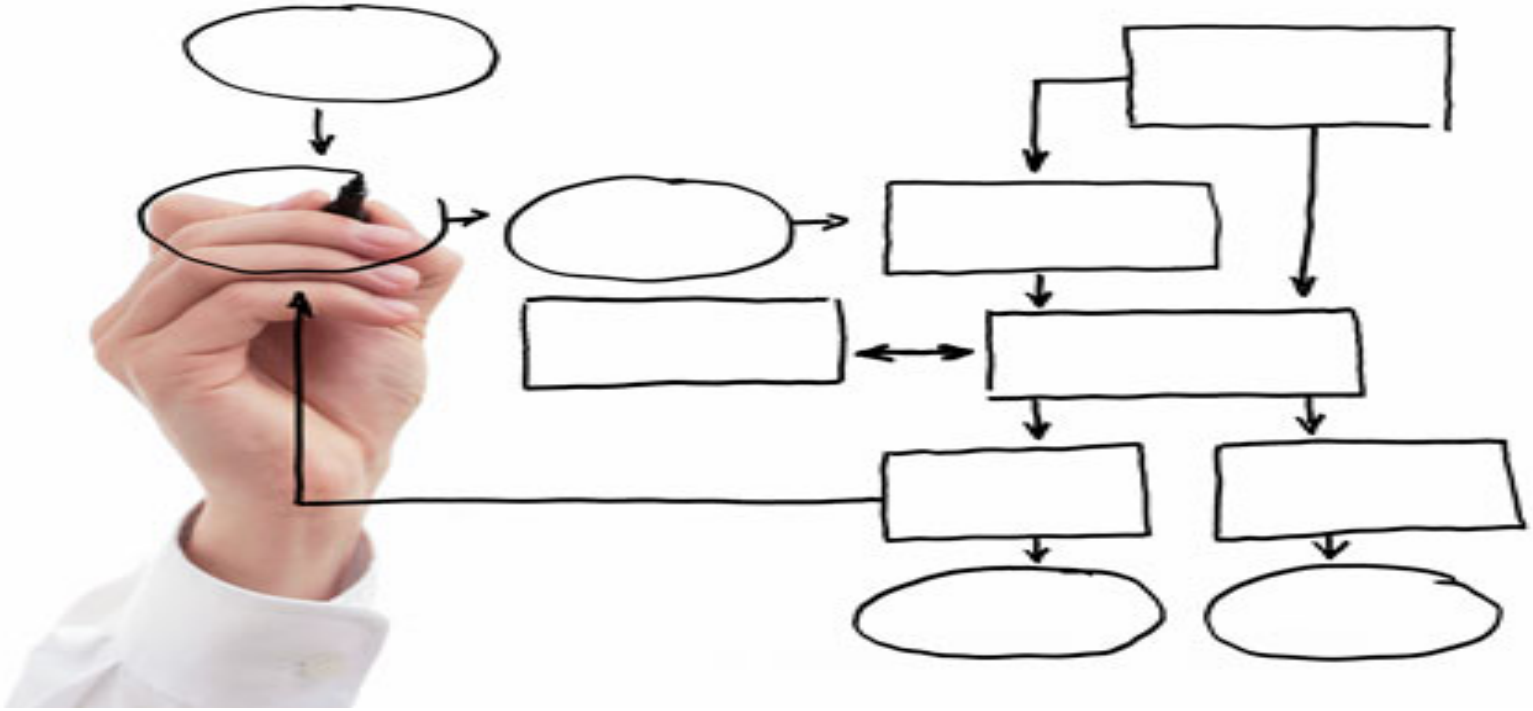


# MIS 5121: ~~ERP Systems~~ Business Processes, Systems, Controls

*Introduction: Course, ERP, SAP, Controls*

FOX | MIS
Management Information Systems

**Edward Beaver**
Edward.Beaver@temple.edu
ff

# Introduction: Course

Course Web Home

See Syllabus

View Schedule

# Introduction: Me and you

*Please Prepare a Name Card*

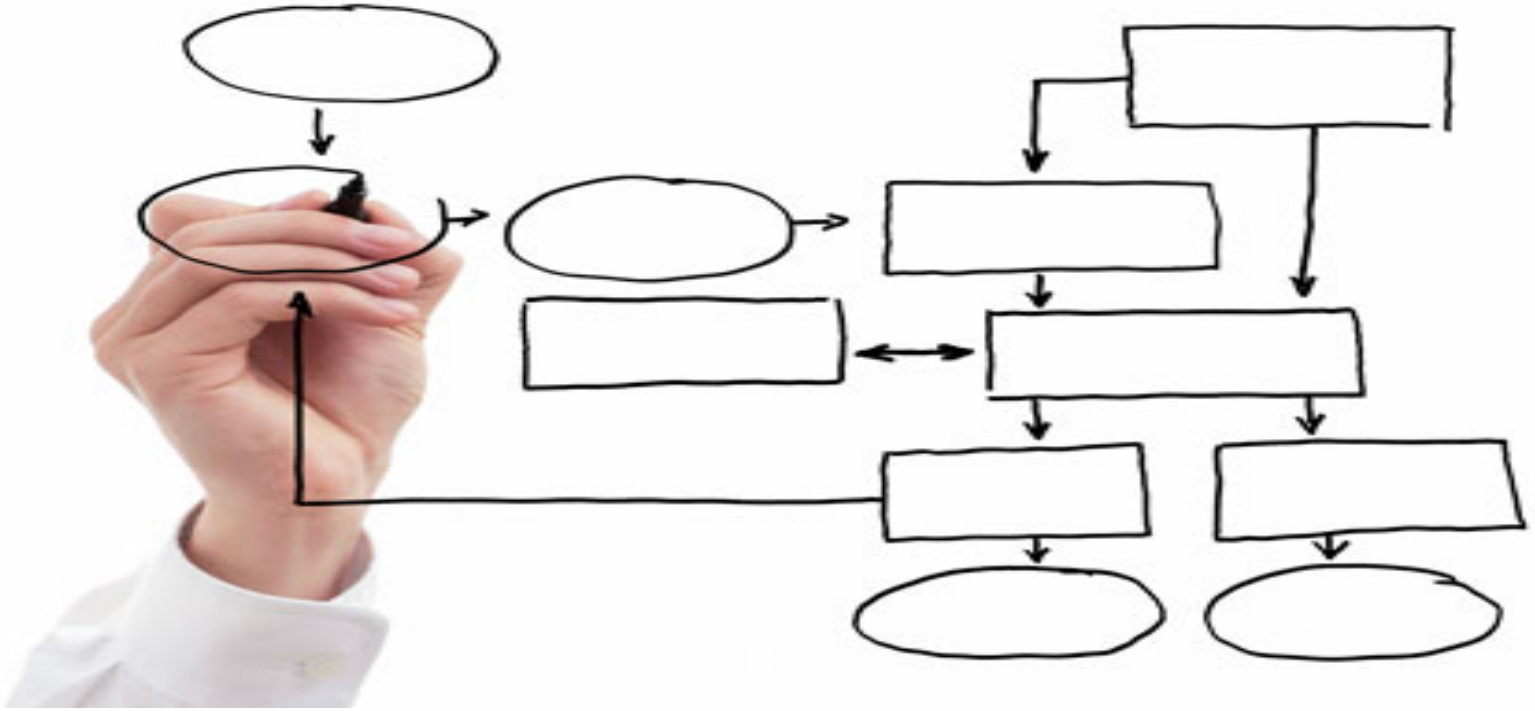
- Name

- Why in this course

  *OK to say 'it's Just a Requirement*

- Unique experience, skills you bring to the class

  Include 1 Supply Chain you've dealt with and in what Role (e.g. customer, ___)



**Business Processes**,
Systems (ERP),
& Controls

# Case: Global Bike Inc. (GBI)

**Company Background**

Global Bike Inc., (GBI) is a world class bicycle company serving the professional and "prosumer" cyclists for touring and off-road racing. GBI's riders demand the highest level of quality, toughness and performance from their bikes and accessories.

Product development is the most critical element of GBI's past and future growth. GBI has invested heavily in this area, focusing on innovation, quality, safety and speed to market. GBI has an extensive innovation network to source ideas from riders, dealers and professionals to continuously improve the performance, reliability and quality of its bicycles.

In the touring bike category, GBI's handcrafted bicycles have won numerous design awards and are sold in over 10 countries. GBI's signature composite frames are world-renowned for their strength, light weight and easy maintenance. GBI bikes are consistently ridden in the Tour de France and other major international road races. GBI produces two models of their signature road bikes, a deluxe and professional model. The key difference between the two models is the type of wheels used, aluminum for the basic model and carbon composite for the professional model.

GBI's off-road bikes are also recognized as incredibly tough and easy to maintain. GBI trail bikes are the preferred choice of world champion off-road racers and have become synonymous with performance and strength in one of the most grueling sports in the world. GBI produces two types of off-road bike, a men's and women's model. The basic difference between the two models is the smaller size and ergonomic shaping of the women's frame.

GBI also sells an accessories product line comprised of helmets, t-shirts and other riding accessories. GBI partners with only the highest quality suppliers of accessories which will help enhance riders' performance and comfort while riding GBI bikes.

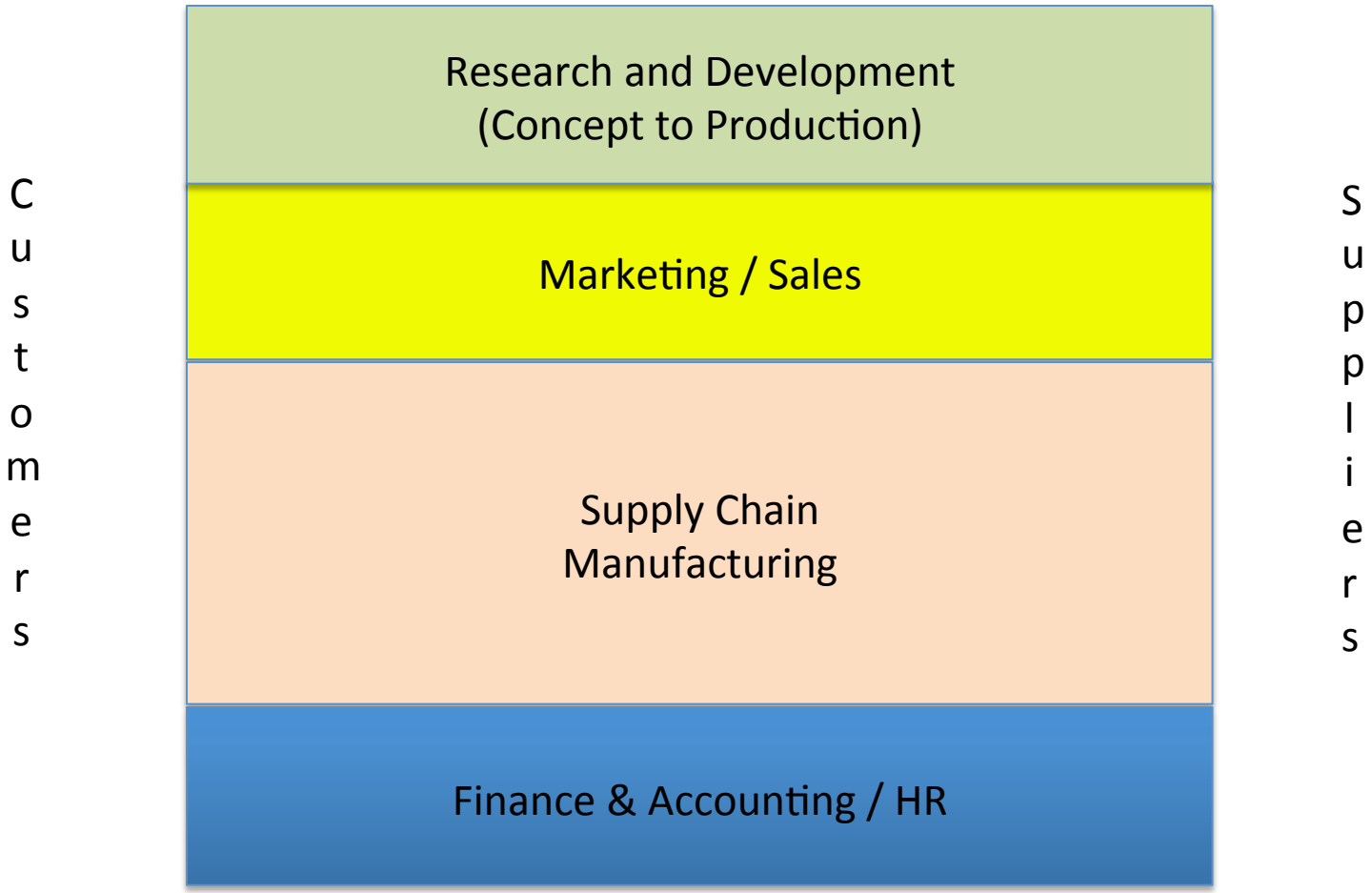
# What are GBI's Business Functions?

Function: 'An operation / group who perform related tasks routinely to achieve a part of an organization's mission ..'

Business Dictionary

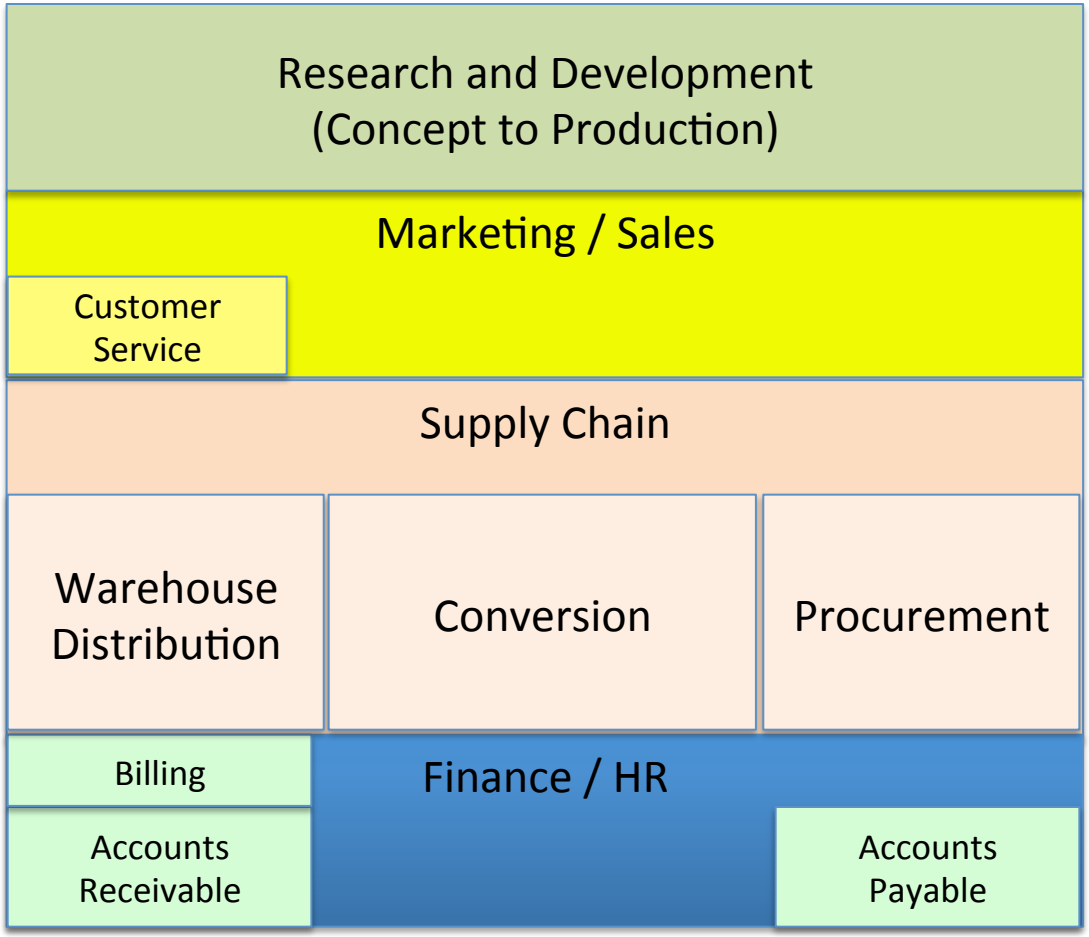
- _____
- _____
- _____
- _____
- _____

# Business Functions / Organization



# Global Bike Organization

Customers




Suppliers

# Business Process

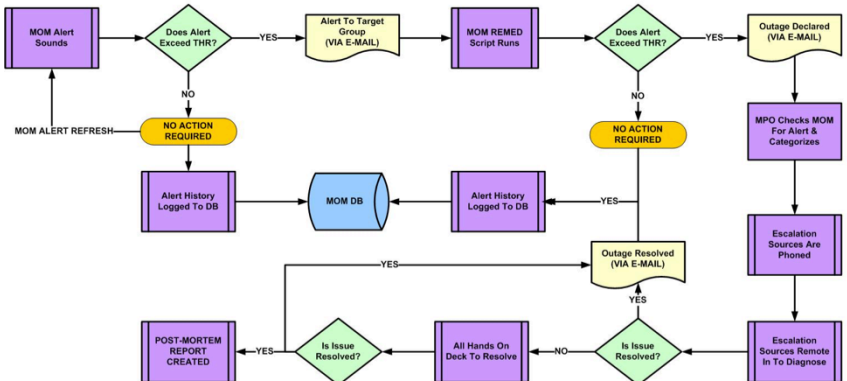
## Definition

‘A series of logically related activities / tasks performed together to produce a defined set of results.’

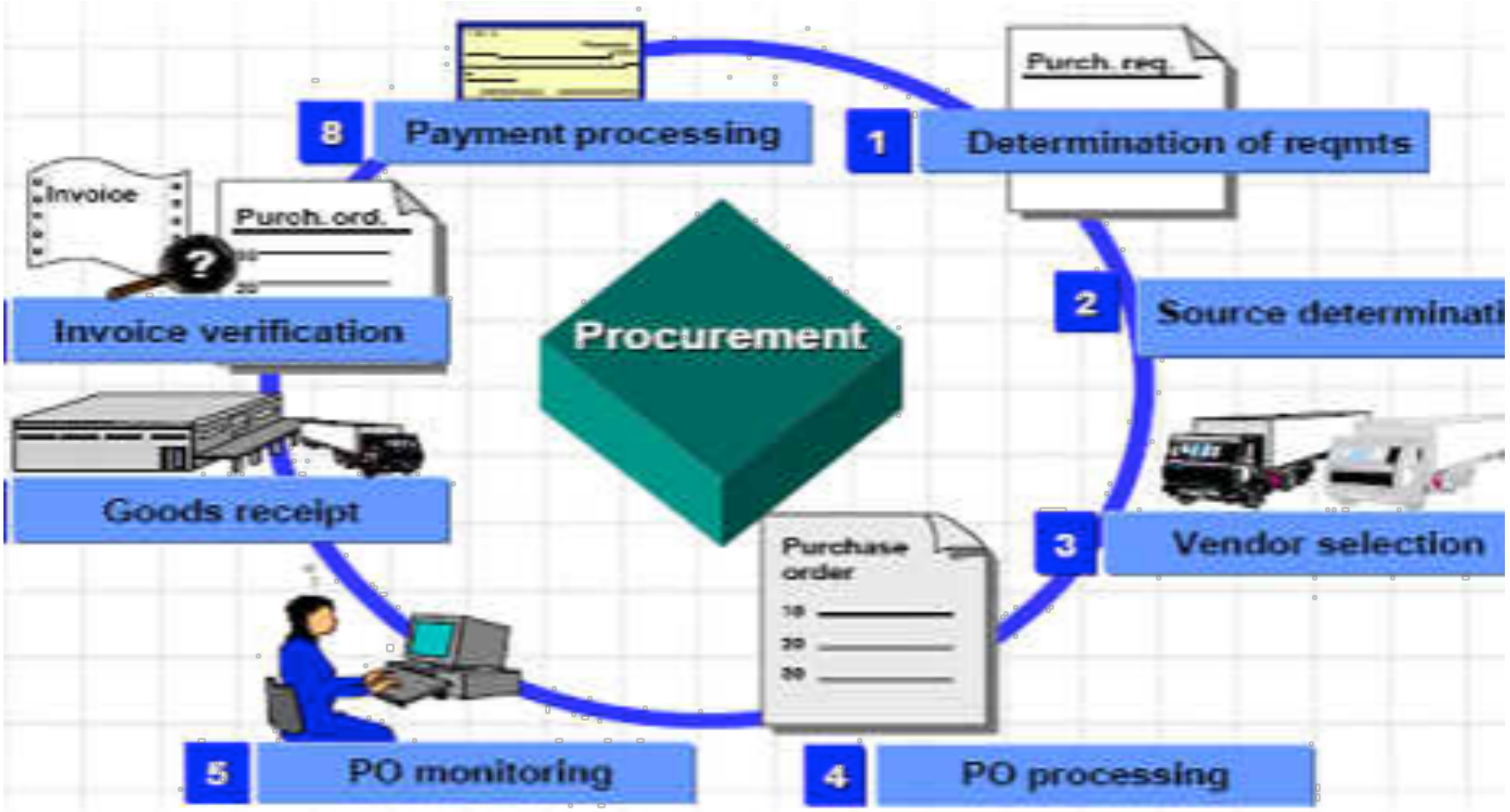
Business Dictionary

‘Actions an enterprise takes to achieve value creation ’

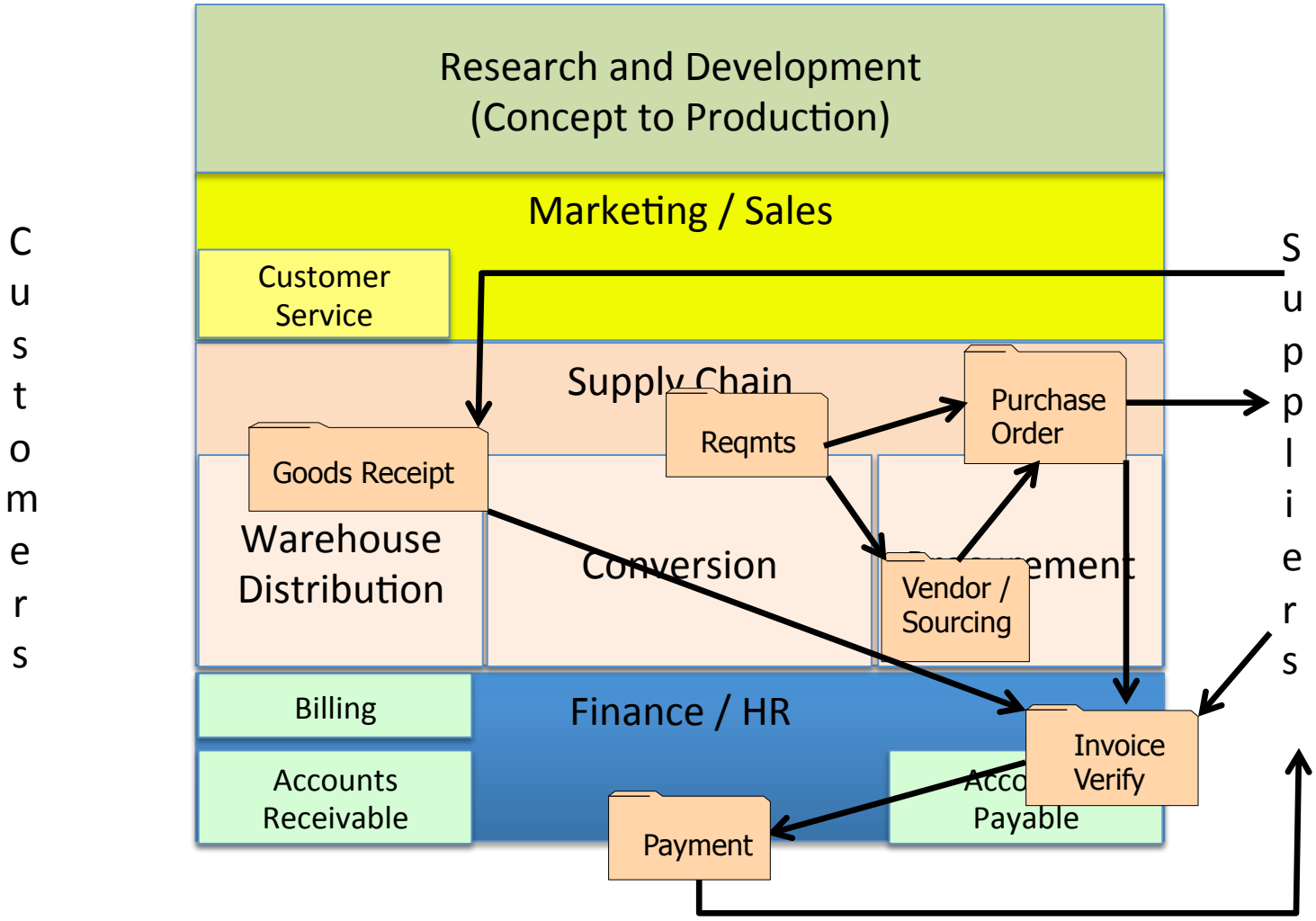
ISACA



# Procurement Process



# Procurement at GBI

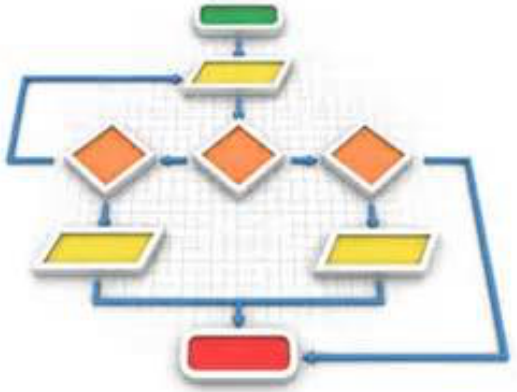


# What are Business Processes of GBI?

- Procurement to Pay
- _____
- _____
- _____
- _____
- _____

# Business Processes

- Sales
- Order to Cash
- Procurement to Pay
- Supply Chain Planning
- Manufacturing / Production
- Innovate / Commercialize
- People / Human Resources
- Finance / Record and Report



# Business Process Vs. Function

## Function

'An operation / group who perform related tasks routinely to achieve a part of an organization's mission ..'

Business Dictionary

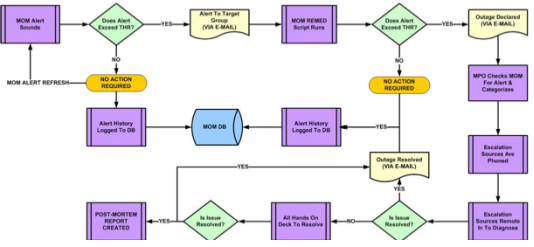
## Process

'A series of logically related activities / tasks performed together to produce a defined set of results.'

Business Dictionary

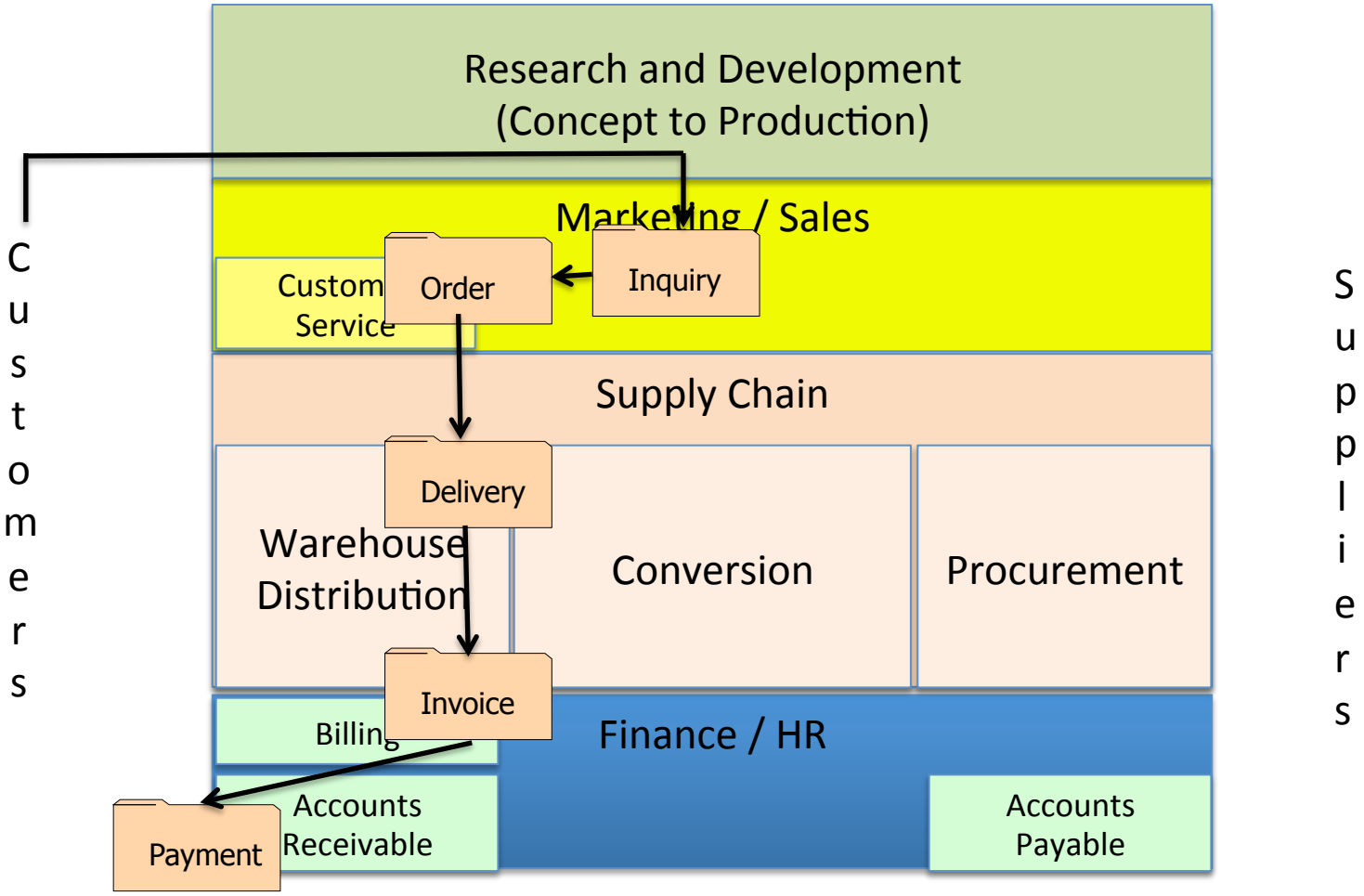
'Actions an enterprise takes to achieve value creation '

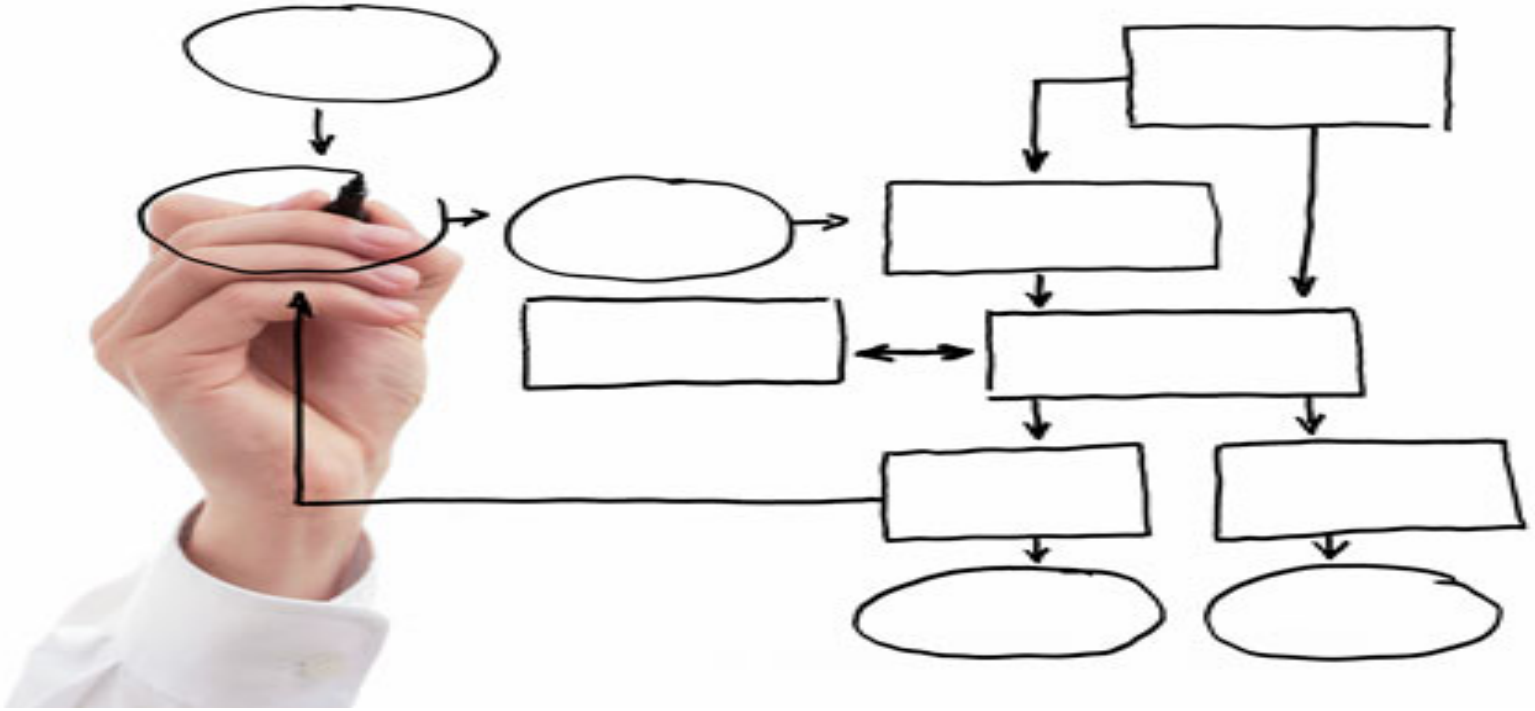
ISACA



# Order to Cash Process

# Order to Cash at GBI





Business Processes,
**Systems (ERP)**,
& Controls

# Does GBI Need Systems / Applications?

- _____
- _____
- _____
- _____
- _____
- _____

# What are ERP Systems?

- E_____
- R_____
- P_____
- Systems

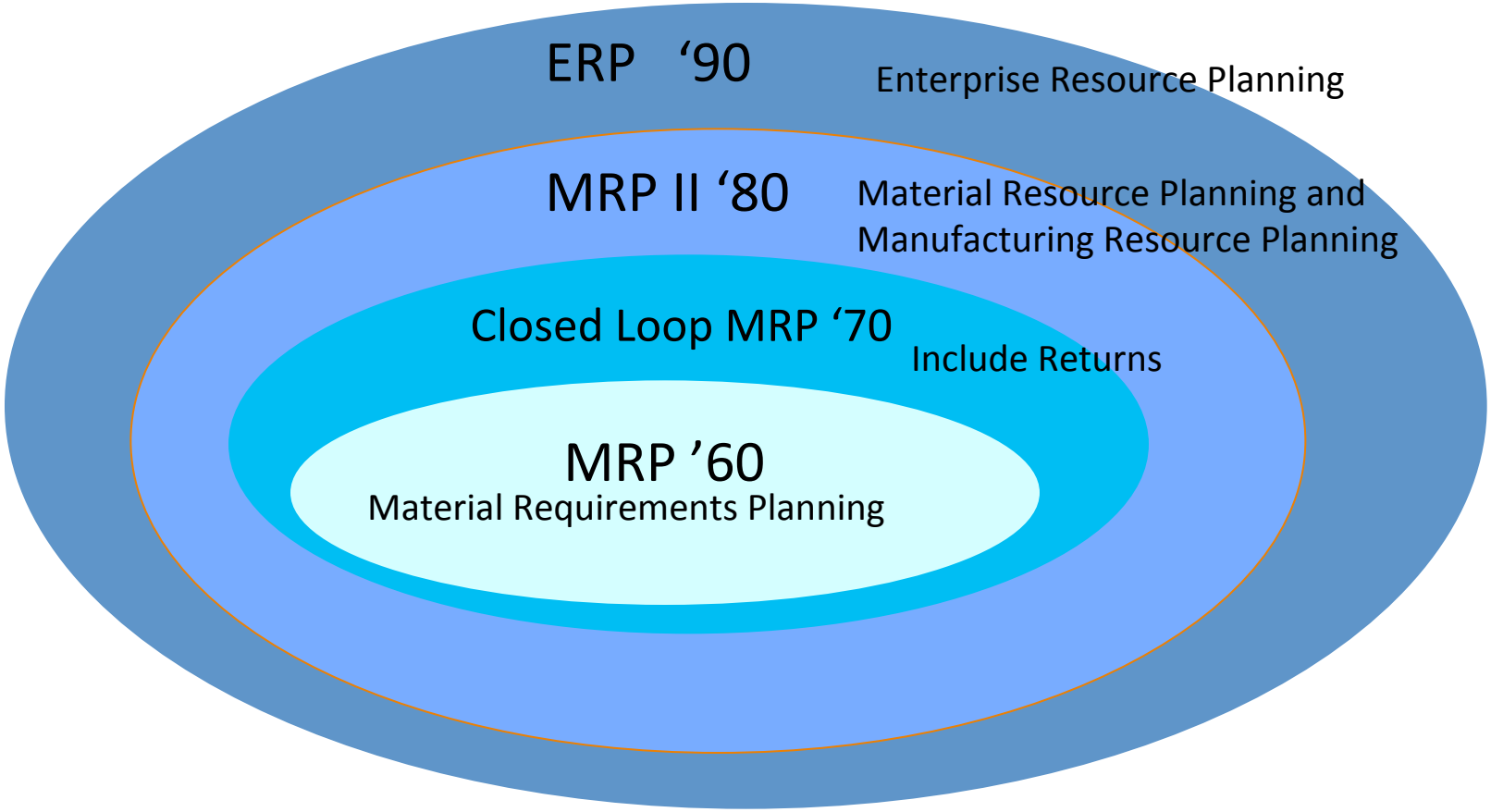
# MRP -> MRP II -> ERP

- MRP – Material (or Manufacturing – mfg) Requirements Planning (70's)
  - Scope: typically mfg companies
  - Calculate material requirements (quantity, where, when, etc.) by translating Master Production Schedule (MPS) into component and Raw Material (RM) demands
  - 'Little MRP'

- MRP II
  - MRP extended to resources beyond materials (capacity, detailed schedule, labor, etc.)
  - Includes demand from customer orders and/or forecasts
  - 'Big MRP'

- Enterprise Resource Planning (90's)
  - Scope: Full enterprise (all companies, sites, processes, …)

# Evolution of ERP



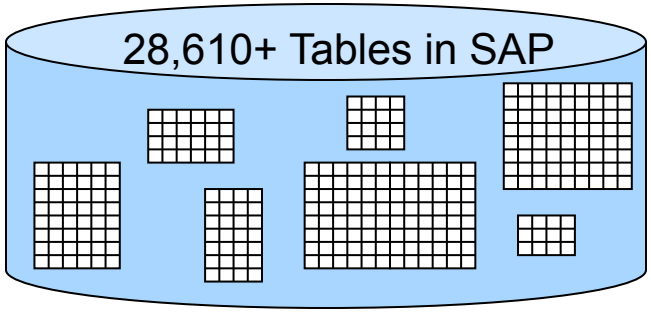

MRP and MRP II only focus on manufacturing

# ERP Systems

- Software technology (system)
- Enables performing business processes
- Typically suite of integrated solutions (single vendor, common database, consistent look and feel …)
- Scope beyond mfg, distribution, order - invoice to include:
  - Customer relationship mgmt (CRM)
  - Human Resources (HR)
  - Project Management (PCM)

# ERP Systems

- Incredibly large, extensive software packages used to manage a firm's business processes.
- Standard software packages that must be configured to meet the needs of a company
- Database programs with the following functions:
  - Input
  - Storage/Retrieval
  - Manipulation
  - Output

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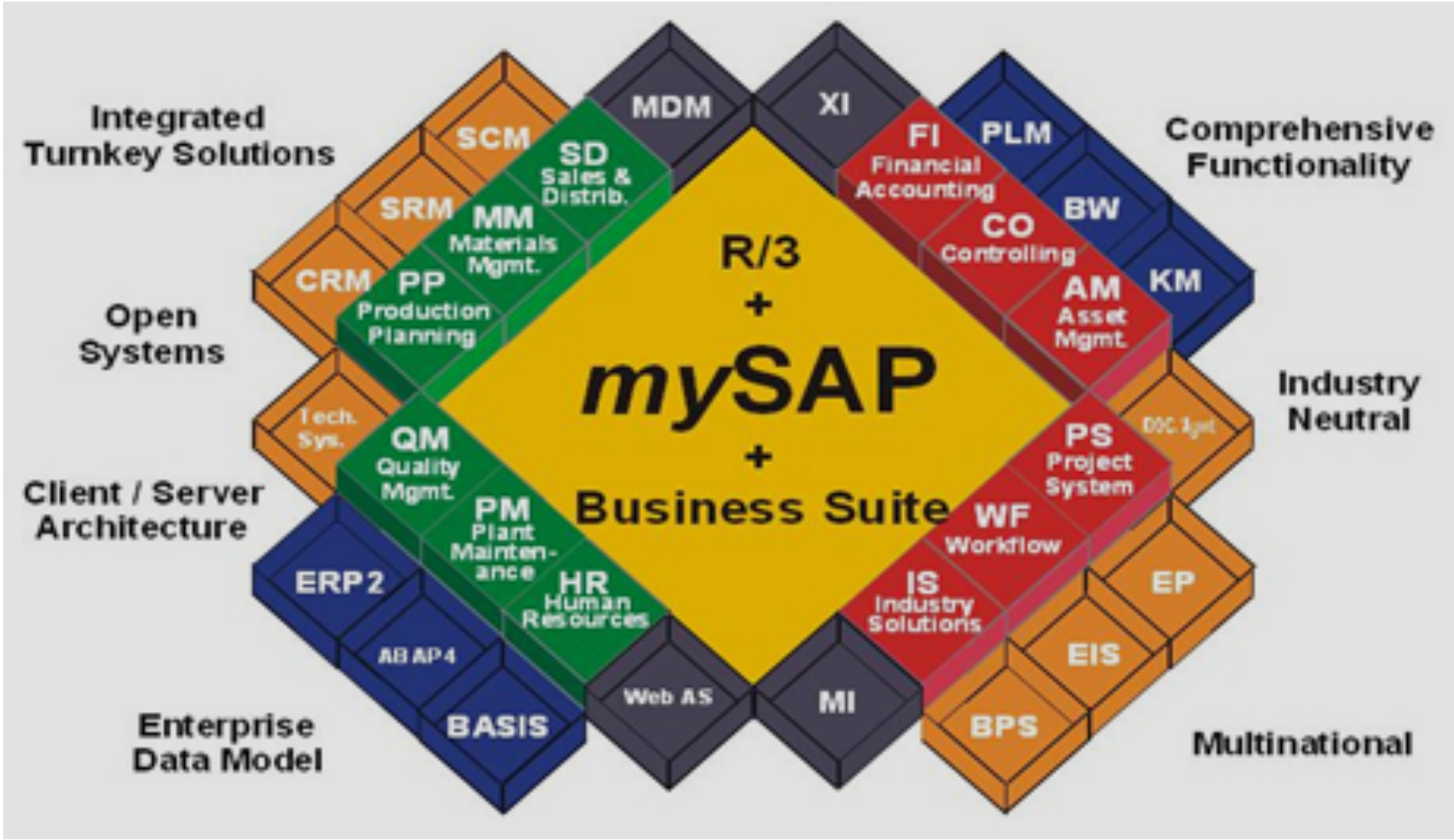
# ERP System Suppliers

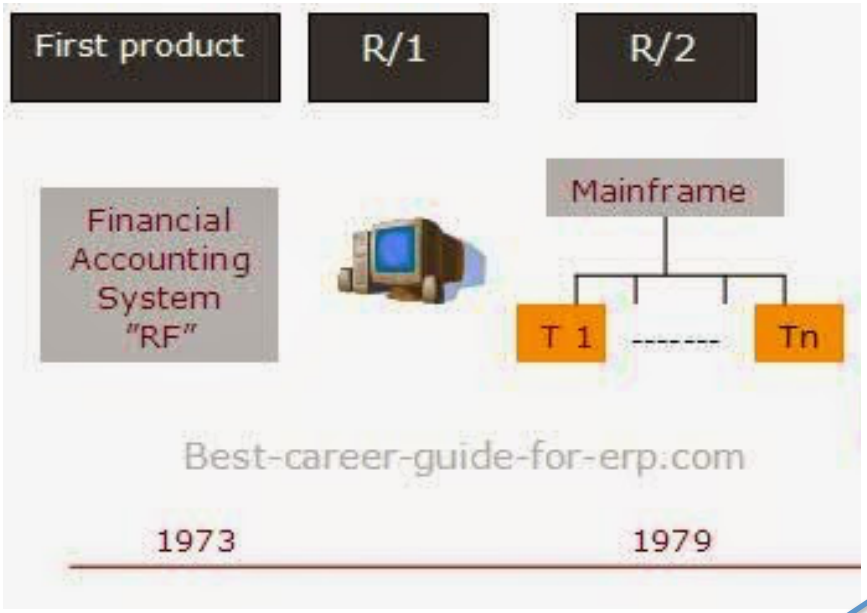
- SAP, the German juggernaut
  - Systeme, Anwendungen, Produkte in der Datenverarbeitung, or
  - Systems, Analysis and Products in Data Processing
- Oracle/PeopleSoft/J. D. Edwards (J.D. Orisoft)
- Microsoft Great Plains, aimed at smaller companies
  - SAP Business One is competing product
- Local Country Solutions (limited scope)
  - e.g. China

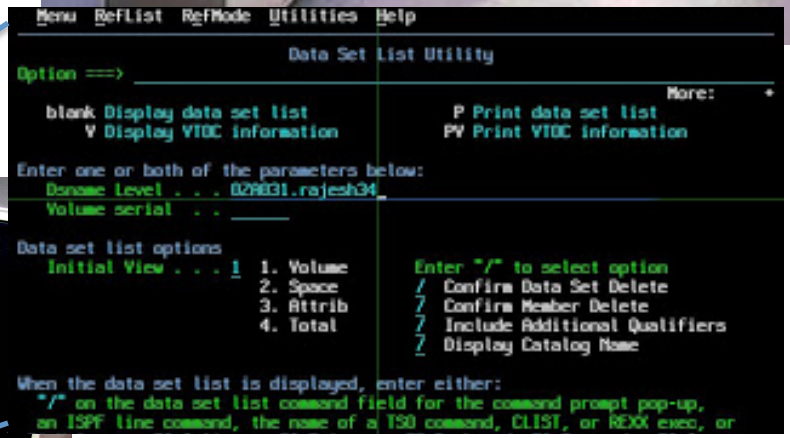
# SAP ERP 6.0


Integrated Turnkey Solutions
Open Systems
Client / Server Architecture
Enterprise Data Model
Comprehensive Functionality
Industry Neutral
Multinational
MDM
XI
SCM
SD Sales & Distrib.
SRM
MM Materials Mgmt.
CRM
PP Production Planning
FI Financial Accounting
PLM
BW
CO Controlling
KM
AM Asset Mgmt.
R/3
+
mySAP
+
Business Suite
Tech. Sys.
QM Quality Mgmt.
PM Plant Mainten-ance
HR Human Resources
PS Project System
WF Workflow
IS Industry Solutions
EP
EIS
BPS
ERP2
AB AP4
BASIS
Web AS
MI

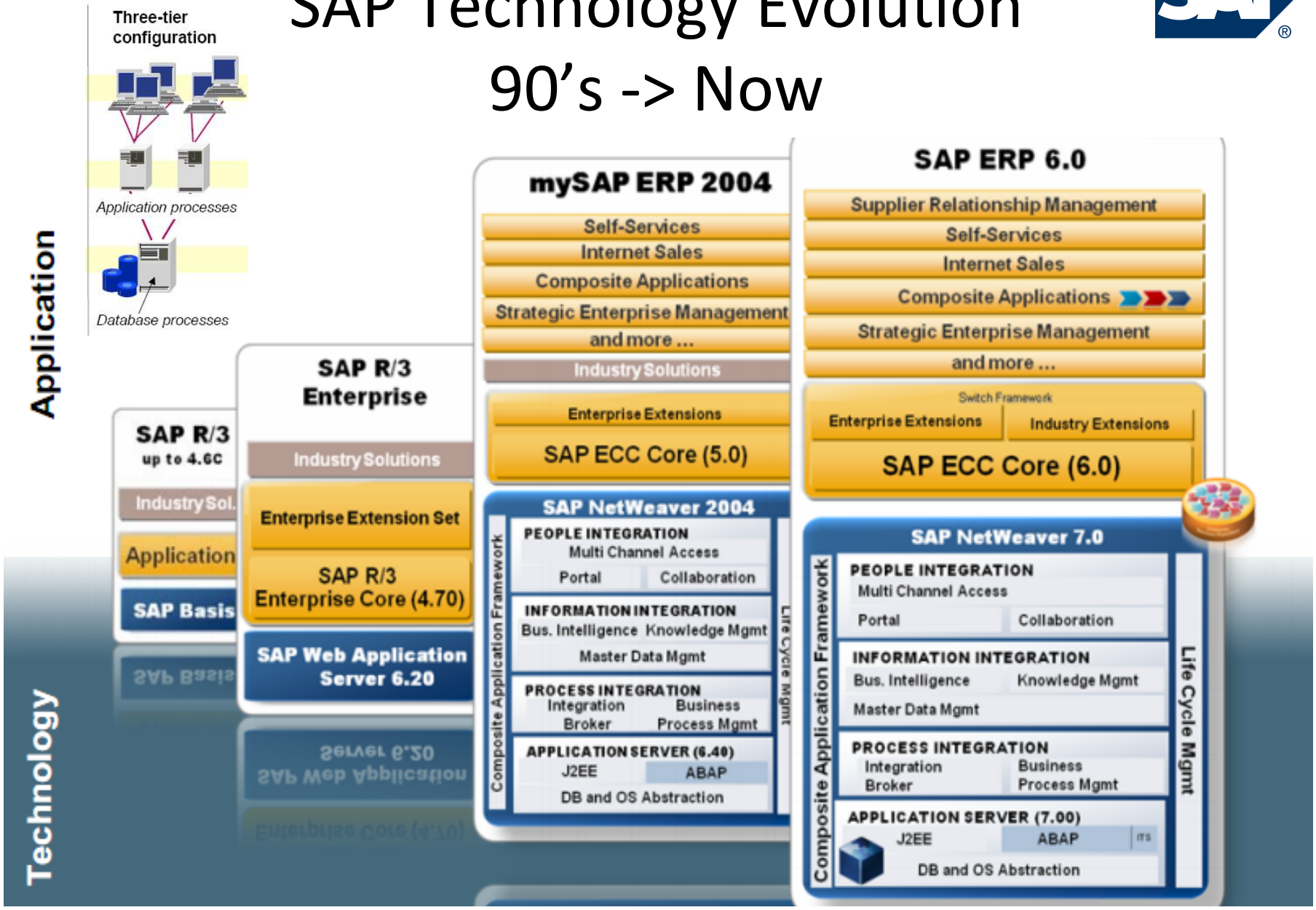
# SAP Technology Evolution (70's)

Mainframe Days



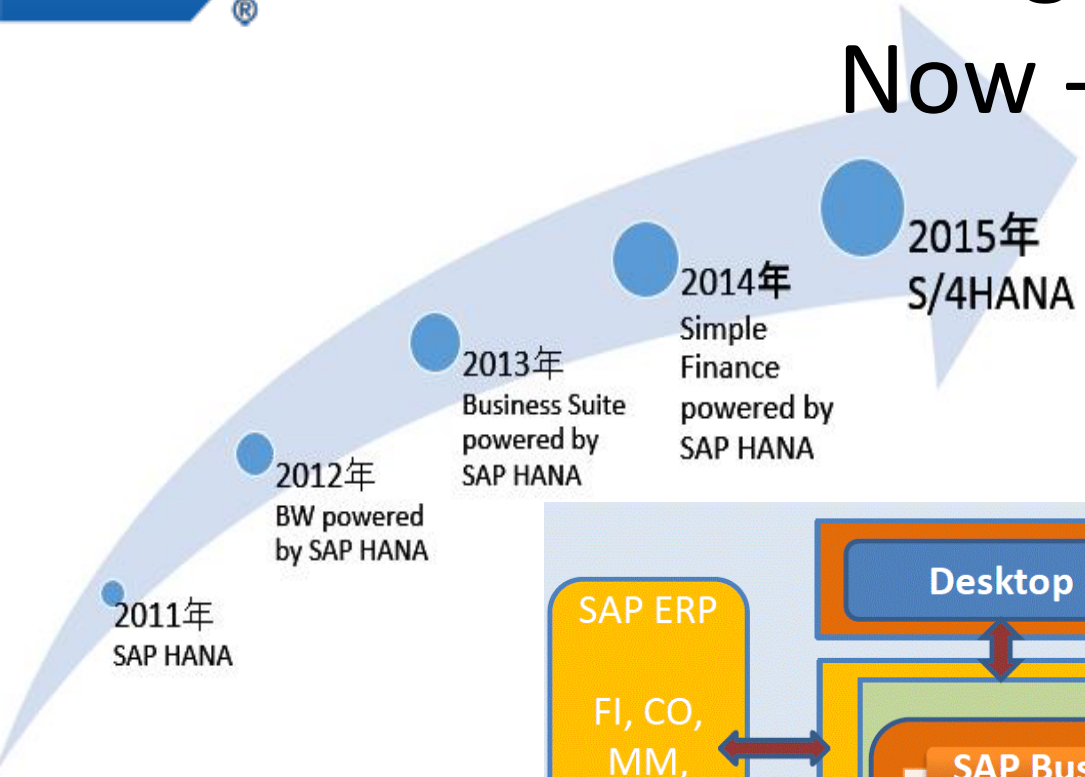


# SAP Technology Evolution
# 90's -> Now

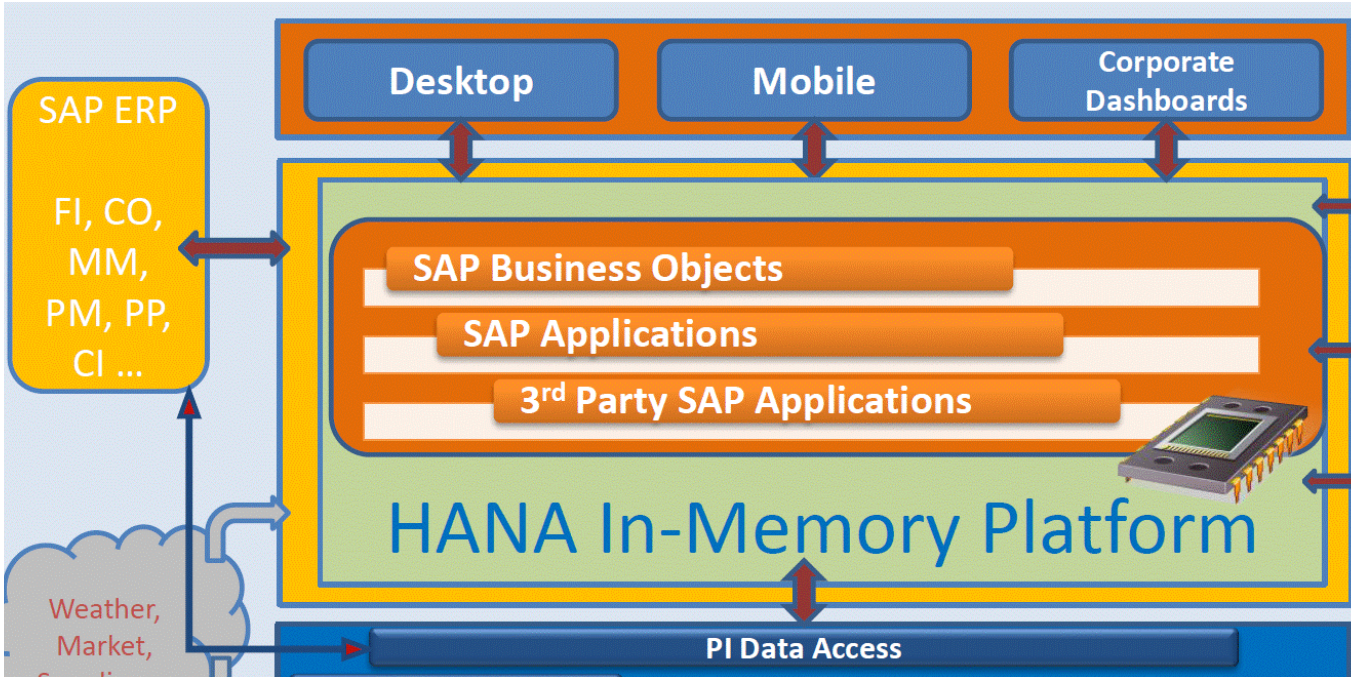


# SAP Technology Evolution

## Now ->




**SAP HANA:** in-memory, column-oriented, relational DB & related apps




SAP **H**igh-Performance **An**alytic **A**ppliance

# ERP System Implementation

- Configuration: process of making standard software fit your business
  - Achieved via setting defined parameters, config table entries
  - SAP: Over 8000 configuration decisions
  - Data structuring
    - Sales divisions, distribution channels
- Modifications: Rewriting standard system code
  - Not recommended because of compatibility problems when updated versions of the software are installed.

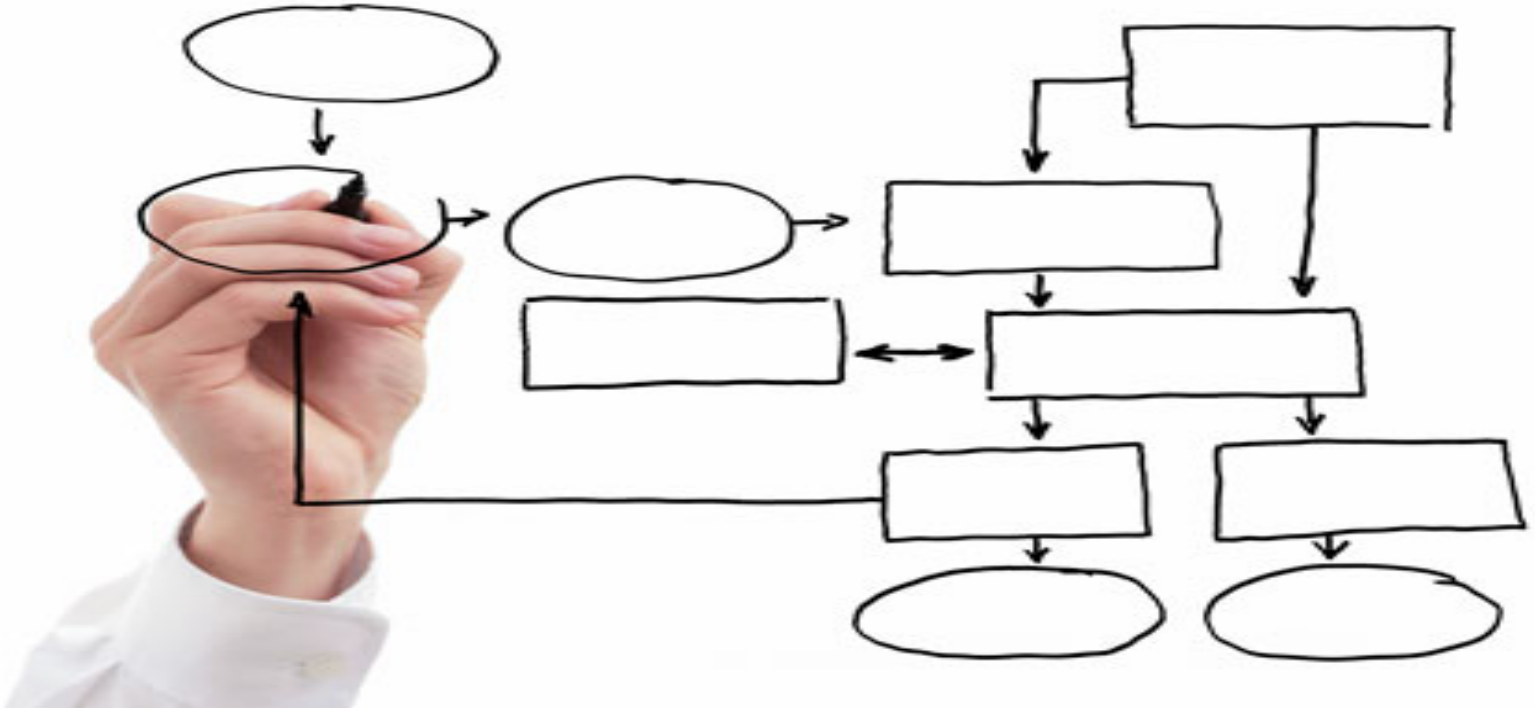
# ERP System Implementation

- Customization: Writing code
  - Forms
  - Reports
  - Interfaces
    - Third-party software solutions
    - External Partners
    - Legacy Systems
  - Conversion of data
  - Enhancements to system logic - at SAP-specified user exits

# ERP System Implementation

- Change Management: People side of
  - Design consistent with system / process 'best practices'
  - Documentation
  - Training
  - Manage the organization / politics
- Huge / Risky Projects:
  - Affects the basics of how an organization operates
  - $$$$
  - Need help of experts

# Break Time



Business Processes,
Systems (ERP),
**& Controls**

# Discuss (5 minutes)

What to you know of the following …

- Enron
- WorldCom
- Arthur Anderson

# Control Failure: Enron

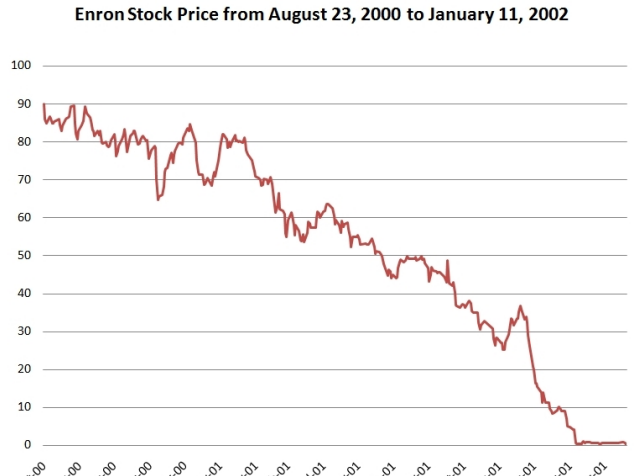
- Background:
  - Natural Gas Trading company that grew significantly as that market was deregulated
  - To further growth it diversified into other industries (electricity plants, pulp and paper, water plants)
  - Gained revenue by trading contracts for these products and services (1996 – 2000)
  - Fueled stock price increases and rated as an innovative large company

- Control Failures:
  - Pushed envelope in using alternate (aggressive) revenue valuation techniques for contracts (Mark-to-market accounting)
  - Hid capital costs and risks in off balance sheet, special purpose entities.
  - Booked costs of cancelled projects as assets due to 'technicalities' (no official letter)
  - External Auditors (Arthur Anderson) had conflicted incentives for local partners (were able to overrule critical reviews of decisions by AA partners)
  - Audit committee didn't have technical knowledge to question accounting practices, conflicts of interest, pressure not to raise questions

# Control Failure: Enron

- Results / Outcomes:
  - Company went bankrupt in 2001 (largest at time – eclipsed by WorldCom)
    - Estimated loss of $62B shareholder value
    - Layoff of ~22,000 employees
    - Many folks lost $$B (including Enron Employees with stock in 401-K, pensions (e.g. Florida State Pension fund), etc.)
  - Many executives indicted – some sentenced to prison
  - Arthur Anderson was external auditor for Enron
    - Convicted of destroying documents (30,000) relevant to SEC investigation (later overturned)
    - Company lost customers, ceased operating (25,000 people lost a job)
  - One Driver for regulations / legislation like Sabanes-Oxley Act (more about 'SOX' later)

ARTHUR ANDERSEN




- References / Links:
  - http://en.wikipedia.org/wiki/Enron_scandal
  - **SAP GRC for Dummies** by Vu Broady, Denice &Roland, Holly
    Published by Wiley Publishing, Inc., 2008

# Results of Massive Failures

FRAUD

Sarbanes – Oxley Act (US)

SOX (Canada)

SOX (Japan)

SOX (China)

SEC Regulations (US)

Combined Code on Corp Governance (UK)

Eighth EU Directive (Audit Directive)

Stock Corporation Act (Germany & Austria)

Basil II and III (EU Banking)

Various others

# Business Risk Drivers

**External Financial Reporting regulations**

Sarbanes – Oxley Acts

GAAP

Various Others

**Other Reg's**

FDA

Chemical Control Laws

GMP

Import
Export

**Organization's Objectives & Policies**

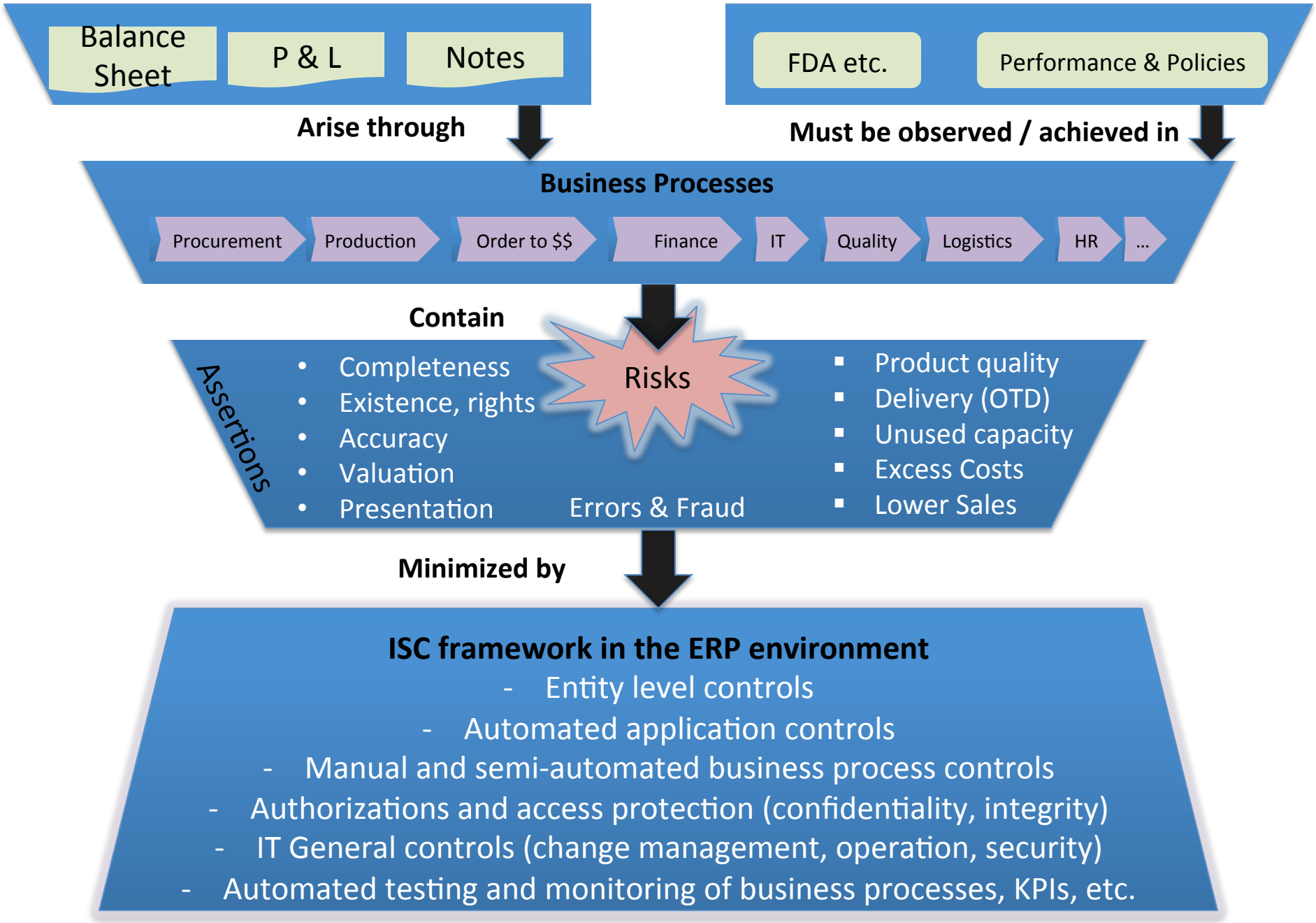
Balanced Scorecard

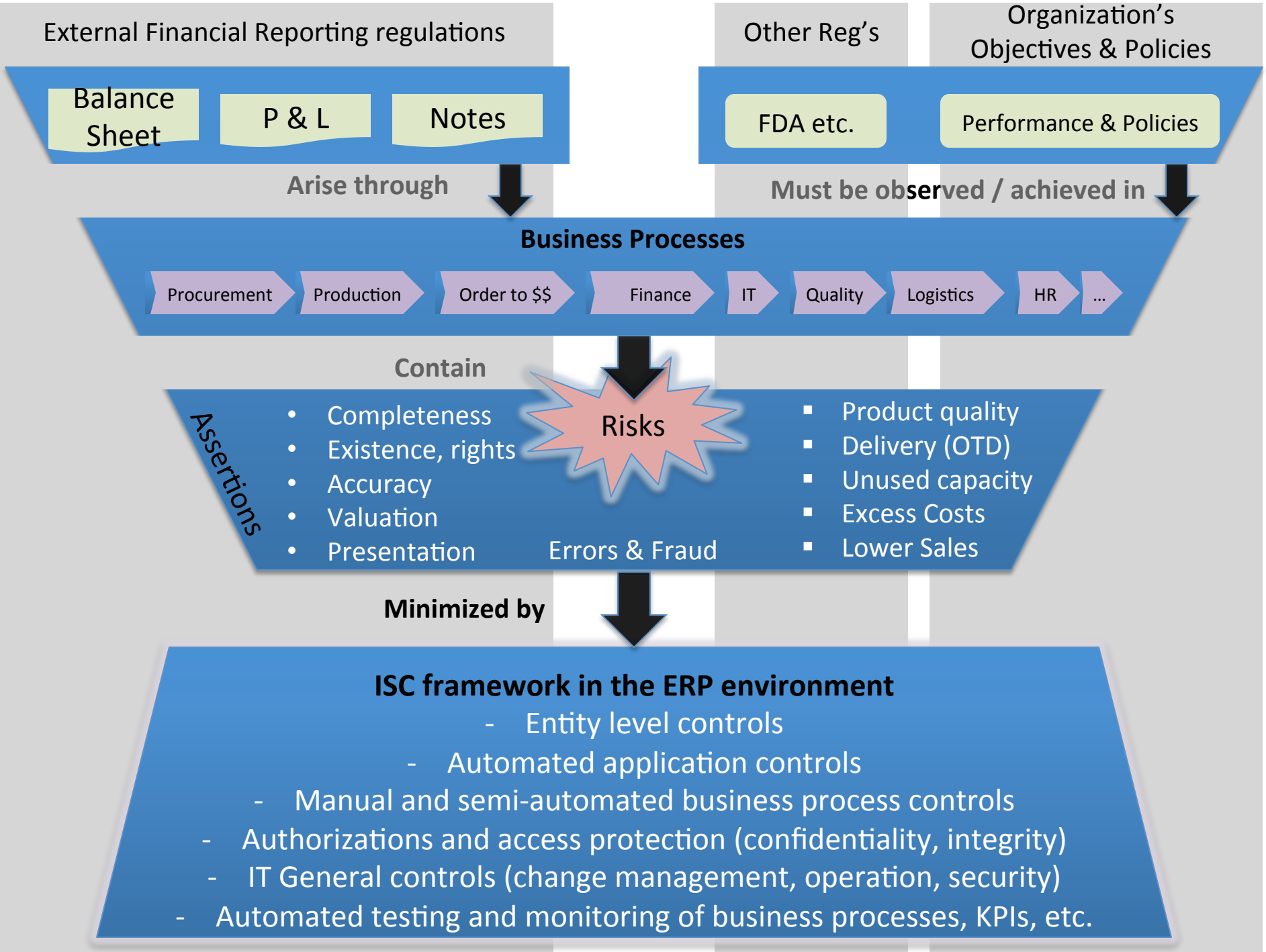
KPI's

Process Improvement

Profitability

# Risk Control Framework

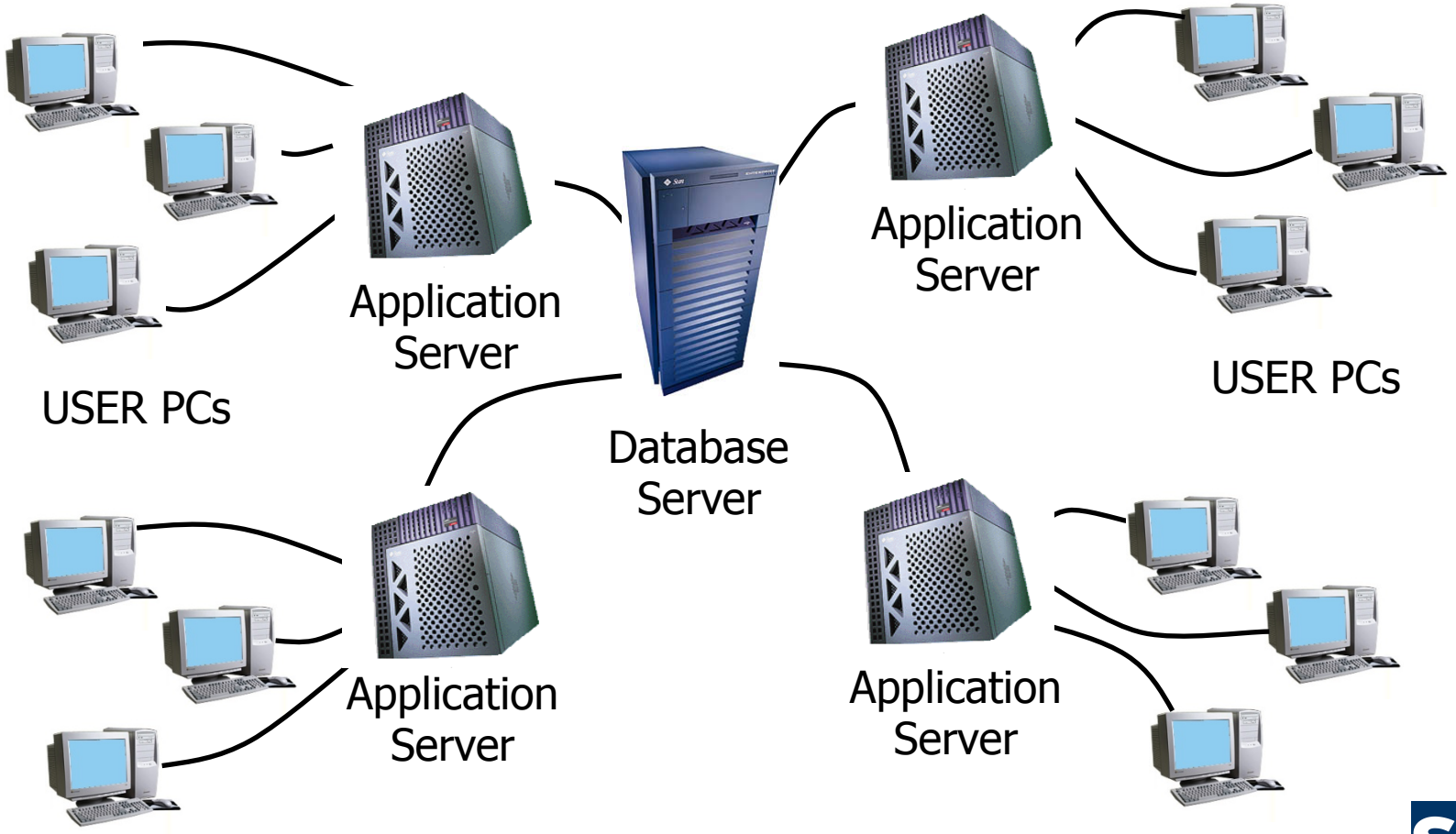



External Financial Reporting regulations
Other Reg's
Organization's Objectives & Policies
Balance Sheet
P & L
Notes
FDA etc.
Performance & Policies
Arise through
Must be observed / achieved in
Business Processes
Procurement
Production
Order to $$
Finance
IT
Quality
Logistics
HR
...
Contain
Assertions
Completeness
Existence, rights
Accuracy
Valuation
Presentation
Risks
Errors & Fraud
Product quality
Delivery (OTD)
Unused capacity
Excess Costs
Lower Sales
Minimized by
ISC framework in the ERP environment
- Entity level controls
- Automated application controls
- Manual and semi-automated business process controls
- Authorizations and access protection (confidentiality, integrity)
- IT General controls (change management, operation, security)
- Automated testing and monitoring of business processes, KPIs, etc.

# Exercise Objectives

- Understand how Connection is made to operational SAP system
- Each person logon to GBI system
  - Password reset
- Review SAP User Interface navigation and common components
- Add ‘favorite’ transactions and use each:
  - SE16N – Table display
  - SU01D – Display user
  - SPRO – Configuration access
- Logoff

# Three-tier Client/Server Architecture

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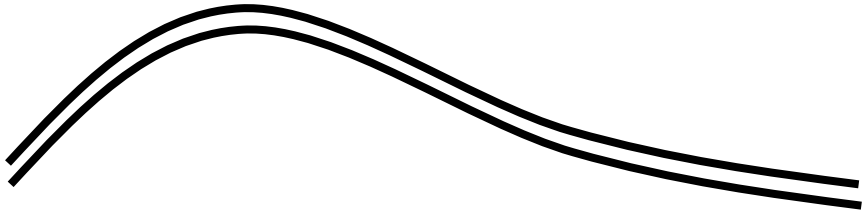
# Logging On – SAP GUI

- To log on to an R/3 system with the SAP Gui, you need the proprietary SAP Gui (Graphical User Interface) software loaded on your system and an internet connection

Account on
SAP R/3 System
at hosting site



Internet Connection

PC with SAP Gui

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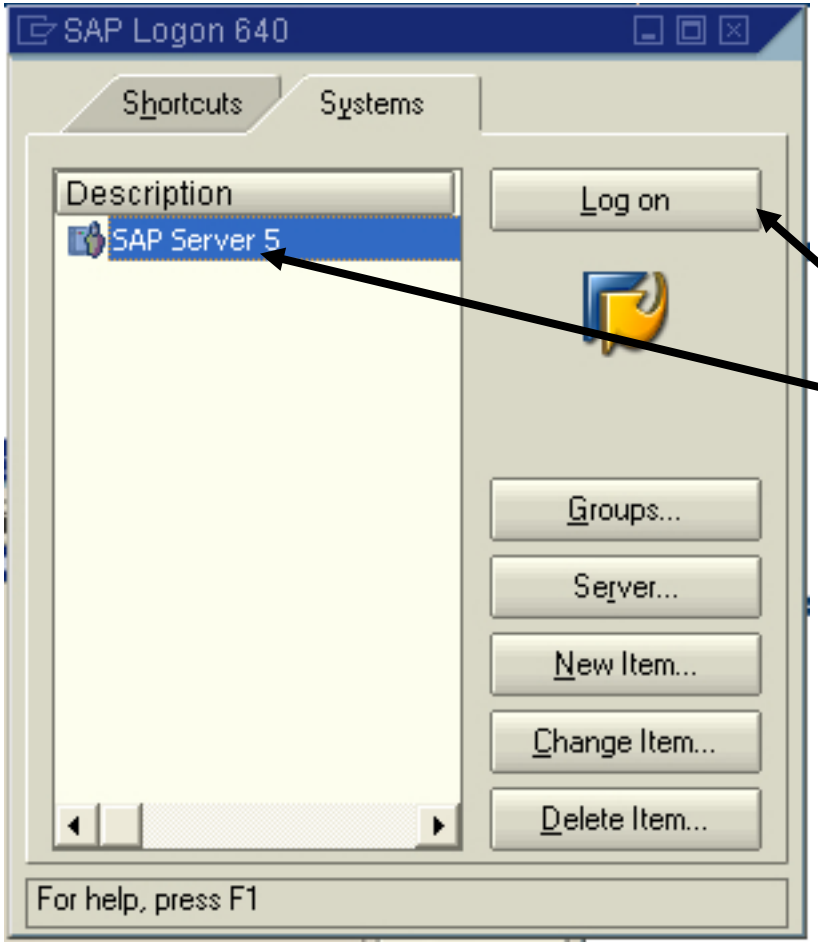
# Configured SAP Gui




Select System: double-click or Logon button



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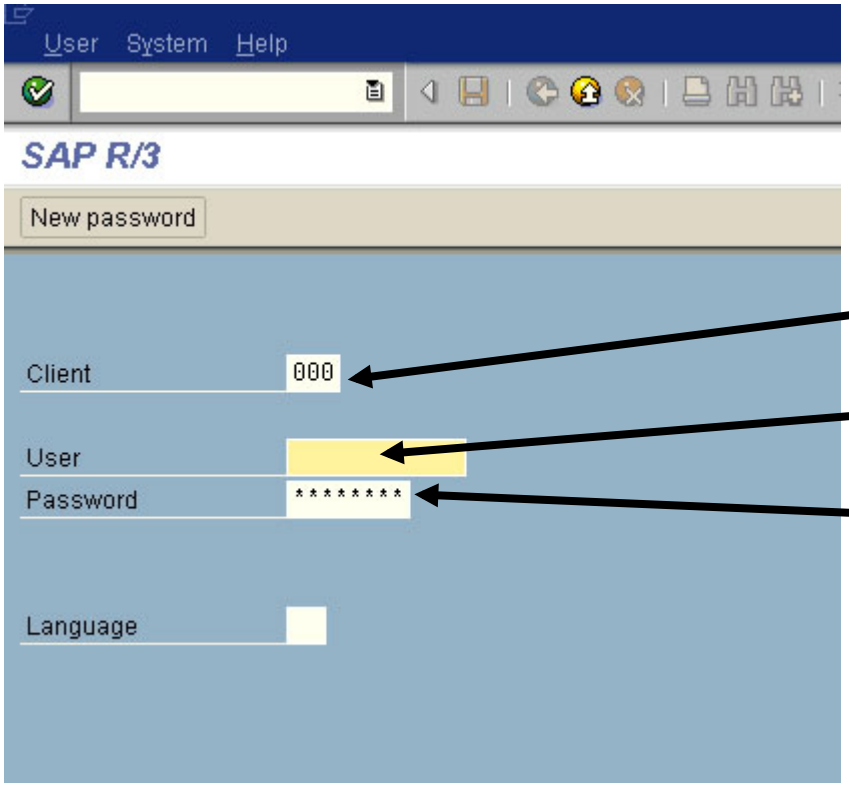
# Logging On




Enter Client

Enter User (R/3 Account)

Enter Password (R/3 Account)

Don't worry about language—English will default in



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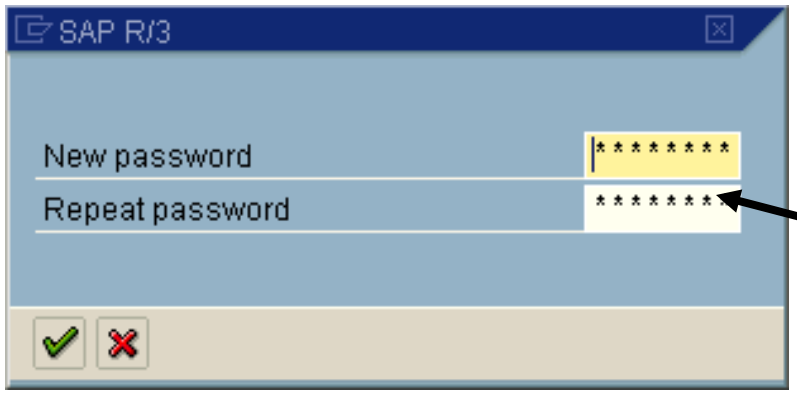
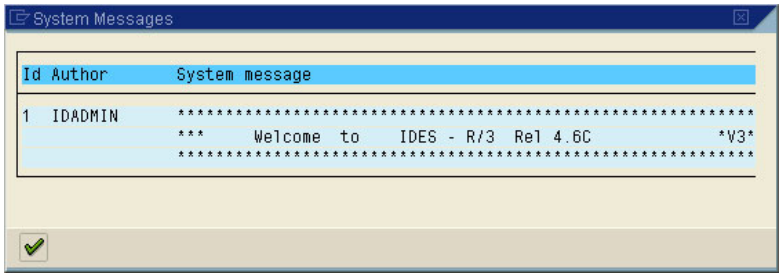
# SAP Access Details

| | |
|---|---|
| **SAPGUI - System ID** | **GB1** |
| **Host Name** | **GB1.UCC.UWM.EDU** |
| **Client Name** | **SAP ERP GBI AIS 2.21 (MCC)** |
| **Client Number** | **330 – to be determined** |
| **SAPGUI - System Number** | **00** |
| **Student Userids** | **AIS-002 to AIS-004 0 - TBD** |
| **Student Passwords (case sensitive)** | **AISDevel - TBD** |

# Logging On ...2




On the first time logging in to a new account, you will have to change the password—try To remember your new Password WITHOUT WRITING IT DOWN!

Then a message or two

Then . . . .



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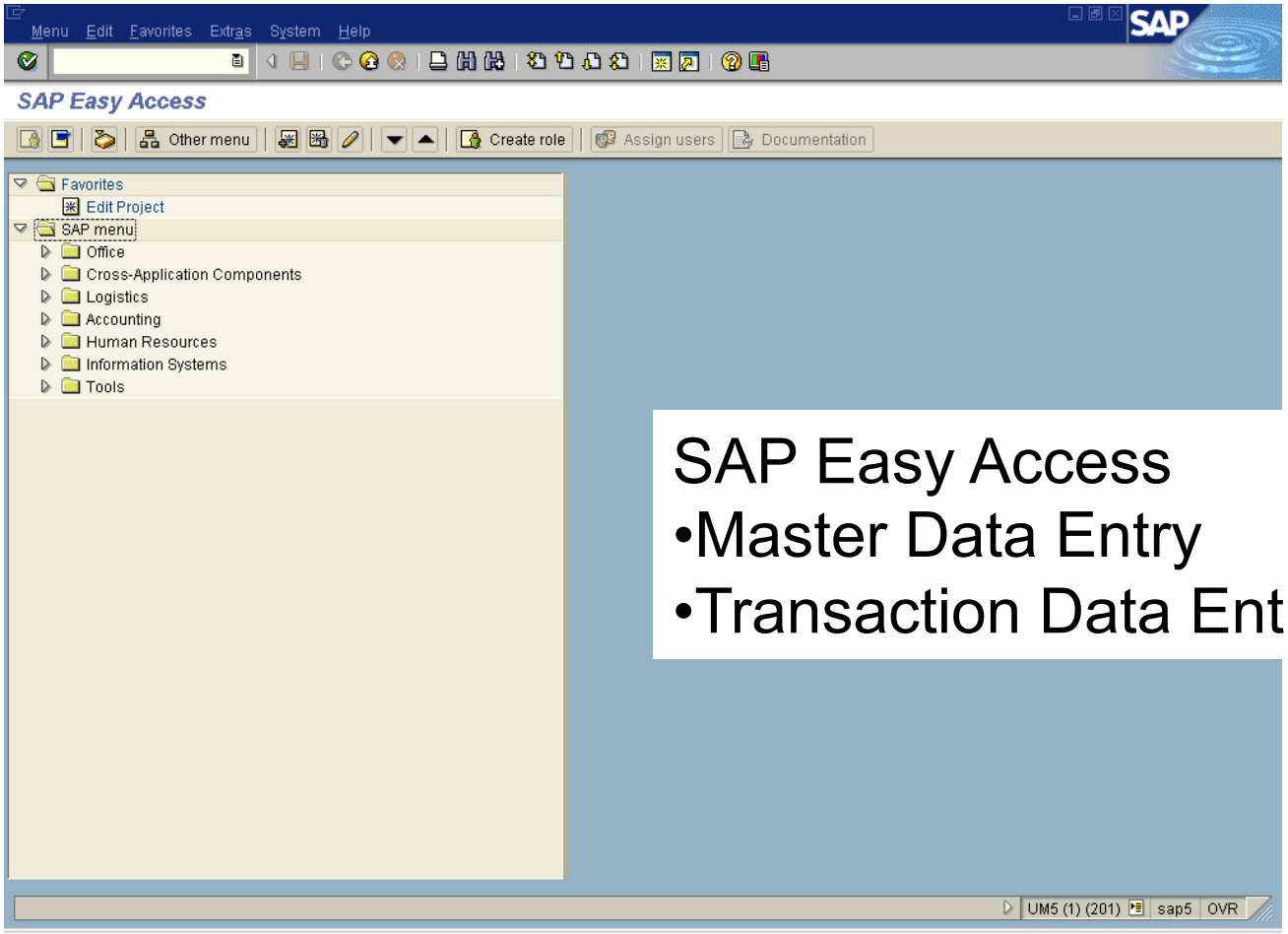
# Success !!




SAP Easy Access
- Master Data Entry
- Transaction Data Entry



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# Exercise Objectives

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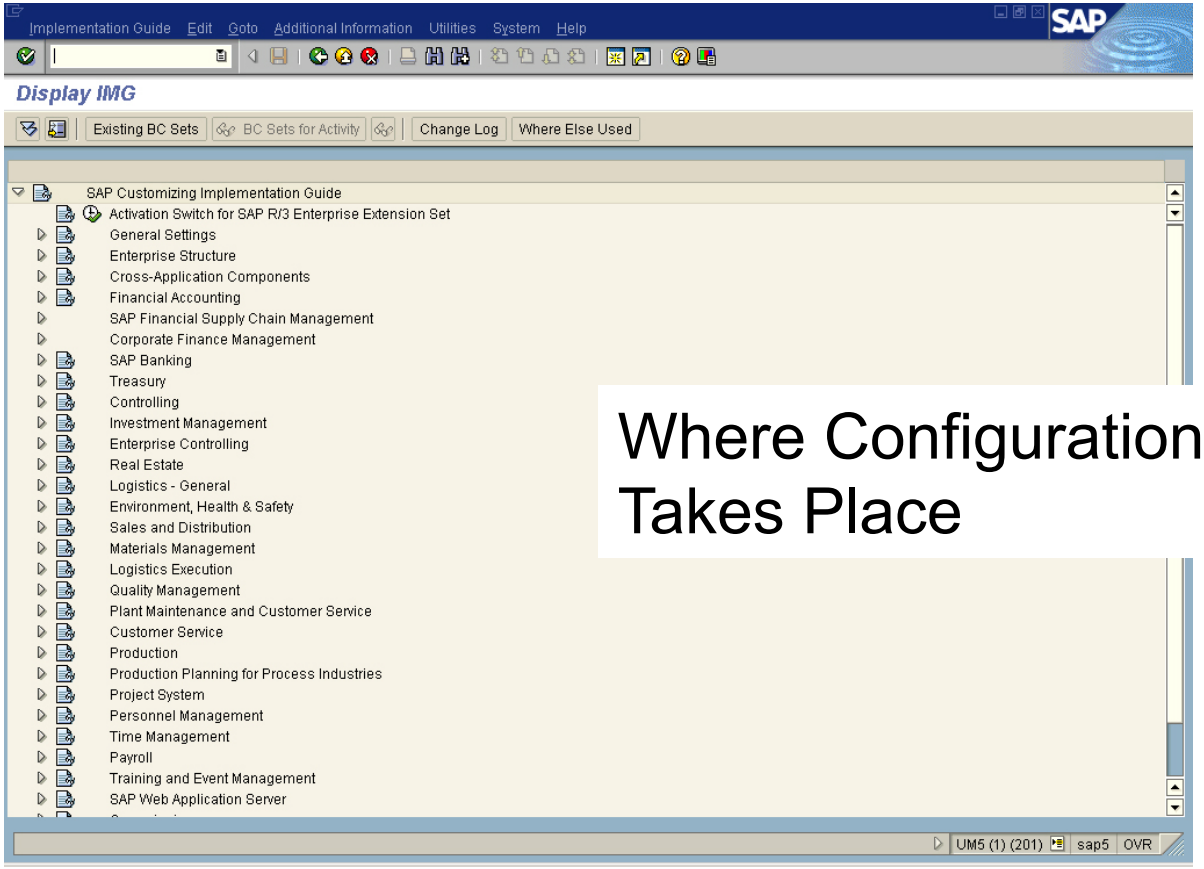
  - SU01D – Display user
  - SPRO – Configuration access
- Logoff

# SPRO: Implementation Guide (IMG)




Where Configuration Takes Place