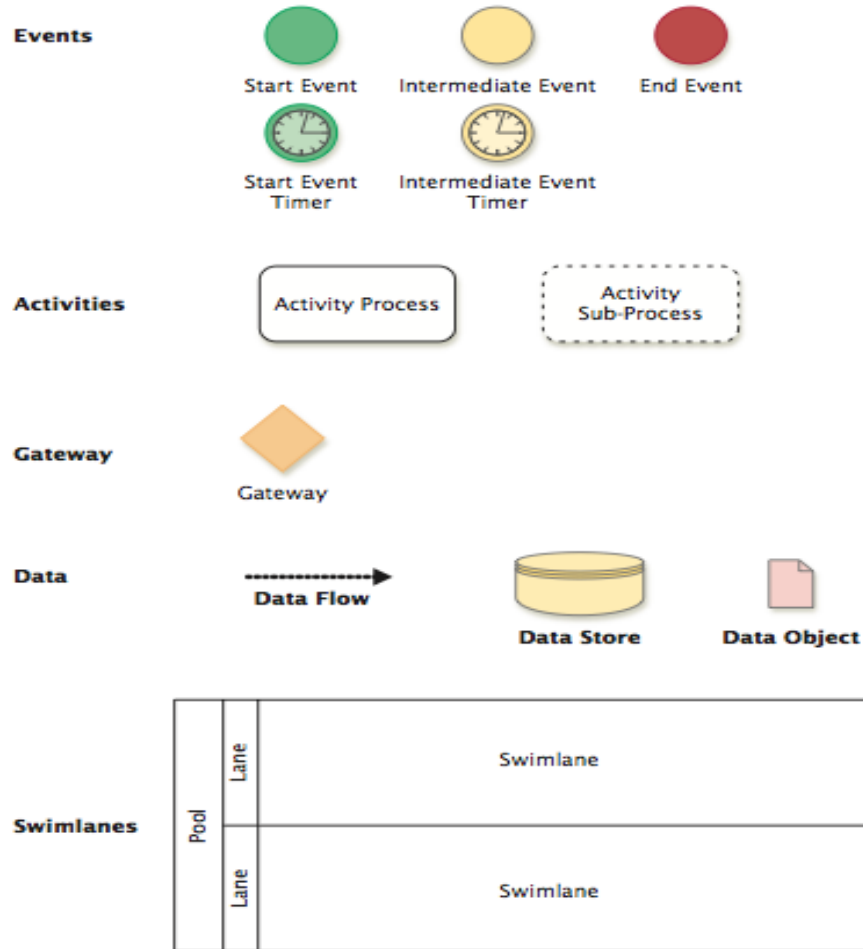
Swim Lane Diagram
for Sales Cycle Processes

Understanding the Accounting Process Model for a Customer/Sales Transaction

- Let's examine the baseline accounting process for a customer/ sales transaction within a company:
    - Company: ExpressoCoffee
    - Customer places and online order
    - ExpressoCoffee processes the order
    - The order shipment is confirmed and sent to ExpressoCoffee's warehouse – which fulfils the order, ships the product and notifies Accounting
    - Accounting generates the invoice and sends to the customer

- How do we design the accounting/sales system to manage this business process?

Customer Module: Process Order BPMN Example

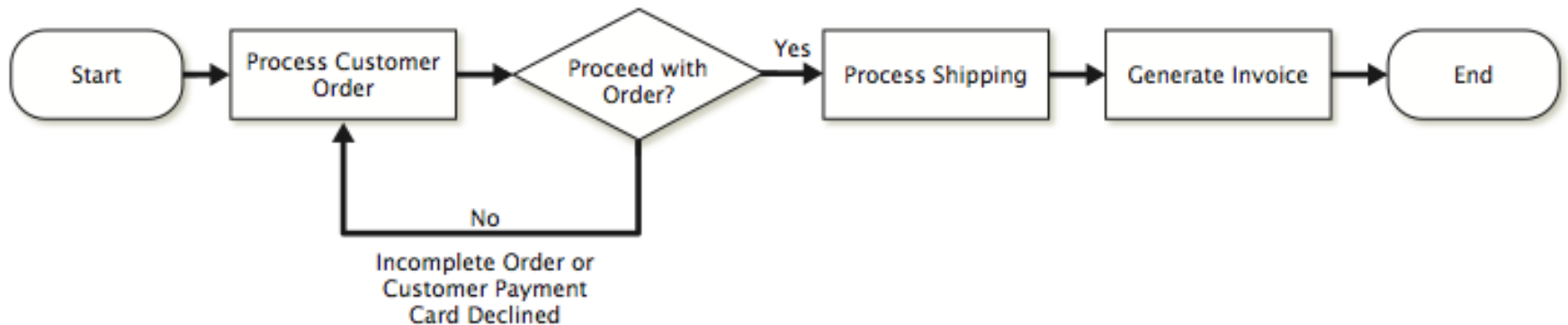Customer Module: Create Invoices BPMN 2.0 DIAGRAM
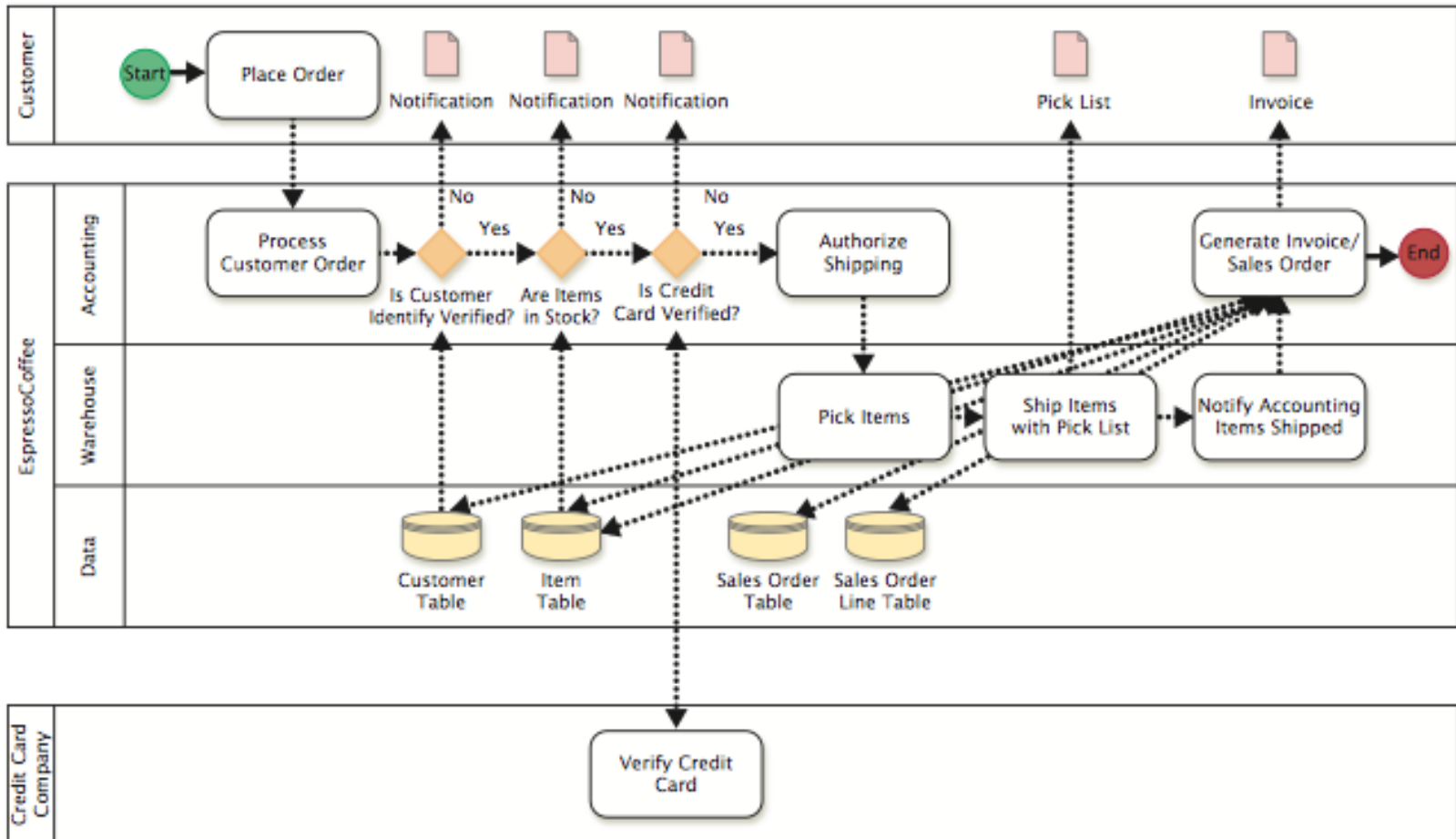
Reading a BPMN:
Who does What, When, Where & How?

1. Review the high-level and detail process maps
    a) Identify the Start Event that triggers the process
    b) Identify the activities
    c) Identify the gateways where decisions on process and data flow occur
    d) Identify data objects
    e) Identify data stores
    f) Trace data flows
    g) Identify the End event

2. Create a Process Map Organizer to organize the activities

3. Write a Narrative for the business activity

4. Annotate the Narrative and cross-reference to the Process Map Organizer

5. Create Database Tables and link to Process Map

Reading a Business Process Map

Step 1. Review the high-level process map

Customer Module: Create Invoices FLOWCHART

Start → Process Customer Order → Proceed with Order? — Yes → Process Shipping → Generate Invoice → End

No → Incomplete Order or Customer Payment Card Declined

Reading a Business Process Map

Step 1. Review the detail process map and identify the key activities, gateways, objects and data stores

Customer Module: Create Invoices BPMN 2.0 DIAGRAM
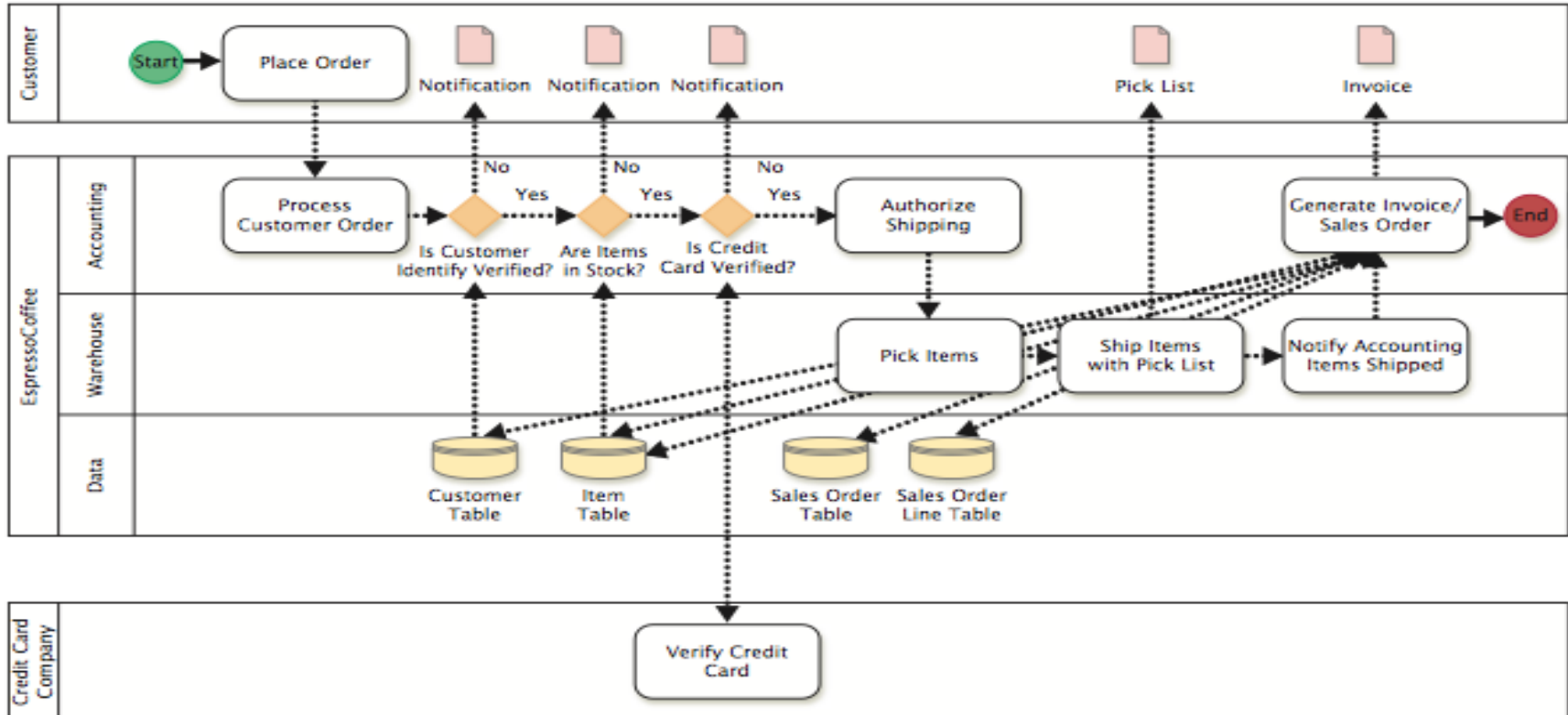
Reading a Business Process Map

Step 2. Create a process map organizer to organize activities

Business Process Map Organizer			
Activity	**Gateway (Decision)**	**Swimlane (BPMN Only)**	**Data Store (BPMN Only)**
Place Order		Customer	
Process Customer Order		Accounting	
	Verify Customer Identity	Accounting	Customer Table
	Verify Items Available	Accounting	Item table
	Verify Credit Standing	Accounting	
Authorize Shipping		Accounting	
Pick Items		Warehouse	Item table
Ship Items with Pick List		Warehouse	
Notify Accounting Items Shipped		Warehouse	
Generate Invoice		Accounting	Customer table Sales Order table Sales Order Line table Item table

Reading a Business Process Map

Step 3. Write narrative for business activity

Example: EspressoCoffee customers place an online order. EspressoCoffee processes the customer order by verifying the customer identity, verifying the items are available, and sending a request to the credit card company to verify the customer's good credit standing. The shipment authorization is sent to the warehouse. The warehouse picks the items from stock. The items are shipped to the customer with a pick list enclosed. The warehouse notifies accounting that the items have shipped. Accounting generates an invoice from the sales information and emails the invoice to the customer. The corresponding database tables are updated.

Reading a Business Process Map

Step 4. Annotate the narrative

Example: EspressoCoffee customers place an online order. EspressoCoffee processes the customer order by verifying the customer identity, verifying the items are available, and sending a request to the credit card company to verify the customer's good credit standing. The shipment authorization is sent to the warehouse. The warehouse picks the items from stock. The items are shipped to the customer with a pick list enclosed. The warehouse notifies accounting that the items have shipped. Accounting generates an invoice from the sales information and emails the invoice to the customer. The corresponding database tables are updated.
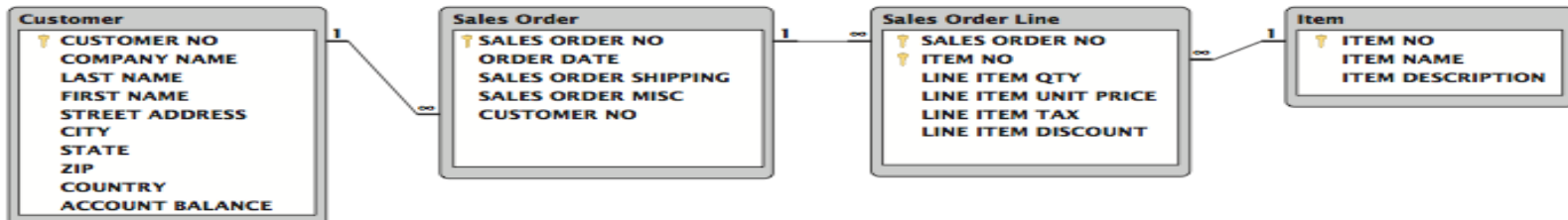
Building a Business Process Map

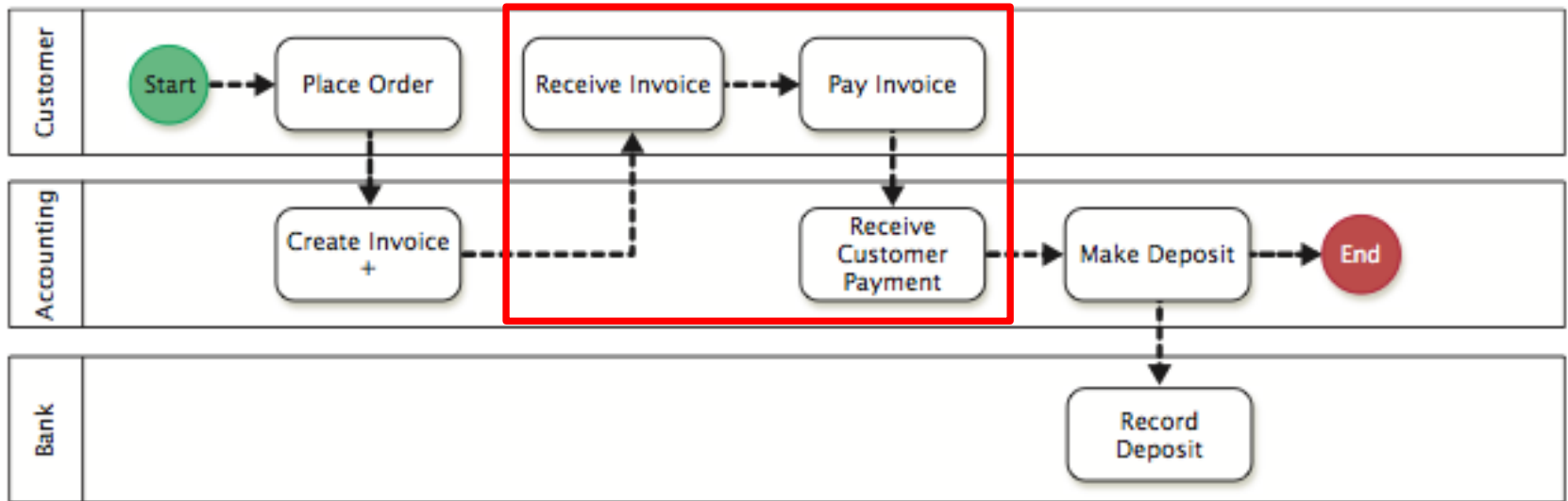Step 5. Create database tables and link to business process map

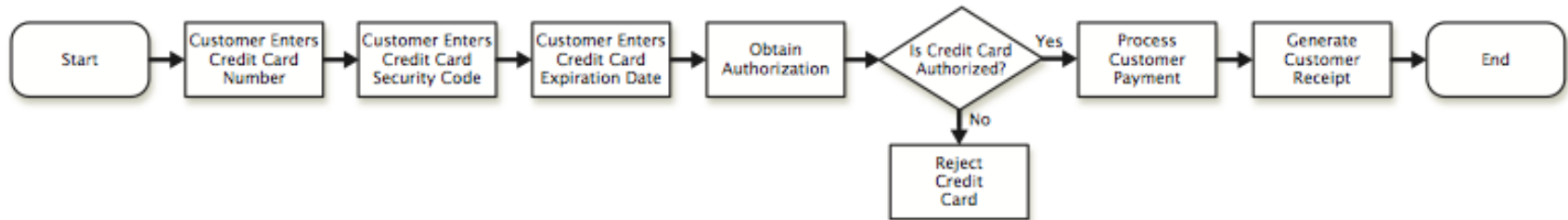**Customer Module: Create Invoices BPMN 2.0 DIAGRAM**
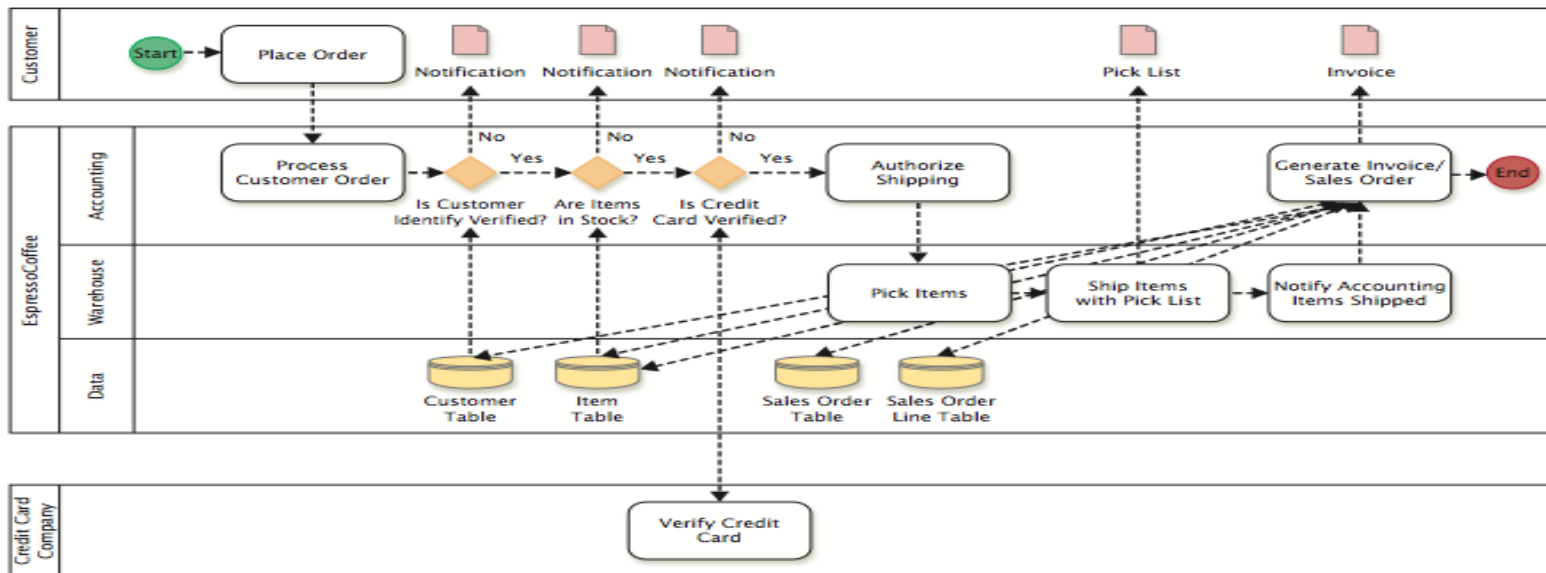
Database Tables

Swim Lane Diagram
for Sales Cycle Processes

Customer Module: Receive Customer Payments Flowchart Example

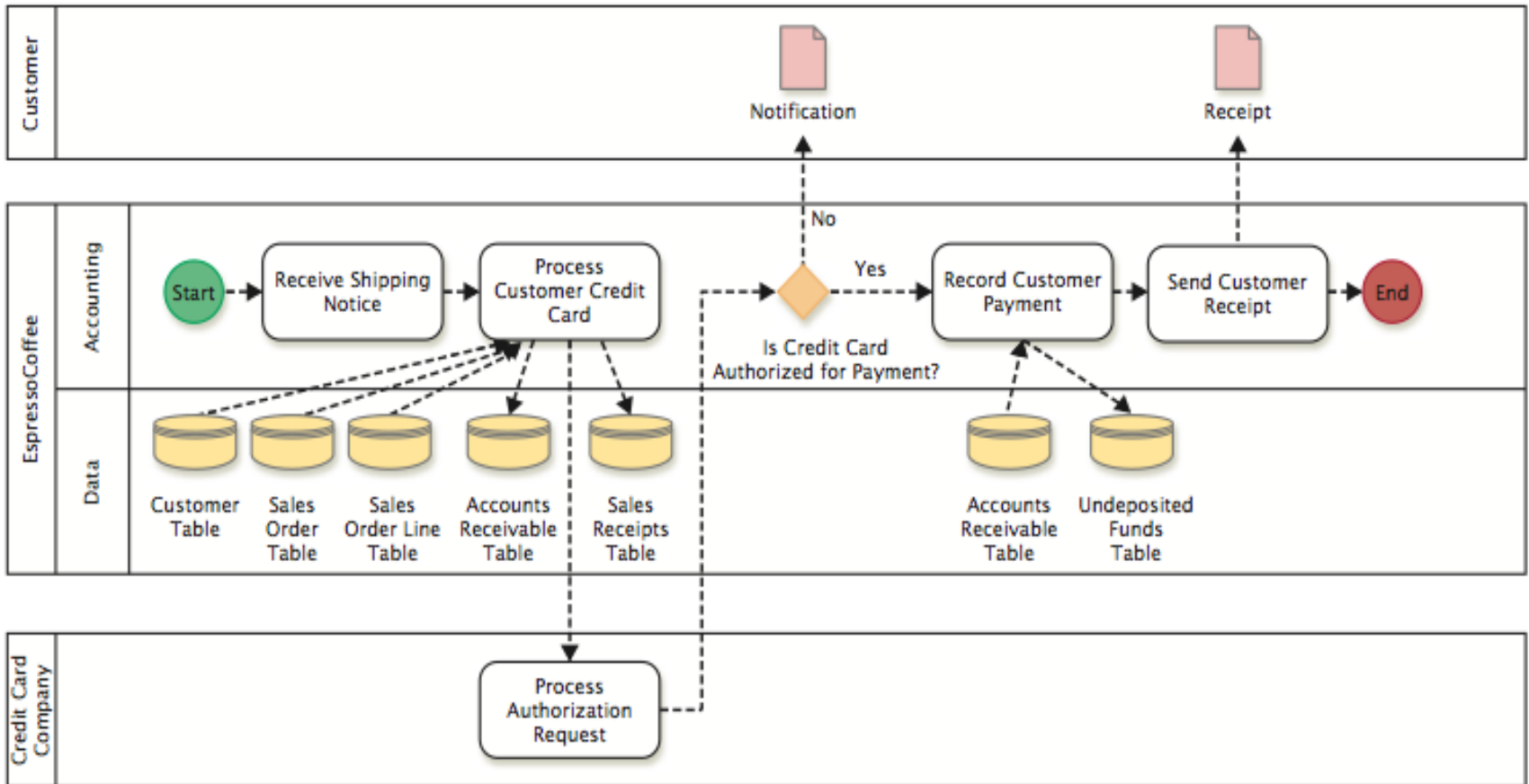**Customer Module: Receive Customer Payments FLOWCHART**

1. Create a process map organizer to organize activities

2. Write narrative for business activity and annotate

Customer Module: Receive Customer Payments BPMN Example

Customer Module: Receive Customer Payments BPMN 2.0 DIAGRAM

Customer Module: Receive Customer Payments BPMN Example

Business Process Map Organizer			
Activity	Gateway (Decision)	Swimlane	Data Store

Customer Module: Receive Customer Payments BPMN Example

ExpressoCoffee (Accounting) receives shipping notice.

Customer Module: Receive Customer Payments BPMN (Answer Key)

Business Process Map Organizer			
Activity	Gateway (Decision)	Swimlane	Data Store
Receive Shipping Notice		Accounting	
Process Customer Credit Card		Accounting	Customer Table Sales Order Table Sales Order Line Table Accounts Receivable Table Sales Receipt Table
Process Authorization Request		Credit Card Company	
	Is Credit Card Authorized? (No)	Accounting Customer	Notification – Credit not approved
Record Customer Payment		Accounting	Accounts Receivable Table Undeposited Funds Table
Send Customer Receipt		Accounting	Receipt to customer

Customer Module: Receive Customer Payments BPMN (Answer Key)

Answer: ExpressoCoffee (Accounting) receives shipping notice. ExpressoCoffee (Accounting) processes customer credit card by verifying the customer account (identity), verifying the sales order and line items, updating accounts receivable (debit) and sales receipts (credit). The customer enters credit card security code and expiration date. ExpressoCoffee (Accounting) sends a request to the credit card company to verify the customer's good credit standing. The credit card company verifies the customer's credit card security code and expiration date and customer's credit standing. A notification issued to ExpressoCoffee validating the customer's credit. ExpressoCoffee (Accounting) processes payment by updating accounts receivable (credit) and undeposited funds (debit). ExpressoCoffee (Accounting) issues a receipt to the customer.

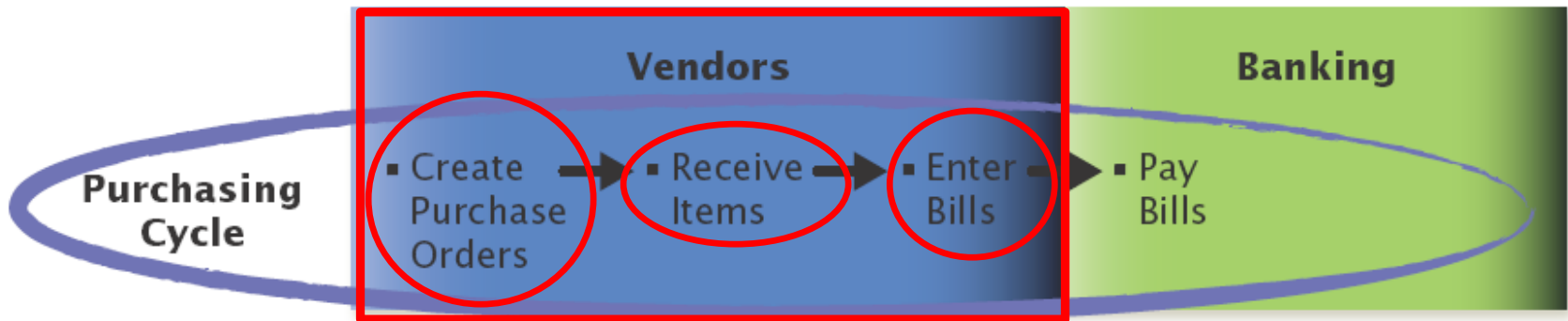# Baseline Accounting Transaction: Expenditure (Purchasing) Cycle
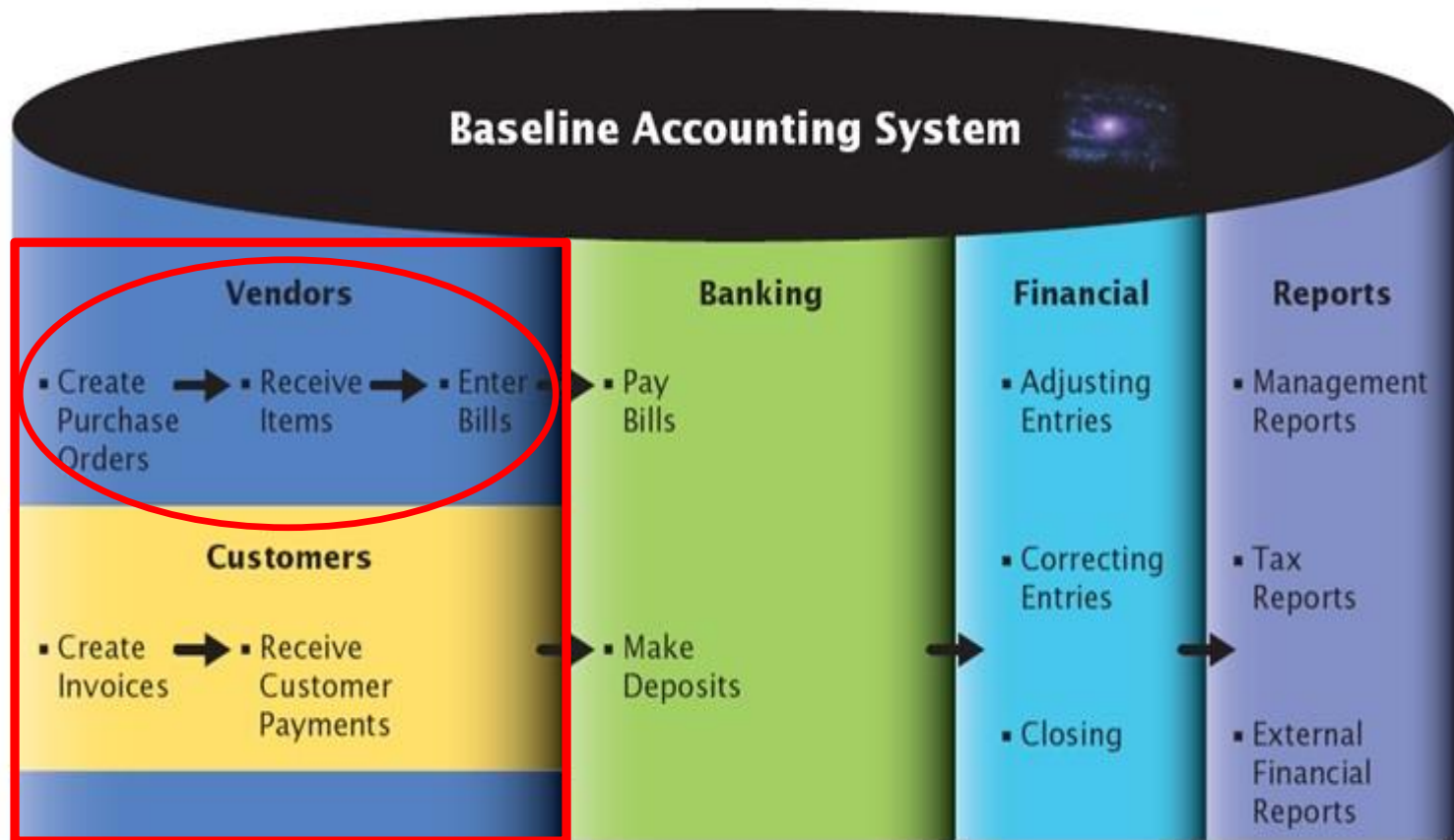
Accounting Transaction Cycles

Expenditure (Purchasing) Cycle

Source Document	Function
Purchase requisition	Request items.
Purchase order	Order items.
Receiving report	Receive items.
Check	Pay for items.

How Do I Customize the Purchasing Cycle?

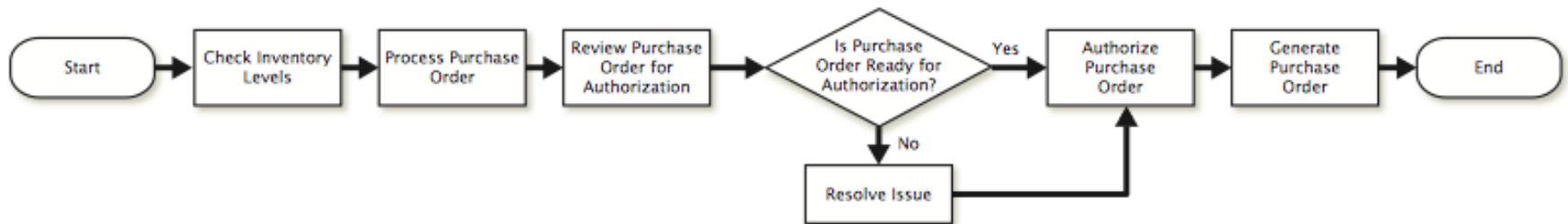- Create purchase orders
- Receive items
- Enter bills
- Pay bills

Understanding the Accounting Process Model for a Purchase Order Transaction

‣ Examine the baseline accounting process for a purchase order transaction within a company:

- ‣ Company: ExpressoCoffee
- ‣ ExpressoCoffee creates a purchase order for the supplier
- ‣ The order shipment is confirmed and sent to ExpressoCoffee's warehouse – which receives the order into inventory
- ‣ The warehouse generates a receiving report and updates Accounting
- ‣ Accounting receives the bill from the supplier and matches to the receiving report – processes bill

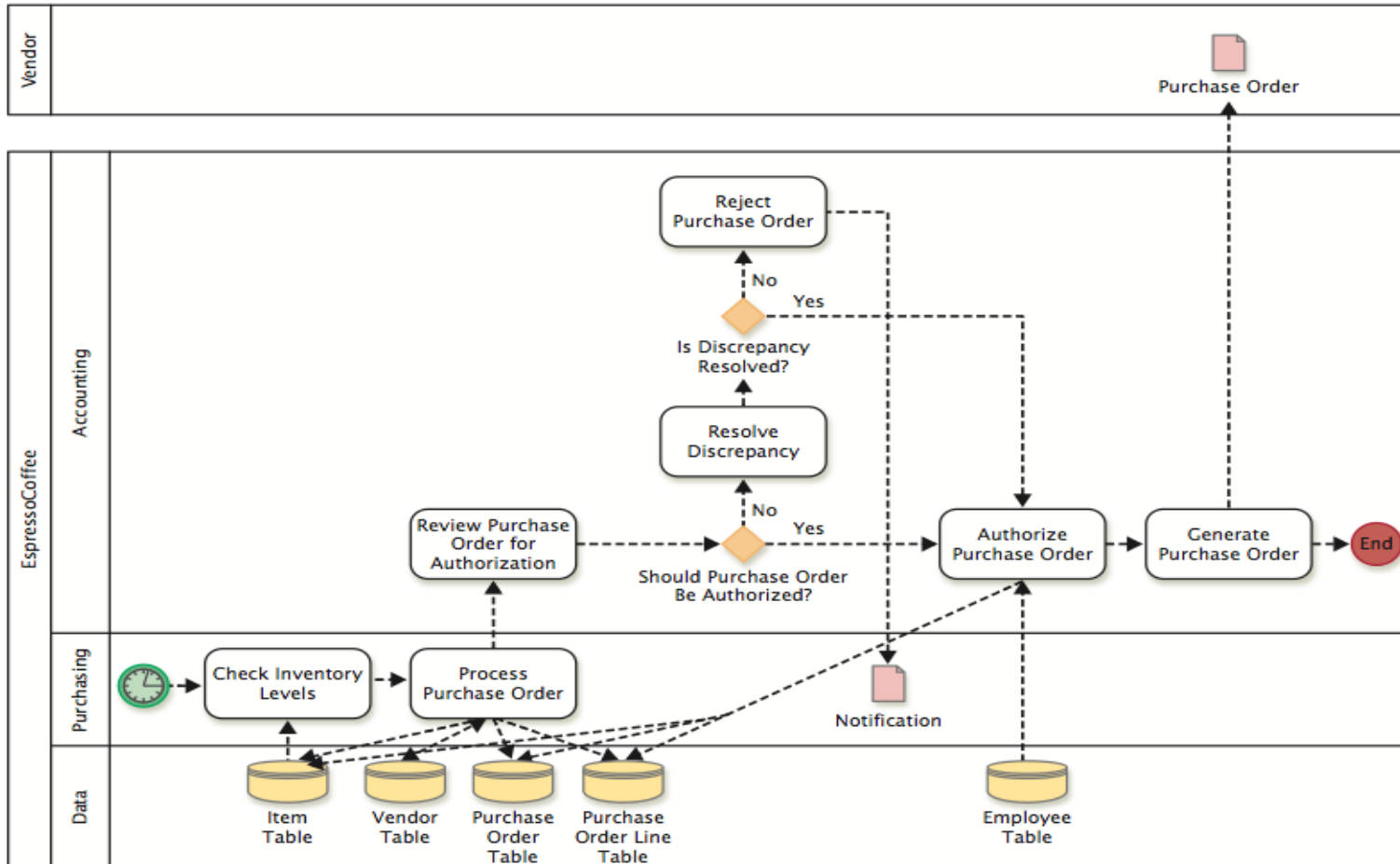‣ How do we design the accounting/purchasing system to manage this business process?

EspressoCoffee: Create Purchase Orders

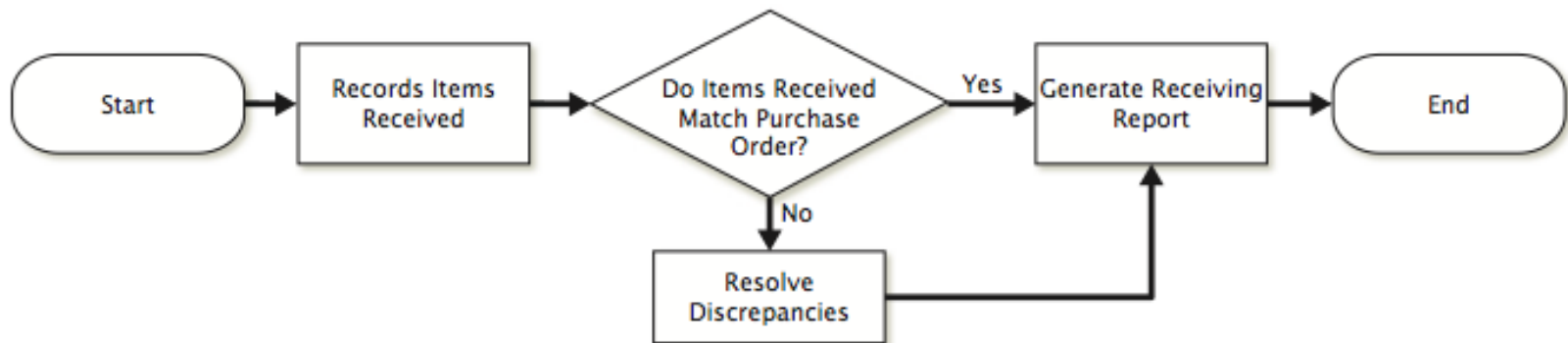Vendor Module: Create Purchase Orders FLOWCHART

Start → Check Inventory Levels → Process Purchase Order → Review Purchase Order for Authorization → Is Purchase Order Ready for Authorization? — Yes → Authorize Purchase Order → Generate Purchase Order → End

Is Purchase Order Ready for Authorization? — No → Resolve Issue → Authorize Purchase Order

EspressoCoffee: Create Purchase Orders BPMN

EspressoCoffee: Receive Items

Vendor Module: Receive Items FLOWCHART

Start → Records Items Received → Do Items Received Match Purchase Order? → Yes → Generate Receiving Report → End

No → Resolve Discrepancies → Generate Receiving Report

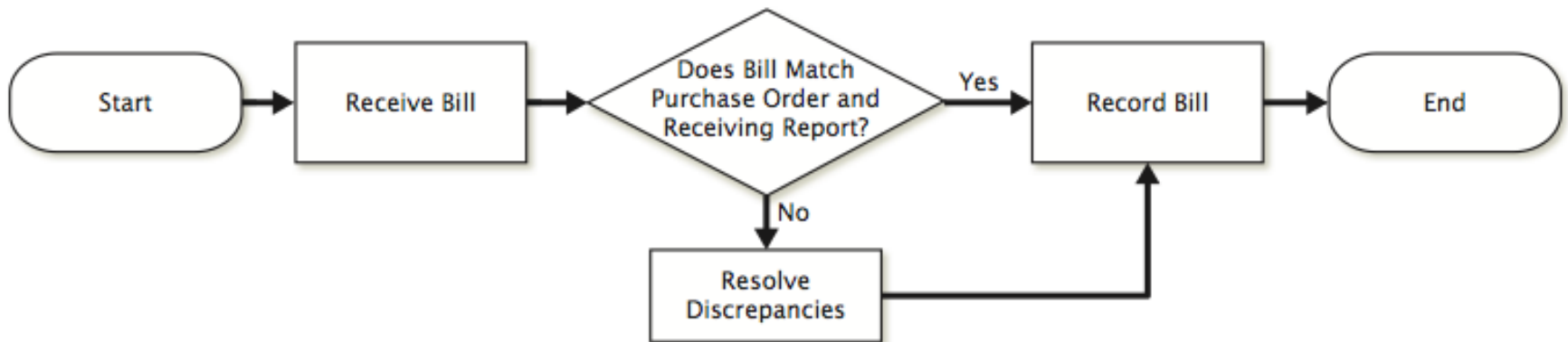# EspressoCoffee: Receive Items

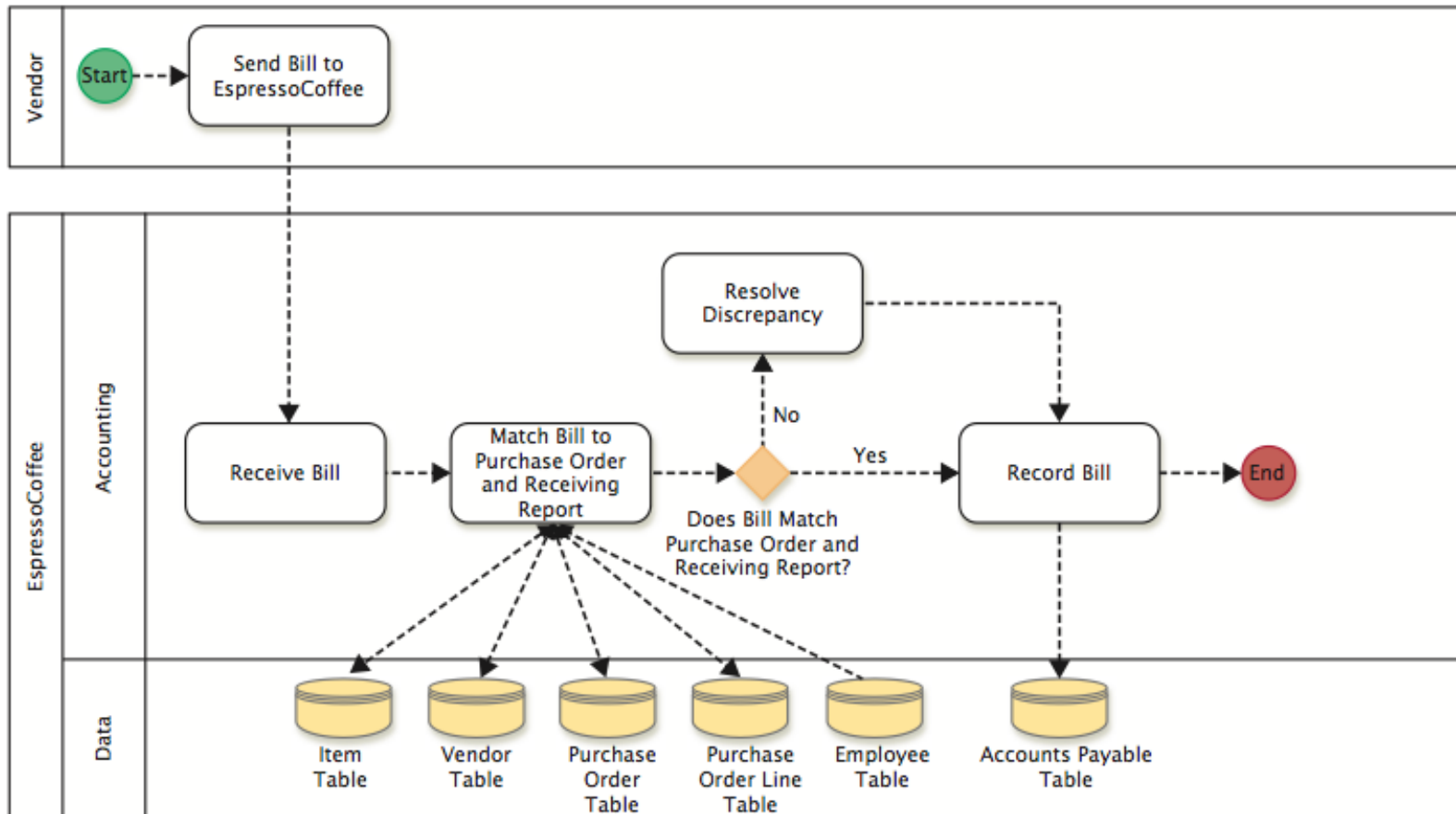**Vendor Module: Receive Items BPMN 2.0 DIAGRAM**

EspressoCoffee: Process Bill

Vendor Module: Enter Bills FLOWCHART

EspressoCoffee: Process Bill

Vendor Module: Enter Bills BPMN 2.0 DIAGRAM

BPMN Map Organizer Template

Business Process Map Organizer			
Activity	Gateway (Decision)	Swimlane	Data Store

Business Process Modeling Notation (BPMN) Template

Answer: