MIS 5121: Enterprise Resource Planning Systems
Week 6: General Computer vs. SAP System Controls, Order to Cash Process,
Control Failure: Wipro

**Background:**
- 2014: $7+ Billion sales, $1.3 Billion profit
- India based IT Services company – to many large customers

**Control Failures: 2006 - 2009**
- Employee is believed to have embezzled about $4 million by stealing a password and transferring money from one of Wipro's bank accounts
- Weaknesses in sharing of online banking access passwords and Wipro's internal accounting system password
- Independent legal counsel: lack of internal controls led to embezzlement
- Company admitted poor controls in recording journal entries, including:
  - Inadequate documentation, controls over bank reconciliations, exchange rate changes, liabilities
  - Lack of timely and adequate reconciliation of period end reinstatement of foreign currency balances including recording of appropriate adjustments.
- Insufficient segregation of duties in recording and initiating banking payments.
Control Failure: Wipro

• **Results:**
  - Delay in publishing 2010 results
  - The 26-year-old employee committed suicide when the crime was discovered
  - Wipro Audit Committee probe -> Overhaul of the finance controller division
  - KPMG India concluded that it did not lack independence with Wipro (rumored)
  - SEC probe into audits started in 2014

• **Reference:**
  - Moneylife: [Link](#)
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
SAP Environment Security Components

- Network Security
- Operating System Security
- Application Security
- Workstation Security
- Database Security

Goal: Lockdown SAP Security
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)

Database Layer
(Windows Server/UNIX)

SAP Instance

Dispatcher

Request Queue

Database Server

Oracle
Informix
DB2
MS SQL Server
MaxDB

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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>
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<tr>
<td>Network</td>
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<tr>
<td>Host</td>
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<tr>
<td>Operating System</td>
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<tr>
<td>Database</td>
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<td>SAP</td>
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</tbody>
</table>

Internet Connection

Account on SAP UCC

Temple PC with SAP Gui
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

System Control

Commercial Data & Company Structure

Application Data
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:

![Data Table Diagram]

<table>
<thead>
<tr>
<th>Column (attribute)</th>
<th>Row (Record)</th>
</tr>
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<tbody>
<tr>
<td>Mandt</td>
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</tr>
</tbody>
</table>
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 Fitter Snacker
- 02 Fitter Snacker
- 03 Fitter Snacker
- 99 Fitter Snacker

Client 502
- 01 Fitter Snacker
- 02 Fitter Snacker
- 03 Fitter Snacker
- 99 Fitter Snacker

Client 503
- 01 Fitter Snacker
- 02 Fitter Snacker
- 03 Fitter Snacker
- 99 Fitter Snacker
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
Key Information Technology Risks

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- Data Migration
- Data Interface
- Firefighter access
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.
Break Time
Order to Cash Exercise

• Primary learning objectives are:
  – Experience the steps in a typical sales transaction
  – See how an ERP system handles a typical sales transaction
  – Work through the procedures involved in a test of transactions
  – Look at a special feature of the sales and distribution (SD) module of SAP
  – See the integration between Sales and Distribution (SD) and financial accounting (FI) modules of SAP
Exercise 2: Order to Cash

• Agenda
  – Prior Classes (*Feb 9 & 16*): Steps 1 – 15
  – This Class (*Feb 23*): Steps 16 – 23
  – *Due Feb 26 11:59 PM*: Assignment Submission
Exercise 2: Order to Cash

• Task 10 – Create the Delivery for the Sales Order
  – Menu: Logistics ▶ Sales and Distribution ▶ Shipping & Transportation ▶ Outbound Delivery ▶ Create ▶ Single Document ▶ With Reference to Sales Order
  – Transaction: VL01N

• Task 11 - Check Status of Various Accounts
  – See details of Task 5

• Task 12 – Display the Document Flow for the Sales Order
  – Within transaction use menu: Environment ▶ Display Document Flow
  – Transaction: VA03
Exercise 2: Order to Cash

• Task 13 – Post the Goods Issue
  – Menu: **Logistics** ➤ **Sales and Distribution** ➤ **Shipping & Transportation** ➤ **Outbound Delivery** ➤ **Change** ➤ **Single Document (VL02N)**
  – Transaction: **VL02N**

• Task 14 - Check Status of Various Accounts
  – See details of Task 5

• Task 15 – Display the Document Flow for the Sales Order
  – Within transaction use menu: **Environment** ➤ **Display Document Flow**
  – Transaction: **VA03**
Exercise 2: Order to Cash

- Task 16 – Create an Invoice for the Delivery
  - Menu: Logistics ➤ Sales and Distribution ➤ Billing ➤ Billing Document ➤ Create
  - Transaction: **VF01**

- Task 17 - Check Status of Various Accounts
  - See details of Task 5

- Task 18 – Display the Document Flow for the Sales Order
  - Within transaction use menu: Environment ➤ Display Document Flow
  - Transaction: **VA03**
Exercise 2: Order to Cash

• Task 19 — Locate the Accounting Document Number
  – Menu: Logistics ▶ Sales and Distribution ▶ Billing ▶ Billing Document ▶ Display
  – Transaction: **VF03**

• Task 20 — Post the Customer’s Payment on Account
  – Menu: Accounting ▶ Financial Accounting ▶ Accounts Receivable ▶ Document Entry ▶ Incoming Payment
  – Transaction: **F-28**
Exercise 2: Order to Cash

• Task 21 - Check Status of Various Accounts
  – See details of Task 5

• Task 22 – Display the Document Flow for the Sales Order
  – Within transaction use menu: Environment ➤ Display Document Flow
  – Transaction: VA03

• Task 23 – Write Down the Journal Entries the System Made
  – Non-SAP Task
Extra Slides
Order to Cash Process Flow: Order Blocks

Pre-Sales

Customer Order

Create Delivery

Create Shipment

Picking

Goods Issue:
- Update Inventory
- Post General Ledger

Billing Block

Create Invoice

Payment

Shipping Documentation

Delivery Block

Order

Blocks

Cash

Process

Flow:
Order to Cash Functions in SAP

Customers → Payment → Invoice → Delivery → Order → Inquiry

R/3
Client / Server
ABAP/4
# Order to Cash Functions in SAP

<table>
<thead>
<tr>
<th>Task</th>
<th>SD</th>
<th>MM</th>
<th>QM</th>
<th>FI</th>
<th>CO</th>
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<tbody>
<tr>
<td>Inquiry</td>
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<td>✓</td>
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<tr>
<td>Delivery</td>
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<tr>
<td>Payment</td>
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<td>✓</td>
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</tr>
</tbody>
</table>
Exercise 2: Order to Cash

- **Task 1** — Extend the Material Master Record for Sales
  - Menu: *Logistics ➤ Materials Management ➤ Material Master ➤ Material ➤ Create (Special) ➤ Trading Goods*
  - Transaction: **MMH1**

- **Task 2** — Extend the Material Master Record for Sales
  - Menu: *Logistics ➤ Sales and Distribution ➤ Master Data ➤ Business Partners ➤ Customer ➤ Create ➤ Complete*
  - Transaction: **XD01**

- **Task 3** — Set up Credit Limits for the Customer
  - Menu: *Logistics ➤ Sales and Distribution ➤ Credit Management ➤ Master Data ➤ Change*
  - Transaction: **FD32**
Exercise 2: Order to Cash

• Task 4 – Check Inventory Availability
  – **Quantity:**
    • Transaction: **MMBE**

  – **Value:**
    • Menu: Accounting ➤ Financial Accounting ➤ General Ledger ➤ Account ➤ Display Balances
    • Transaction: **FS10N or FAGLB03**
Exercise 2: Order to Cash

• Task 5 - Check Status of Various Accounts
  – Check Inventory: MM Inventory Quantity
    Transaction: **MMBE (Stock Overview)**

  – Check Account Values: GL Inventory, GL Cash, Sales Revenue, Cost of Goods Sold (COGS), GL A/Receivable:
    Transaction: **S_ALR_87012291 (Line Item Journal)**

  – Check A/P Vendor sub-ledger:
    Transaction: **FBL5N (Customer line item display)**
Exercise 2: Order to Cash

• Task 6 – Create a Sales Order
  – Menu: **Logistics** ➤ **Sales and Distribution** ➤ **Sales** ➤ **Order** ➤ **Create**
  – Transaction: **VA01**

• Task 7 – Display the Sales Order
  – Menu: **Logistics** ➤ **Sales and Distribution** ➤ **Sales** ➤ **Order** ➤ **Display**
  – Transaction: **VA03**

• Task 8 – Display the Document Flow for the Sales Order
  – Within transaction use menu: **Environment** ➤ **Display Document Flow**
  – Transaction: **VA03**

• Task 9 - Check Status of Various Accounts
  – See details of Task 5