MIS 5121: Business Process, ERP Systems & Controls

Week 7: General vs. SAP System Controls, Financial Accounting and Controlling Controls
Exam 1: Results

- Some questions really ‘bad’ (unfair, worded poorly)
- Results will be ‘curved’ to red high score vs. perfect score of 36
- My Challenge: distill 30+ years experience into curriculum and then how to test understanding
Control Failure: Janet Mai’s Presentation

• **Background:**
  ✷
  ✷

• **Control Failures: 2006 – 2009**
  ✷
  ✷

• **Results:**
  ✷
  ✷

• **Reference:**
  ✷
Control Failure: Yee-Ann Chen’s Presentation

• **Background:**
  ❖
  ❖

• **Control Failures:** 2006 – 2009
  ❖
  ❖

• **Results:**
  ❖
  ❖

• **Reference:**
  ❖
Control Failure: Shahla Raei’s Presentation

• **Background:**
  ✷
  ✷

• **Control Failures: 2006 – 2009**
  ✷
  ✷

• **Results:**
  ✷
  ✷

• **Reference:**
  ✷
General Computer vs. SAP System Controls
Key Information Technology Risks

- System Security
- Information Security Administration
- Background Processing (Batch vs. foreground: real-time)
- Powerful User ID’s and Profiles
- Instance Profile Security
- Change Management (including Logs and Traces)
- Table Security
- Data Dictionary, Program and Development Security
- Transport Security
- Change Control
- Data Migration
- Data Interface
- Firefighter access
Enterprise Security Architecture

• Behind the scenes, end users navigate through layers of security to reach the SAP Application

• A Security Team generally handles all activities related to SAP Application Security

• SAP Security Team works with IT Team to ensure appropriate security is implemented at levels: Database, System (e.g. Unix), Host and Network
SAP Layer View

Presentation Layer
(Windows based)

Application Layer
(Windows Server/UNIX)

SAP Instance

Dispatcher

Request Queue

Database Layer
(Windows Server/UNIX)

Database Server

Oracle
Informix
DB2
MS SQL Server
MaxDB

SAP Buffer (Shared Mem)
Our Exercises: who’s in Charge?

<table>
<thead>
<tr>
<th>Security Layer</th>
<th>Owner</th>
</tr>
</thead>
<tbody>
<tr>
<td>End User (sign-on)</td>
<td></td>
</tr>
<tr>
<td>Network</td>
<td></td>
</tr>
<tr>
<td>Host</td>
<td></td>
</tr>
<tr>
<td>Operating System</td>
<td></td>
</tr>
<tr>
<td>Database</td>
<td></td>
</tr>
<tr>
<td>SAP</td>
<td></td>
</tr>
</tbody>
</table>
**Enterprise Security Architecture**

- Security is necessary at all levels of SAP Architecture.

- Different teams often responsible for each layer e.g. basis team handles the database, data dictionary & repository.

---

**Module Transaction Controls**

**Module / Process Transactions**

**Module Level Master Data**

**Client-level Master Data Application Link E???__ (ALE)**

**Module Org Structure And Master Data**

**Security, Change Control Basis Configuration**

**Data Dictionary Repository**

**Database**

**Operating System**

**Network**

**End User**

---

**End Users/Mgmt**

**Super Users**

**Master Data Team**

**Module / Process Owners**

**Basis Team**

**Technical Architecture Team**

---

**Application Data**

**Commercial Data & Company Structure**

**System Control**
SAP Landscape: Instance and Clients

• **SAP Instance**
  – Instance also referred to as a system
  – An Instance has a dedicated physical database
  – One installation of SAP software (source code / modules) and related logical database is an instance
  – Instance shares SAP and developed software ‘code’ base
  – No delivered integration of data or functionality between systems (possible with Application Linking and Enabling – ALE)
  – Documentation of instances (systems) and clients often called: ‘**Client / System Landscape**’
Minimum Rec’d SAP Landscape
**SAP Landscape: Instance and Clients**

- **SAP Clients**
  - Client is highest organization level with SAP System
  - At least one client per system (e.g. ‘100’)
  - Business transactions occur within a client
  - Data Table view:

    
    | Column (attribute) | Field |
    |-------------------|-------|
    | Mandt 201         |       |
    | 202               |       |
    | 203               |       |
    | 204               |       |
    | 205               |       |

Row (Record)  
Client
**SAP Landscape: Instance and Clients**

- **SAP Clients**
  - Clients have two types of data:
    - Client dependent – separate and unrelated
    - Client independent – same for all clients in system (e.g. currency, units of measure, system parameters)
  - Single logical database (linked to system / instance) may contain several clients
  - Client typically represents a logical grouping of multiple companies
Client setup for a hypothetical company

SAP 5 Server

Client 501
- 01 Global Bike
- 02 Global Bike
- 03 Global Bike
- 99 Global Bike

Client 502
- 01 Global Bike
- 02 Global Bike
- 03 Global Bike
- 99 Global Bike

Client 503
- 01 Global Bike
- 02 Global Bike
- 03 Global Bike
- 99 Global Bike
Typical SAP Landscape

**Development System**
- **Type of users:** Developers, Consultants, Key Users
- **Type of work:** Customizing, Development, Unit Testing

**Quality-Assurance System**
- **Type of users:** Developers, Consultants, Key Users
- **Type of work:** Integration and Quality testing

**Production System**
- **Type of users:** End users
- **Type of work:** Productive execution of transactions with real business data

Developments, corrections & customizing settings
SAP Landscape: Development System

• **Dev 100: Golden Configuration Client**
  – Final approved configuration (by Business Process Mgrs)
  – Linked to development system in other landscapes (BW, CRM, etc.)
  – Development work done in this client
  – No master data or transaction data

• **Dev 110: Unit Test Client**
  – Refreshed from Dev 130 as-needed
  – Unreleased changes moved here to be tested
  – Configuration transported from client 100 for testing
SAP Landscape: Development System

• **Dev 120: Data Load Client**
  – Refreshed from DEV 100 as-needed
  – Owned by Data team for testing data loads, data transformation

• **Dev 130: Clean Master Data Client**
  – ‘Clean’ master data created by data management and
  – Unreleased changes moved here to be tested
  – Configuration transported from client 100 for testing
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.
Financial Accounting and SAP System Controls
Company Code: Core SAP Definition

- **Company**: central organizational unit of external accounting within SAP
  - Definition:
    - Usually corresponds to a legally independent company
    - Should be depicted from a tax law, commercial or other financial accounting view

- Configuration:
  - Defined / stored in table T001
  - Each company has exactly one domestic currency
  - Active company or not
  - Do NOT delete company codes

- BUKRS – technical name
Finance: Critical Master Data

• Chart of Accounts
  – Centrally defined but individual company differences are possible:
    • Nature of the company (e.g. holding company vs. operating company)
    • Country
  – Currency:
    • Business transactions can be entered in foreign currencies based on exchange rates defined
    • Need policies about definitions / maintenance
    • Commonly imported from central banks
    • Monthly exchange rates are common – some countries (e.g. Brazil) require daily rates

– Finance views of core master data:
  • Materials (e.g. valuation)
  • Customers (Pay from information, Credit)
  • Vendors (Payment information)
Finance: Transaction Data Timing

• Real-Time
  – Routine Transactions (as result of business processes)
    • Posted ‘real-time’
    • But What is timing from event occurring vs. when entered in system?
  – Captured in fiscal year posting periods (usually only 1 ‘open’ for real-time events at a time)
  – Important to verify for _______ assertion claim?
  – Control focus: application controls

• Manual postings
  – Non-routine: Accounting / Finance entered based on own judgment / expert opinion
  – SAP has tools for Recurring entries (e.g. monthly rent payments)
  – Closing entries (later)
  – Control focus: Substantive audit (check individual transactions)
Finance: Document Parking

• Used to enter / store (park) incomplete documents in SAP
  – Parked documents are not posted documents
  – Bypass extensive entry checks
  – Complete / check / post at later date
  – Values in parked documents can be used in some reports

• Examples
  – Vendor invoices missing needed information (e.g. PO #)
  – 3 way match is incomplete
  – Customer payments missing needed information (e.g. invoice #’s payment linked to) or incorrect taxes
  – Customer payments pending payment discount approval
Finance: Document Parking

Used to enter / store (park) incomplete documents in SAP

- Risks
  -
  -
  -

- Recommended Controls
  -
  -
  -
Finance: Document Parking

Used to enter / store (park) incomplete documents in SAP

• Risks
  – Occurrence / Existence assertions unclear (does transaction really exist?)
  – Incorrect transactions included in results
  – If uncontrolled, continued eroding validity of data / assertions

• Recommended Controls
  – Parking policy: when allowed, how resolved
  – Configuration to trigger workflow (rules based)
  – Active monitoring of parked documents (#, value, aging) to assure in control (not growing, not becoming older)
  – Audit and decision making of select entries (e.g. high value, oldest)
  – Segregation of duties
  – ...
Finance: Document Parking

Configuration

- Trigger workflow (rules based)
- Financial Accounting (New) -> .. Global Settings (New) -> Document -> Document Parking ...
Document parking seems to create overhead and opportunity for lapses. Do the risks outweigh the strengths? Is this a high-risk area requiring greater discipline and focus?
Real World Control Example

Configuration Control
(Order to Cash)
Control Definition Outline

• Reference #: OCRW-608
• Control Activity: Tolerance groups have been appropriately configured inline with management's intentions.

• Process: Order to Cash
• Sub-Process: Cash Application
• Location: Headquarters
• Frequency: Used: Z: Multiple x/day
  Review: A: Annual
• Automated: vs. Manual: Automated
• Control type: P: Preventative

• Control Owner: Order to Cash Business Process Architect
Configuration Review Procedure

• Transaction: SPRO (SAP Reference IMG)
  – Financial Accounting (New) > Accounts Receivable and Accounts Payable > Business transactions > Open item clearing > Clearing Differences > Define Tolerances for Customers/Vendors

• Click on Company Codes under review

• Ensure tolerance settings are appropriate

• Conclusion: ________________________________
Configuration Review Procedure (Alternate)

• Download related configuration table. Transaction: SE16N
  – Table: T043G (Tolerances for Groups of Customers / Vendors)

• Download table

• Review active entries and ensure tolerance settings are appropriate

• Conclusion: __________________________
Finance: Tolerance Groups

Company / User Specific

- Financial Accounting (New) -> .. Global Settings (New) -> Document -> Tolerance Groups...

(or table T043T)
Finance: Tolerance Groups

Business Partner / User Specific

- Configuration
Finance: Tolerance Groups

Business Partner / User Specific

- Table View:
  - T043G: Defined tolerance groups for Customers / Vendors
  - T043GT: Business Partner Tolerance Group Names
  - T043: Assign tolerance groups to users (e.g. Accounting clerks)
  - LFB1: Vendor Master (Company View)
  - KNB1: Customer Master (Company View)
Remaining Exercises

• Exercise 3: Journal Entries  
  Due: March 17

• Exercise 4: Segregation of Duties  
  Due: March 31

• Final Case: Risk / Control Matrix  
  Due: April 28

• Work for these will be completed by 2 person Teams
  – Tried to pair those with some accounting background with someone who does not
  – One (1) submission by each team
  – Share the grade
Break Time
Start Recording
Journal Entries Exercise

• Primary learning objectives are:
  – Experience concepts of beginning financial accounting
  – Review the accounting cycle
  – Work with a manual accounting information system
  – Experience how an ERP system handles the steps of the accounting cycle
Exercise 3: Journal Entries

• Agenda
  – This Class *(March 7)*: Steps 1 – 3 (Manual steps)
  – Next Class *(March 14)*: Step 4 (SAP steps)
  – *Due March 17 11:59 PM*: Assignment Submission
Exercise 3: Journal Entries

• **Step 1:** Record the daily transactions
  – Record if appropriate, (some events may not involve journal entries)
  – Record into Excel
  – Review the post of these journal entries into t-accounts (Excel automation) and the calculated account balances using cell formulas in Excel.
  – Review t-account balance flow into your Excel worksheet as a trial balance. Assure validity of links within spreadsheet that expedites the process and minimize risk of an error in data entry
Exercise 3: Journal Entries

• **Step 2:** Record the adjusting entry transactions
  – Record if appropriate, (some events may not involve journal entries) into Excel
  – Review the post these journal entries into t-accounts (Excel automation) and the calculated account balances using cell formulas in Excel.
  – Review t-account balance flow into your Excel worksheet as a trial balance. Assure validity of links within spreadsheet that expedites the process and minimize risk of an error in data entry
Exercise 3: Journal Entries

• **Step 3:** Review closing entries
  
  – Review closing entries in your trial balance as if this were a year-end close. (Do not enter the closing entries in your t-accounts.)
Extra Slides
Finance: Validations

• Validation: to check if organization specific logical rules for accuracy
  – Configurable coding of organization / business specific ‘rules’
  – Applied at header data entry, line item data entry or at save
  – Custom developed code via user exits also possible
  – Substitutions can be handled similarly
Exercise 3: Journal Entries

Step 4: Use SAP ERP system to make all above entries using the general ledger system in SAP.

(Instructions for using the SAP ERP system start on page 13 of this document)

a) Accounting ➔ Financial Accounting ➔ General Ledger ➔ Information System ➔ General Ledger reports ➔ Master Data ➔ Chart of Accounts ➔ Chart of Accounts (S_ALR_87012326) Examine the GLXX chart of accounts (XX is your assigned SAP student login ID#.)

b) Accounting ➔ Financial Accounting ➔ General Ledger ➔ Posting ➔ Enter G/L Account Document (FB50) Record beginning account balances in the SAP general ledger. Enter as one composite journal entry (first journal entry). Use journal entry date of January 1. Be sure to compare to Excel spreadsheet to make sure the entries are correct.
Exercise 3: Journal Entries

**Step 4:** Using SAP general ledger system

c) **Accounting ➔ Financial Accounting ➔ General Ledger ➔**
   **Posting ➔ Enter G/L Account Document (FB50)**

   Record the daily transactions for January in the SAP general ledger

   - Do each journal entry as a separate entry, not as one giant composite entry,
   - Use appropriate dates – this allows for a good audit trail.
Exercise 3: Journal Entries

Step 4: Using SAP general ledger system

d) Display the trial balance. Compare this to your manual entries. If the trial balance does not match your manual entries, research the errors and make necessary corrections.

Options for viewing the journal entries:


– **Source Document Drill Down:** Accounting → Financial Accounting → General Ledger → Account → Display/Change Line Items (FBL3N)

Exercise 3: Journal Entries

Step 4: Using SAP general ledger system

e) Accounting ➔ Financial Accounting ➔ General Ledger ➔ Posting ➔ Enter G/L Account Document (FB50) Record the adjusting entries.

f) Accounting ➔ Financial Accounting ➔ General Ledger ➔ Periodic Processing ➔ Closing ➔ Carry Forward ➔ Balance Carryforward (New) (FAGLVTR) Simulate closing the books as of January 31 using the SAP utility.

- Do not enter closing entries into the general ledger. These entries would be done automatically through the SAP month-end closing function.
Extra Slides
Finance: Fixed Assets

• Basics
  – Asset creation
    • Build (Project Systems)
    • Purchase
    • Manufacture
  – Records:
    • Asset details (creation date, descriptions, location, company, ...)
    • Asset class
    • Initial Valuation
    • Depreciation Keys and Methods (chart of depreciation – varies by country)
    • Account determination
    • Asset History Sheet

• Activities
  • Post asset values
  • Post / recalculate depreciation
  • Closing
Finance: Fixed Assets

- Low Value Assets
  - Are not capitalized -> operating expense in year acquired
  - Need ‘rules’ / boundaries
    - Taxes and Statute rules
    - Nature of business (one company’s fixed assets are another’s current assets)

- Risks
  - 
  - 
  - 

- Controls:
  - 
  - 
  - 
Finance: Fixed Assets

• Risks
  – Does asset exist?
  – Is it valued correctly? Capital vs. expense
  – Incorrect valuation
  – To I Own it?
  – Timing (esp. for long build projects)

• Controls:
  – Strong policies documents, trained, followed
  – Detailed audit of high value, special case assets
  – Search for Strange / different patterns of assets depreciation expense
Finance: 1-time Business Partners

• Customers or vendors
  – Used for rarely used, single use business partners
  – Generic 1-time master data records created (created once)
  – Unique address, etc. for each of several real 1-time partner are maintained in transaction documents

• Risks
  – Bypasses Segregation of duties between master and transaction data processing (master data not needed)
  – No credit limit – fraudulent actions possible
  – Cash outflow to alternate payees / addresses

• Controls:
  – Don’t Use
  – Analyze transaction use with 1-time partners
  – Compensating controls (e.g. authorization)
Finance: Reconciliation

• Consistency Checks
  – SAP standard transactions
    • Sum of documents matches vendor, customer & G/L account totals
    • Results maintained on ‘logs’
    • Manufacture

• Balance Confirmations:
  – Validate vs. external data
    • Bank statements / balances
    • Balance confirmation letters to business partners (vendors and customers)
  – Compare G/L balances and Ledgers
    • Standard SAP transactions / reports
    • Relatively low risk due to direct postings of activity
Finance: Month-end Close

• Closing transactions (SAP Standard and Custom)
  – Reports of changes
  – Reconciliation reports
  – Error Reports (gaps / duplicates in document number assignments)
  – Account balance reclassification
  – Analysis of reconciliation accounts (e.g. GR / IR)
  – Update monthly data (e.g. currencies)
  – Revaluations (standard cost updates and related postings)
  – Depreciation, variances, etc. calculations
  – Post adjustment entries
  – Create Financial reports

• Month-end close easier with vision to be ready to close each day (handle all loose ends right away)

• Period (e.g. Quarter) and year-end similar
Finance: Financial Statements

• SAP Standard Reports
  – Structure is configurable (Tables T011/ T011T)
  – Summarizes postings by G/L account via groups (Tables SKA1, SKB1)
  – Assignment of G/L account is key control check

• Custom Reports
  – Clones of SAP reports with custom requirements
  – New reports developed

• Controls:
  – Test & check; test & check ...
  – Review with reconciliation to other standard reports
Finance: Overview

• Risks / Controls in Finance
  – Document Parking
  – Manual Transactions
  – Fixed Assets
  – 1-time Business Partners

• Key configuration: Company codes
  – Definition Active vs. not (control tool)

• Financial Master Data
  – Chart of Accounts
  – Tolerances

• Real-time vs. Manual Postings
  – When each is used
  – How each is controlled

• Reconciliation: Control tool