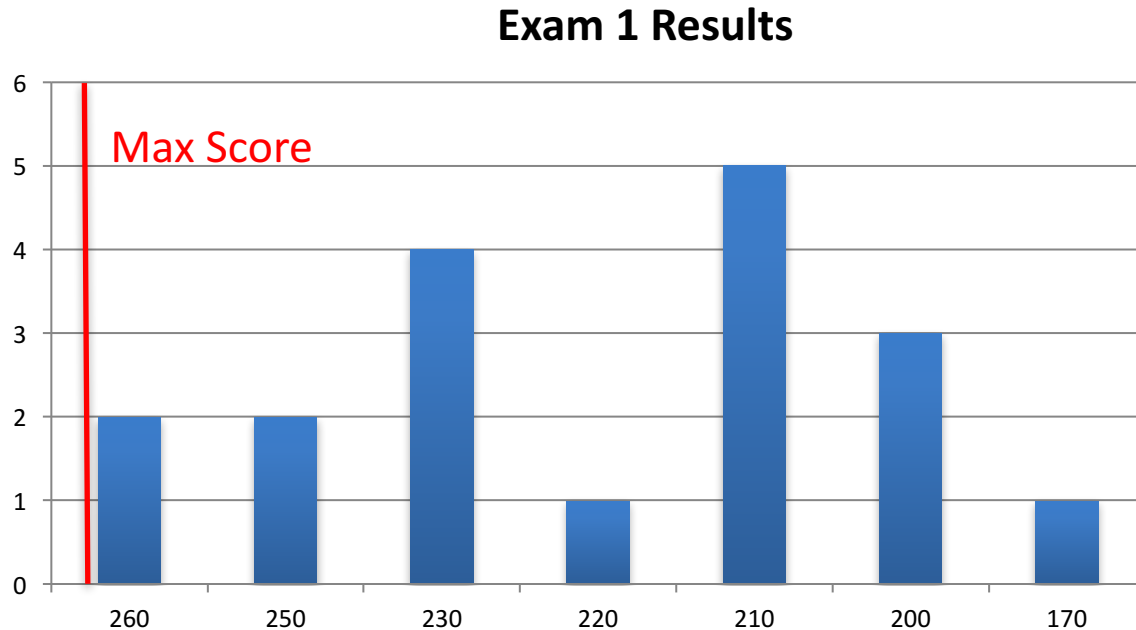


MIS 5121: Business Process, ERP Systems & Controls
Week 7: *General I/T vs. SAP System Controls,*
Security Authorizations 1,
Financial Accounting and Controlling Controls

Video: Record the Class



Exam 1 Test Results (2017 Fall)

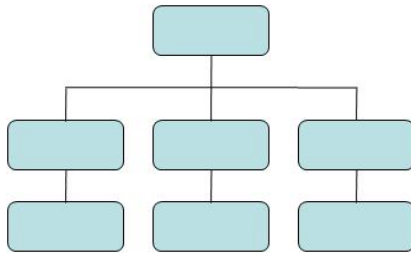


- Max score adjusted -5 points to 265 for 1 question poorly worded
- No 'curve' because 1 student achieved max score (another was close)
- Thanks for the feedback on what's working, where to improve
- Allowed additional minutes in retake for students not completing exam. Will allow more time in next exam (but still limited)
- Weeks 1-5 course content that may be in subsequent Exams in next slides

Business Function vs. Process

Function

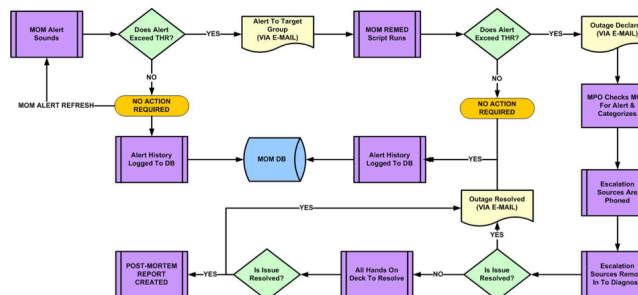
‘An operation / group who perform related tasks routinely to achieve a part of an organization’s mission .’



Business Dictionary

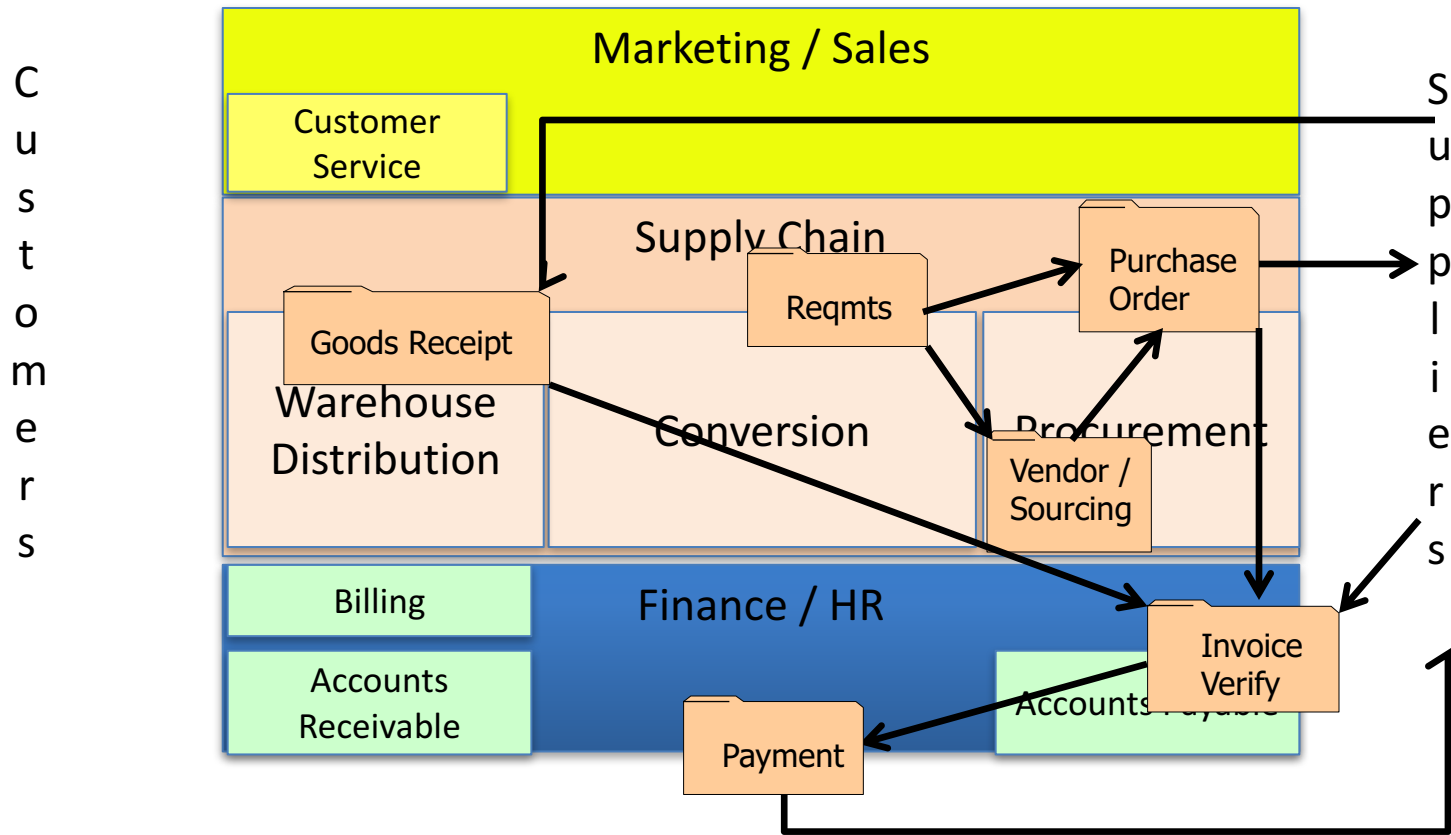
Process

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

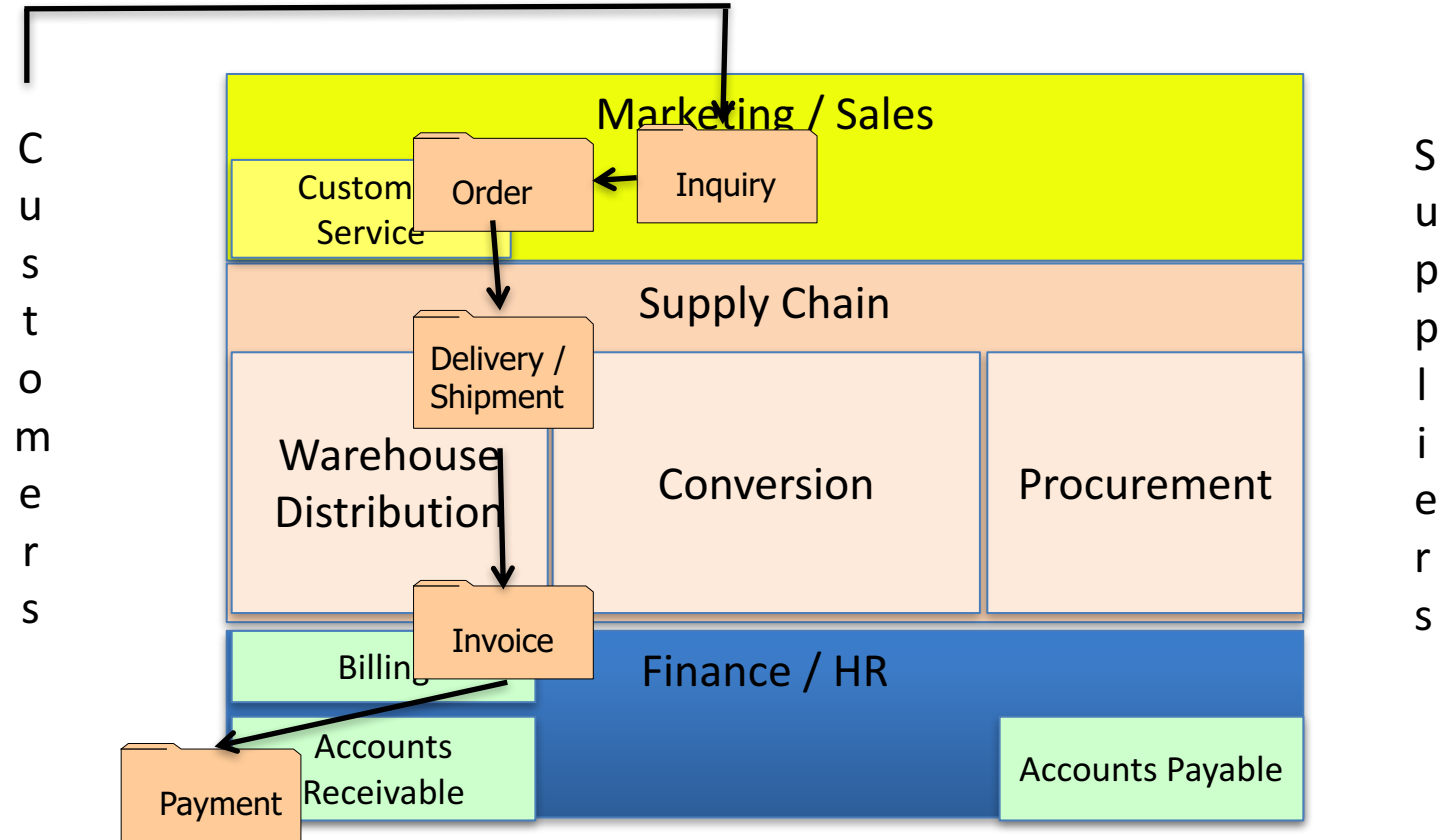


Business Dictionary

Procurement at GBI



Order to Cash at GBI



The Many Flavors of Sales Order

- Standard Orders
- Free of Charge (samples, compensation)
- Services / Not delivery related
- Consignment
- Miscellaneous Sales (Assets, RM's, Leases, etc.)
- Returns
- Debit memo
- Credit Memo
- Rebate Settlement
- Special country / tax scenarios



Inventory: Quantities

Inventory Record Accuracy (IRA): Does Physical inventory match system records

- Material / Batch
- Quantity
- Location



Methods: Physical Counting

- Periodic (e.g. yearly, quarterly, ...) Frequency can depend on risk (e.g. value)
- Complete Count?
- If 'miss' someone else Adjusts Records based on Count

Inventory: Quantities



Inventory Record Accuracy (IRA): Does Physical inventory match system records

Methods: Cycle Counting

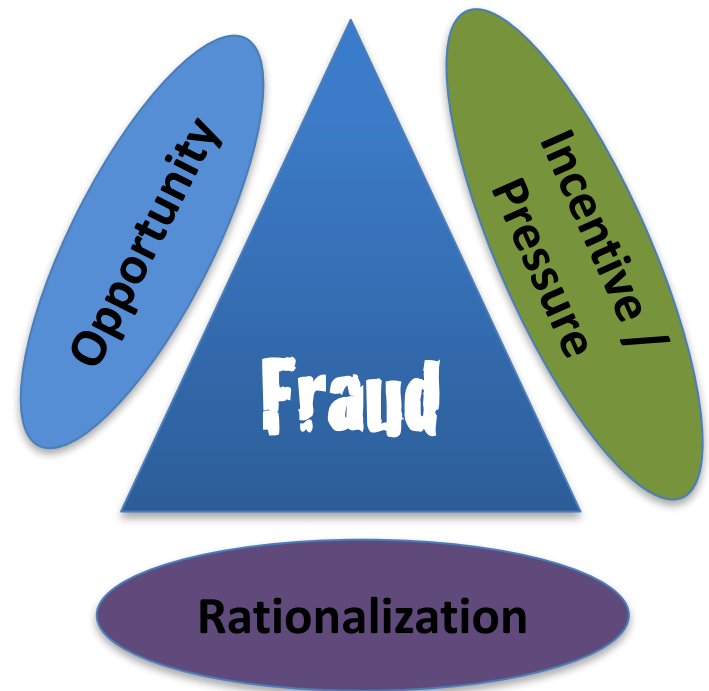
- **Continuous** counting of sections of inventory
- Hit or Miss based on tolerances (e.g. zero for package, +/- for bulk)
- If 'miss' someone else Adjusts Records based on Count
- Root cause analysis of reason and correction for 'miss'
- Track IRA % (# Hits / # checks)
- Acceptable alternative for full physical counts

Common Issue: timing of physical moves vs. system recording

Environment Favorable to Fraud

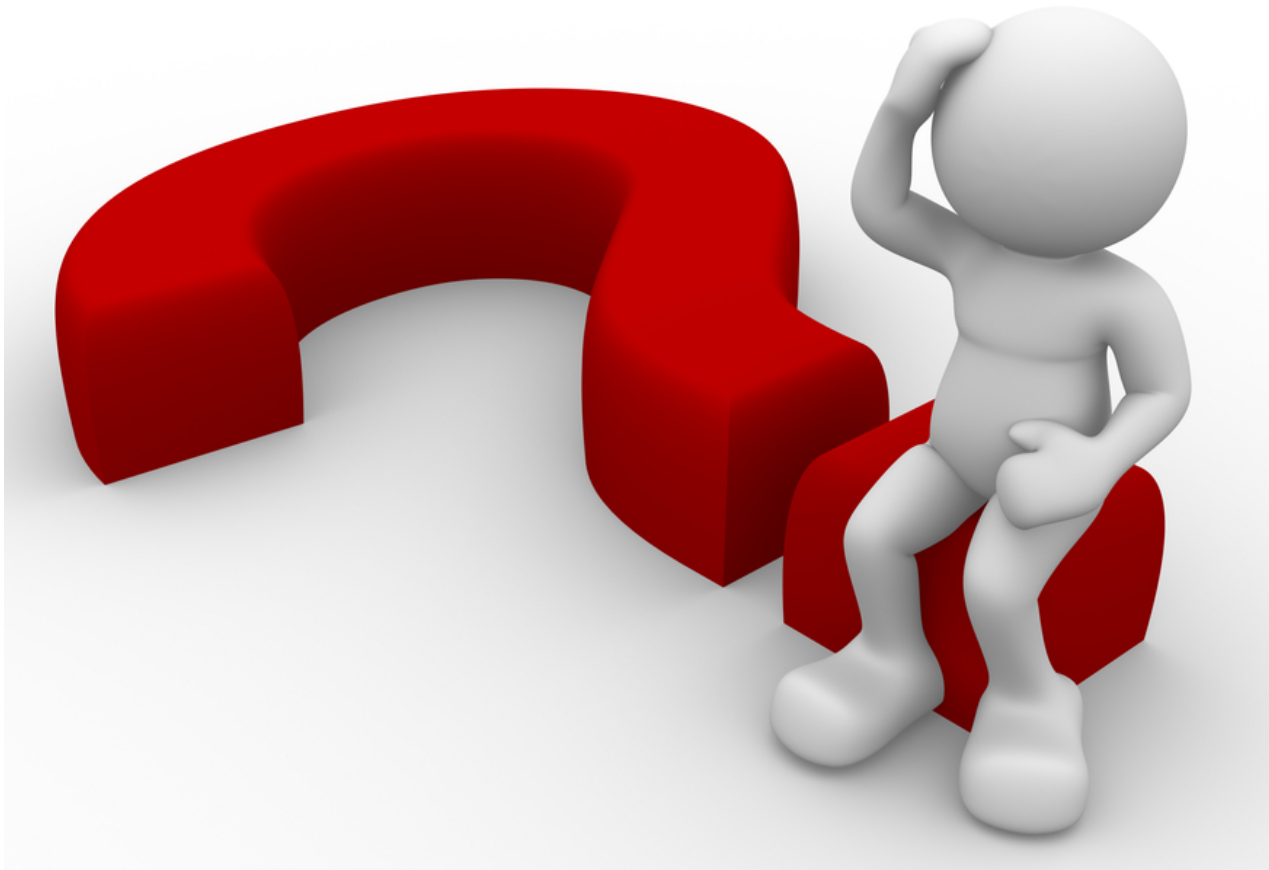
Framework for spotting high-risk situations

- Perceived **opportunity** (*I can do it / conceal it and not get caught*)
 - Poor internal controls
 - Lack of oversight
- **Incentive or Pressure** (*Financial or emotional force pushing to commit fraud*)
 - Meet expectations
 - Avoid criticism
 - Cover a mistake
 - Personal failures, needs
- **Rationalization** (*Personal justification for dishonest actions*)
 - Low compensation
 - Company is profitable



Fraud Triangle

Questions Re: Exam 1



Class Logistics

- See 'Roster / Schedule / Team' section of Blog for:
 - Schedule of Real World Control Failure Presentation (you're deadline)
 - Assigned Exercise / assignment teams for Exercises 3, 4, Final
- Guest Lecturer on October 30
 - SAP User and Controls in HANA (new version) vs. R/3
 - Experiences as an auditor
 - Some course content scheduled for that day



Discussion

❖ Something really new, different you learned in this course in last week

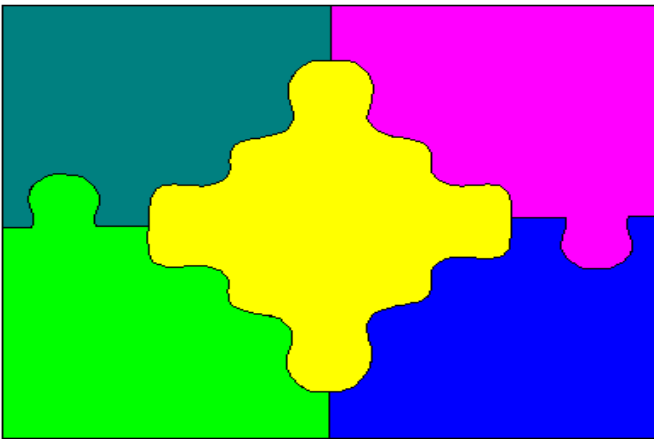
**YOU LEARN
SOMETHING NEW
EVERY DAY**

❖ Questions you have about this week's content (readings, videos, links, ...)?



❖ Question still in your mind, something not adequately answered in prior readings or classes?

General Computer vs. SAP System Controls

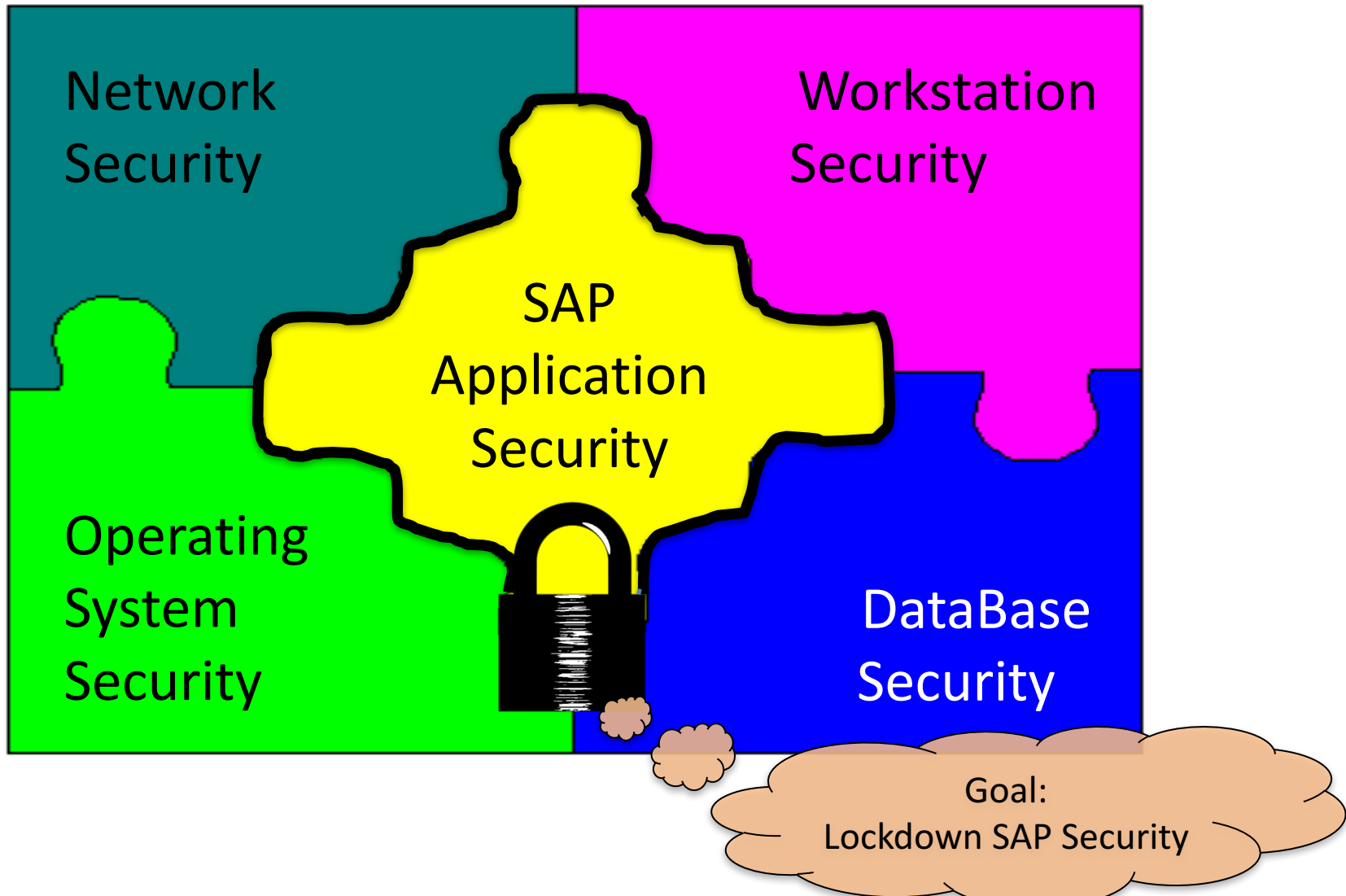


Key Information Technology Risks

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

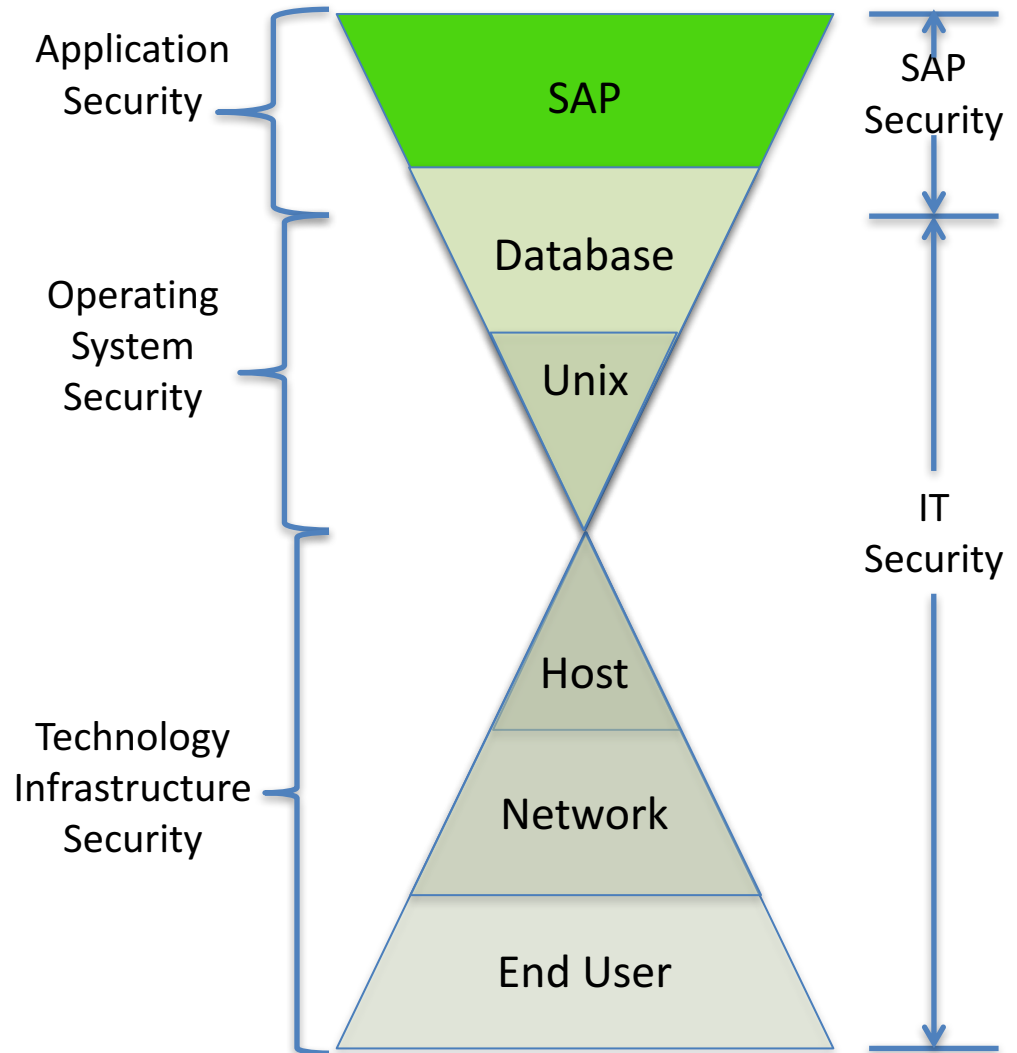


SAP Environment Security Components

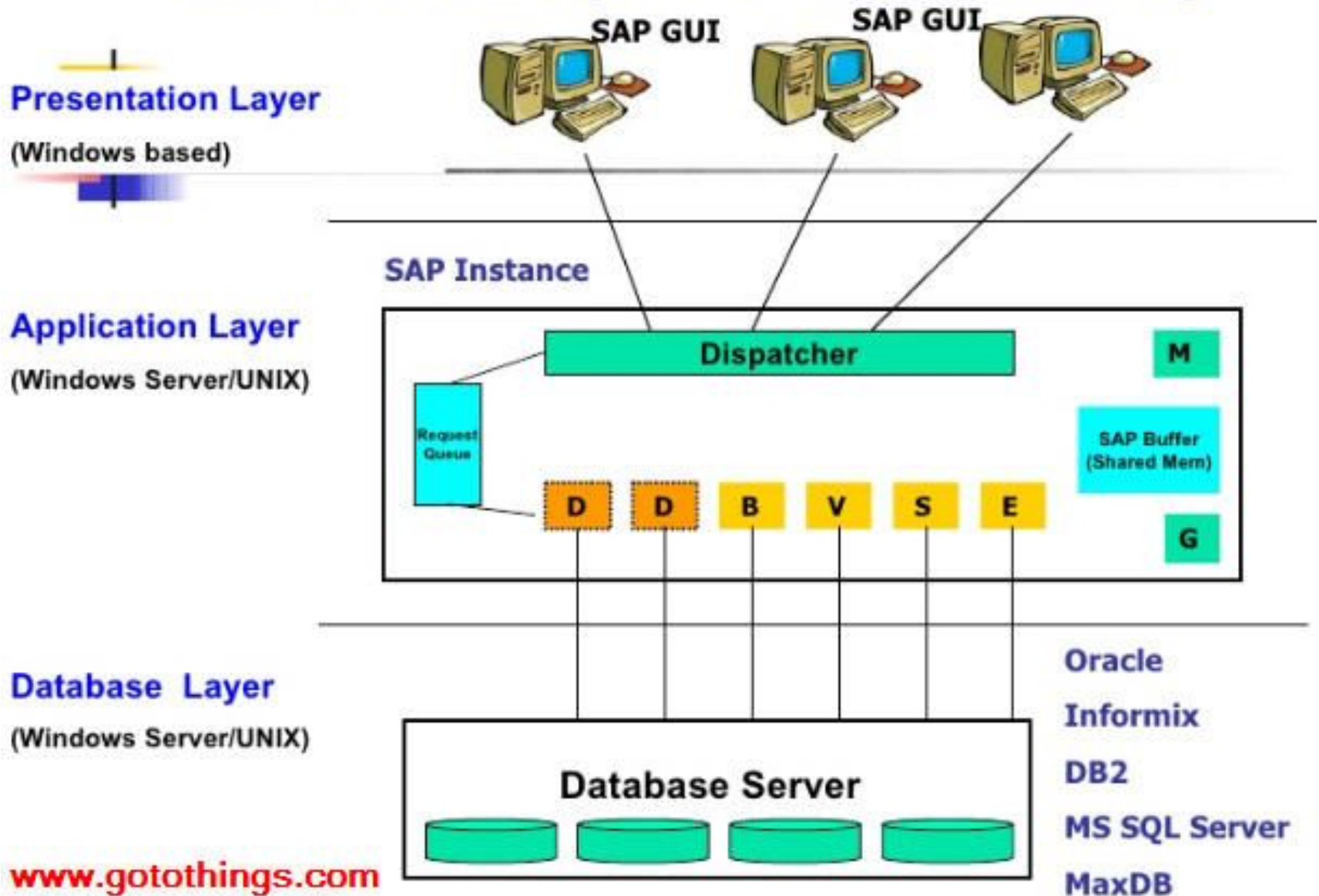


Enterprise Security Architecture

- 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



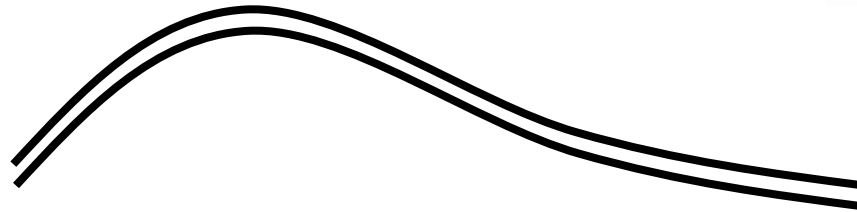
SAP R/3 Layer View



Our Exercises: who's in Charge?



Account on SAP UCC



Internet Connection



Temple PC with SAP Gui

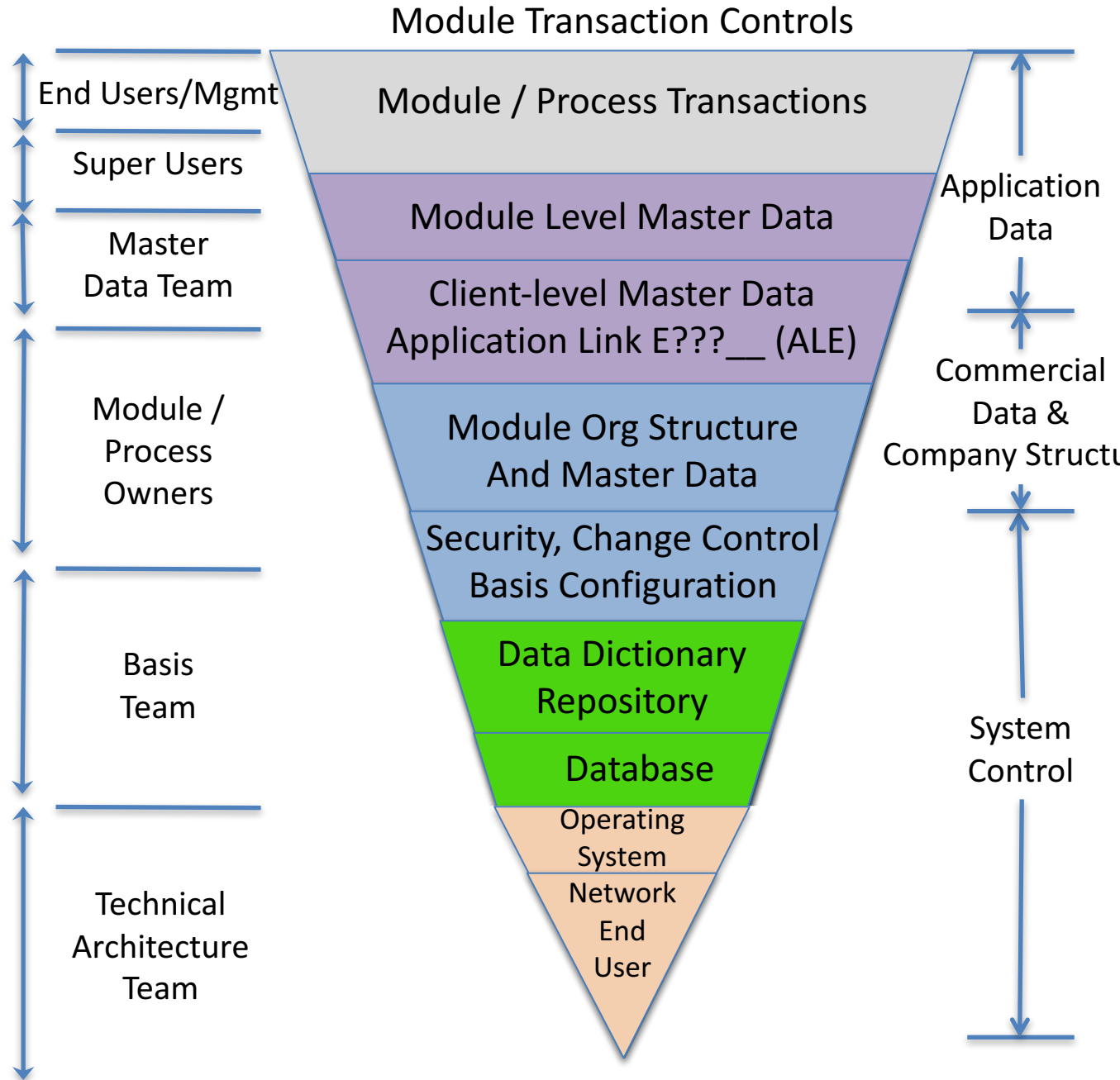


Security Layer	Owner
End User (sign-on)	
Network	
Host	
Operating System	
Database	
SAP	

Enterprise Security Architecture

- Security and Security Administration 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



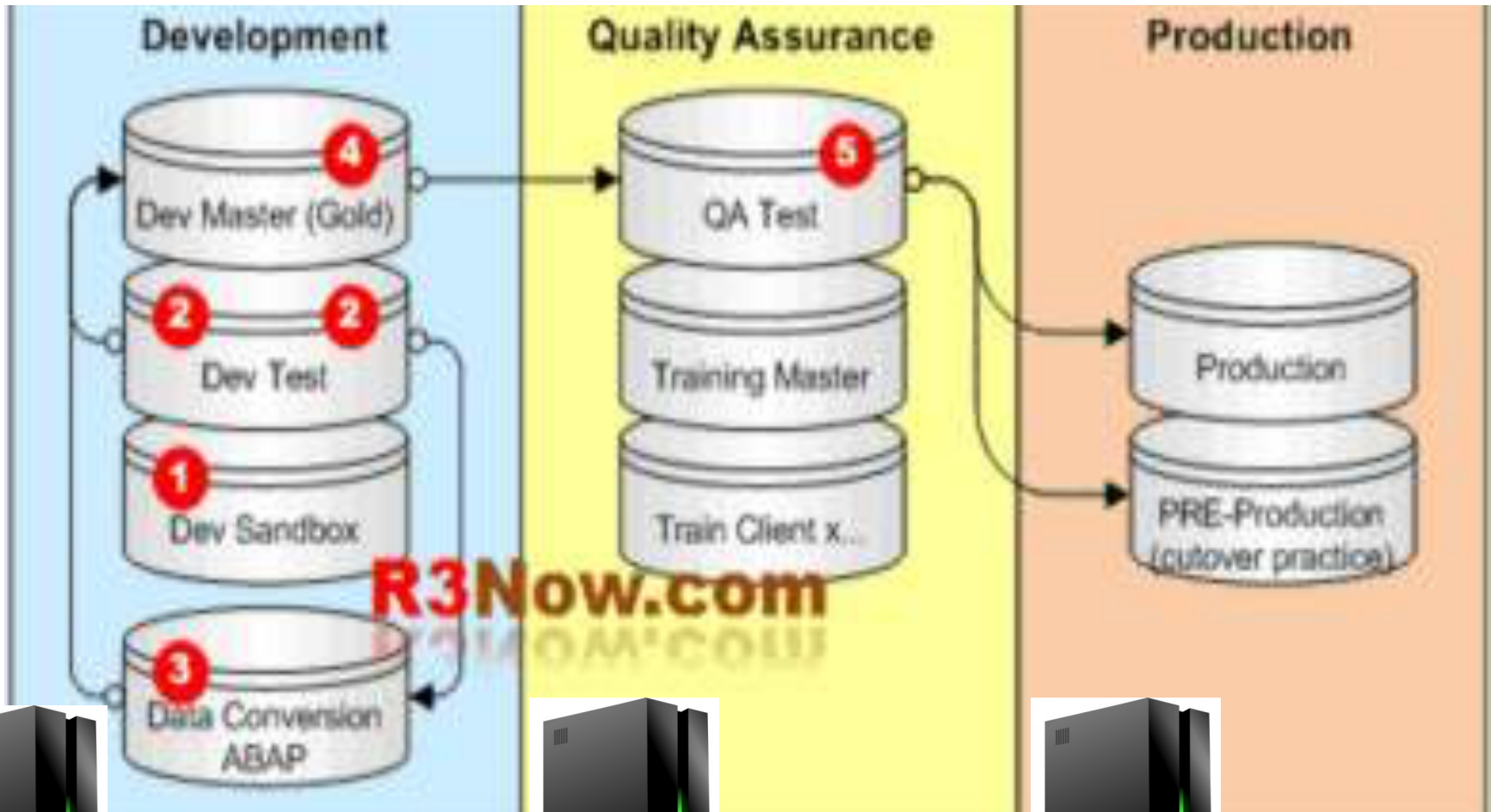
SAP Landscape: Instance and Clients



- **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’**

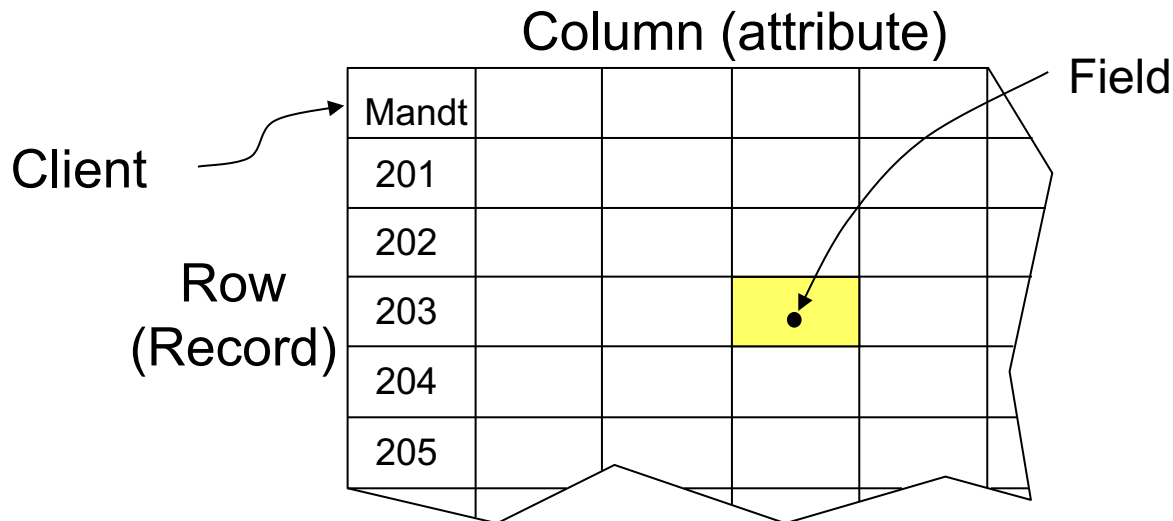
Minimum Rec'd SAP Landscape



SAP Landscape: Instance and Clients

- **SAP Clients**

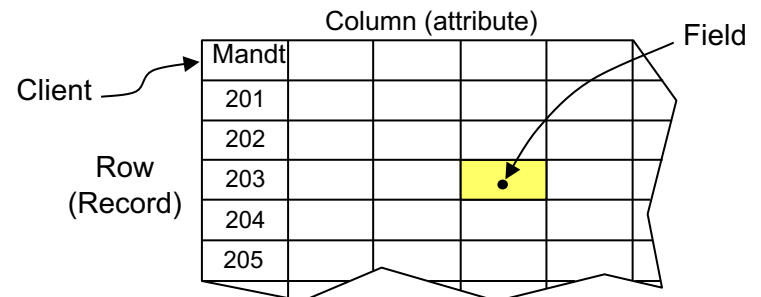
- Client is highest organization level with SAP System
- At least one client per system (e.g. '100')
- Business transactions occur within a client
- Data Table view:



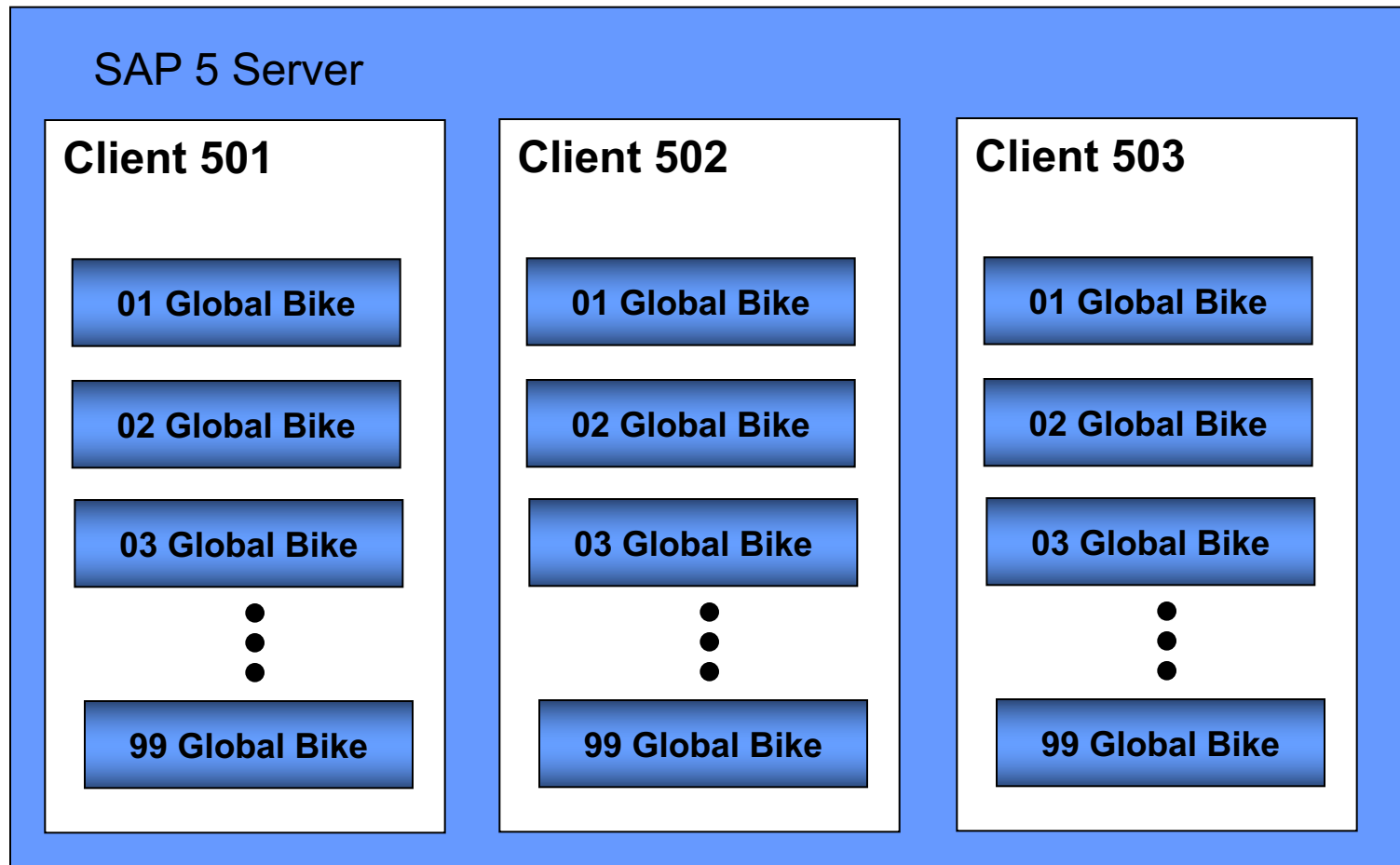
SAP Landscape: Instance and Clients

- **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



Typical SAP Landscape

Development System

Type of users:
Developers,
Consultants,
Key Users

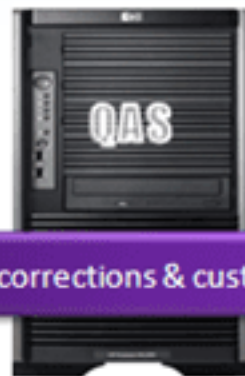
Type of work:
Customizing,
Development,
Unit Testing



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

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

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

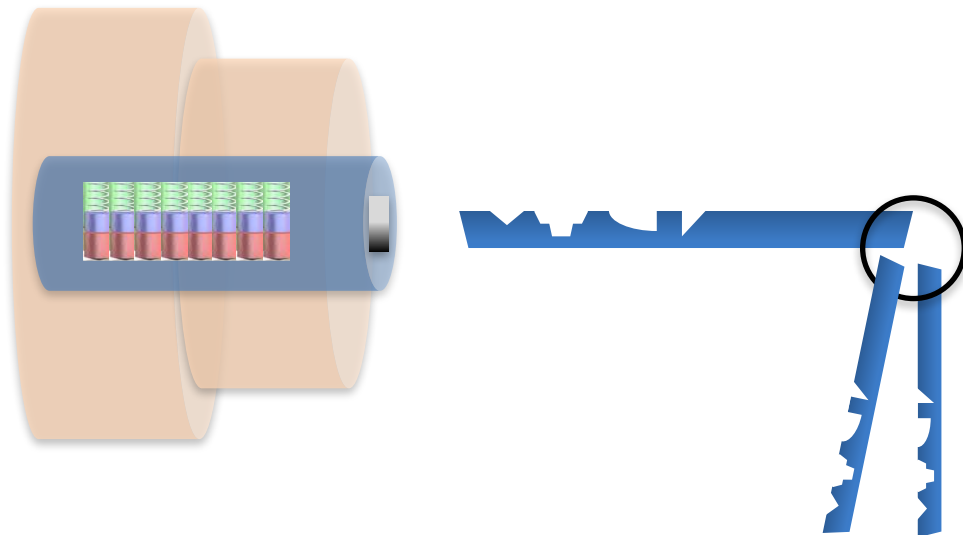
Errors & Fraud

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.

Security: SAP Authorization Concept

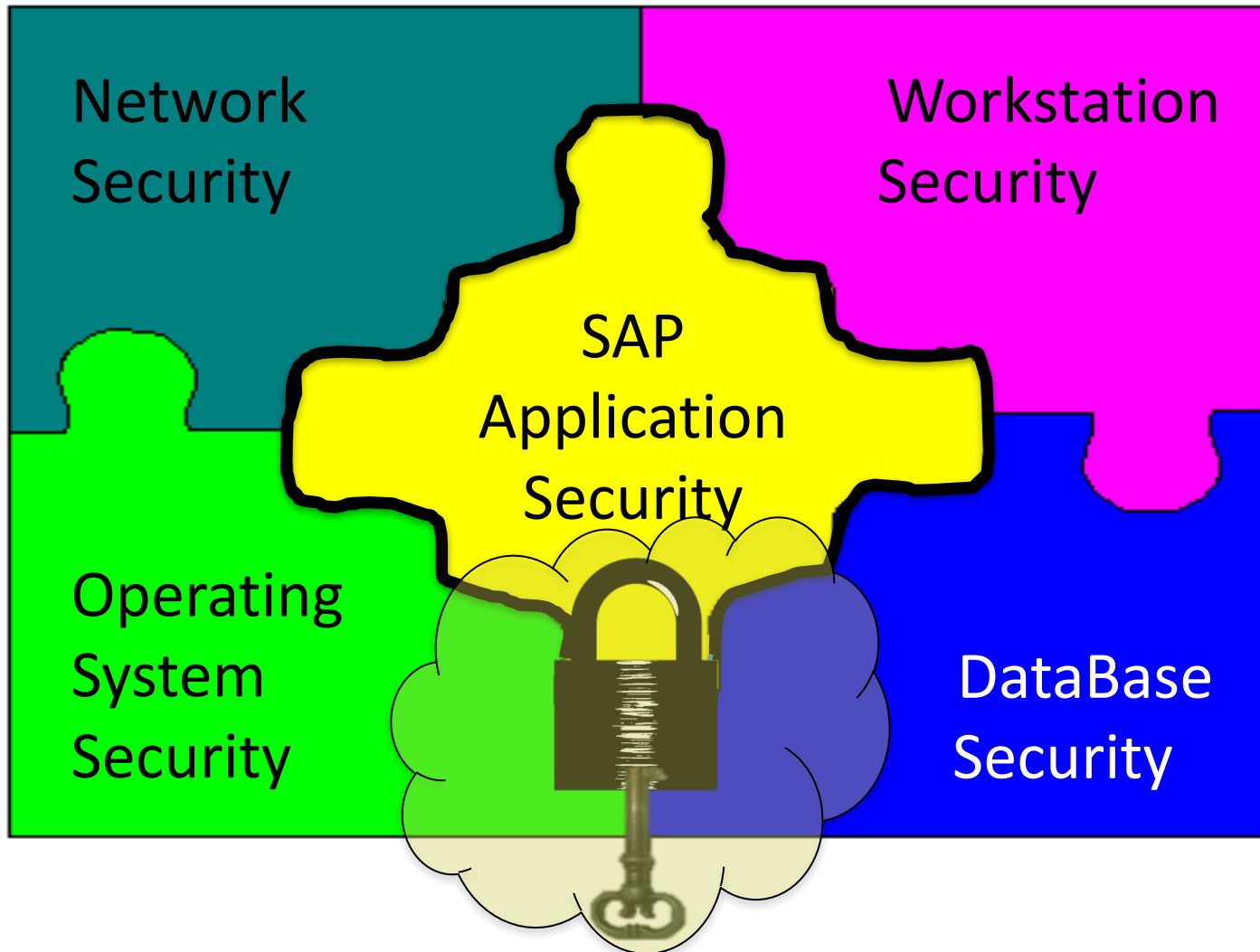


Key Information Technology Risks

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

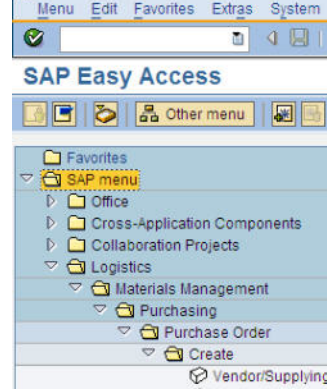


SAP Environment Security Components





SAP Security Terminology



- **Transaction (T-code)**: used to access SAP Functions or run programs. Each function & program in SAP has a t-code assigned to it (e.g. VA01, ME23N, S_ALR_87012291)

- T-code Insights

- All transactions and names stored in table TSTC
- Some common structures: M E 2 3 N

Consult German Dictionary

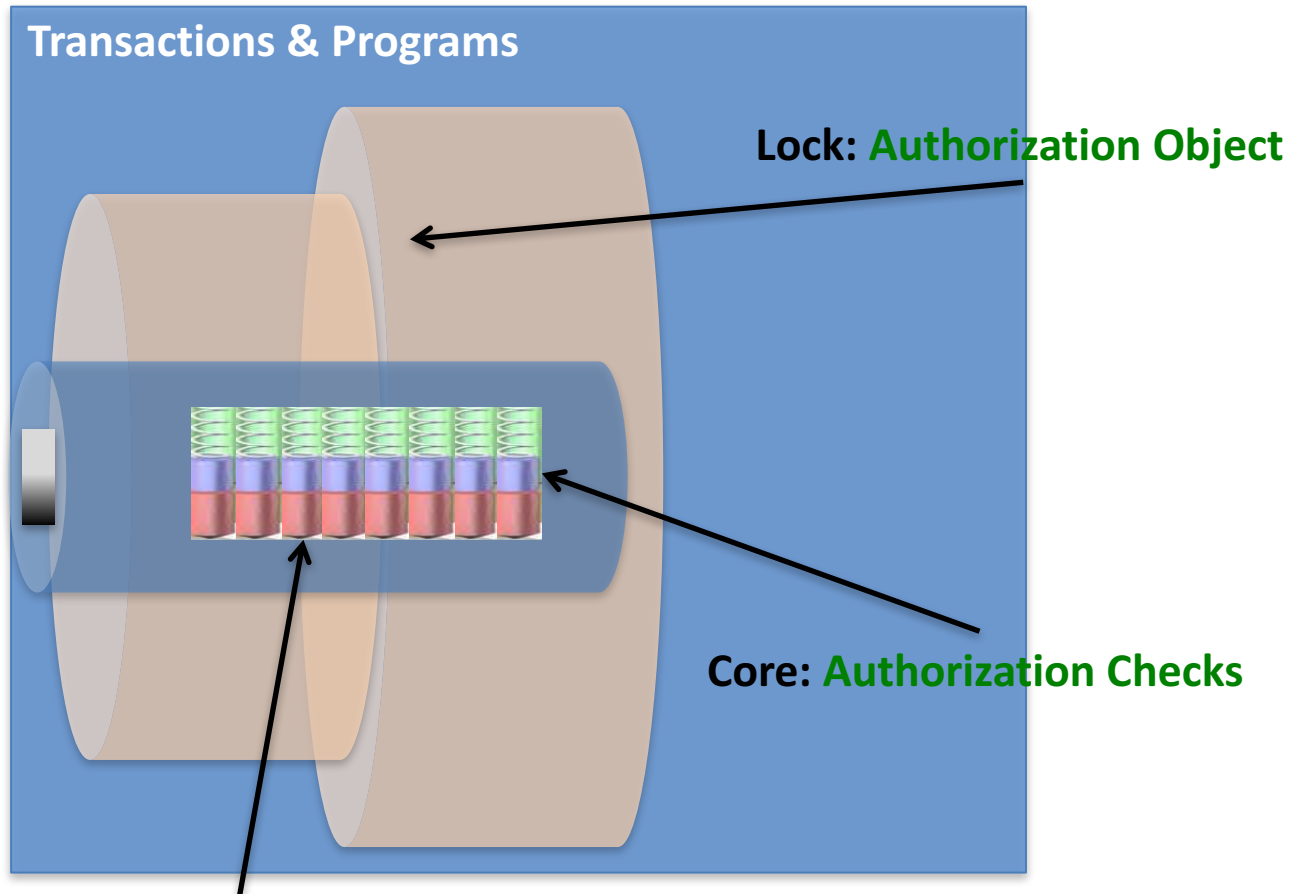
1 – Create
2 – Change
3 – Display
4, 5 Group Display

N – New version
Of existing transaction

- S_ALR... : System Report
- Z...; Y.... : Custom transaction (non-SAP development) Typically company has naming convention



SAP Security: Lock Concept

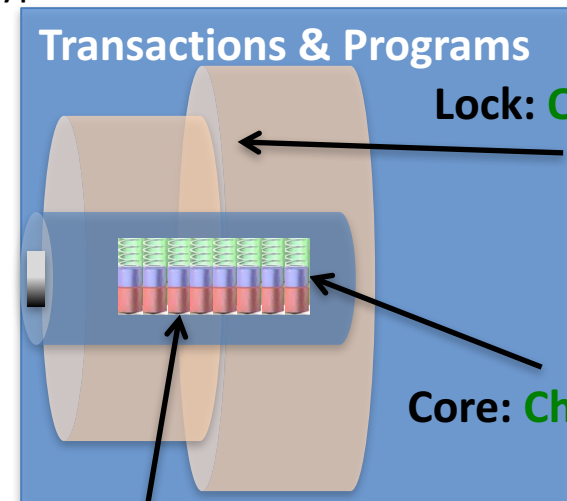


Tumblers: **Authorization Fields**



SAP Security Terminology

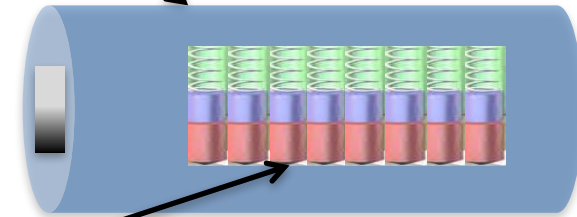
- **Authorization Object**: Logical template ('lock')
 - Implements access restrictions in SAP
 - Contains 1+ fields
 - Referenced by authority-check statements coded in programs
 - Often many objects referenced by same program
 - Objects are **ANDed** together
 - More than 900 SAP Supplied authorization objects
 - Examples:
 - V_VBAK_AAT: Sales Document: Auth for Sales Document Types
 - V_VBAK_VKO: Sales Document: Auth for Sales Area
 - F_BKPF_BES: Account Authorization for G/L Accounts





SAP Security Terminology

- **Authority Check:** (the lock 'core')
 - Program statement(s)
 - Checks the user's authorizations buffer for fields and values (based on the referenced authorization object)



- **Authorization Field:** (the lock 'tumblers')
 - 1-10 fields used in each object / check.
 - Examples:
 - Activity: function to be performed (create, change, display, etc.)
 - Document type (e.g. sales, purchasing, production, ...)
 - Enterprise Hierarchy node (e.g. company, sales org / area, plant, etc.)
 - Account type (e.g. customer, vendor)

SAP Example

Transaction: **SUIM**
Select Role: '**Z_BPI**'
– **Authorizations** tab

The screenshot shows the 'Display Roles' interface in SAP. At the top, there is a 'Menu' dropdown and navigation buttons: 'Back', 'Exit', 'Cancel', 'System', and 'D'. Below this is the 'Role' section with the following fields:

- Role: Z_BPI
- Description: ZBPI Role for UCC Faculty Access to More Functions
- Target System: (empty) No d

At the bottom of the role section, there are four tabs: 'Description' (selected), 'Menu', 'Workflow', and 'Authorizations'. The 'Authorizations' tab is highlighted with a pink rectangular box.

Below the tabs are two sections: 'Administration Information' and 'Transaction Inherit'. The 'Administration Information' section has columns for 'Created' and 'Changed'. The 'Transaction Inherit' section has a column for 'Derive from Role'.



SAP Security: Key Concept

Lock: **Authorization Object**

Key Slot

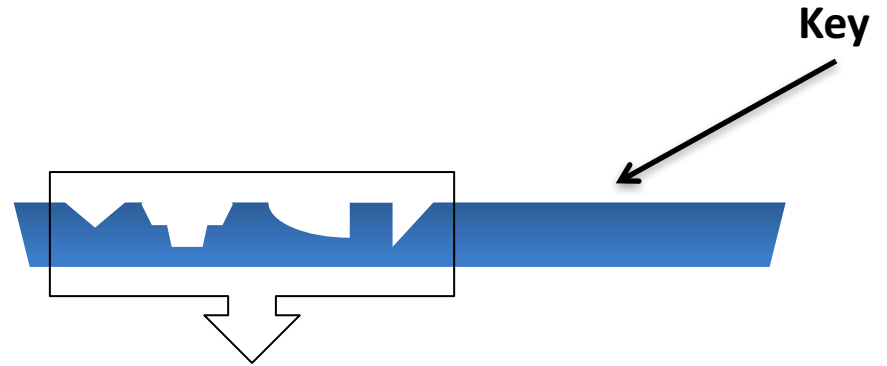
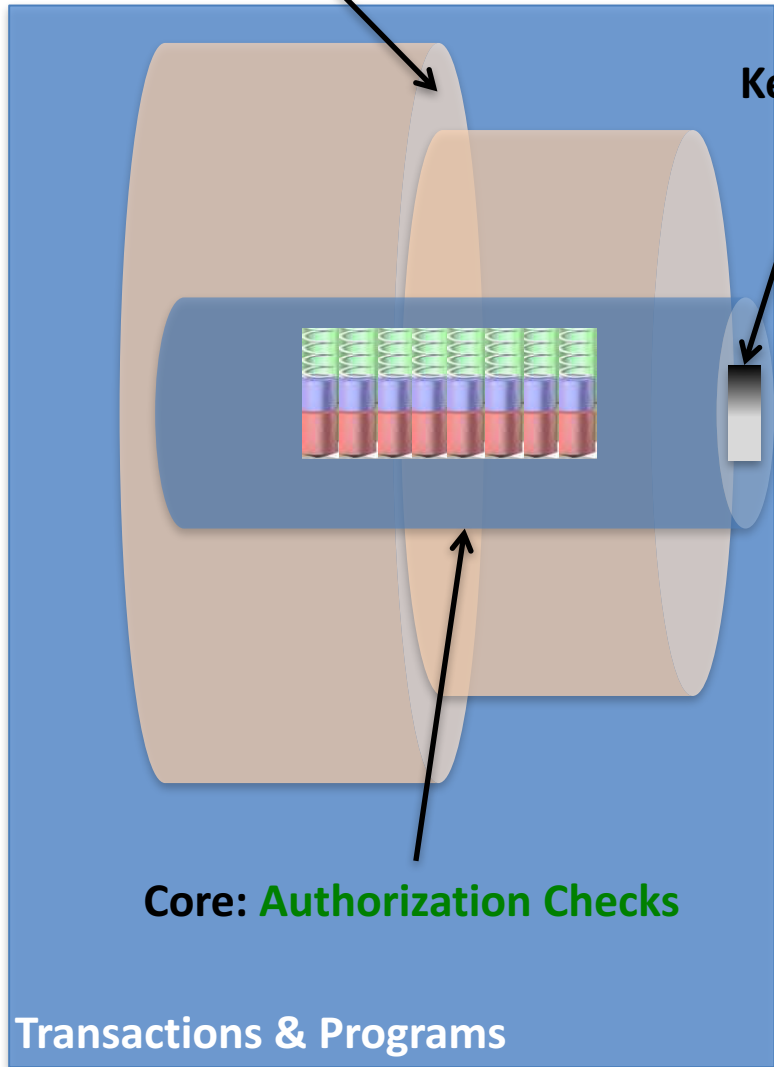
Key

Core: **Authorization Checks**

Authorization Values

SAP Terminology

Transactions & Programs

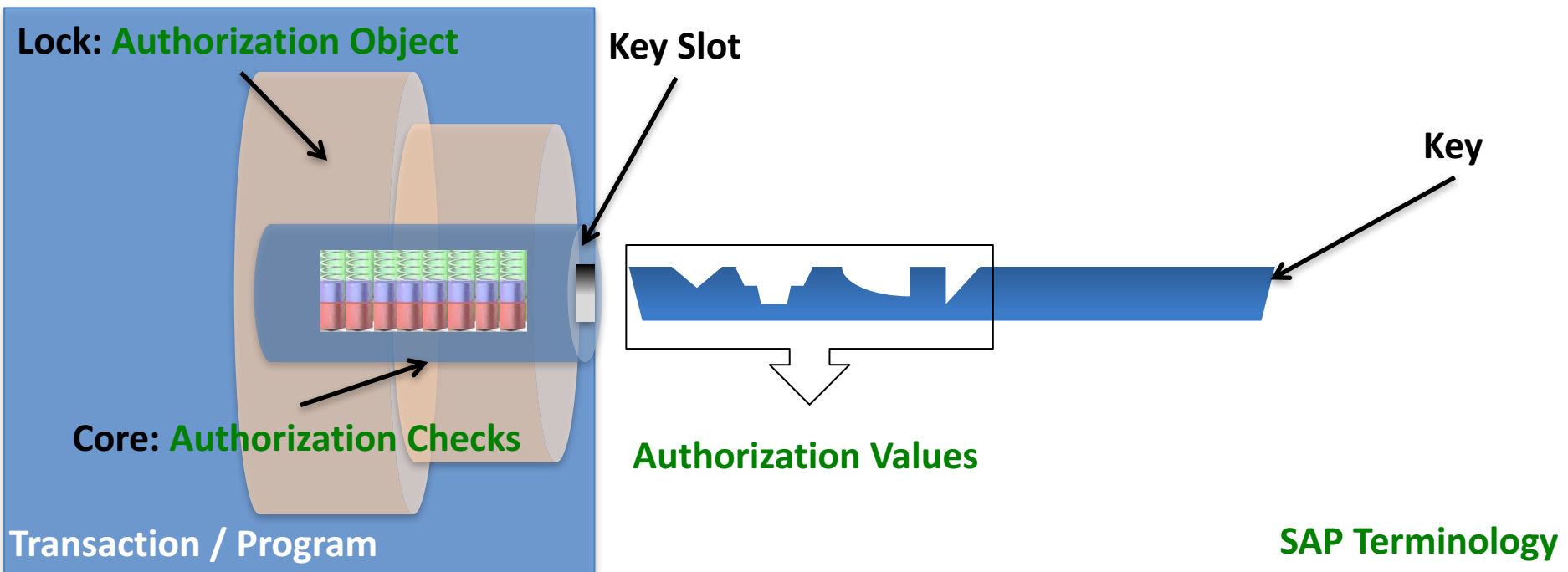




SAP Security Terminology

- **Authorization Values:**

- Collection of fields & values ('keys') referencing authorization objects
- Contained in user's assigned authorization roles / profiles
- May or may not match values checked by an authorization check statement
- Values for same fields are **ORed** together



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

- 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.

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

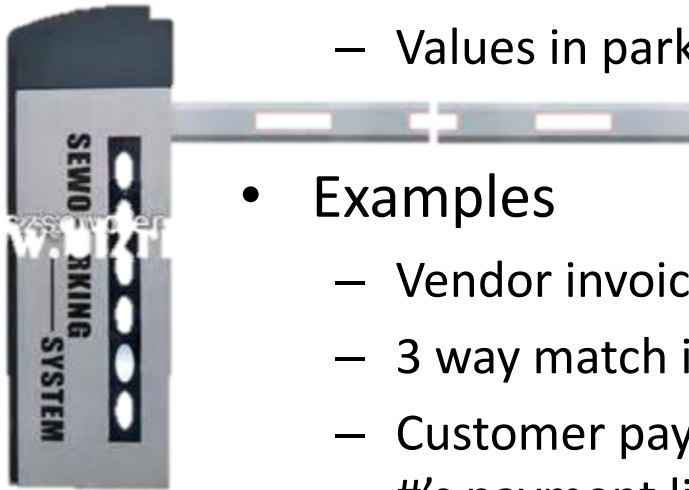
- Real-Time
 - Routine Transactions (as result of business processes)
 - Posted 'real-time'
 - But What is timing from event occurring vs. when entered in system?
 - Captured in fiscal year posting periods (usually only 1 period 'open' for real-time events at a time)
 - Important to verify for _____ 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

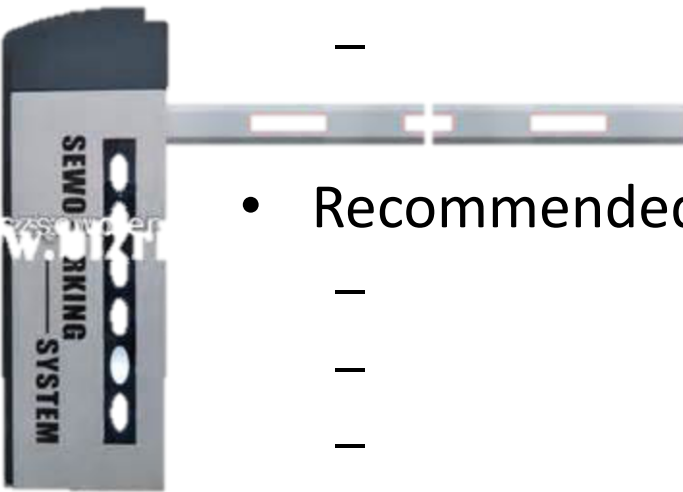
Used to enter / store (park) incomplete documents in SAP

- Risks

-
-
-

- Recommended Controls

-
-
-



Finance: Document Parking

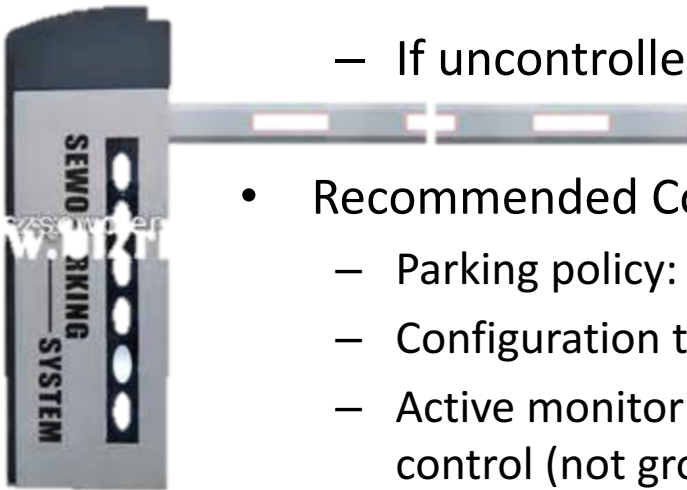
Used to enter / store (park) incomplete documents in SAP

- 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 ...

Change View "Posting Date for Document Parking": Overview

Menu Save Back Exit Cancel System Change ->

C...	Company Name	City	Prk pst dt	
DE	Global Bike Germany GmbH	Heidelberg		
US	Global Bike Inc.	Dallas		

Procedure for Setting the Posting Date (1)

Posting date for parking	Short Descript.
	Posting date is not changed during posting
1	Posting date is changed to system date
2	Same as 1 only if the posting period is closed



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

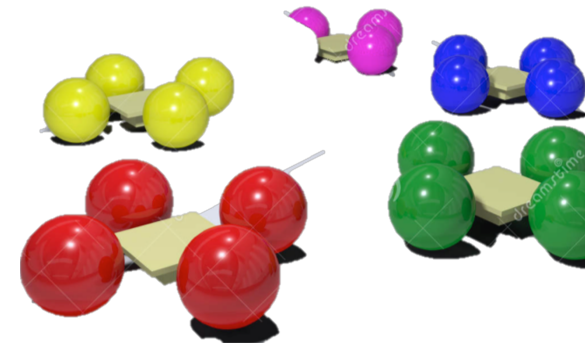


Finance: Other Controls

- Account Determination
 - Configured rules to define which G/L accounts are posted with transactions
 - Also Master data (e.g. customer reconciliation account)
- Foreign Currencies
 - Maintain
 - Manually or automated input from Central Banks
 - Frequency? Some countries require daily
 - Handling rounding, differences, dates



Breakout Activity – Rules



- Break into teams – max of 5 people / team
 - Diversity a must.
- Assignment – return via WebEx Notes or Word Document
- How: WebEx breakout?
- Time: assigned today 20 min (including break)
 - Start back **on-time**

Breakout Question

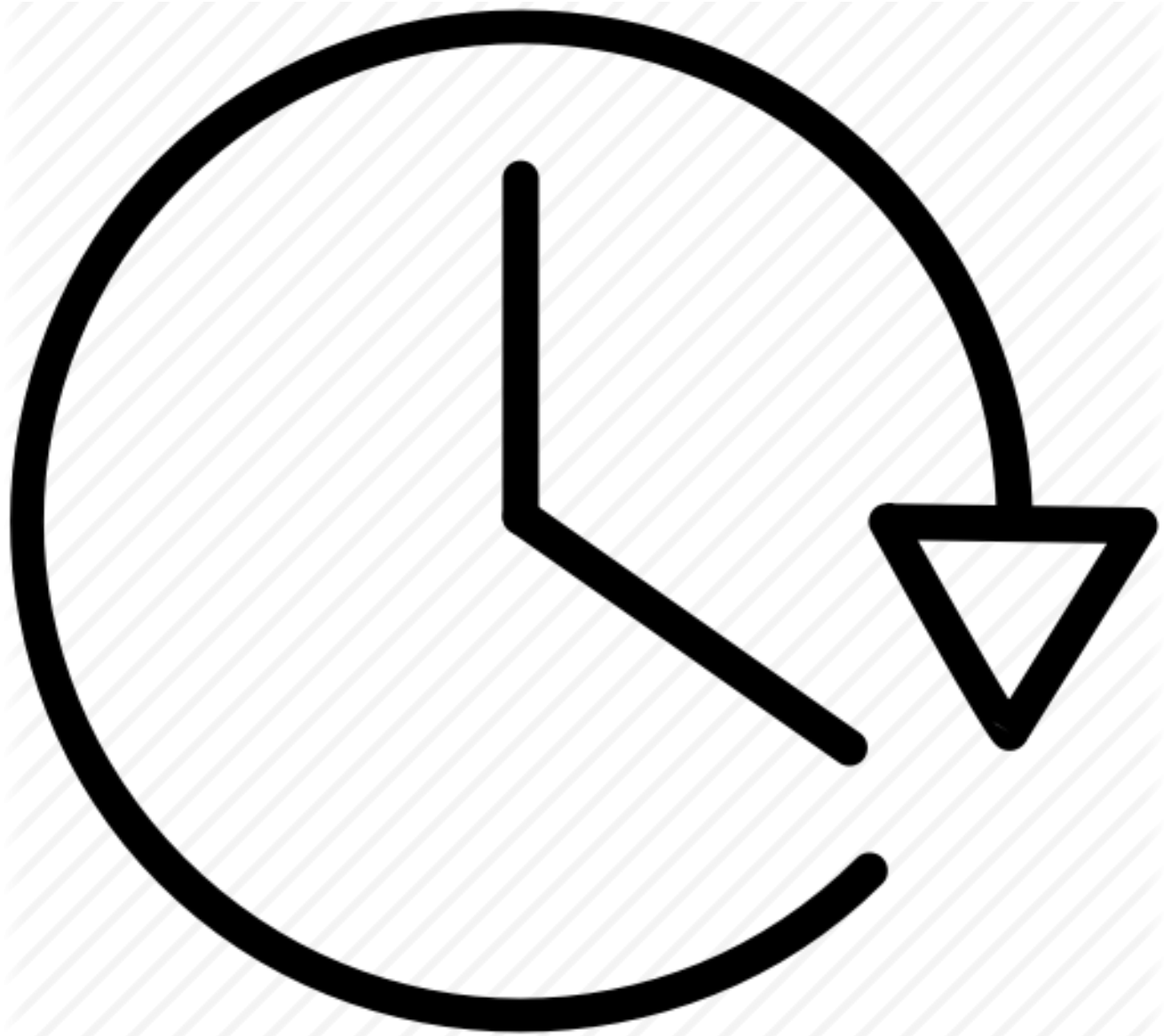
Finance and Accounting Processes



What Could go Wrong?

- _____
- _____
- _____
- _____
- _____





Report Back





Remaining Exercises



- Exercise 3: Journal Entries Due: October 27
- Exercise 4: Segregation of Duties Due: November 10
- Final Case: Risk / Control Matrix Due: December 15
- Work for these will be completed by 2-3 person Teams
 - Tried to pair those with some accounting background with someone who does not
 - One (1) submission by each team
 - Share the grade



Journal Entries Exercise



- Primary learning objectives are:
 - Experience concepts of beginning financial accounting
 - Work with a manual accounting information system
 - Experience how an ERP system handles the steps of the accounting cycle
 - Investigate related application controls in an ERP system



Exercise 3: Journal Entries



- Agenda
 - **This Class (*October 17*): Tasks 1 - 3 (Manual steps)**
 - Next Class (*October 24*): Tasks 4 - 6 (SAP steps)
 - *Due October 26 11:59 PM: Assignment Submission sheet*



Exercise 3: Journal Entries

Task 1: In SAP ERP system , review the chart of accounts for GBI.

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#.)

Exercise 3: Journal Entries



- **Task 2:** 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



- **Task 3:** Record the adjusting entry transactions
 - Based on the Month-end Adjustment Checklist, Record the needed journal entries 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

Extra Slides

Exercise 3: Journal Entries

Task 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 15 of this document)

a) 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

b) Accounting → Financial Accounting → General Ledger → Posting → Enter G/L Account Document (FB50)

Record the daily and month-end 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



Task 5: Using SAP General / Ledger system

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



Exercise 3: Journal Entries



Task 5: SAP General / Ledger system:

Options for viewing the journal entries:

- **Document Journal:** Information System → General Report Selection → Financial Accounting → General Ledger Reports → Document → General → Compact Document Journal → Compact Document Journal (S_ALR_87012289)
- **Source Document Drill Down:** Accounting → Financial Accounting → General Ledger → Account → Display/Change Line Items (FBL3N)
- **Line Item Journal:** Information System → General Report Selection → Financial Accounting → General Ledger Reports → Document → General → Line Item Journal → Line Item Journal (S_ALR_87012291)



Exercise 3: Journal Entries



Task 6: Using SAP general ledger system

Review the Balance Sheet and Profit and Loss Statement:

Accounting → Financial Accounting → General Ledger → Information System → General Ledger Reports → Balance Sheet/ Profit and Loss Statement/Cash Flow → General → Actual /Actual Comparisons → Balance Sheet/ Profit and Loss Statement (S_ALR_87012284)

How do these statements match your manual trial balances?

Print or save in Excel or Word format

Participation Grades

- Easiest method to accumulate Grade points
- Points for:
 - Attend and participate in Class
 - Blog posts (each week)
- Blog Post Expectations
 - Substantive comments (not just an I agree reply)
 - More than 1 -2 sentences
 - Include your own original thoughts, experiences, etc.
 - Focused on topic of question
- Blog Posts have been improving

Participation Grades

