

MIS 2151:

Enterprise Resource Planning Systems

*Introduction: Course, ERP, SAP, Controls*

# Introduction: Course

Course [Web Home](#)

See [Syllabus](#)

View [Schedule](#)

# Introduction: Me and you

- Name
- Why in this course
- Unique experience, skills you bring to the class

# 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, ...)



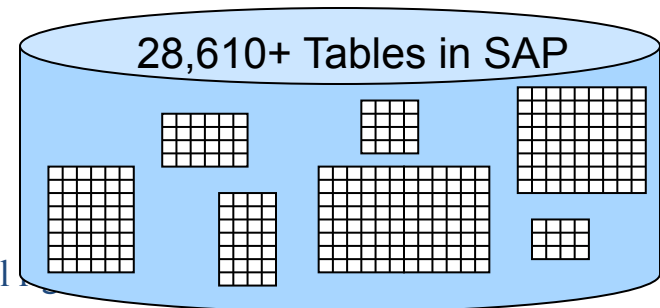
# ERP Systems

- 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



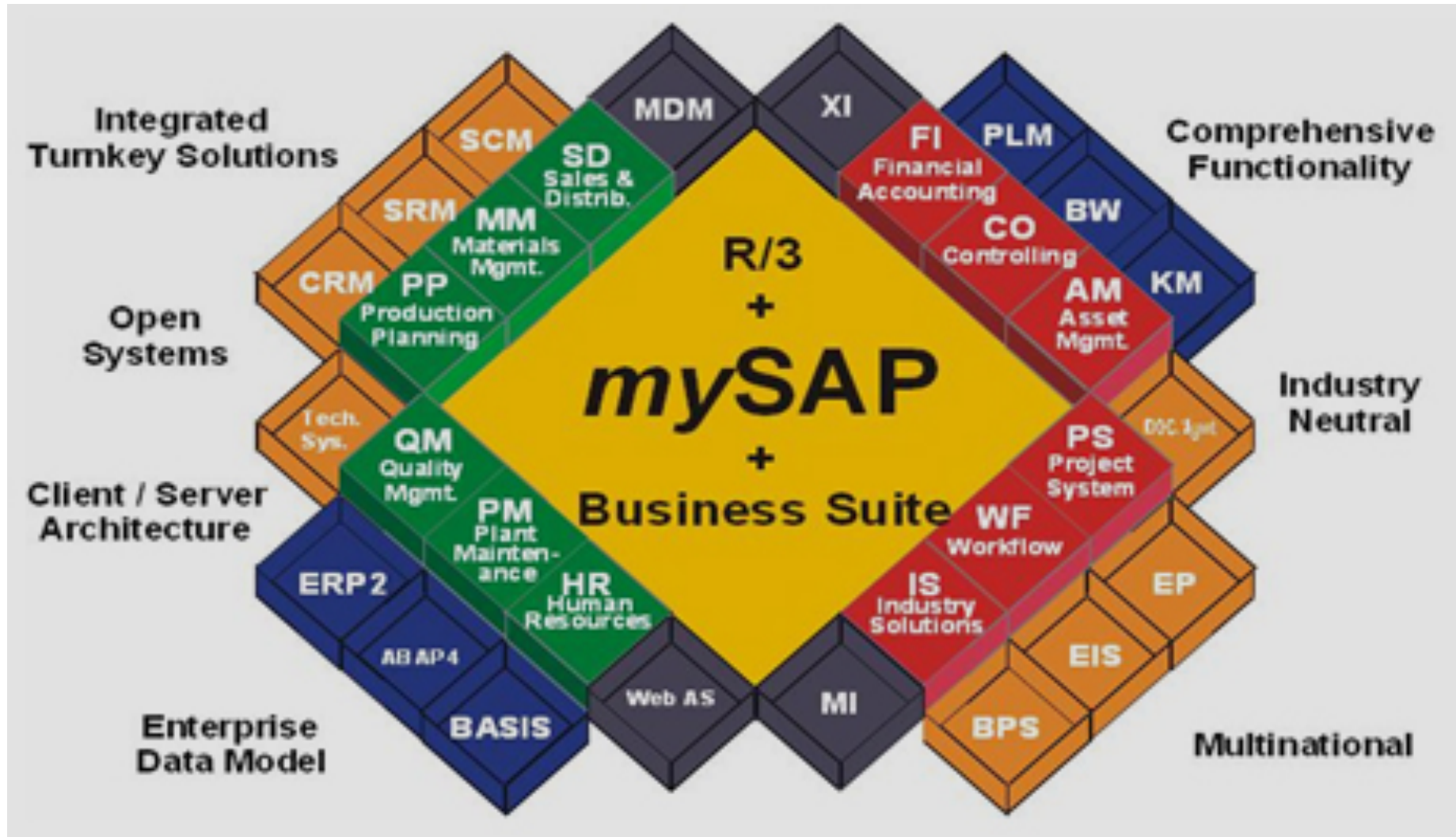
# ERP System Suppliers

- 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

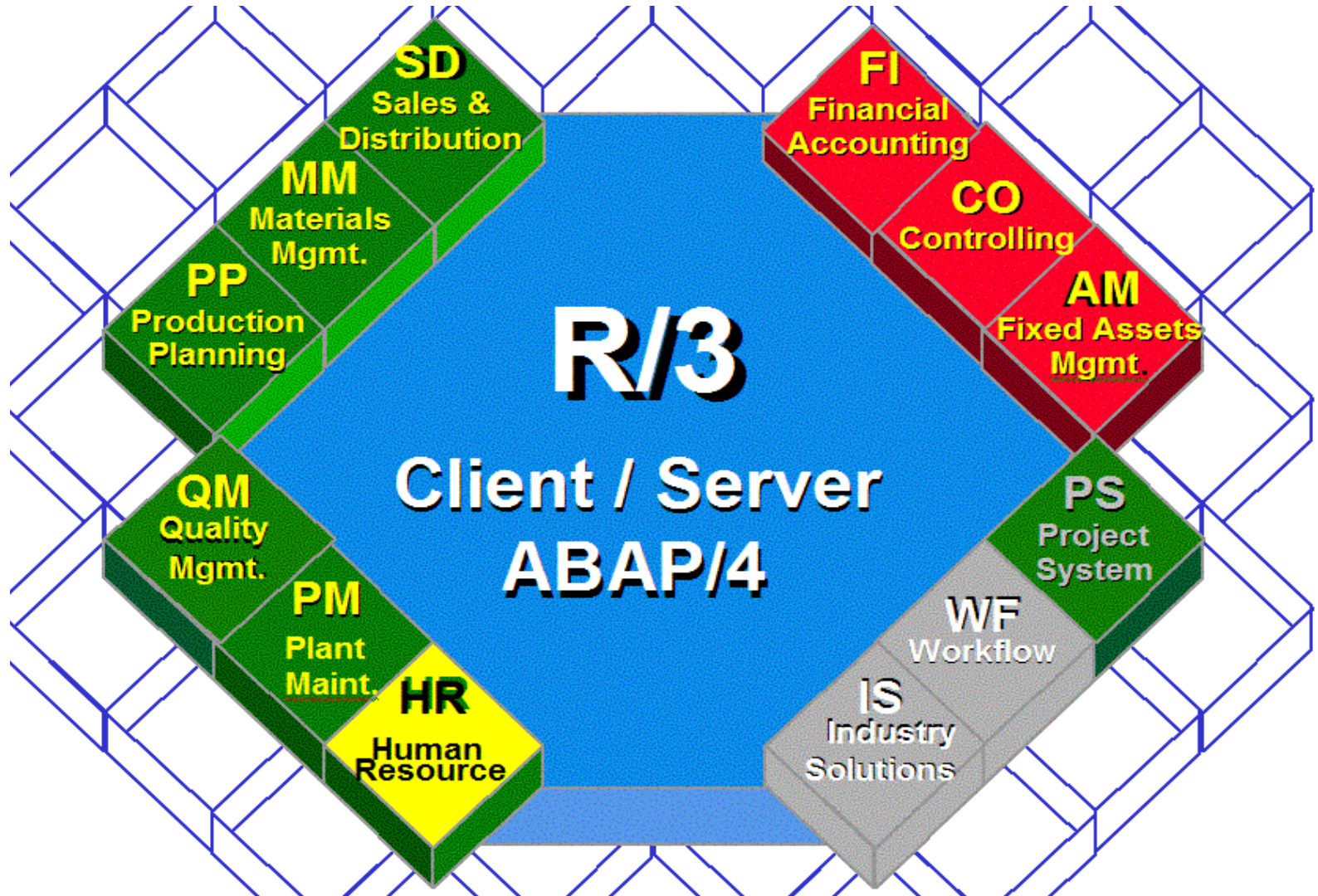




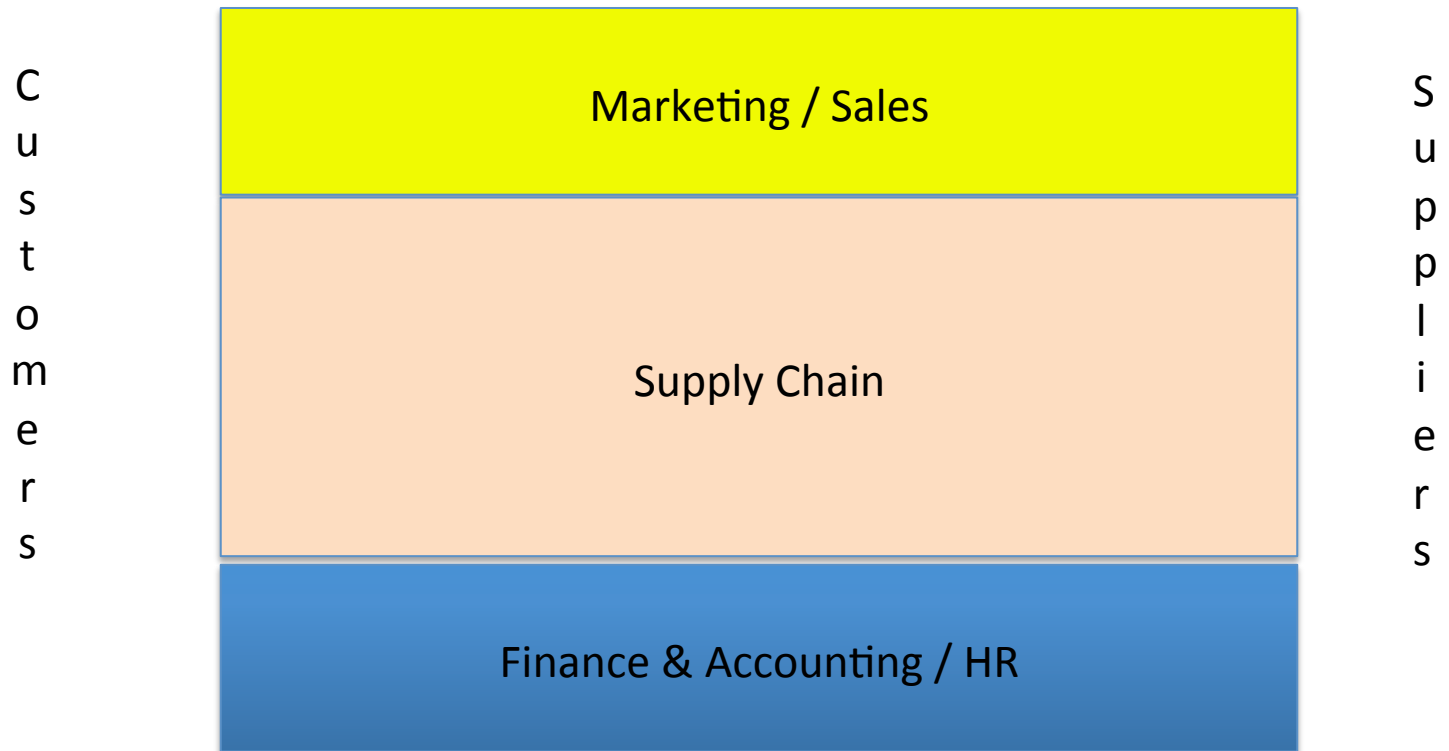
# SAP R/3 Enterprise



# SAP ECC (Enterprise Central Component) Function Modules

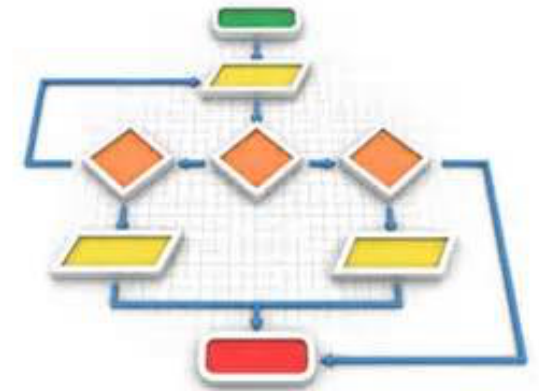


# Business Functions / Organization



# Business Processes

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



# 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





# Discuss (5 minutes)

What do 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



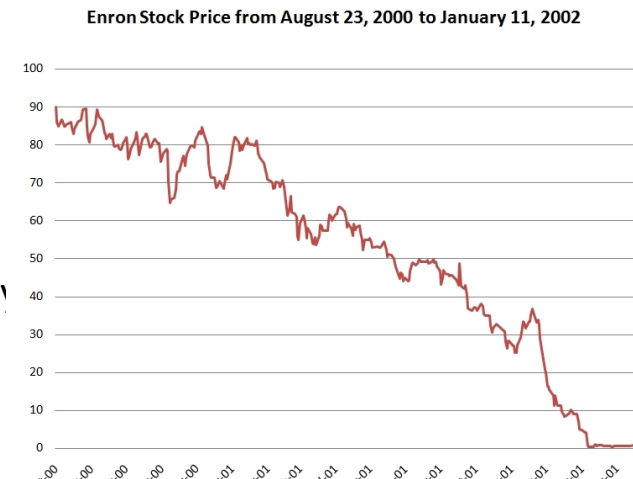
- Results / Outcomes:

- ❖ 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)



- References / Links:

- ❖ [http://en.wikipedia.org/wiki/Enron\\_scandal](http://en.wikipedia.org/wiki/Enron_scandal)
- ❖ **SAP GRC for Dummies** by Vu Broady, Denice & Roland, Holl Published by Wiley Publishing, Inc., 2008



# Results of Massive Failures



**FRAUD**



Sarbanes – Oxley Act (US)

SEC Regulations (US)

SOX (Canada)

Combined Code on Corp Governance (UK)

Eighth EU Directive (Audit Directive)

SOX (Japan)

Stock Corporation Act (Germany & Austria)

SOX (China)

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

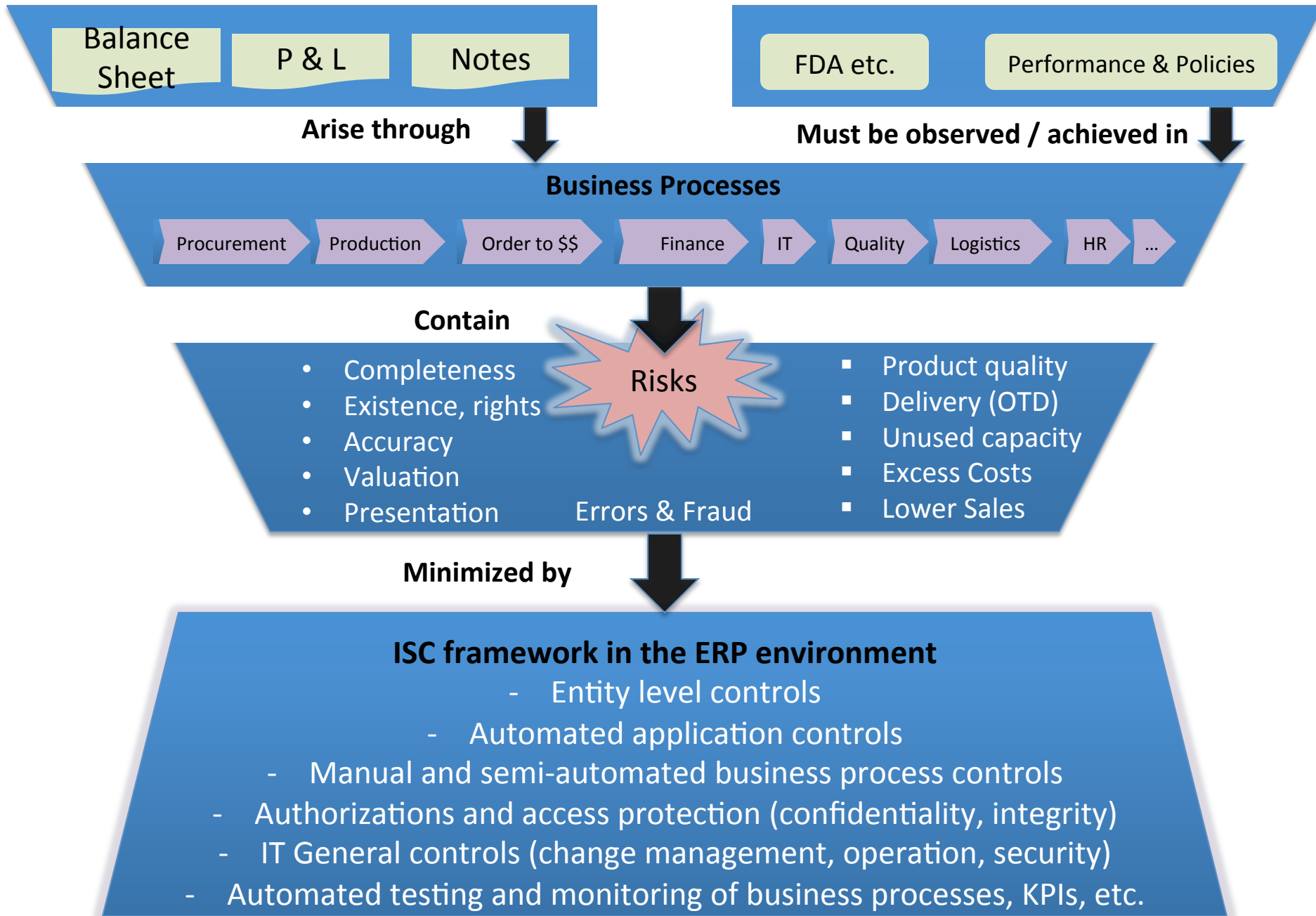
Process  
Improvement

Profitability



Risks

# 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

- Completeness
- Existence, rights
- Accuracy
- Valuation
- Presentation

Risks

- Product quality
- Delivery (OTD)
- Unused capacity
- Excess Costs
- Lower Sales

Errors & Fraud

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.

# SAP 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.

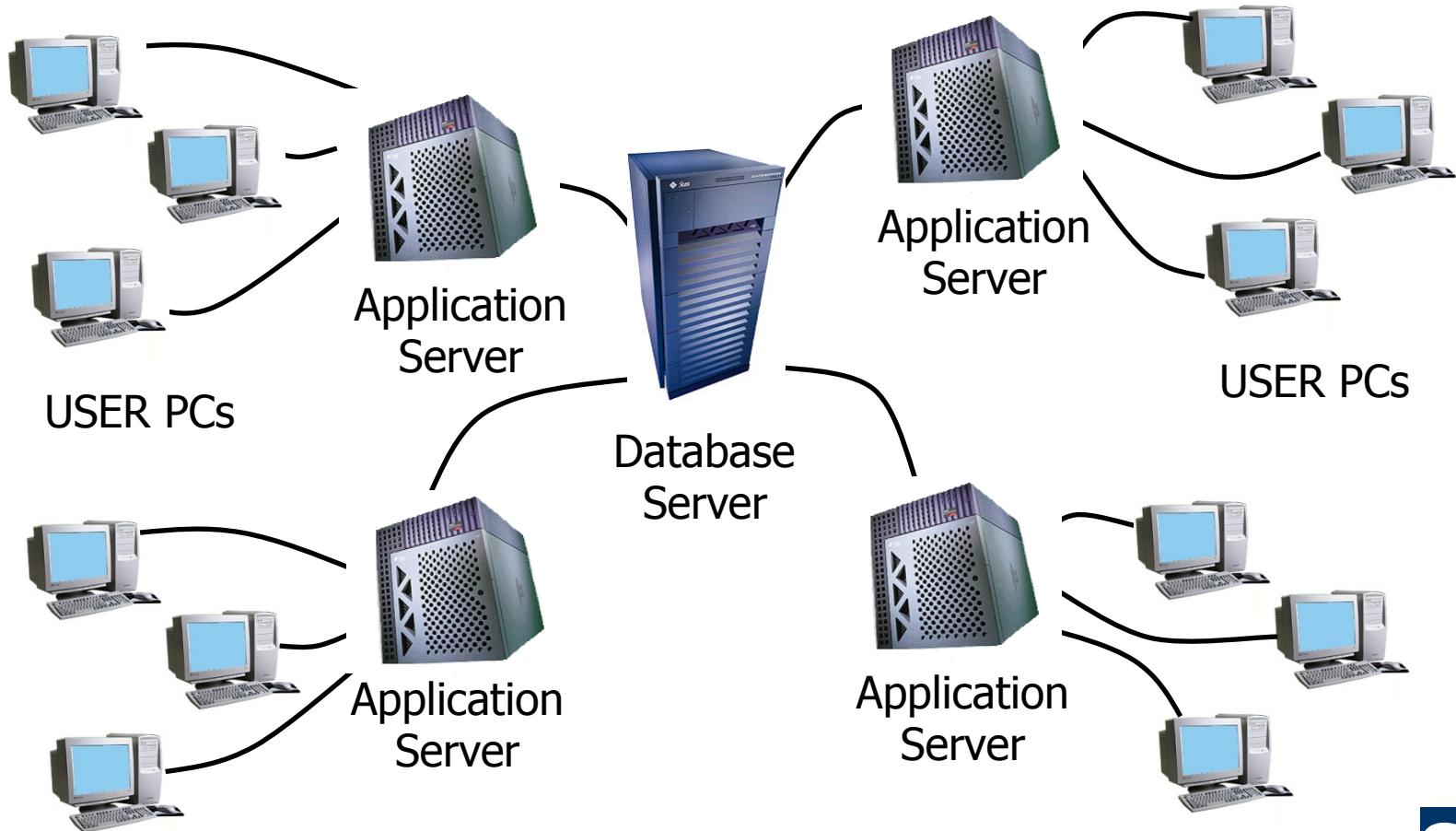


# Exercise Objectives



- 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

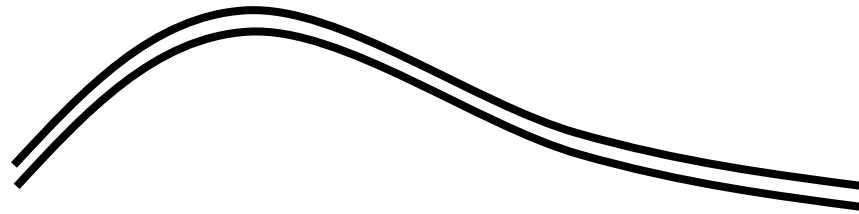


# Logging On – SAP GUI

- ◆ 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

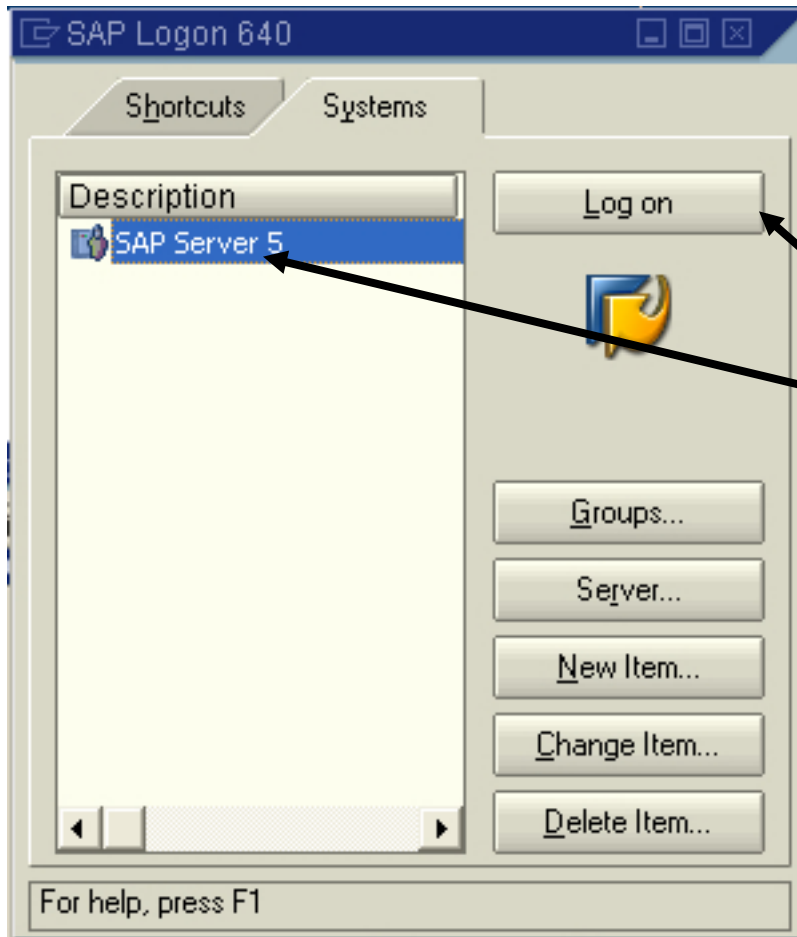


Internet Connection



PC with SAP Gui

# Configured SAP Gui



Select System:  
double-click or  
Logon button

# Logging On

The screenshot shows the SAP R/3 login interface. At the top, there is a menu bar with 'User', 'System', and 'Help'. Below the menu bar is a toolbar with various icons. The main area is titled 'SAP R/3' and contains a 'New password' button. The login fields are: 'Client' with the value '000', 'User' with a yellow highlight, 'Password' with asterisks, and 'Language' with a yellow highlight. Three black arrows point from text labels on the right to the Client, User, and Password fields.

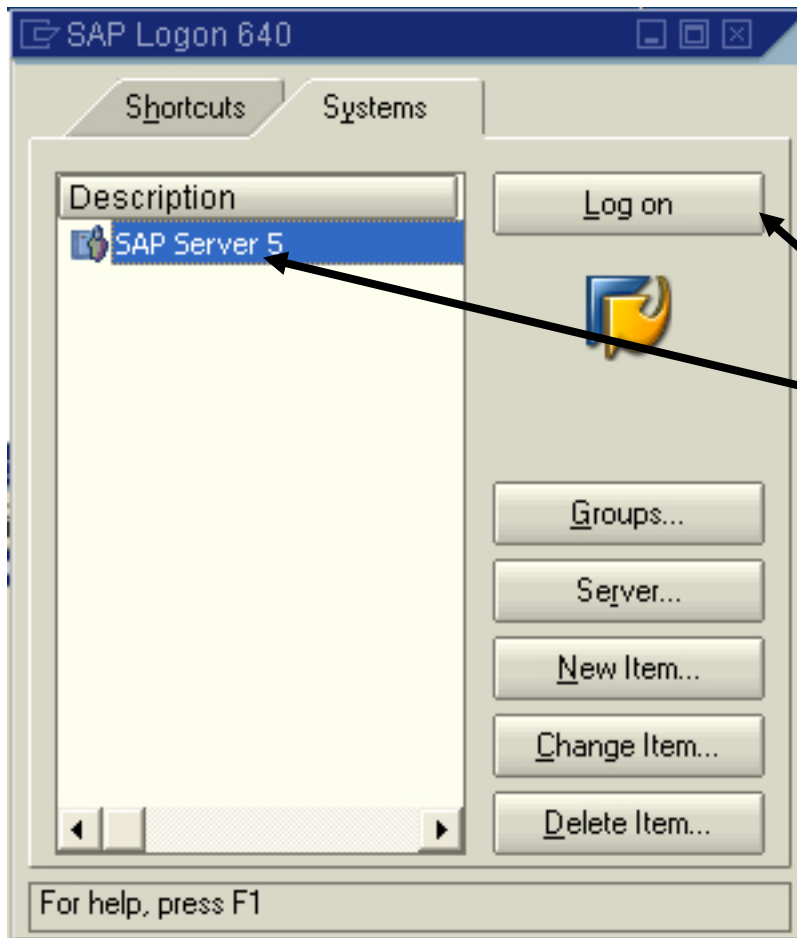
Enter Client

Enter User (R/3 Account)

Enter Password (R/3 Account)

Don't worry about language—  
English will default in

# Configured SAP Gui



Select System:  
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# Logging On

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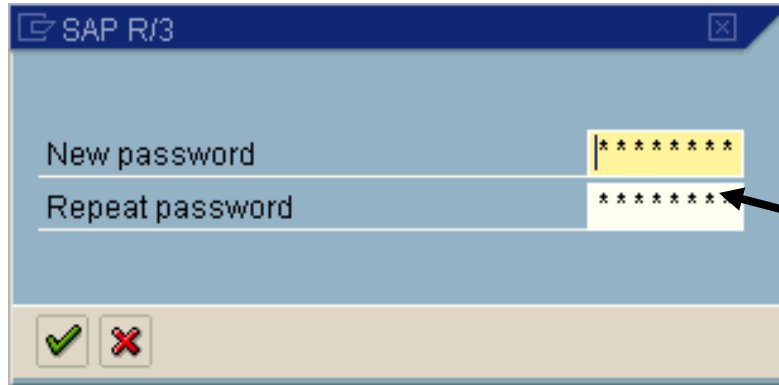
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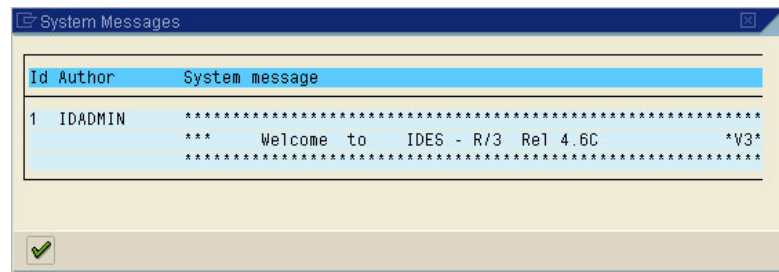
# Logging On ...2



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!

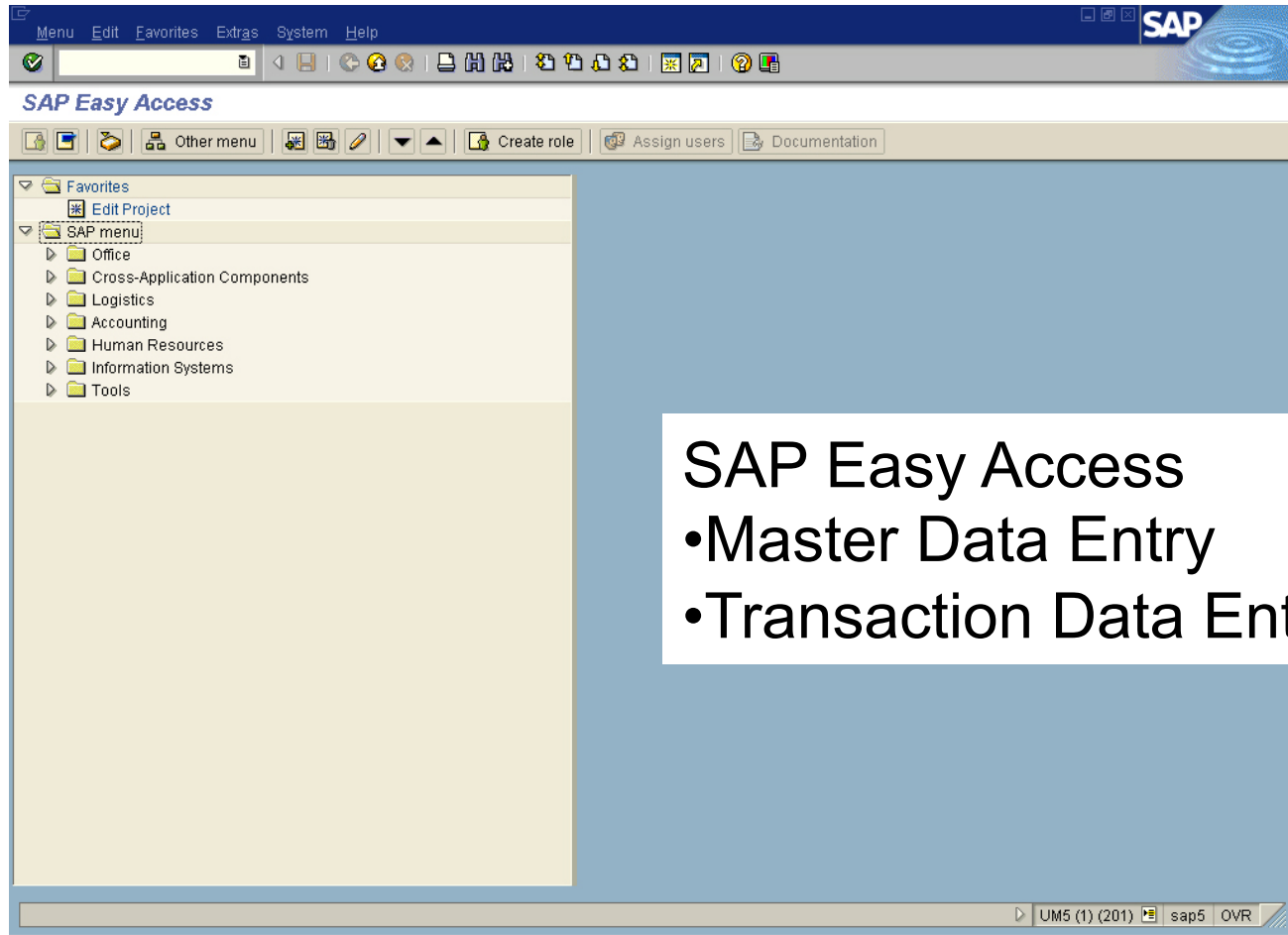
Then a message or two

Then . . . .





# Success !!



# SAP Access Details

<b>SAPGUI - System ID</b>	<b>GB1</b>
<b>Host Name</b>	<b>GB1.UCC.UWM.EDU</b>
<b>Client Name</b>	<b>SAP ERP GBI AIS 2.21 (MCC)</b>
<b>Client Number</b>	<b>330</b>
<b>SAPGUI - System Number</b>	<b>00</b>
<b>Student Userids</b>	<b>AIS-002 to AIS-004</b>
<b>Student Passwords (case sensitive)</b>	<b>AISDevel</b>

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# SPRO: Implementation Guide (IMG)

