



MONASH University

Information Technology

FIT 3138

Real-Time Enterprise Systems

Lecture 6

Accounting in ERP Systems

Unit Outline

Week	W/C	Topic	Deadline:
1	25/07	Introduction to FIT3138; Introduction to Enterprise Systems	
2	01/08	Systems Integration - Role of ERP in Business Functions and Processes	Assignment 1 handed out
3	08/08	The Development of ERP Systems	
4	15/08	ERP in Sales and Marketing & CRM	
5	22/08	ERP in Production and Supply Chain Management	
→ 6	29/08	Accounting in ERP Systems	
7	05/09	Process Modelling & Improvement	Assignment 1 due Assignment 2 handed out
8	12/09	ERP Implementation – Risk Management	
9	19/09	ERP Implementation – Data and System Integration and Configuration	
Mid-semester Break (26 Sep – 30 Sep 2022)			
10	03/10	ERP Implementation Issues: Managing Change	
11	10/10	Technologies supporting real-time enterprise	
12	17/10	Exam Review	Assignment 2 due

Objectives

Identify and describe problems associated with accounting and financial reporting in unintegrated information systems

Describe how ERP systems can help solve accounting and financial reporting problems in an unintegrated system

Describe how the Enron scandal and the Sarbanes-Oxley Act have affected accounting information systems

Explain accounting and management-reporting benefits that accrue from having an ERP system

Introduction

- In this lecture, you will learn about the activities in the Accounting functional area
- Accounting is tightly integrated with all other functional areas
- Accounting activities are necessary for decision making



Accounting Activities

Areas of accounting:

- Financial accounting
- Managerial accounting

Financial accounting

- Documenting all transactions of a company that have an impact on the financial state of the firm
- Using documented transactions to create reports for external parties and agencies
- Reports, or financial statements, must follow prescribed rules and guidelines of various agencies

Managerial accounting

- determining costs and profitability of company's activities

Financial Accounting

Common financial activities and statements

- Ensure accounts accurate and up-to-date
- Making “Closing” entries and “Adjusting” entries
- 2 Common financial reports: Balance sheets and Income statements

Balance sheet

- Statement that shows account balances
- $\text{Assets} = \text{Liabilities} + \text{Equity}$
 - Assets: Current assets: Cash, Accounts Receivable, Inventory,
 - Long-term assets such as Building, Plant & Equipment, Land
 - Liabilities: Amounts owed to vendors, banks, and other creditors
 - Equity: Amounts owners have invested in company

Income statement

- Profit and loss (P&L) statement
- Shows company's sales, cost of sales, and profit or loss for a period of time (typically a quarter or year)

A Sample Balance Sheet

Fitter Snacker Balance Sheet
December 31, 2011
 (in thousands of dollars)

Assets		
Cash		\$5,003
Accounts receivable		\$4,715
Inventories		\$9,025
Plant and equipment		\$6,231
Land		\$1,142
Total assets		\$26,116
Liabilities		
Accounts payable	\$6,400	
Notes payable	\$10,000	
Total liabilities		\$16,400
Stockholders' Equity		
Contributed capital	\$2,000	
Retained earnings	\$7,716	
Total stockholders' equity		\$9,716
Total liabilities and stockholders' equity		\$26,116

Current assets – amounts owned
 Accounts Receivable: amounts
 owed by customer (debtors)

Long -term assets – amounts
 owned (not easily convertible to
 cash)

Accounts Payable: amounts owed
 to vendors
 Notes Payable: amounts owed to
 banks

Assets = Liabilities + Equity

A Sample Income Statement

Fitter Snacker Income Statement For the year ended December 31, 2011 (in thousands of dollars)		
Revenue		
Sales revenue	\$36,002	
Total revenue		\$36,002
Expenses		
Cost of goods sold expense	\$25,691	
Selling, general, and administrative expense	\$4,251	
Research and development expense	\$962	
Interest expense	\$521	
Total expenses		\$31,425
Pretax income		\$4,577
Income tax expense		\$1,144
Net income		\$3,433

← Sales revenue – Amount sold at selling price

← COGS – Amount sold at cost price

← Net Income – part of this may be used to pay dividends and the rest added to Retained Earnings in the Balance Sheet.

An Example of SAP ERP Financial Statement

System Help

Financial Statements

Fitter Snacker

FS 10 Ledger
 USD Currency type Company code currency
 Amounts in United States Dollar
 2011.01 - 2011.16 Reporting periods
 2010.01 - 2010.16 Comparison periods

F.S. item/account	Tot.rpt.pr	tot.cmp.pr	Abs. diff.
Assets	26,116,815.00	25,533,531.00	583,284.00
Cash & Cash Equivalents	5,003,182.00	4,982,485.00	20,697.00
Inventories	9,025,081.00	8,761,907.00	263,174.00
Accounts Receivable	4,715,394.00	4,374,098.00	341,296.00
Property, Plant & Equipment	7,373,158.00	7,415,041.00	41,883.00-
Liabilities/Equity	26,116,815.00-	25,533,531.00-	583,284.00-
Current Liabilities	6,400,158.00-	5,984,730.00-	415,428.00-
Long-term Liabilities	10,000,782.00-	11,289,379.00-	1,288,597.00-
Equity	9,715,875.00-	8,259,422.00-	1,456,453.00-
Profit & Loss Statement	3,433,353.00	2,983,945.00	449,408.00
Net Income After Taxes	3,433,353.00	2,983,945.00	449,408.00
Income Before Taxes	4,577,589.00	4,011,598.00	565,991.00
Corporate Tax	1,144,236.00-	1,027,653.00-	116,583.00-

SAP AB1 (2) 905 ab1 INS

Balance Sheet

P&L statement

Comparison of current year to previous year

Managerial Accounting

Determine costs and profitability of company's activities

- To develop long-term plans and strategy

Provide managers with detailed information

- To make informed decisions
- To create budgets
- To determine profitability

Information that managers use to control day-to-day activities

- To develop operational plans
- To handle different managerial issues

Using ERP for Accounting Information



Problems associated with unintegrated systems

- Data sharing usually did not occur in real time
 - Accounting data were often out of date
- Accounting personnel had to do significant research
- In traditional accounting, company's accounts are kept in a record called a **general ledger**



Integrated ERP systems

- ERP system, with its centralized database, avoids these problems
- Simplifies process of closing books and preparing financial statements
- In the SAP ERP system, different modules (such as SD, MM, PP, HR, AM) cause transaction data to be entered into the general ledger simultaneously as and when the business transactions occur

Operational Decision-Making Problem: Credit Management

Credit management requires a good balance between:

- Granting sufficient credit to support sales and
- Making sure that the company does not lose too much money

What it involves?

- Setting a limit on how much a customer can owe at any one time
- Monitoring that limit as orders come in and payments are received

Require real-time information

- Sales representative needs to be able to review an up-to-date accounts receivable balance when an order comes in

How an integrated ERP Systems help

- Accounts receivable is immediately updated

An Example: FS Credit Management Problem

Fitter Snacker's Credit Management Procedures

- FS sales clerk refers to a weekly printout of a customer's current balance and credit limit to see if credit should be granted
- Sales data are transferred to Accounting by disk three times a week
- Accounting clerk can use sales input to prepare a customer invoice
- Accounting must make any adjustments for partial shipments before preparing the invoice
- Accounting clerks process customer payments

Problems with unintegrated information systems

- Results in out-of-date or inaccurate accounting data that can cause problems when a company is making operational decisions

Credit Management in SAP ERP – An example

Customer Credit Management Change: Overview

Administrative data

Customer: 201 Health Express
Credit control area: FS FS Credit Control Area
Currency: USD

Status

Credit limit: 1,000.00
Credit exposure: 590.00
Cred.lim.used: 59.00 %
Horizon: 03/01/2012

Dunning data

Dunning Area: ☐
Last dunned:
Leg.dunn.proc.:
Dunning level: 0

Payment history/arrears

With cash disc.: 0.00 0
W/o cash disc.: 0.00 0

Payment data

DSO: 0
Clearing amount: 0.00
Author.deduct.: 0.00
Unauthor.deduc.: 0.00

Control

Risk category: Z00
Last int.review:
☐ Blocked
Cred.rep.grp:
Payment index:
Rating:
Last ext.review:
Monitoring:

SAP ERP would allow company to set a credit limit for each customer

Credit limit

Amount of credit used

Company can configure any number of credit-check options in SAP ERP system

Advantages of using SAP ERP to manage credit:

- Process is automated
- Data are available in real time

Product Profitability Analysis



- Business managers use accounting data to perform profitability analyses of a company and its products
- When data are inaccurate or incomplete, the analyses are flawed
- Main reasons for inaccurate or incomplete data
 - Inconsistent recordkeeping
 - Inaccurate inventory costing systems
 - Problems consolidating data from subsidiaries

>> Inconsistent Recordkeeping

- Each of FS's marketing divisions maintains its own records and keeps track of sales data differently
- Paper records might be inaccurate or missing, making validity of the final report questionable
- Without integrated information systems, accounting and reporting to management requires:
 - Working around limitations of information systems to produce useful output
- ERP system minimizes or eliminates these pro



>> Inaccurate Inventory Costing Systems

Calculating inventory costs

- One of the most important and challenging accounting tasks in any manufacturing company

ERP and inventory cost accounting

- Many companies with unintegrated accounting systems analyze their cost variances infrequently
- Often, they do not know how much it actually costs to produce a unit of a product
- With an ERP system, employees throughout the company would have recorded costs in a company-wide database as they occurred
- ERP system configurations allow analysts to track costs using many bases

ERP and Activity-based costing

- Accountants identify activities associated with overhead cost generation and then keep records on costs and on activities
- ABC requires more bookkeeping than traditional costing methods

Inventory Cost Accounting

Manufactured item's cost has three elements:

- Cost of raw materials
- Cost of labor employed directly in production of item
- **Overhead**: all other costs

Direct costs: materials and labor

- Can be estimated fairly accurately

Indirect costs: overhead items

- Difficult to associate with specific product(s)

Standard costs for a product are established by:

- Studying historical direct and indirect cost patterns
- Taking into account the effects of current manufacturing changes
- **Cost variances**: differences between actual costs and standard costs

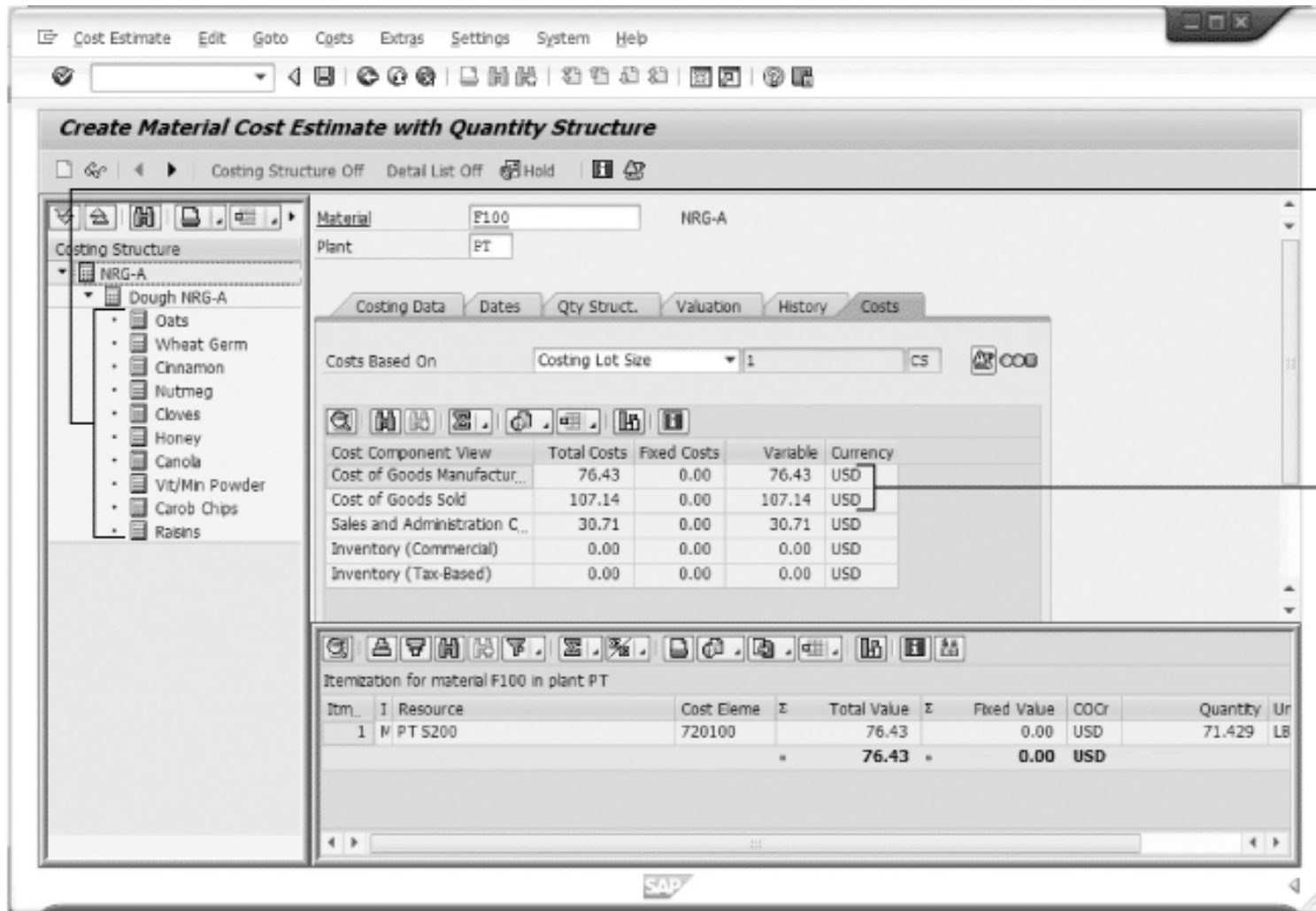
Product costing

Example

- Suppose Fitter Snacker wishes to update standard costs for NRG-A bars
- Product cost analysis for NRG-A bar

NRG-A Bar Product Cost Analysis (7 cases)				
Ingredient	Unit of measure	NRG-A	Cost per unit of measure	Direct material cost
Oats	lb	300	\$0.20	\$60.00
Wheat germ	lb	50	\$0.30	\$15.00
Cinnamon	lb	5	\$3.00	\$15.00
Nutmeg	lb	2	\$4.50	\$9.00
Cloves	lb	1	\$5.50	\$5.50
Honey	gal	10	\$6.40	\$64.00
Canola	gal	7	\$1.70	\$11.90
Vit./min. powder	lb	5	\$18.45	\$92.25
Carob chips	lb	50	\$2.10	\$105.00
Raisins	lb	50	\$3.20	\$160.00
Total direct material cost				\$537.65
Production overhead cost (100% of Total direct material)				\$537.65
Direct labor				54.50
Cost of goods manufactured (COGM)				1,129.80
Sales and administrative costs (30% of COGM)				338.94
Cost of goods sold (COGS)				1,468.74
COGM per case				\$161.40
COGS per case				\$209.82

Product cost analysis for NRG-A bar



Product cost analysis result in SAP ERP

>> Consolidating Data from Subsidiaries

- Account balances for each entity must be compiled and forwarded to the home office
- Consolidated statement for the company as a whole must be created
- Currency translation
 - Problems when **currency translation** is needed for a subsidiary's accounts
- Intercompany transactions
 - Transactions that occur between companies and their subsidiaries



Management Reporting with ERP Systems

- Generating the right reports for the right situation is often challenging
- Without an ERP system, the job of tracking all the numbers that need to go into a report is a monumental undertaking
- With ERP system, vast amount of information is available for reporting purposes



Document Flow for Customer Service

- With an ERP system, all transactions in all areas of a company get posted in a centralized database
- Each transaction posted in SAP ERP gets its own unique document number
 - Allows quick access to the data
- In SAP ERP, document numbers for related transactions are associated in the database
 - Provides an electronic audit trail



Document flow

Document Flow

Status overview Display document Service documents Additional links

Business partner 0000000051 West Hills Athletic Club

Document	On	Status
Standard Order 0000000120	01/08/2012	Completed
Outbound Delivery 0080000060	01/08/2012	Completed
• Picking request 20120108	01/08/2012	Completed
• GD goods issue:delvy 4900000171	01/08/2012	complete
• Invoice 0090000048	01/08/2012	FI doc. generated
• Accounting document 0090000000	01/08/2012	Cleared

Document flow of a transaction in SAP ERP

Built-In Management-Reporting and Analysis Tools

Maintenance of Accounting records

- Accounting records maintained in the common database

Advantage of using an integrated database

- Provides the ability to query the records to:
 - Produce standard reports
 - Answer ad hoc questions

Data Warehouse

- SAP provides a data warehouse within each major module
- Data warehouse: repository for data from various sources

The Enron Collapse

[Video : The Enron Scandal](#)

Some history:



October 16, 2001: Enron was one of the world's largest electricity and natural gas traders

(December 2011)

- Reported a \$618 million third-quarter loss and disclosed a \$1.2 billion reduction in shareholder equity



U.S. Securities and Exchange Commission (SEC) inquiry into possible conflict of interest related to company's dealings with partnerships run by CFO Fastow

The Enron Collapse (cont'd.)

- Volume of financial contracts was far greater than volume of contracts to actually deliver commodities
- Some partnerships were faked to mask billions of dollars in debt
- Enron's financial statements had been audited by Arthur Andersen, a highly regarded accounting firm
- Andersen employees on the Enron engagement team were instructed to destroy documentation relating to Enron

Outcome of the Enron Scandal

**Shareholders
lost an
estimated \$40
billion dollars**

**Thousands of
workers lost
their jobs**

**31 individuals
were either
charged or
pled guilty to
criminal
charges**

**Jurors
convicted
accounting
firm Arthur
Andersen for
obstructing
justice by
destroying
Enron
documents**

**U.S.
Congress
passed
Sarbanes-
Oxley Act of
2002**

- Act was designed to prevent the kind of fraud and abuse that led to the Enron downfall

Key Features of the Sarbanes-Oxley Act

Designed to encourage top management accountability in firms that are publicly traded in the United States

Title II

- Auditor independence
- Limits non-audit services that an auditor can provide

Title IV

- More stringent requirements for financial reporting

Title IX

- Financial statements filed with the Securities and Exchange Commission must include a statement signed by the chief executive officer and chief financial officer, certifying that the financial statement complies with SEC rules

Implications of the Sarbanes-Oxley Act for ERP Systems

- To meet the internal control report requirement, a company must:
 - Document the controls that are in place
 - Verify that the controls are not subject to error or manipulation
- Companies with ERP systems in place will have an easier time complying with the Sarbanes-Oxley Act than will companies without ERP

Archiving

- SAP ERP software offers very few ways to delete items
- Data are removed from SAP ERP system only after they have been recorded to media (tape backup, DVD-R) for permanent storage
- **Archive:** permanent storage
- SAP ERP systems keep track of when data are created or changed
 - Change Record



User Authorizations

- SAP ERP has sophisticated user administration tools that allow different levels of authorization management
 - Ensure that employees can perform only the transactions required for their jobs.
- Profile Generator
 - Provides a simple method for selecting functions that a user should be allowed to perform.



Tolerance Groups

- Setting limits on the size of transaction an employee can process
 - In an SAP ERP system, this is done using tolerance groups
- Tolerance groups
 - Preset limits on an employee's ability to post transactions
 - Set limits on the dollar value for a single item in a document as well as the total value of document

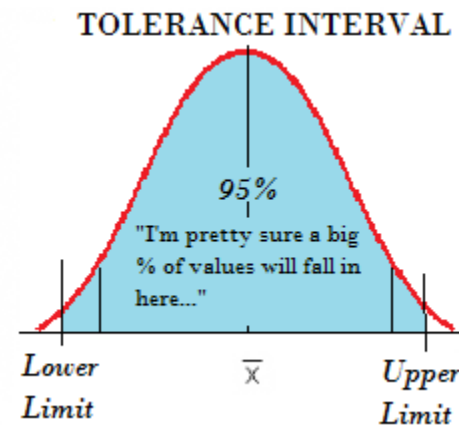


Table View Edit Goto Selection Utilities System Help

Change View "FI Tolerance Groups For Users": Details

New Entries

Group

Company code FS Fitter Snacker Kalamazoo

Currency USD

Upper limits for posting procedures

Amount per document	1,000.00
Amount per open item account item	1,000.00
Cash discount per line item	2.000 %

Permitted payment differences

	Amount	Percent	Cash discont adj.to
Revenue	10.00	1.0 %	10.00
Expense	10.00	1.0 %	10.00

Payments can differ by \$10 or 1%

Default tolerance group

Financial Transparency

- ERP systems provide the ability to drill down from a report to the source documents (transactions) that created it
 - Makes it easier for auditors to confirm the integrity of reports
- With a properly configured and managed ERP system, there are direct links between the company's financial statements and individual transactions that make up the statements
 - Fraud and abuse can be detected more easily

Trends in Financial Reporting (XBRL)

- Extensible Business Reporting Language (XBRL)
 - Standards based language
 - Extensible Markup Language (XML) coded data directly from web page into database
 - Reports processed faster and validated easier
 - ERP systems accept data in XML and XBRL



Summary

- Companies need accounting systems to record transactions and generate financial statements
- Unintegrated information systems
 - Accounting data might not be current
 - Can cause problems for sales representatives trying to make operational decisions
 - Data can be inaccurate
 - Can affect decision making and therefore profitability

Summary (cont'd.)

- Closing the books at the end of an accounting period can be difficult with an unintegrated IS, but is relatively easy with an integrated IS
 - Closing the books means zeroing out temporary accounts
- Using an integrated IS and a common database to record accounting data has important inventory cost-accounting benefits
 - Can lead to more accurate product cost calculations
 - Can help managers determine which products are profitable and which are not

Summary (cont'd.)

- Use of an integrated system and a common database to record accounting data has important management-reporting benefits
 - Built-in drill-down and query tools available
- Sarbanes-Oxley Act, 2002 U.S. federal regulation
 - Written and passed in the wake of Enron collapse
 - Promoted management accountability by requiring extra financial approval and reporting
 - ERP systems can help companies meet the requirements of this legislation
- Trends in financial reporting
 - XBRL
 - XML
 - ERP systems accept data in XML and XBRL into database

End of Lecture 6



References:

- Ellen Monk, Bret Wagner. (2013). Concepts in Enterprise Resource Planning. (4e) Course Technology, Cengage Learning. Chapter 5