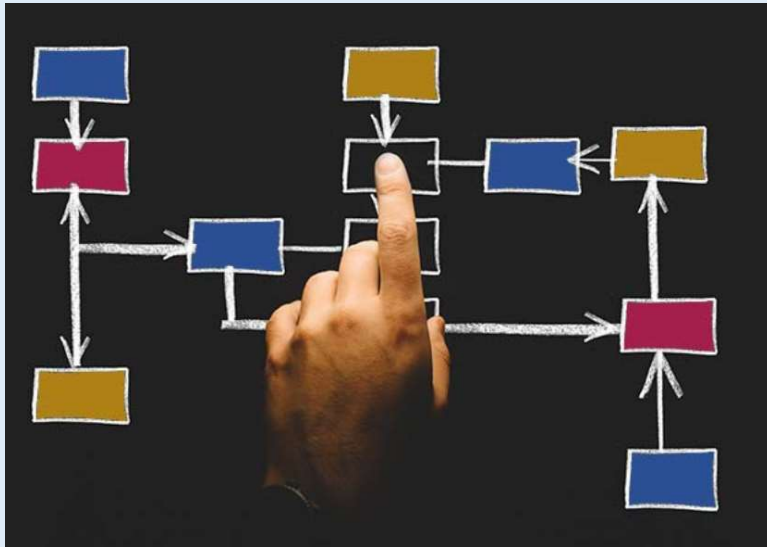# FIT5101   Enterprise Systems

Lecture 08

❖ Process Integration
❖ Process Modelling
❖ Process Improvement
❖ Workflow tools

Lecturer: Stephen Paull
stephen.paull@monash.edu

Unit Topics (Subject to change)

| Week	Date (W/C)	Lecture	Tutorial		Assessment
1	1/3	Introduction	Introduction		
2	8/3	Business Functions & Processes	Business Functions		
3	15/3	ERP Structures	SAP Introduction		Ass 1 Rel
4	22/3	Materials Management & Procurement	Materials Management	**S A P**	
5	29/3	Sales & Distribution	Procurement		
	5/4	BREAK		**W O R K S H O P S**	
6	12/4	Production Planning	Sales & Distribution		Ass 1 Due 16/4
7	19/4	Financials	Production Planning		
8	26/4	Process Integration & Modelling	Financials		
9	3/5	ERP Implementation	Process Modelling		Ass 2 Due 7/5
10	10/5	Current Technologies	Work on Assignment		
11	17/5	Future Trends	Sample eExam / Review		
12	24/5	Review	??		Ass 3 Due 28/5

Business Process Integration

Business integration is the technique companies use to align the use of their technology assets with their business to meet a shared goal or outcome. The unification of technology and business goals allows companies to operate smoothly as they move forward and adapt.

ERP systems are specifically designed to combine business technology tools and functions together so they can easily be accessed through a single system. This allows for easy access to information and provides companies with the flexibility and freedom to grow.
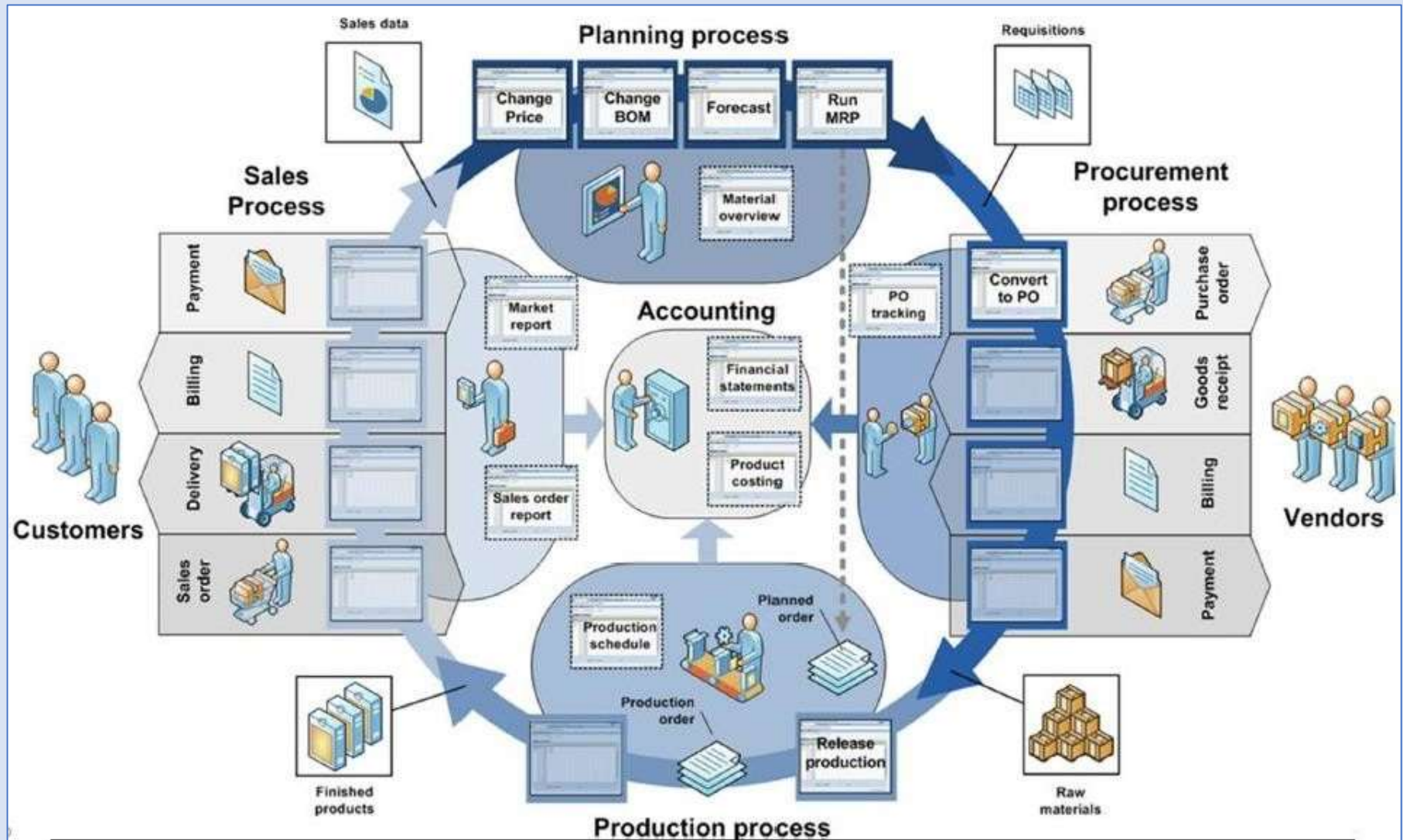
Business Process Integration in ERP
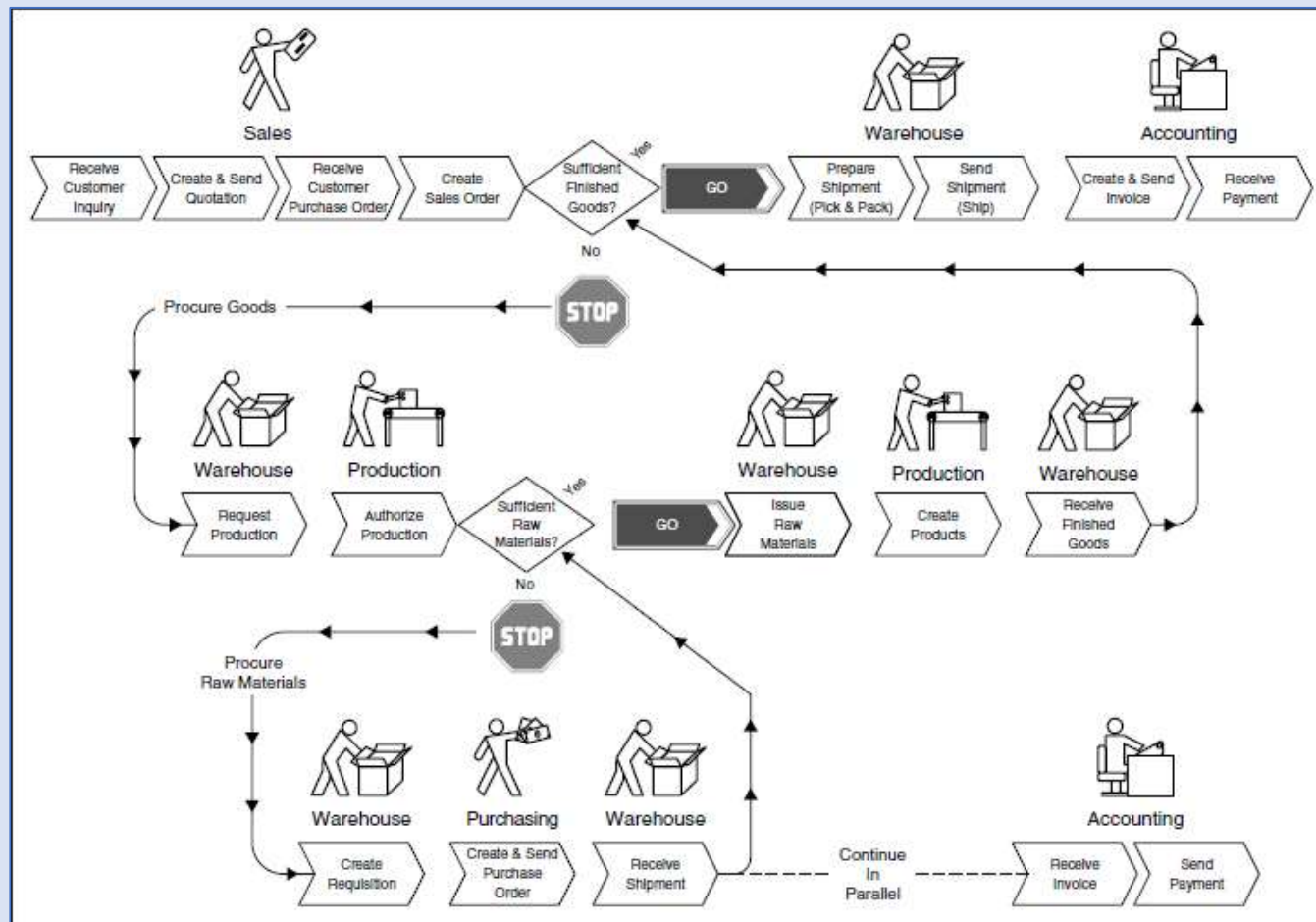
The integration of procurement, fulfillment & production. Note the decision points where there is a branch to another process.

Business Processes Integration in ERP

The Benefits of ERP Integration

Integrating your ERP essentially means

Increased Transparency and Information Sharing: when other departments have immediate access to information, documents, or files that they need, it increases response time and boosts office efficiency.

Data Accuracy: with software that accurately stores all information in an easily accessible place, ERP integration eradicates errors and time-consuming manual processes.

Real-Time Data Access: Rather than gaining access to critical data tomorrow, next week, or even next month, you can view everything in one place when you need it.
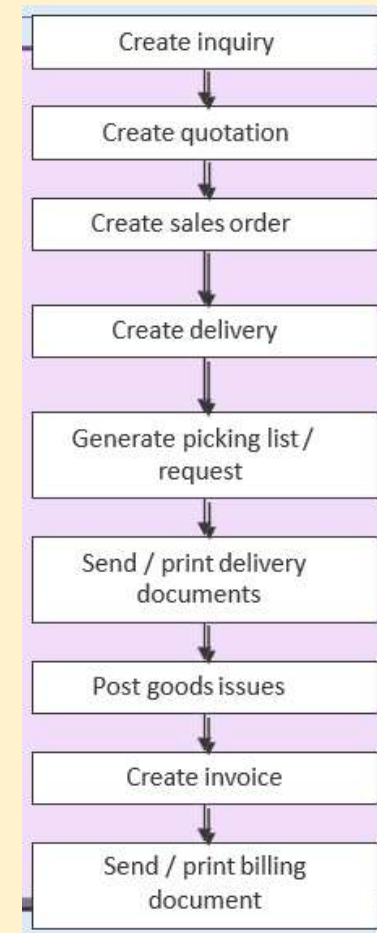
Automation: by integrating your ERP with the rest of your business platforms you can eliminate the need for redundant and manual data entry.

Business Process

 A business process describes a sequence of activities or tasks for the creation creation of goods and services, affecting the success of the company and is driven by a transaction.

 Each process consists of a sequence of steps.

 A business step usually corresponds to a program or to a transaction, however a business step may be "completed" by different programs or transactions.

In a company there are several individual processes that are typically interdependent

This is what drives ERP systems

Create inquiry

Create quotation

Create sales order

Create delivery

Generate picking list / request

Send / print delivery documents

Post goods issues

Create invoice

Send / print billing document

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Business Process Modelling - Introduction

- Business processes can be quite complex.

- For business processes to be effective and efficient they must be clearly defined.

- A *process model* is an abstract representation of a process. It can be as simple as a diagram with boxes and arrows or as complex as computer software that allows for process simulations.

- The development of a process model often reveals errors or deficiencies and ensures that all stakeholders have a common understanding.

- A well developed process model provides a good starting point for analysing a process so participants can design and implement improvements.

- Process models can be used to train employees who will support the business process.

Benefits of BPM

- ✓ Formalisaton of current processes
- ✓ Allows for re engineering
- ✓ Improved process performance
- ✓ Provides the base for Strategic initiatives
- ✓ Greater efficiency
- ✓ Increased productivity
- ✓ Decreased head count??!!
- ✓ Traceability of compliance processes
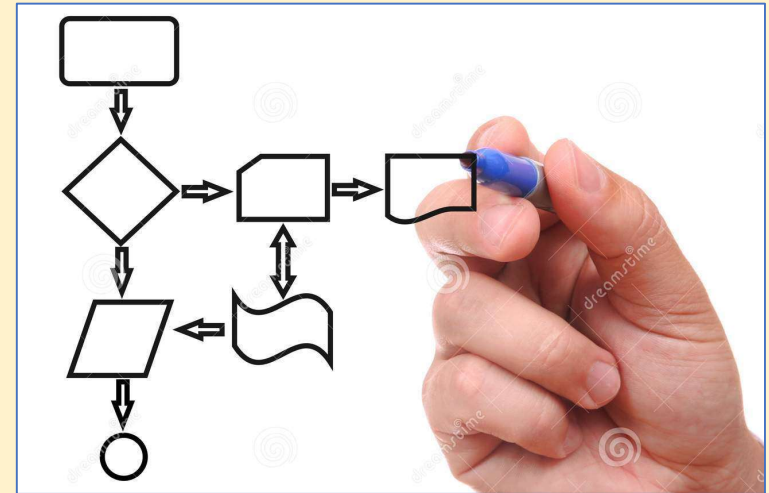
Business Process Re-engineering

 Business process reengineering (BPR) is the analysis and redesign of processes within and between enterprises in order to optimize these end-to-end processes and automate non-value-added tasks.

 Popularized by Michael Hammer, Tom Davenport, and others: 1988-1995.

 Michael Hammer, founder of the term itself, BPR is… "*the fundamental rethinking and radical redesign of business processes to achieve dramatic improvements in critical, contemporary measures of performance, such as cost, quality, service and speed.*"

Business Process Reengineering – Definition
https://youtu.be/Wi-BmxkA7YU

Case Study - BPR at Ford Motor Company

Ford Motor Company reengineered its procurement and purchasing process

- – purchasing
- – receiving goods
- – accounts payable activities

https://youtu.be/H4lBmf5rKss
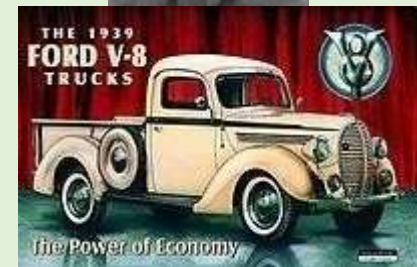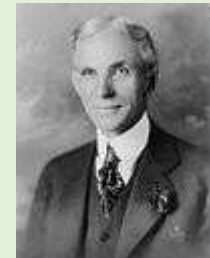
SUMMARY: Ford Accounts Payable example

- …. to save money, Ford had to shift from functional thinking, i.e., improving the efficiency of the Accounts Payable dept., to process thinking.

- "Reengineering is the radical redesign of business processes for dramatic improvement." (Hammer, 1996)

- radical: 500 staff dropped to 130

- process: cross-functional

- computer technology: enable integration

Another case: Hewlett-Packard (HP)

Spent $50m to $100m each year on raw material purchases

Reason:

  Decentralised system

Problem:

  Could not take advantage of high-volume discounts available from suppliers

  Did not know who the main suppliers were – used a variety of suppliers

Outcome:

- Re-engineer the system

- one corporate procurement database centrally located

- each division decides their purchasing requirements and sends this to the corporate centre

- the company saved millions of dollars each year

Process Improvement

 Hammer et al. argued that many things were done in organizations because *"that was the way they had always been done", not because they added value.*

 Value analysis

- Each activity in the process is analyzed for the value it adds to the product or service
- **Value added** is determined from the perspective of the customer
- *Real value*: value for which the customer is willing to pay
- *Business value*: value that helps the company run its business
- *No value*: an activity that should be eliminated

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Evaluating Process Improvement

 Disrupting the current process to make changes can be costly and time consuming.

 Dynamic process modeling takes a basic process flowchart and puts it into motion

- – Uses computer simulation techniques to facilitate the evaluation of proposed process changes

 Computer simulation

- – Uses repeated generation of random variables that interact with a logical model of the process
- – Predict performance of the actual system

Current modelling techniques

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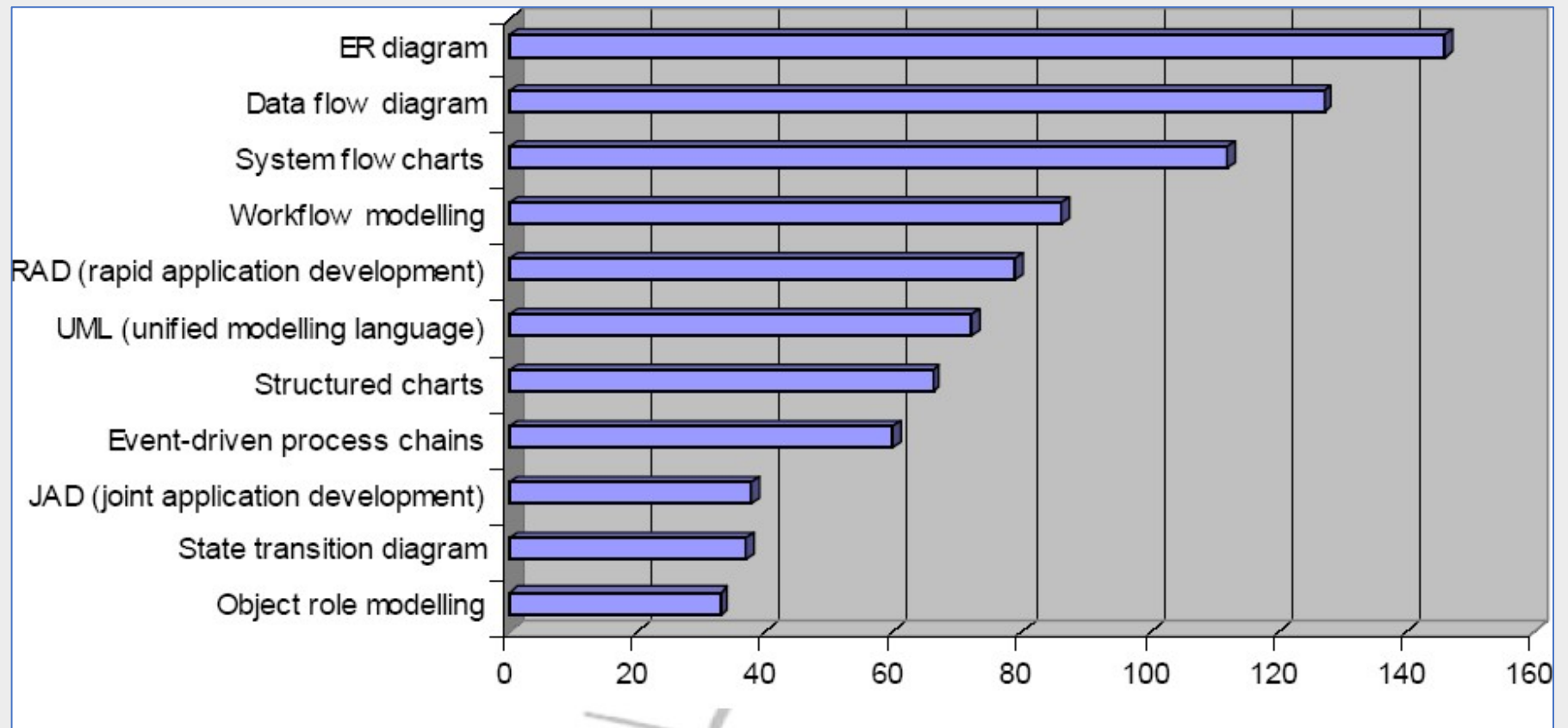
Tools for Process Modelling

- Flowcharts
- Process maps
- Hierarchical models
- Swimlane flowcharts
- Event process chains

Process Mapping: Flowcharting Process Models

Flowchart

- Any graphical representation of the movement or flow of concrete or abstract items
- Clear, graphical representation of a process from beginning to end
- Uses a standardized set of symbols

Process mapping

- Often used interchangeably with flowcharting
- Specifically refers to activities occurring within an *existing* business process

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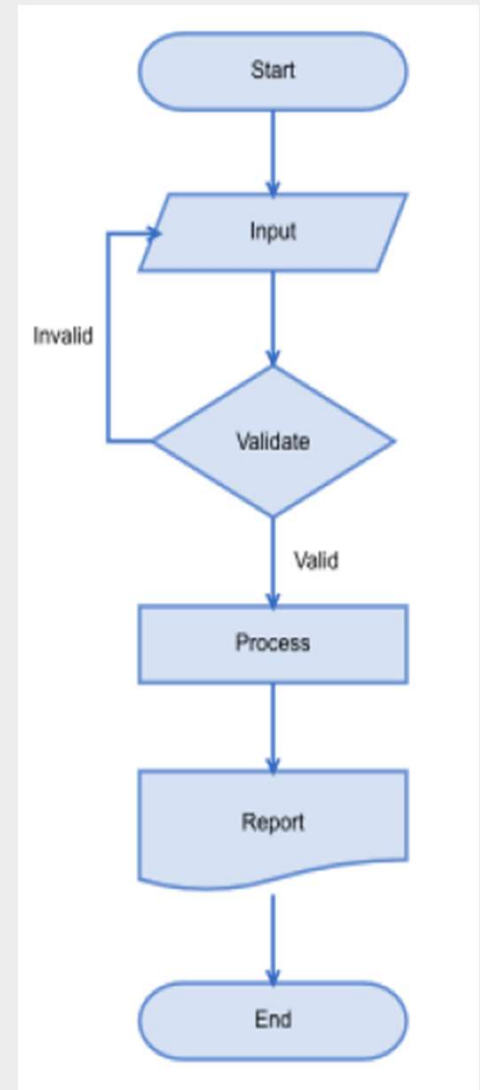
Flowcharting Process Models: Basic flowcharting symbols

Boundaries (beginning/end of process)

Operation

Decision

Direction of logic

Connector
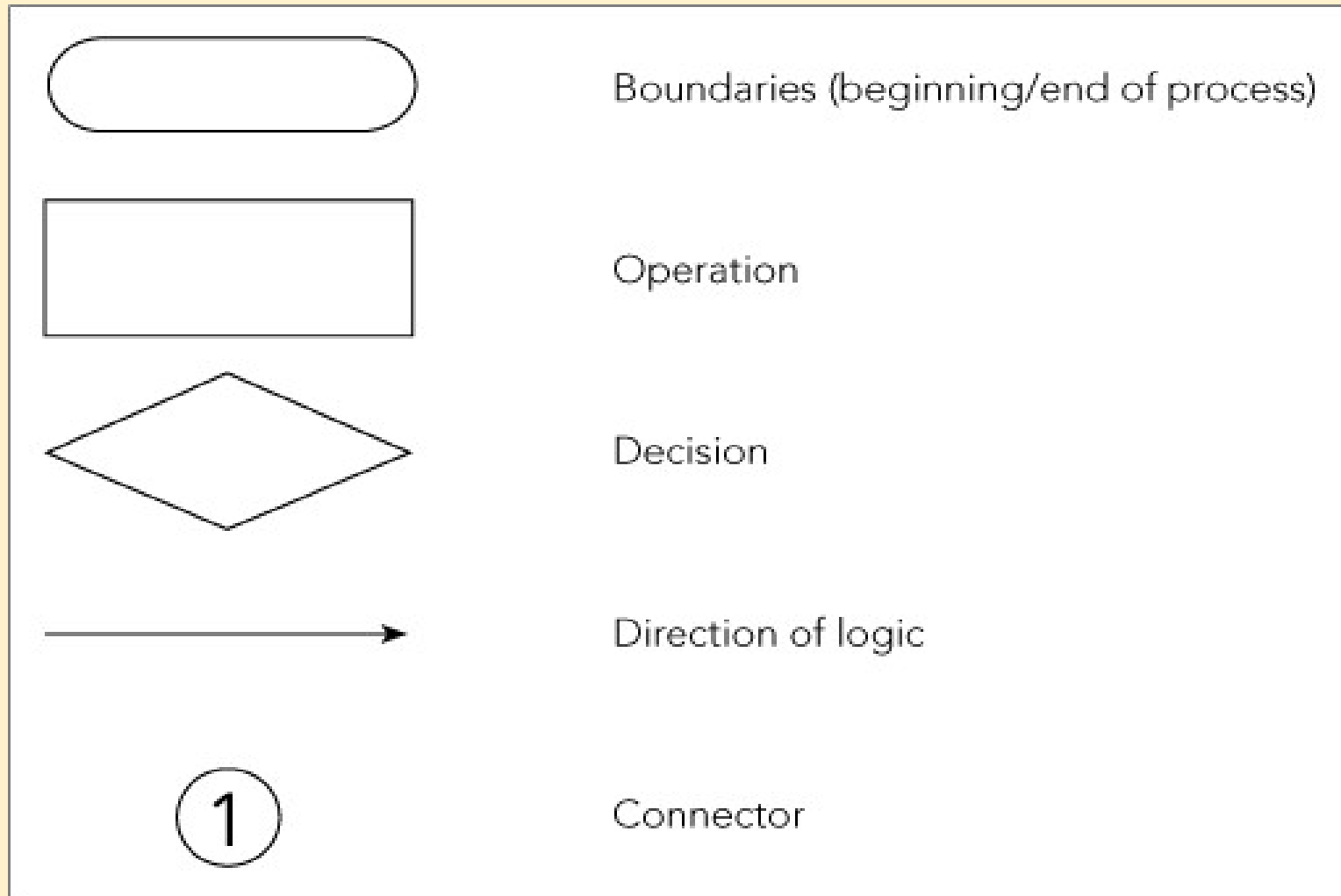
Partial process map for expense-reporting process

Expenses incurred

Employee prepares expense report

Employee copies report and receipts

Employee attaches receipts for all expenses > $25

Employee mails expense report to sales manager

Sales manager reviews report

Expense report approved?

No → Sales manager mails report back to employee → Employee modifies expense report

Yes → Sales manager mails expense report to corporate office

1

Extensions of Process Mapping

Hierarchical Modelling

- A type of process mapping where a business process can be described in greater or less detail.

- Aid in process mapping by allowing a user to create a broad, high-level view of a process and then add more detail as the process is analyzed.

- Provides user the flexibility to move easily from higher-level, less detailed views to the lower-level, more detailed views

Hierarchical modelling
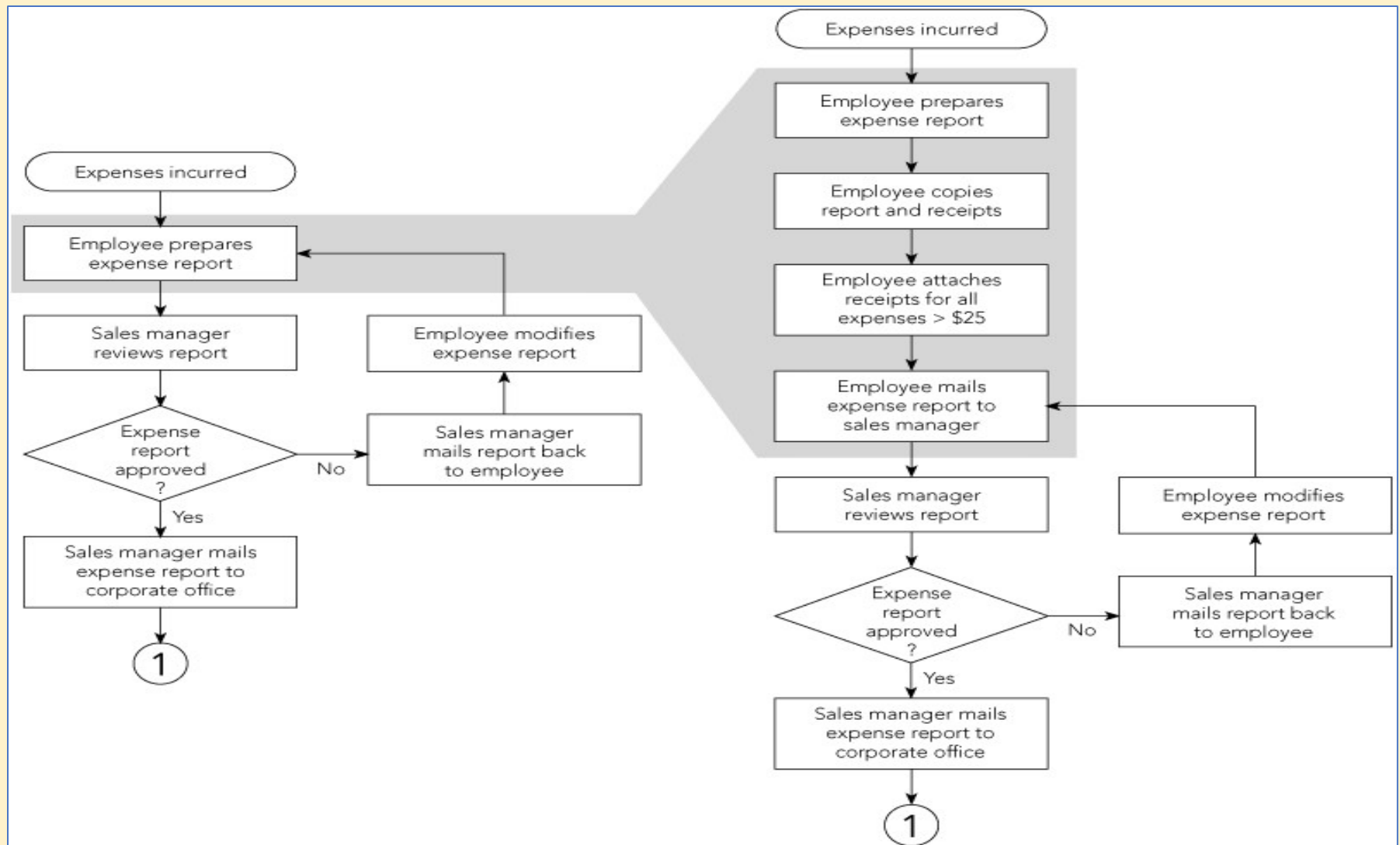
Extensions of Process Mapping

Deployment flowcharting

- Also known as **Swimlane flowchart.**
- Used in process flow diagrams, or flowcharts, that visually distinguishes job sharing and responsibilities for sub-processes of a business process.
- Depicts team members across the top.
- Each step is aligned vertically under the appropriate employee or team.
- Clearly identifies each person's tasks in the process.
- Swimlanes may be arranged either horizontally or vertically.

Deployment flowcharting
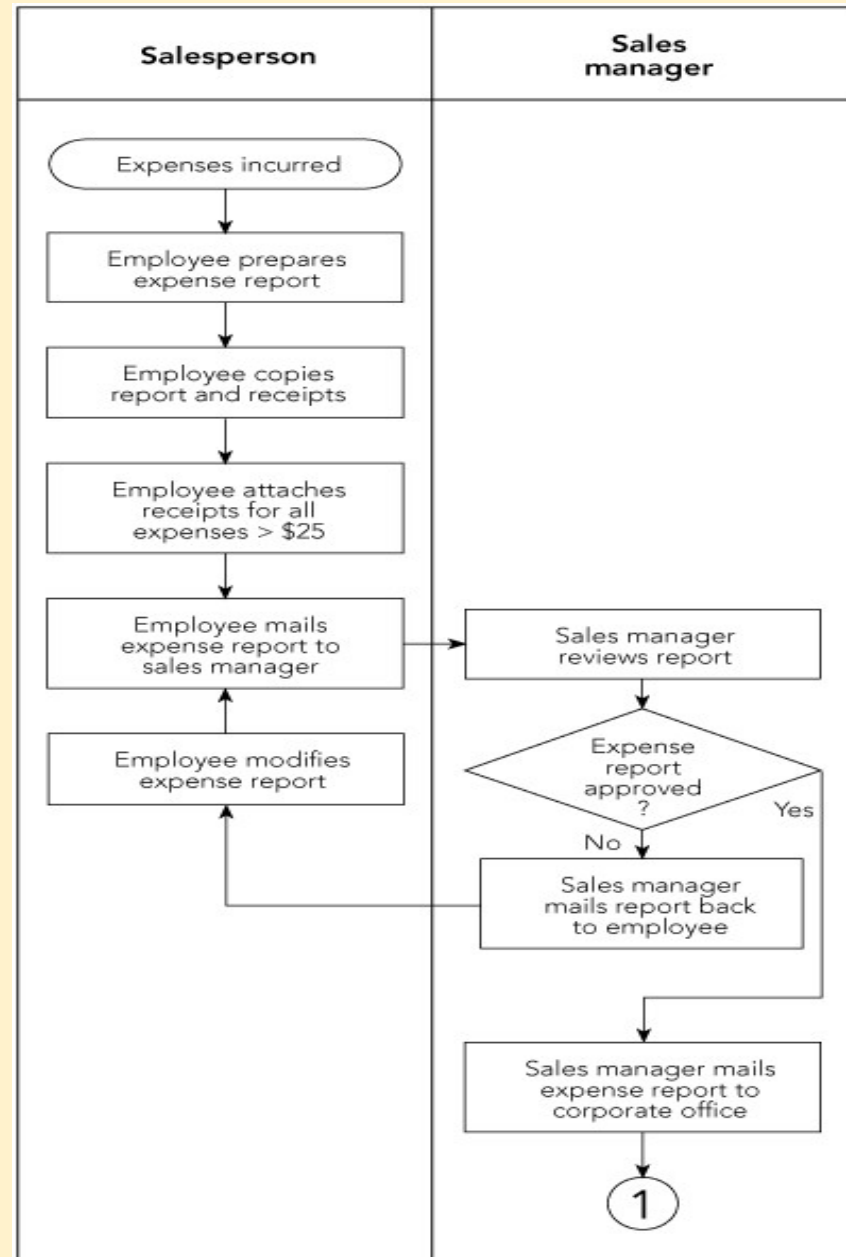
Event Process Chain (EPC) Diagrams

Event process chain (EPC) format

- Uses only two symbols to represent a business process

- Matches the logic and structure of SAP's ERP software design

- Two structures: events and functions

  - *Events*: a state or status in the process
  - *Functions*: part of the process where change occurs
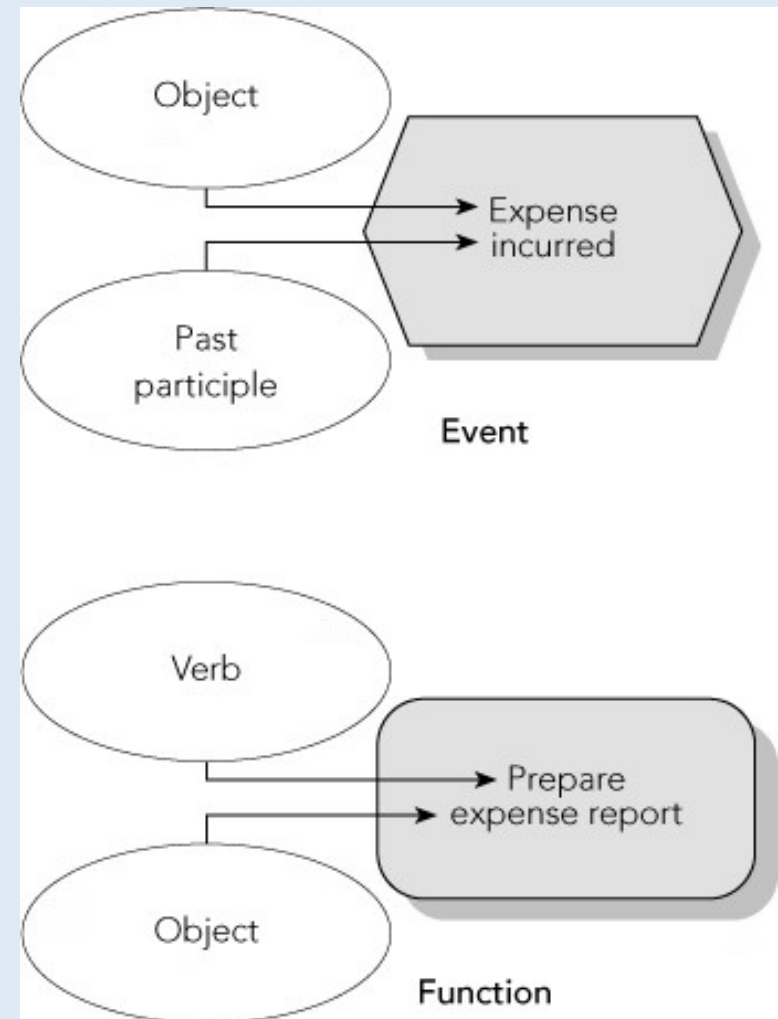
Event Process Chain (EPC) Diagrams

A standardized naming convention for functions and events is used in EPC modelling.

For events : object – past participle   examples:

Object	Past Participle
Expense	incurred
Expense report	approved
Hard copy	filed

For functions : verb – object   examples:

Verb	Object
Prepare	expense report
Review	expense report
Mail	Refund cheque

Event Process Chain (EPC) Diagrams (cont'd.)

EPC software

- Enforces an event-function-event structure.
- Standardized naming convention for functions and events.

Three types of branching connectors

- AND
- OR
- Exclusive OR (XOR)

Basic EPC diagram can be augmented with additional information

- This additional information is called a data element

Basic EPC Layout

Must
always
alternate

Event
 |
Function
 |
Event
 |
Function

etc.
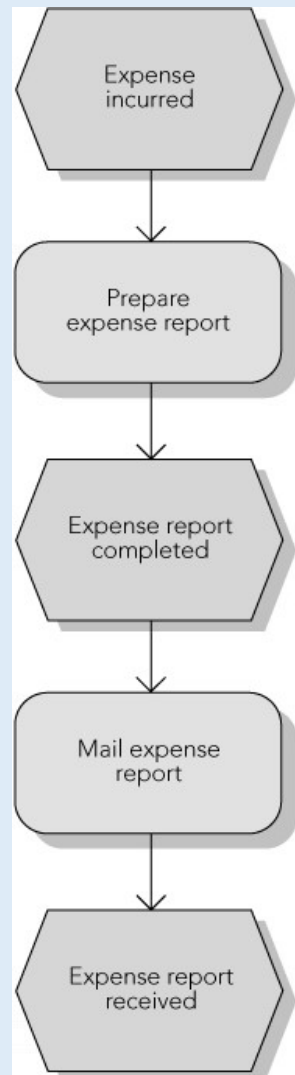
EPC diagram should always begin and end with events.
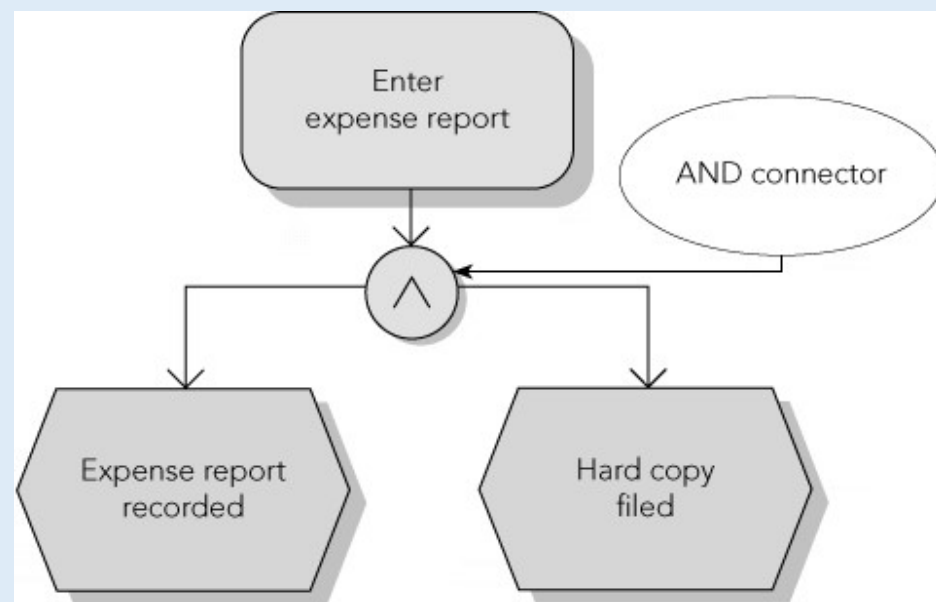
AND connector
Both events occur after the function

Event Process Chain (EPC) Diagrams (cont'd.)
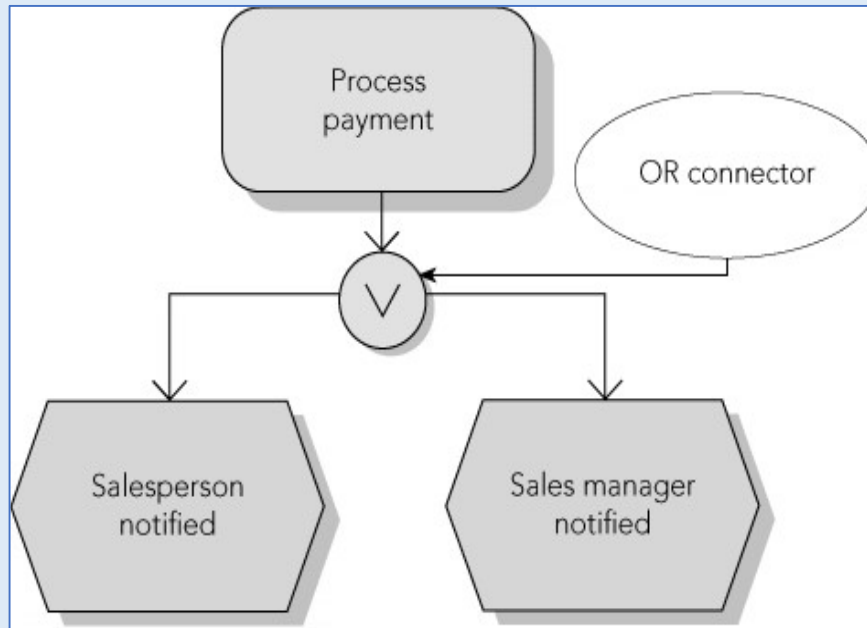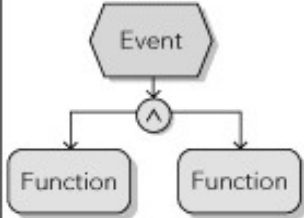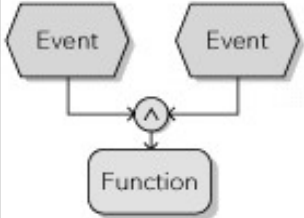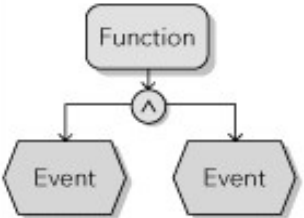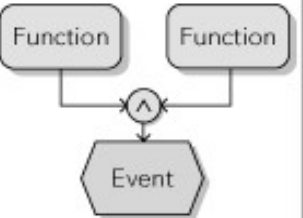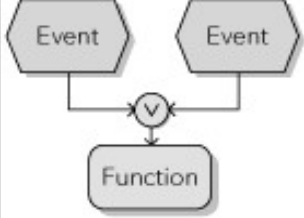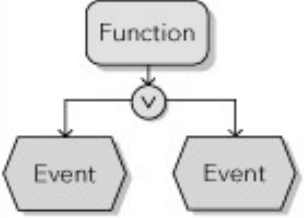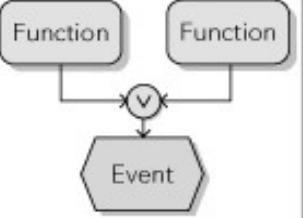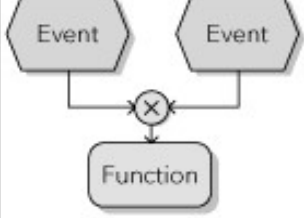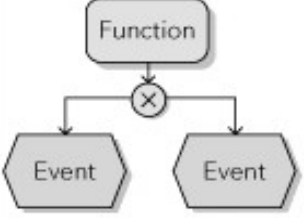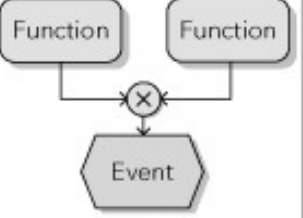
OR connector
One or more events could occur
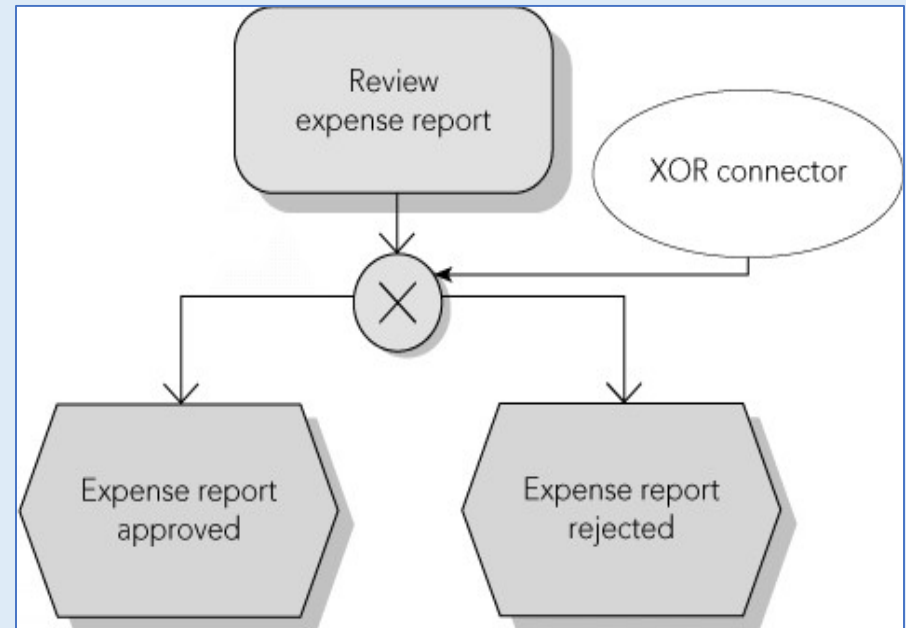
XOR connector
Only one event can occur

Possible connector and triggering combinations

Splitting and consolidating paths

☐ This figure shows the splitting and consolidating of a path through the process.

☐ In this case, the salesperson can submit her expense report online if she has Internet access; otherwise, she must send in a paper report.

☐ Note the same type of connector that is used to split the path must be used to consolidate it.
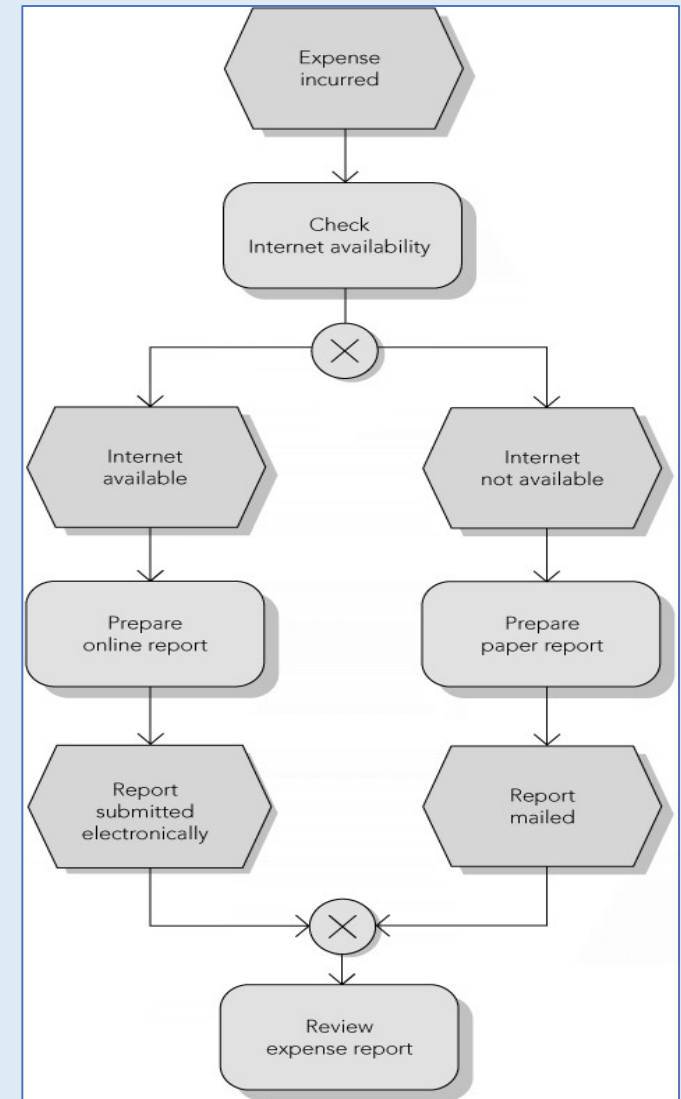
EPC diagram with Organizational and Data elements

 This figure shows an EPC augmented with:

- **data elements** – Unapproved multi-copy expense report and

- **organisational elements** – Salesperson, Sales manager

 This provides a more complete description of the process, documenting the "who" and "what" aspects of the process.
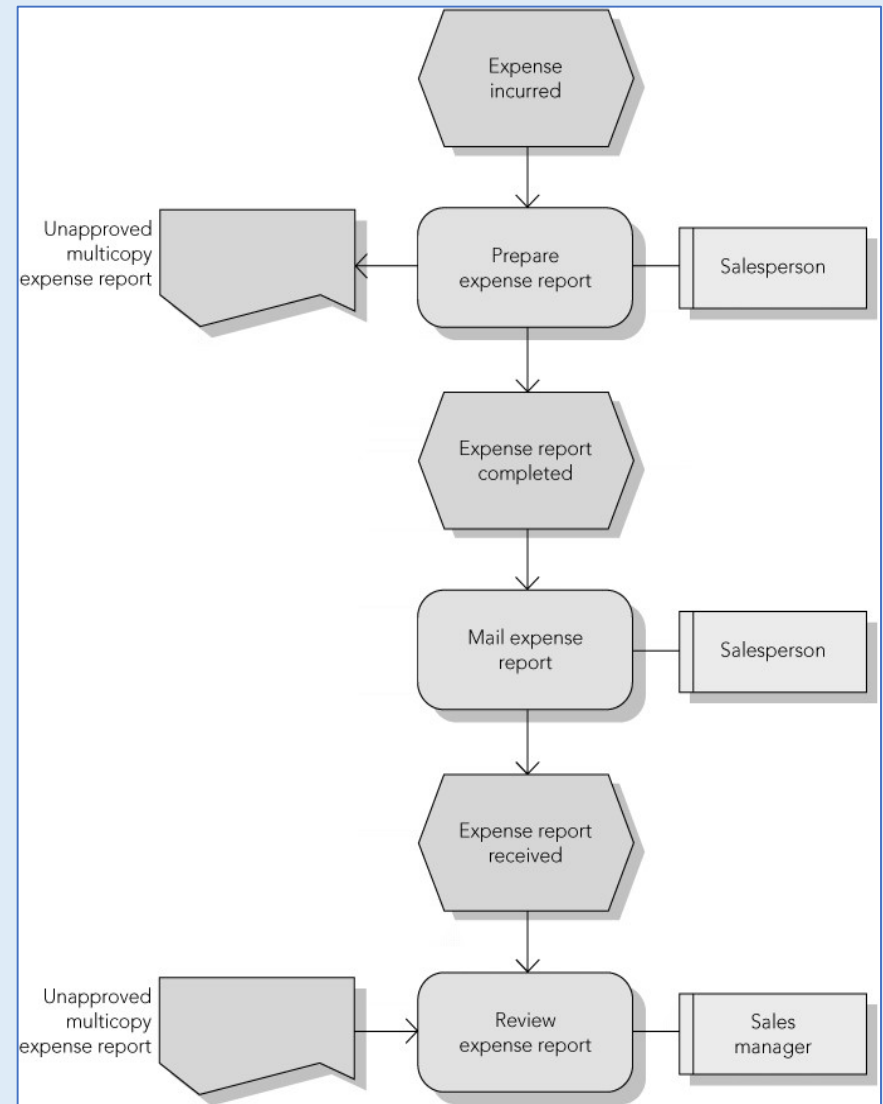
ERP Workflow Tools

Workflow tools

- Software programs that automate the execution of business processes and address all aspects of a process, including:
  - o Process flow (logical steps in the business process)
  - o People involved (the organization)
  - o Effects (the process information)

ERP software provides a workflow management system

- Supports and speeds up business processes
- Enables employees to carry out complex business processes and track the current status of a process at any time.

  Workflow Management video:

  http://www.youtube.com/watch?v=3KJjKY8k9Lk&feature=related

ERP Workflow Tools

Features and Benefits

- Eg: **SAP Business Workflow**
- Links employees to the business transactions that need to be performed
- Employees can track and monitor progress of workflow tasks and take action if tasks seem to be falling behind schedule
- Proactively connects employees with business transactions using SAP's internal email system and workflow tasks
- Workflow system can automatically take various actions like:
  o Changing the workflow task priority
  o Sending email reminders to the employees responsible for the work
- For sporadic processes, workflow tools are a powerful way to improve process efficiency and effectiveness

SAP ERP Workflow Builder screen

SAP ERP Workflow Builder screen

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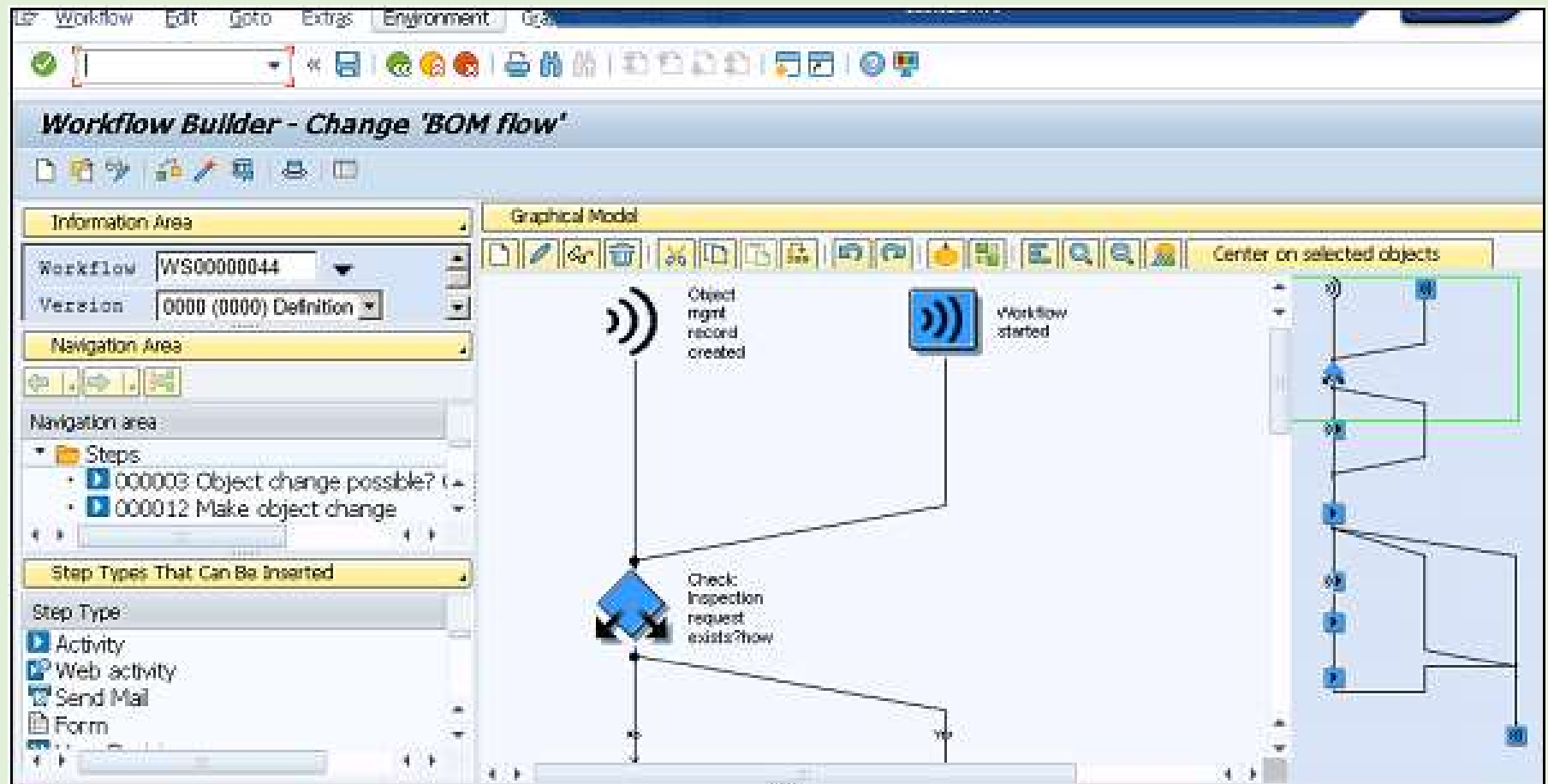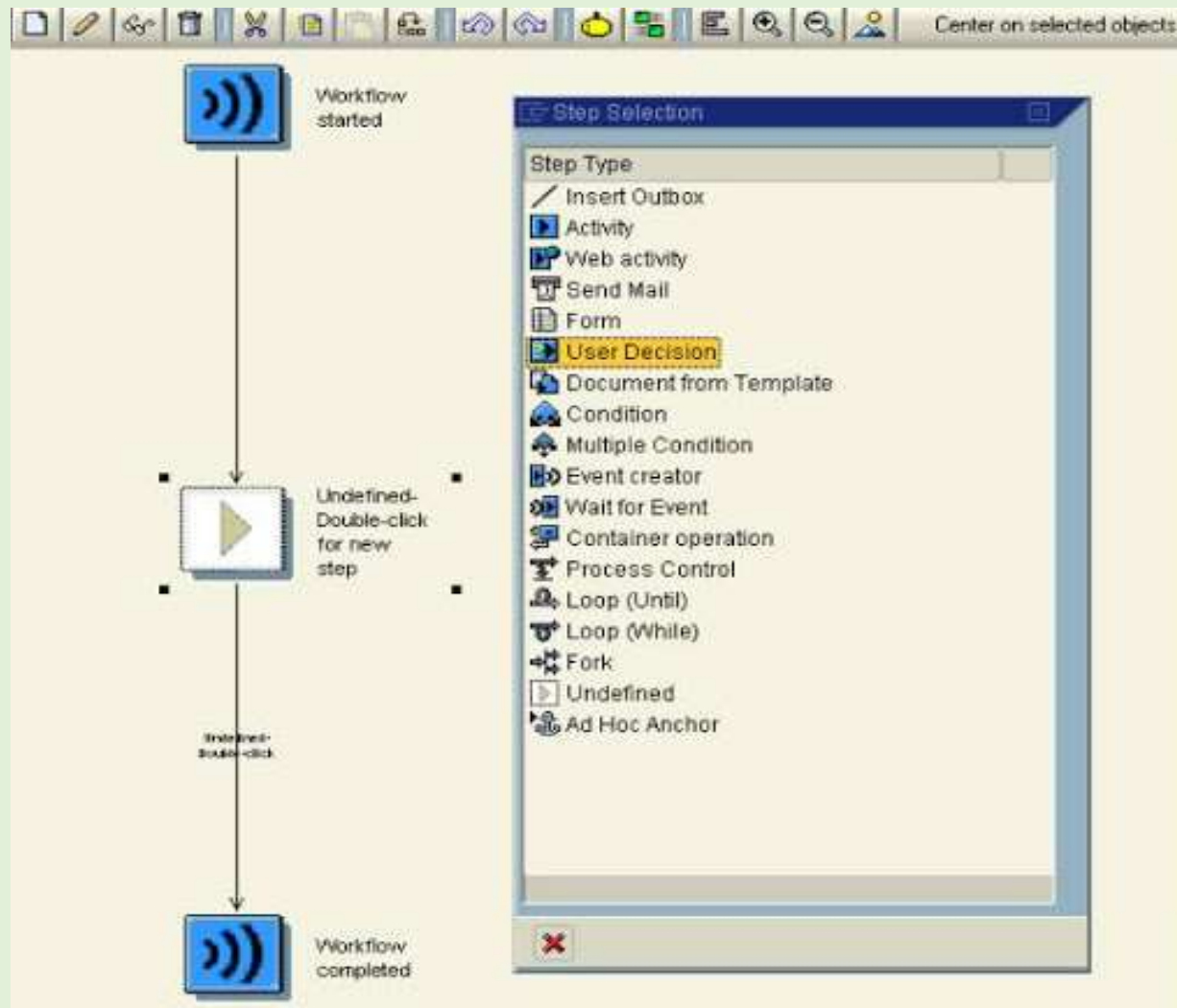
Create notification of absence screen

Manager's Business Workplace with workflow task

Sample Exam Questions

A. Explain whether an organization should model its business processes before the system has been implemented or after?
B. Provide five main benefits of reengineering your business processes.
C. Identify one major business process that might benefit from reengineering in an organization.
D. Explain the benefits that may occur from reengineering the business process you identified above.
E. If you were asked to reengineer a business process; what approach would you take?
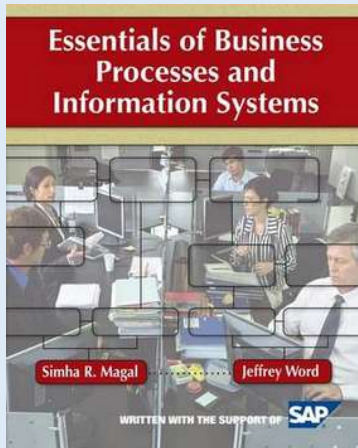F. Give one working example of a business process
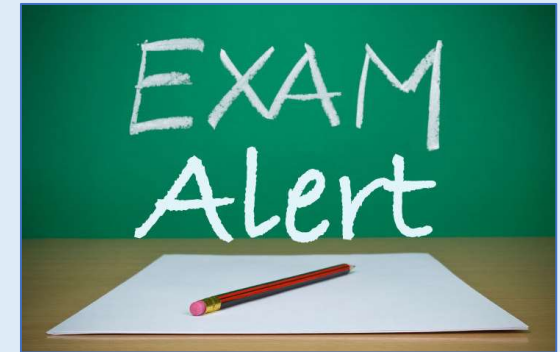
References
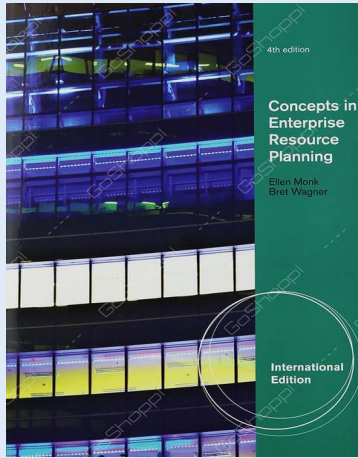
Monk & Wagner   Chap 7

Magal & Word   Chap 6