Concepts presented are not complex but important to operations management
- A logical way of organizing information
- They provide the framework for later concepts used in the course

Concepts to be reviewed
- Partial budget
- Enterprise budgets
- Total business budgeting
- Break-even return
As the name implies, it only examines the changes in the business that are affected by a business decision.

- It focuses one’s attention on the most important aspects of the decision.
- It simplifies the analysis process because it is possible to ignore parts of the business not affected by the decision.
- It is a technique that helps keep the logic process consistent.

In using the technique, it is often necessary to make some simplifying assumptions:

- Using standard cost rates for some inputs (e.g., cost of operating a machine).
- Although the decisions is not totally isolated from other parts of the business, the impacts on the other parts are assumed to be minor (e.g., diverting management time).

**PARTIAL BUDGETING PROCESS**

**# STEP A – Determine What Increases the Profit of the Business**
1. Increased Income
2. Deduced Costs
3. Find Sum of Lines 1 & 2

**# STEP B – Determine What Decreases the Profit of the Business**
4. Reduced Income
5. Increased Costs
6. Find Sum of Lines 4 & 5

**# STEP C – Determine Net Change in Profit**
7. Net Gain (Line 3 less Line 6)
(Partial Budgeting Continued)

Example – Extending the hours of Garden & Pet Center at the Bartley Elevator (from 6pm to 9pm)

# STEP A – Determine What Increases the Profit of the Business

1. Increased Income ($):
   New Sales ($250 / hour)  750

2. Reduced Costs ($):
   Cost of lost sales (60% sales)  168

# STEP B – Determine What Decreases the Profit of the Business

4. Reduced Income ($):
   Lost sales (10% customer shift)  280

5. Increased Cost ($):
   Cost of sales (60% sales)  450
   Wage Cost (10 hrs @ 11.50/hr)  115
   Cost of utilities  10

# STEP C – Determine Net Change in Profit

7. Net Gain (Line 3 less Line 6)  63
A commonly used planning tool

Prepared by stating items related to a business activity on a per unit basis (income, expenses, resources)

**Example (Acre of Corn Grain):**

**Income ($):**
- Corn (135 bu @ 2.10) 284
- Gov. Payment 45
  - TOTAL 329

**Expenses ($):**
- Seed (30K Kern. @ 1.13) 34
- Fertilizer 56
- Chemicals 42
- Repairs 22
- Drying Fuel 34
- Fuel and Lub 9
- Utilities 6
- Trucking 20
- Marketing 7
  - TOTAL 230

**Resources Used:**
- Cropland (Acre) 1
- Regular Labor (hour) 3.6

Net Margin = $99

(Enterprise Budgeting Continued)

**Additional comments regarding enterprise budgets**

- Building the budget is often an inter-disciplinary effort
  - Defining the technical relationships
    - Need to carefully document
  - Be sure you account for the differences between business results and experimental results
    - Farming systems research
- The marginal economic analysis is handled in the construction of the enterprise budget
  - The input/output relationships
  - The substitution effects among inputs
- Fixed costs are often ignored
  - If developed by enterprise accounting methods, then the fixed cost are allocated
  - Enterprise accounting methods are complex and data intensive
Additional comments regarding enterprise budgets

It is important to note the assumptions made and be consistent when developing the budgets:
- Prices used
- Technology program used
- See examples in handouts

When comparing systems, it can become more complex because of multi-year effects:
- See corn-potato vs. potato-alfalfa rotations
- In situations with very long time horizons, the enterprise budgets become inputs to a capital budgeting analysis.

The American Agricultural Economics Association has developed a set of guidelines for developing enterprise budgets (*Commodity Costs and Returns Estimation Handbook*, Ames Iowa):
- Implementation of the task force findings can be a complex process for some costs
- Stresses the need to document data sources

Most land grant universities publish enterprise budgets:
- These are very popular and widely used publications
- They can take a lot of resources to maintain
This involves examining the existing business and possible business adjustments on a total business basis

- Several approaches can be used
  - Nearly all generate a business income statement and cash flow statement
  - Others also integrate the balance sheet

The common approach used in agriculture utilizes enterprise budgets

- Draws upon the concept of direct (the enterprise budget) and indirect cost (certain types of overhead costs)
- Allows for intermediate products (e.g., feed produced for livestock)
- Excess and shortfalls of some resources can be sold and purchased

**TOTAL BUSINESS BUDGETING**

**EXAMPLE**

**Integrated upper Midwest dairy farm**

- 154 milking cow with replacements
- 510 acres farmed (249 owned, 261 rented)
- Crop grown (Corn, wheat, hay, and corn silage)
- Labor supply (5273 unpaid hours, 6515 hired)
  - Value of unpaid labor $14.00/hour
- Assets (average market value):
  - Current = $160,000
  - Intermediate = $670,000
  - Long-term = $540,000
- Liabilities (average market value):
  - Current = $110,000
  - Intermediate = $120,000
  - Long-term = $220,000
(Example Total Business Budget Continued)

This is a very simple illustration

- It ignores possible inventory adjustments
- Does not address the total cash flow situation
  - Capital replacement
  - Debt servicing
  - Family living expenses and income taxes
- Many means to evaluate the business have not been incorporated
  - “Sweet Sixteen”
- Ignores cost value considerations
- Beginning and ending asset and liability information

It is not in the scope of this course to teach financial statements and their use

- Covered in other courses (e.g., FIM-430)

TOOLS FOR DOING TOTAL BUSINESS BUDGETING

FinPack package from the University of Minnesota
  - Widely used by Extension Services
  - Incorporates the “Sweet Sixteen” and both the cost-value and market-value methods

DuPont Analysis
  - A popular tool of the corporate business world
  - Focuses on
    - 1. “Turns” Turnover Ratio
    - 2. “Earns” Operating Profit Margin Ratio
  - Turnover Ratio * Operating Profit Margin = Return on Assets
DuPONT ANALYSIS

“Earns”

Gross Revenue - Fixed Costs - Variable Costs = Net Income

Net Income + Interest Expense / Gross Revenue = Operating Profit Margin

“Turns”

Gross Revenue / Total Assets = Turnover Ratio

Return on Assets

(Times)