MIS 5121: Auditing Controls in ERP Systems
Business Processes, ERP Systems and Controls

Introduction: Course, Business Processes, ERP Systems, Controls and SAP

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Introduction: Course

Course Web Home

See Syllabus

View Schedule

View Roster
Typical Weekly Cycle

• You: Read, view, etc. content for week (see Schedule menu)

• Me: Post Questions (Tuesday am)

• You: respond to questions and read & respond to others answers (thru Sunday 11:59 pm)
  Four (4) substantive comments each week considered a B

• Us: Class (Monday)

• Me: Post summary note (if any) (Tuesday)
Introduction: Me and You

• Name

• Why in this course
  
  OK to say ‘it’s Just a Requirement

• What Supply Chain most experience with? Role?

• Unique experience, skills you bring to the class

• What is your Accounting experience level?

https://www.surveymonkey.com/r/Q65QKMH
Introduction: Me and You

- Name
- What is your Home Town

Me
- What Supply Chain most experience with? Role?
- Unique experience, skills you bring to the class
Business Processes,
ERP Systems,
& 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, lightweight 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.
Business Function

Definition

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

Business Dictionary
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 Process

Definition

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

‘Actions an enterprise takes to achieve value creation’

Business Dictionary

ISACA
Procurement Process

1. Determination of reqmts
2. Source determination
3. Vendor selection
4. PO processing
5. PO monitoring
6. Invoice verification
7. Goods receipt
8. Payment processing
What are Business Processes of GBI?

• Procurement to Pay

• __________________

• __________________

• __________________

• __________________

• __________________
Breakout Questions

GBI Business Functions
• ____________
• ____________
• ____________

GBI Business Processes
• ____________
• ____________
• ____________
• ____________

Does GBI Need Systems / Applications?
• ____________
• ____________
• ____________
• ____________
Breakout Activity – Rules

• Break into teams – max of 5 people / team
  – Diversity a must.
  – We’ll do this each Learnathon – not same team

• Assignment – return via WebEx Notes or Word Document

• How: WebEx breakout?

• Time: assigned today 20 min (including break)
  – Start back on-time
Discussion

GBI Business Functions

• ______________
• ______________
• ______________

GBI Business Processes

• ______________
• ______________
• ______________
• ______________

Does GBI Need Systems / Applications?

• ______________
• ______________
• ______________
• ______________
Business Functions / Organization

Research and Development (Concept to Production)

Marketing / Sales

Supply Chain Manufacturing

Finance & Accounting / HR

Customers

Suppliers

Manufacturing
Global Bike Organization

Research and Development
(Concept to Production)

Marketing / Sales

Customer Service

Supply Chain

Warehouse Distribution
Conversion
Procurement

Finance / HR

Billing
Accounts Receivable

Accounts Payable

Customers

Suppliers
Business Process

Definition

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

‘Actions an enterprise takes to achieve value creation’
Procurement Process

1. Determination of reqmts
2. Source determination
3. Vendor selection
4. PO processing
5. PO monitoring
6. Invoice verification
7. Goods receipt
8. Payment processing
Procurement at GBI

Research and Development
(Concept to Production)

Marketing / Sales

Supply Chain

Warehouse Distribution

Conversion

Finance / HR

Billing

Accounts Receivable

Customer Service

Goods Receipt

Vendor / Sourcing

Purchase Order

Reqmts

Invoice Verify

Accounts Payable

Procurement

Billing

Payment

Accounts Receivable

Revenue
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

Fitter Snacker’s Sales Process

- Sales
  - Price quote
  - Sales order

- Warehouse
  - Pick, pack, and ship

- Receiving
  - Returns

- Accounting
  - Invoice
  - Payment
Order to Cash at GBI

Research and Development
(Concept to Production)

Marketing / Sales

Supply Chain

Warehouse
Distribution

Conversion

Procurement

Finance / HR

Customer Service

Order

Inquiry

Delivery

Invoice

Billing

Accounts Receivable

Payment

Accounts Payable

Suppliers

Customers
Business Processes, ERP Systems, & 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 '60
Material Requirements Planning

Closed Loop MRP '70
Include Returns

MRP II '80
Material Resource Planning and Manufacturing Resource Planning

ERP '90
Enterprise Resource Planning

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

28,610+ Tables in SAP
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
SAP Technology Evolution (70’s)

Mainframe Days
SAP Technology Evolution
90’s -> Now
SAP Technology Evolution

Now ->

2011年
SAP HANA

2012年
BW powered by SAP HANA

2013年
Business Suite powered by SAP HANA

2014年
Simple Finance powered by SAP HANA

2015年
S/4HANA

SAP HANA: in-memory, column-oriented, relational DB & related apps
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
Business Processes, ERP Systems, & 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)

• **References / Links:**
  - *SAP GRC for Dummies* by Vu Broady, Denice & Roland, Holly
    Published by Wiley Publishing, Inc., 2008
Results of Massive Failures

- 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 Objectives and Risk Drivers

External Financial Reporting regulations

Sarbanes – Oxley Acts
GAAP
Various Others

Other Reg’s

FDA
Chemical Control Laws
GMP
Import Export
HIPPA

Organization’s Objectives & Policies

Balanced Scorecard
KPI’s
Process Improvement
Profitability
“Any action taken by management, the board and other parties to manage risk and increase the likelihood that established objectives and goals will be achieved.”

Institute of Internal Auditors
Internal Control 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.
Internal Control Framework in the ERP environment

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Risks:
- Completeness
- Existence, rights
- Accuracy
- Valuation
- Presentation
- Product quality
- Delivery (OTD)
- Unused capacity
- Excess Costs
- Lower Sales

Assertions:
- Contain
- Minimized by

业务流程图

平衡表 | 收益表 | 备注
---|---|---

外部财务报告规定

其他规定

组织的目标与政策

质量

物流

财务

IT

质量

物流

HR

...
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
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.
Configured SAP Gui

Select System: double-click or Logon button
Logging On

- Enter Client
- Enter User (R/3 Account)
- Enter Password (R/3 Account)
- Don’t worry about language—English will default in
# SAP Access Details

<table>
<thead>
<tr>
<th>SAPGUI - System ID</th>
<th>GB5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Host Name</td>
<td>GB5.UCC.UWM.EDU</td>
</tr>
<tr>
<td>Client Name</td>
<td>SAP ERP GBI AIS 2.21 (MCC)</td>
</tr>
<tr>
<td>Client Number</td>
<td>644</td>
</tr>
<tr>
<td>SAPGUI - System Number</td>
<td>00</td>
</tr>
<tr>
<td>Student Userids</td>
<td>AIS-002 to AIS-0044 (See assignments in Roster)</td>
</tr>
<tr>
<td>Student Passwords (case sensitive)</td>
<td>TempleUN</td>
</tr>
</tbody>
</table>
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 Easy Access
- Master Data Entry
- Transaction Data Entry
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
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• Logoff
Where Configuration Takes Place