

FIT5101 Enterprise Systems



Lecture 12

❖ Revision

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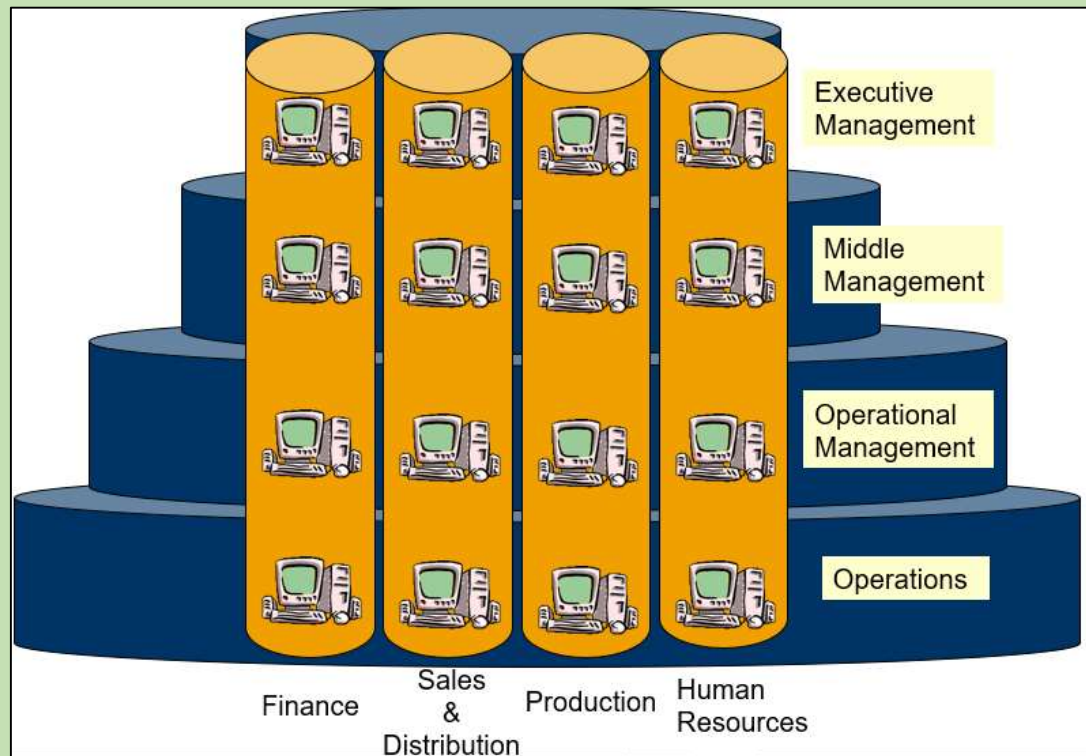
Unit Topics (Subject to change)

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 W O R K S H O P S
5	29/3	Sales & Distribution	Procurement	
	5/4	BREAK		
6	12/4	Production Planning	Sales & Distribution	
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

Types of ERP Systems

Decentralized Systems (Legacy Systems)

Data is maintained locally at the individual departments (**Silos**)
Departments do not have access to the data of other departments.

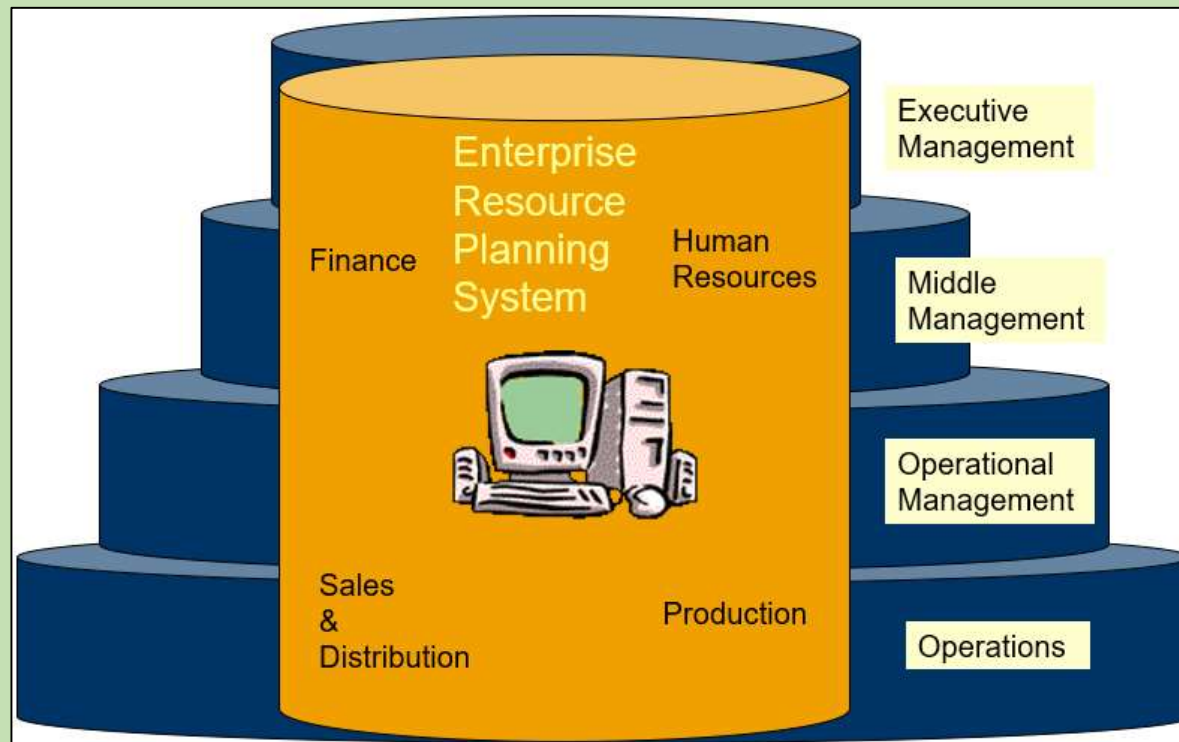


Types of ERP Systems

Centralized Systems (ERP Systems)

Data is maintained at a central location and is shared with various departments.

Departments have access to the data of other departments.

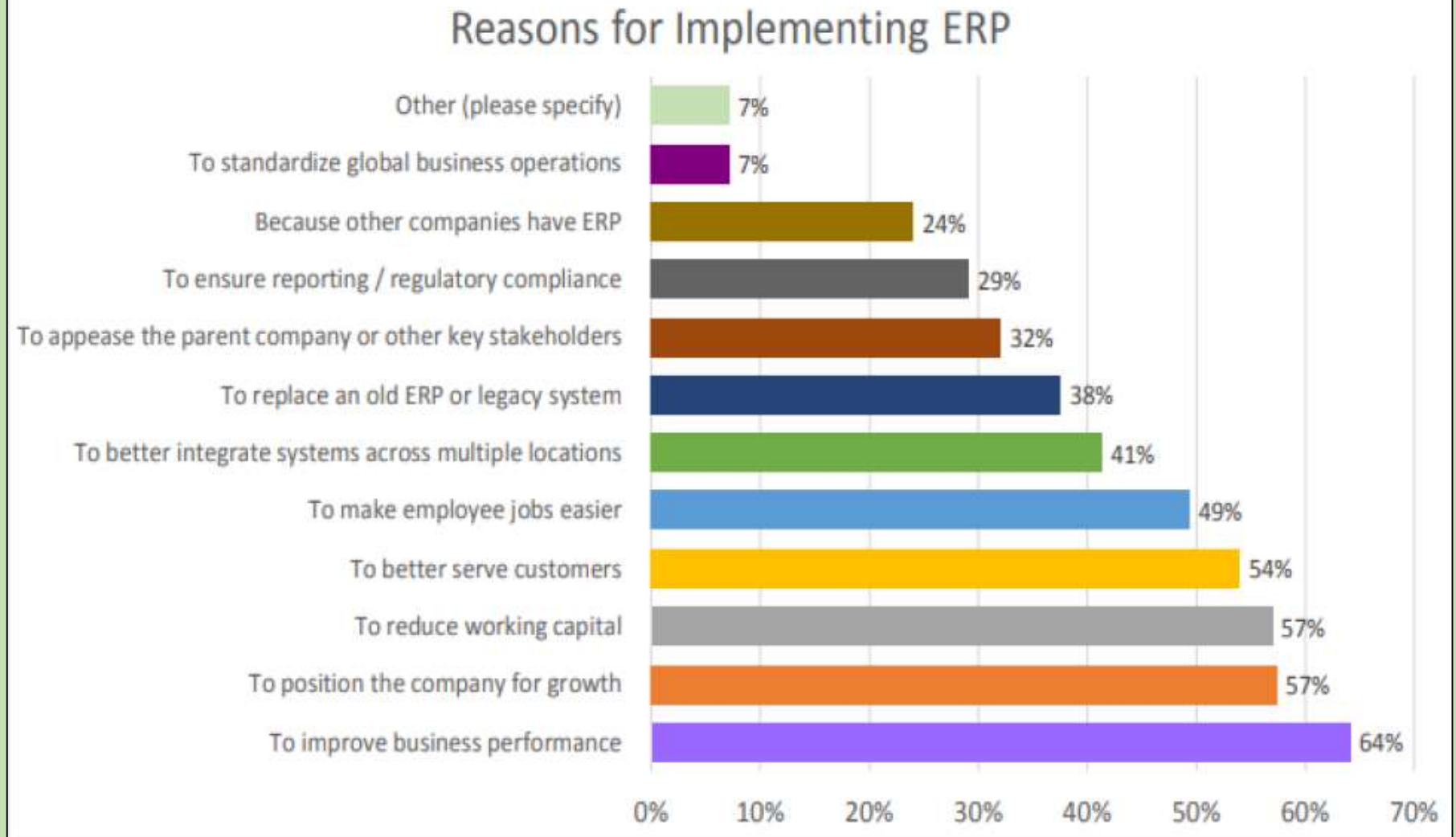


Benefits of a Centralized ERP System

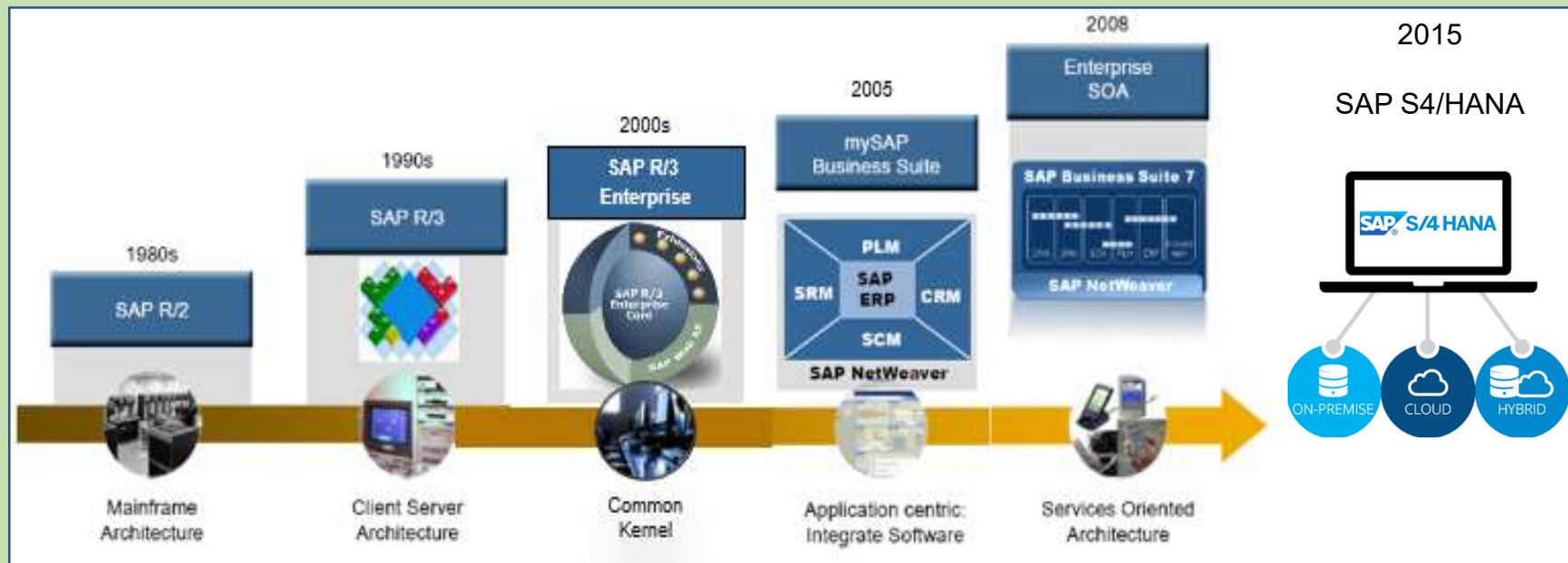
- ❑ Eliminates the duplication, discontinuity and **redundancy** in data.
- ❑ Provides information across departments in **real time**.
- ❑ Provides control over various **business processes**.
- ❑ Increases productivity, better inventory management, promotes quality, reduced material cost, effective human resources management, reduced overhead boosts profits.
- ❑ Better customer interaction, increased throughput, improves customer service.



Drivers for adopting ERP Systems



Introduction to SAP



SAP have introduced a number of different versions of the system since the 1980's.

Functional Areas and Business Processes

Definition : “A **functional area** is a broad category of business activities”. The main functional areas are –

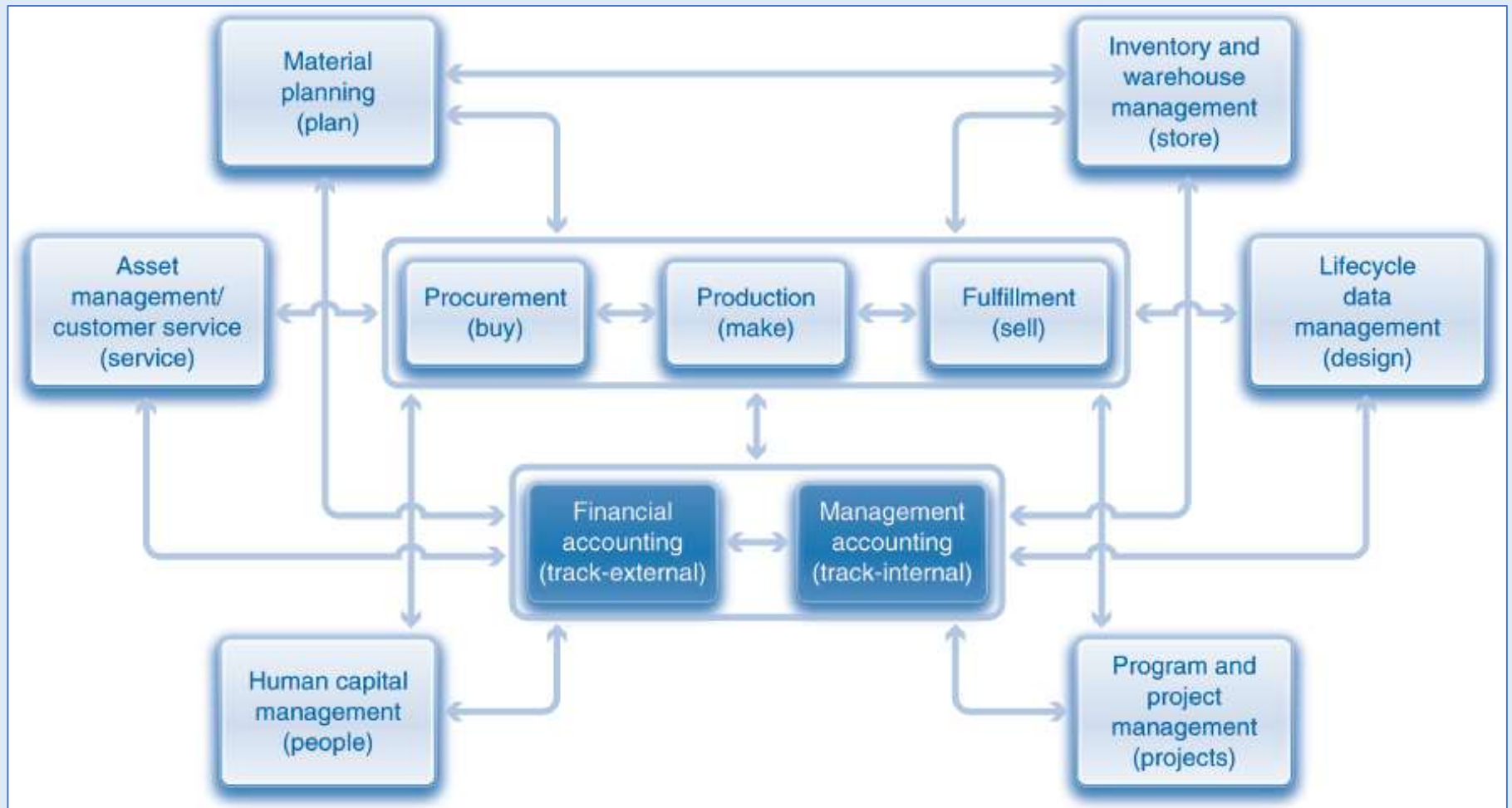
- Marketing and Sales (M/S)
- Supply Chain Management (SCM)
- Accounting and Finance (A/F)
- Human Resources (H/R)

Definition : “A **business process** is a set of tasks or activities that produce desired outcomes” – Simha & Word

A business process may involve one or many functional areas e.g. “Order-to-Cash”.

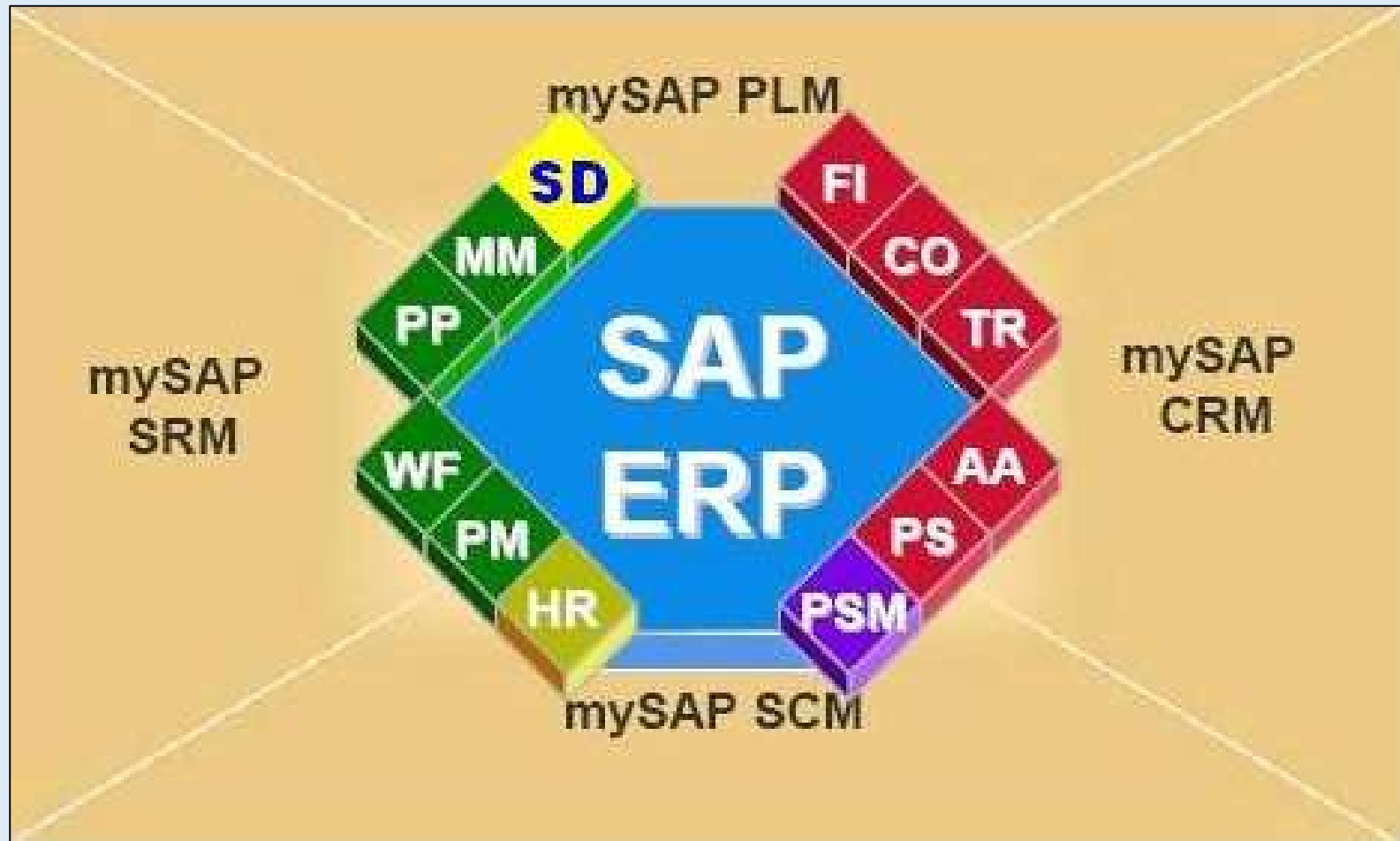


Key Business Processes



An organization uses many processes to achieve its objectives.

SAP Business Processes (Modules)

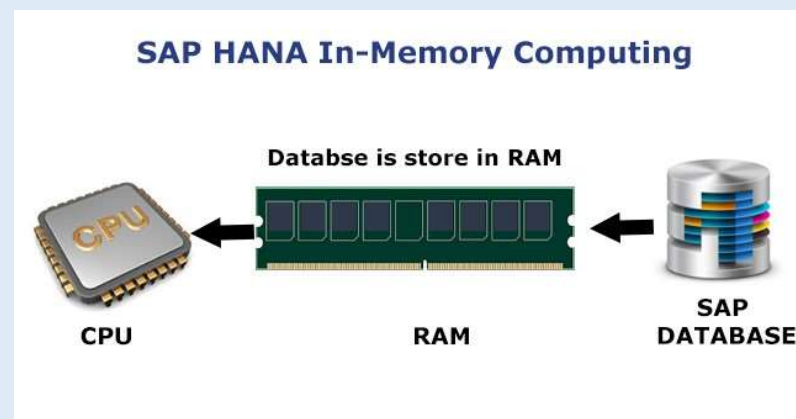


mySAP Business Suite added additional functionality to the core modules.

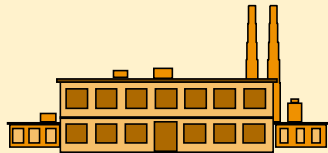
SAP S4/HANA

Definition - What does SAP HANA mean?

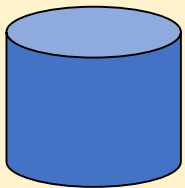
SAP HANA (High-performance ANalytic Appliance) is an application that uses *in-memory* database technology that allows the processing of massive amounts of *real-time* data in a short time. The in-memory computing engine allows HANA to process data stored in RAM as opposed to reading it from a disk. This allows the application to provide instantaneous results from customer transactions and data analyses.



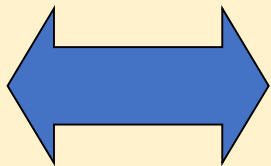
SAP Key Business Elements



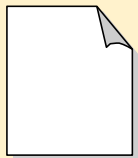
Organizational Unit



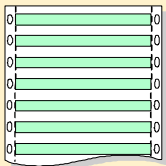
Master Data



Transaction

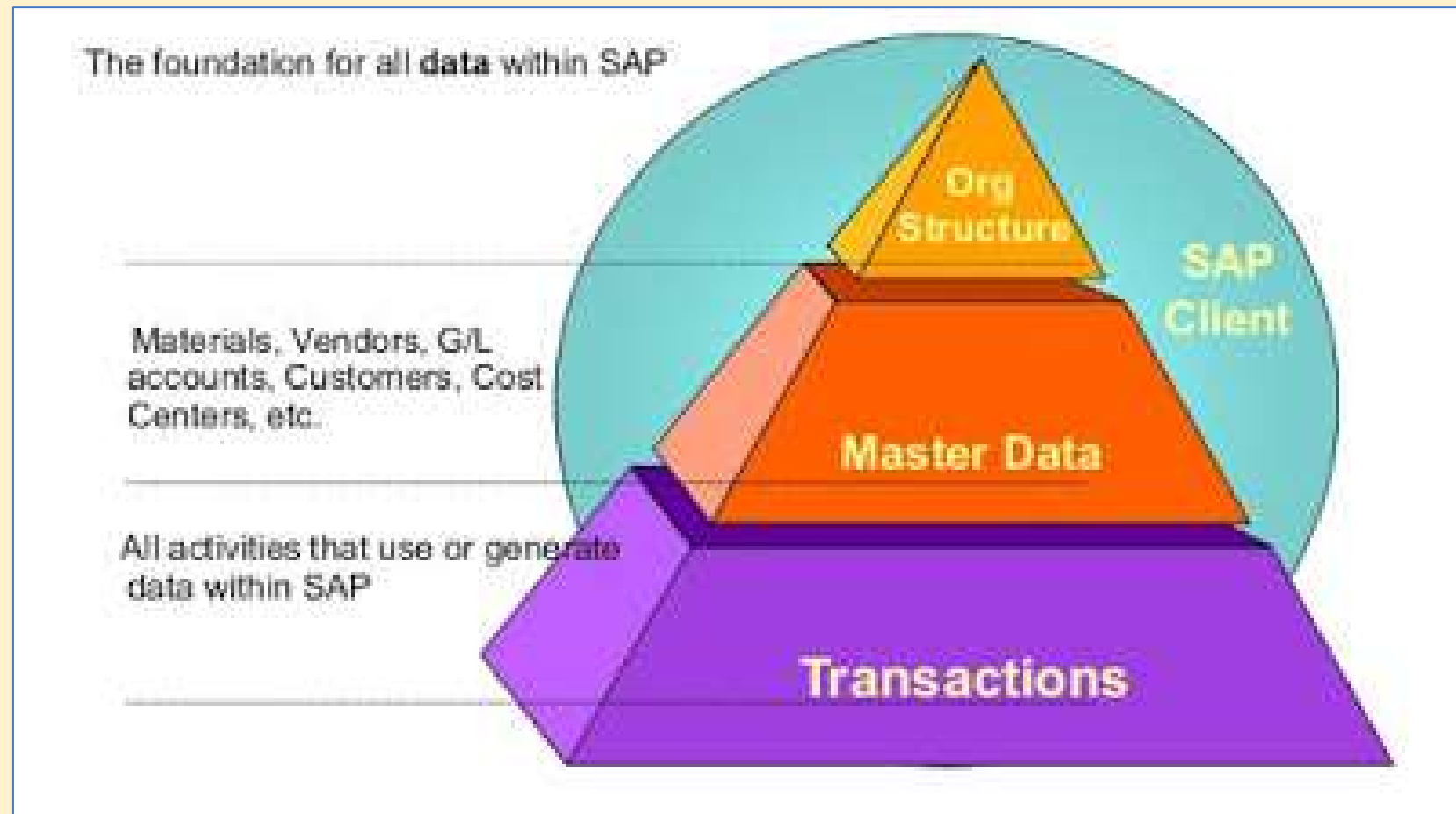


Document



Report

Master Data vs Transaction Data



Master Data Management

Master Data Management (MDM) is a set of disciplines, technologies, and solutions used to create and maintain

- **consistent,**
- **complete,**
- **contextual and**
- **accurate**

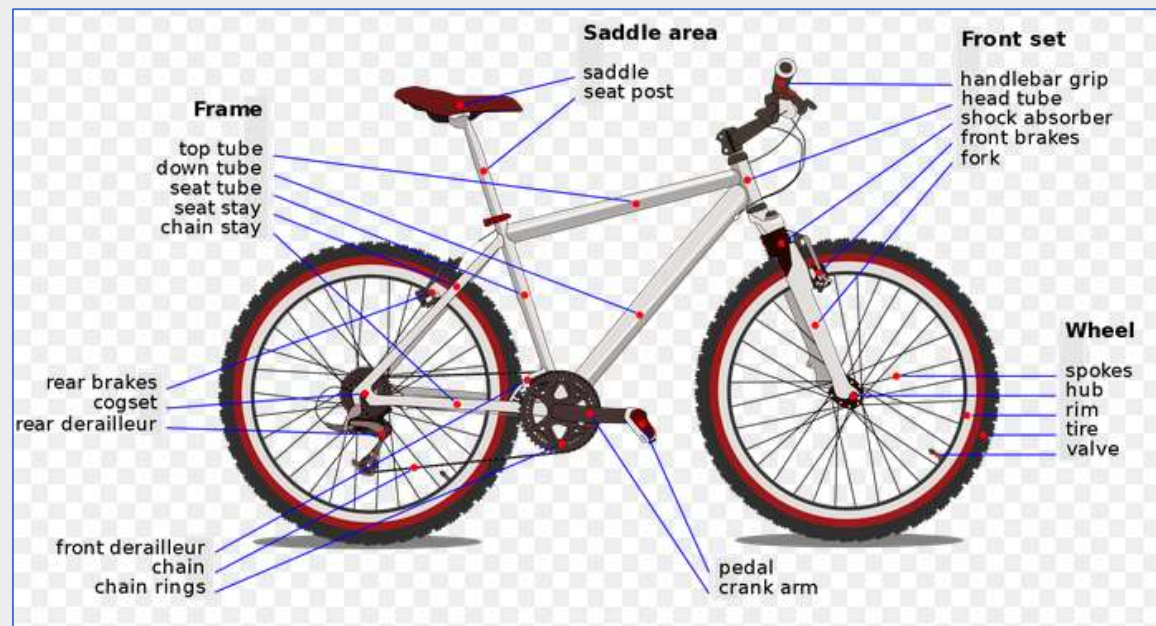
data quality business data for all stakeholders (users, and applications) across and beyond the enterprise landscape.

“Move to a *single version of the truth* about business objects”.

Materials Management Master Data

Master data used in Materials Management and Production Planning includes:

- Material Master
- Bill of Material (BOM)
- Work Centre
- Routings
- Cost Centers
- Vendors



Definition of Inventory

Inventory is the stock of any item or resource used in an organization.

Can be ordered from suppliers or produced in house.

An *inventory system* is a set of controls that monitors levels of inventory and determines :

- What levels should be maintained
- When stock should be replenished
- How large orders should be

Inventory is typically classified into :

- Raw materials
- Finished products
- Component parts (sub assemblies)
- Supplies (nails, gloves etc.)
- Work in Process (WIP)



Procurement

The procurement process includes all of the tasks involved in *acquiring needed materials externally* from a vendor. Procurement is comprised of five steps that are completed in three different functional areas of the organization.



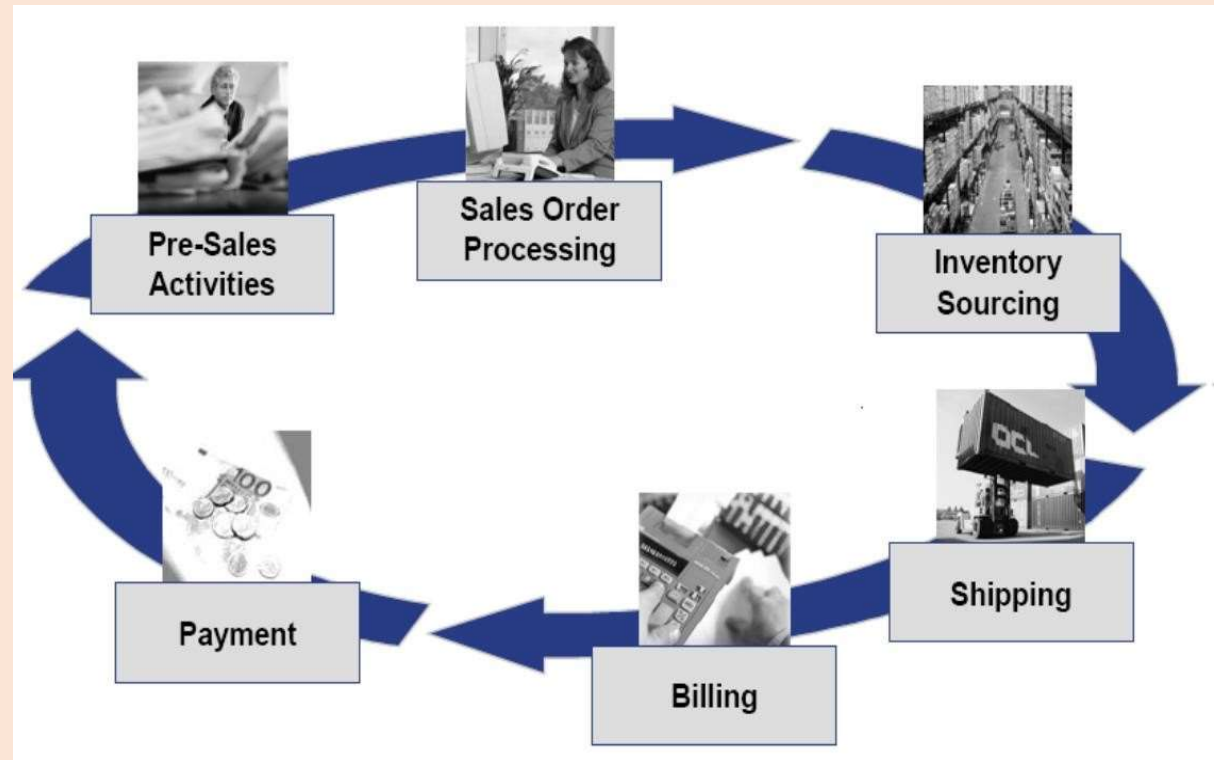
The Procure-to-Pay (P2P) process:

<https://youtu.be/GXfPgk6EQOE>

Sales and Distribution in ERP

SAP ERP Sales and Distribution module treats the sales order process as a cycle of events:

- Pre-sales activities
- Sales order processing
- Inventory sourcing
- Shipping (Delivery)
- Billing
- Payment



Customer Relationship Management

- Companies without a good connection between their workers and their customers run the risk of losing business.
- **Customer relationship management (CRM) software** can help companies streamline their interactions with customers.



Sales Forecasting

- SAP's ERP system takes an integrated approach

Whenever a sale is recorded in Sales and Distribution (SD) module, quantity sold is recorded as a consumption value for that material.

- Simple forecasting technique

Use a prior period's sales and then adjust those figures for current conditions

- In SAP ERP, sales forecast can be made using:

Historical sales data from the Sales and Distribution (SD) module

Input from plans developed in Controlling (CO) module

- CO module

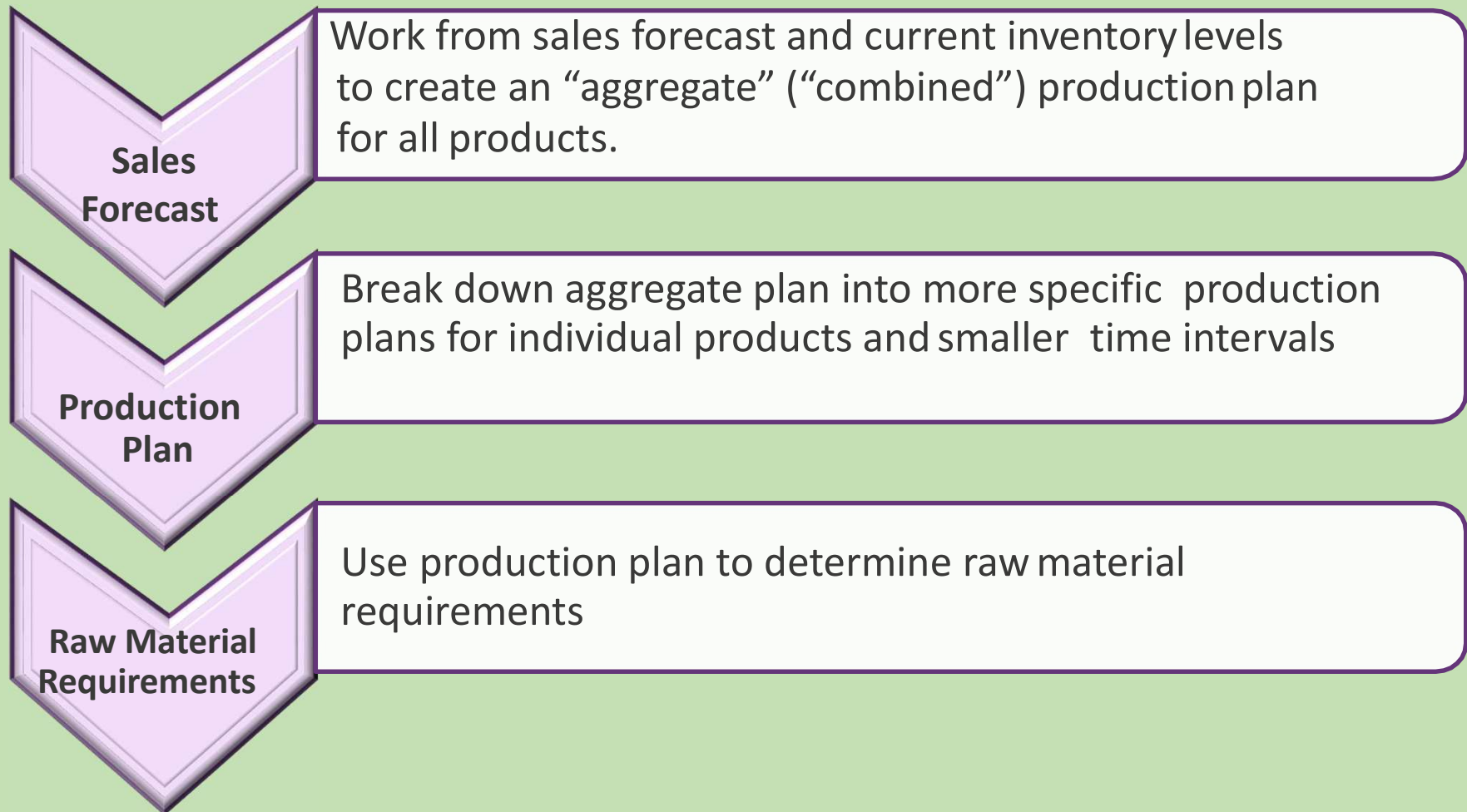
Profit goals for company can be set

Sales levels needed to meet the profit goals can be estimated

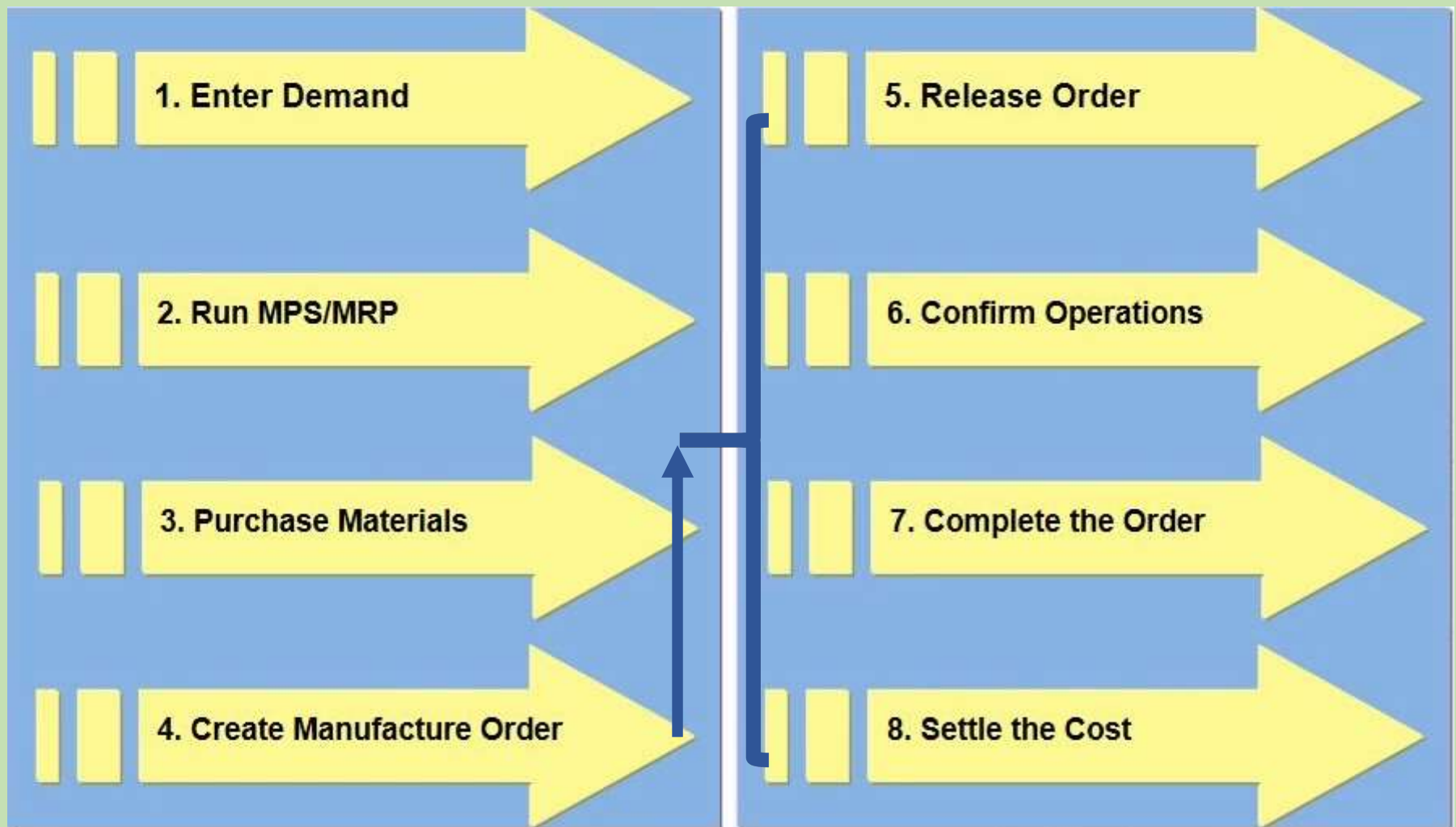


The Production Planning Process

Three important principles for production planning:



Business Process Summary



Materials Requirements Planning in SAP ERP

- MRP process creates planned orders to meet dependent requirements
- The main purposes of an MRP system are:
 - Control inventory levels : “order the right quantity of the right part at the right time”.
 - Assign the correct priorities to items.
 - Plan the capacity.

Stock/Requirements List shows:

- Planned orders
- Purchase requisitions (PurRqs)
- Purchase orders (POitem)



The output of MRP is either a *planned (production) order* or a *purchase order/requisition*.

Production orders

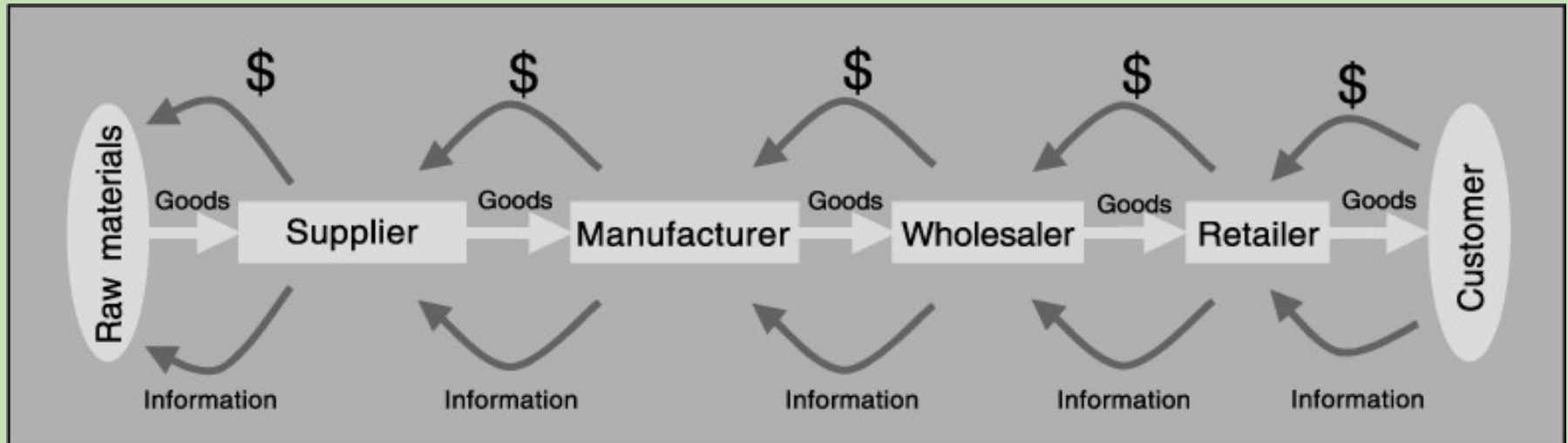


Production orders define:

- Which material is to be produced;
- At which location,
- At what time and ...
- How much work is required.
- Which resources (stock) are to be used and ...
- How the order costs (through cost accounting) are to be settled.

This information is generated from the MRP via the material BOM.

The Traditional Supply Chain



In a traditional supply chain, information is passed through the supply chain *reactively*, as participants change their product orders. Example:

- Retailer sees an increase in the sales of a product and orders a larger quantity from the wholesaler.
- The wholesaler will increase its orders from the manufacturer who will increase production.
- This will result in more raw materials being ordered from the supplier.

This process can be very slow unless all the participants are part of an integrated system.

Accounting Activities

Areas of accounting:

- Financial accounting (FI)
- Managerial accounting (CO)

Financial accounting (External)

- Documenting all transactions of a company that have an impact on the financial state of the firm.
- Using documented transactions to create reports for external parties and agencies.
- Reports, or financial statements, must follow prescribed rules and guidelines of various agencies.

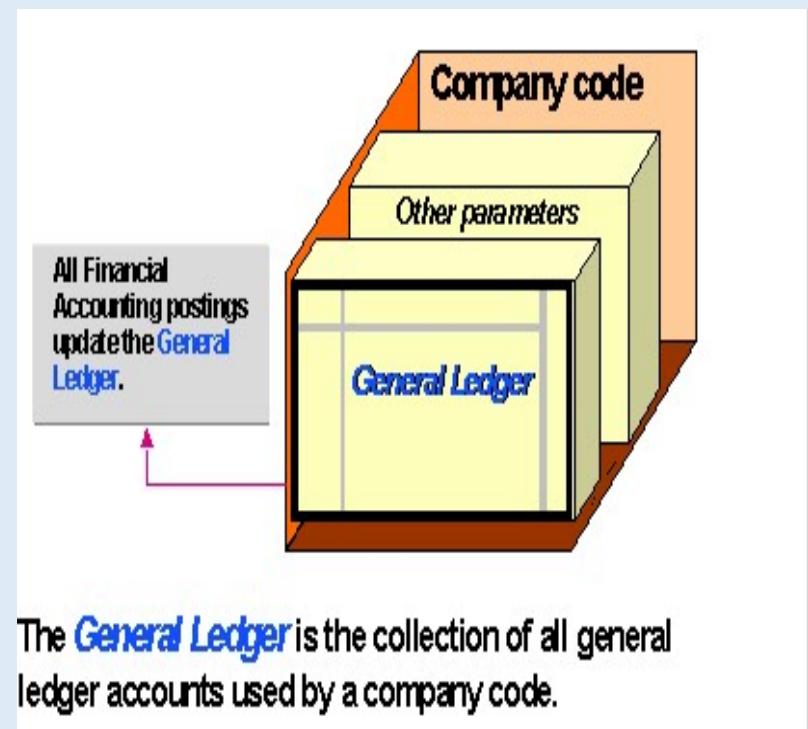
Managerial accounting (Internal)

- Determining costs and profitability of company's activities.

Financial Accounting: General Ledger

- Main financial record of a business.
- Utilises double entry bookkeeping.
- Account balances on both the debit and the credit are extracted using the Trial Balance.
 - The double entry style of bookkeeping ensures that the GL should always balance
 - TB provides the assurance that all debits equal all credits
- Supports the items identified in the major financial statements
 - Profit and Loss
 - Income Statement
 - Cash Flow Statement
 - Balance Sheet

Definition of ledger: a book or other collection of financial accounts.



Asset Management

Asset management is the process of developing, operating, maintaining and selling assets in a cost-effective manner.

Every company needs to keep track of its assets. That way, the relevant stakeholders will know just what assets are available and what can be used to provide optimal returns.

The assets owned by any business fall into two main categories: fixed and current assets. Fixed or non-current assets refer to assets acquired for long-term use, while current assets are those that can be converted into cash within a short amount of time.



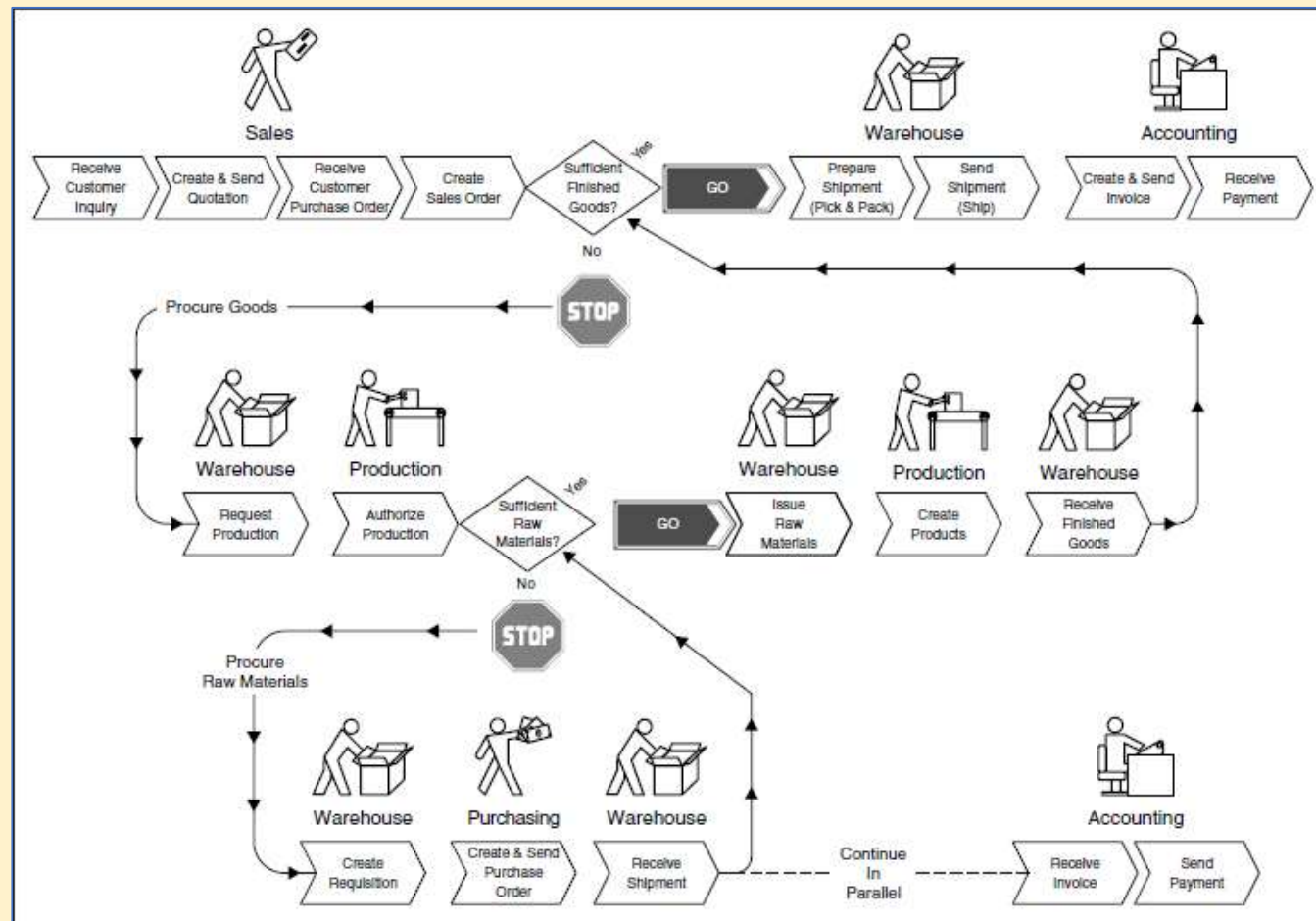
The Sarbanes-Oxley Act

Implications of the Sarbanes-Oxley Act for ERP Systems

- More stringent requirements for Financial Accounting.
- To meet the internal control report requirement, a company must:
 - Document the controls that are in place
 - Verify that the controls are not subject to error or manipulation.
- Companies with ERP systems in place will have an easier time complying with the Sarbanes-Oxley Act than will companies without ERP.



Business Process Integration in ERP



The integration of procurement, fulfillment & production. Note the decision points where there is a branch to another process.

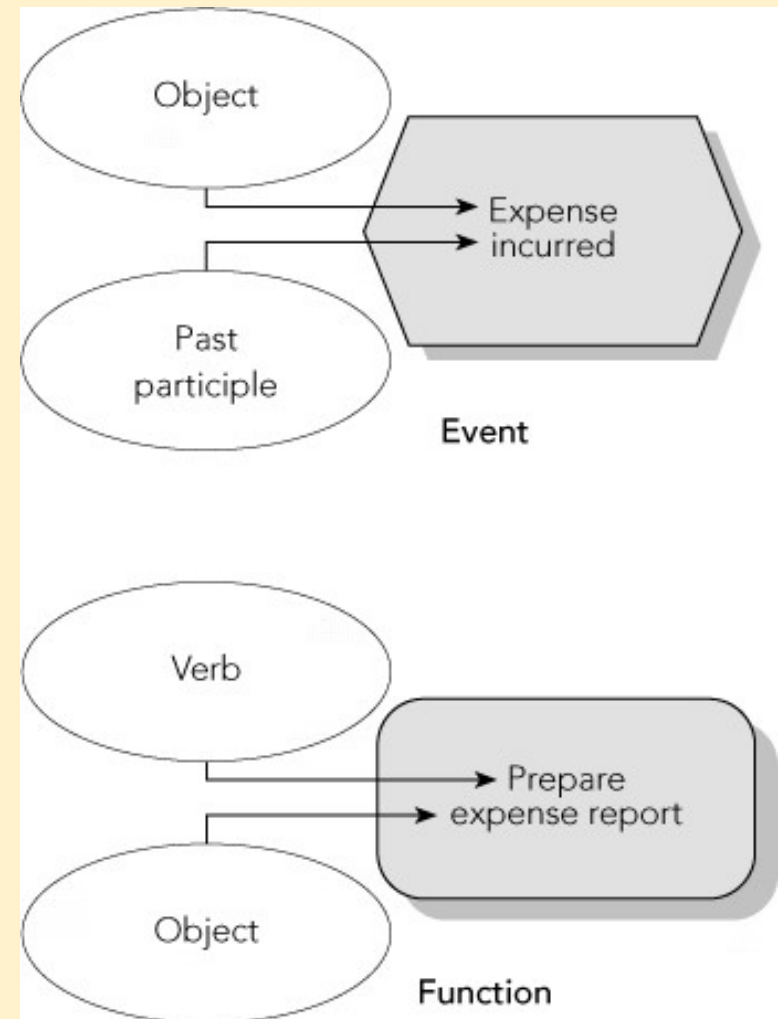
Business Process Modelling - Introduction

- 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.

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



ERP Workflow Tools

Workflow tools

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

Implementing ERP Systems

- Late 1990s: many firms rushed to implement ERP systems to avoid the Y2K problem
- Since 2000: pace of implementations has slowed considerably
 - Most Fortune 500 firms have implemented an ERP system
 - Current growth is in the small to midsize business market
- Implementation of ERP is an ongoing process

IT Project Failure statistics

Standish Group (2001)

- US spends \$275B per year on 200K projects
 - 28% of projects fail,
 - 46% were “challenged”,
 - 26% succeeded (out of 23,000 projects)

Projects deviate from budget, schedule and scope

- Over 50% of projects run over time
- *31.1% of projects will be cancelled before they ever get completed*



Standish Group, “CHAOS 2007”: (2007)

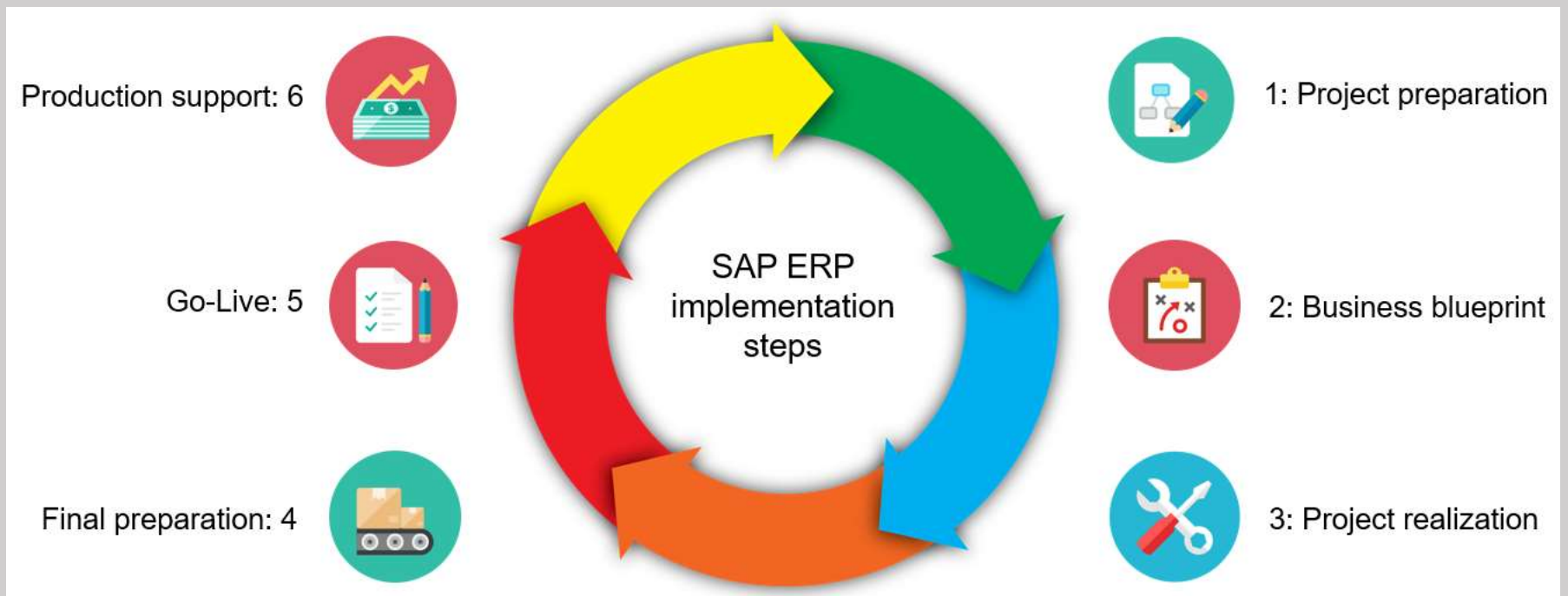
- A staggering 39% of projects with budgets over US\$10 million failed
- Do not achieve their objectives
- Do not deliver the promised results
- Are not completed on time or within budget
- **WHY?**

<http://www.standishgroup.com/chaos/introduction.pdf>

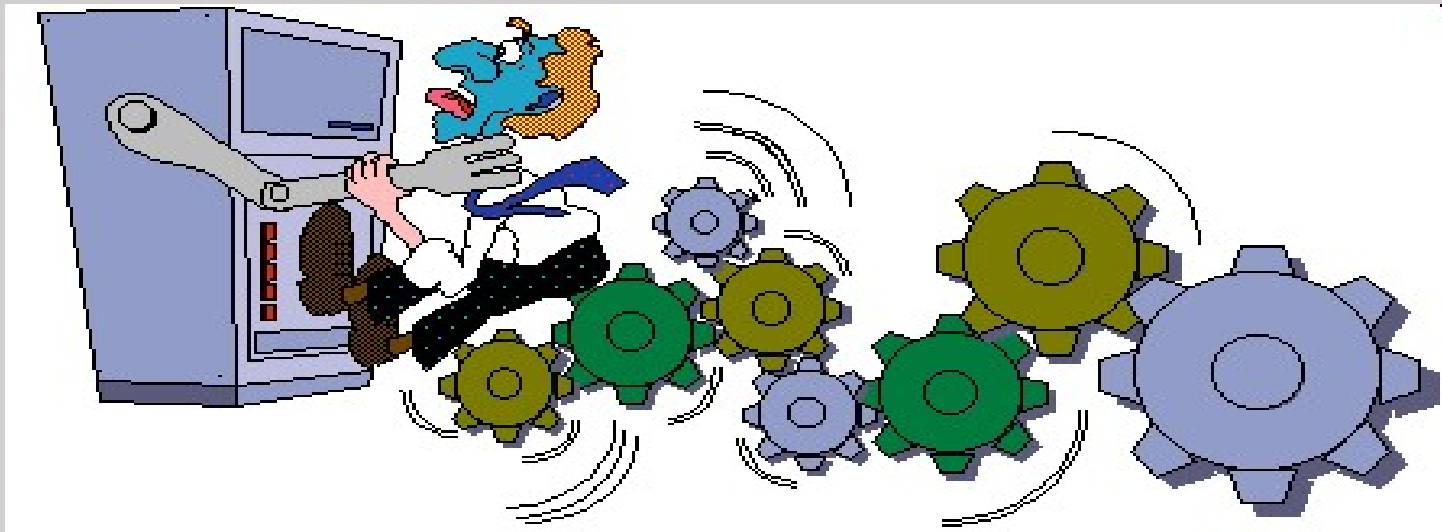
Implementation Tools

Implementation Tools

Many tools are available to help manage implementation projects.



Change Management



The pace of change has increased considerably - particularly with the advent of the Internet and the rapid deployment of new technologies, new ways of doing business and new ways of conducting one's life – many people can't keep up.

Reporting in SAP

Today's ERP systems create large volumes of raw data. However, report-handling is usually accepted as being the most important function of all, since without this capability, the ERP system is virtually useless.

Consequently, ERP reporting tools are critical to an enterprise's success. In SAP S/4 HANA there are several different options for creating reports:

- Standard Reports
- Embedded Analytics
- Business Warehouse
- Other Tools
- XBRL



Current Technologies supporting ERP

- Digital Disruption / Transformation
- Big Data
- Business Intelligence / Data Mining
- In-Memory Computing
- RFID
- Cloud Computing
- SAAS
- Mobility



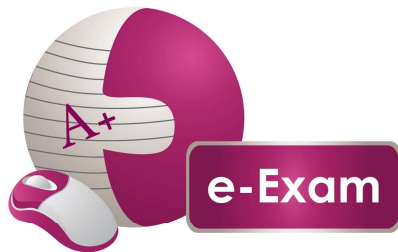
Future Trends in ERP System

- Social Media
- IOT
- AI
- Automation
- Blockchain
- Additive Manufacturing



eExam Format (Subject to Change)

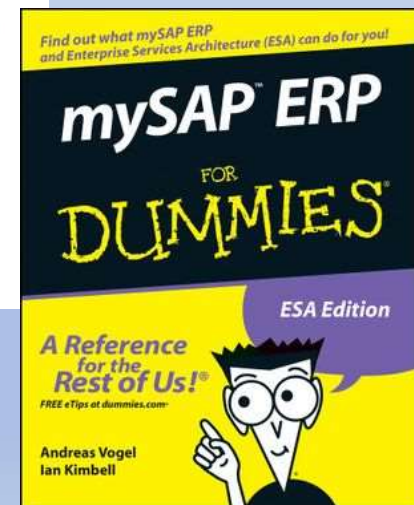
- | | |
|--------------------------------------|----------|
| • MCQ, T/F, Fill in blanks etc. (10) | 10 marks |
| • Short Essay (7) | 28 marks |
| • Composite (2) | 20 marks |
| • Case Study (1) | 22 marks |
| | ----- |
| | 80 marks |



Want to learn more about SAP ?

Resources :

- SAP S/4 HANA - Use it while you can!
- On-line training
Many websites offer free or low-cost courses e.g. Udemy
- Books
 - Amazon
 - SAP Press
- Google!



Revision Quiz

- Based on Lectures 10 - 11
- Multiple Choice
- 15 seconds to answer
- Select the closest answer
- Fantastic prizes
- Optional or you can use an alias!
(But no prize!)

Go to www.menti.com
You will be given an access code.

Good Luck !

