

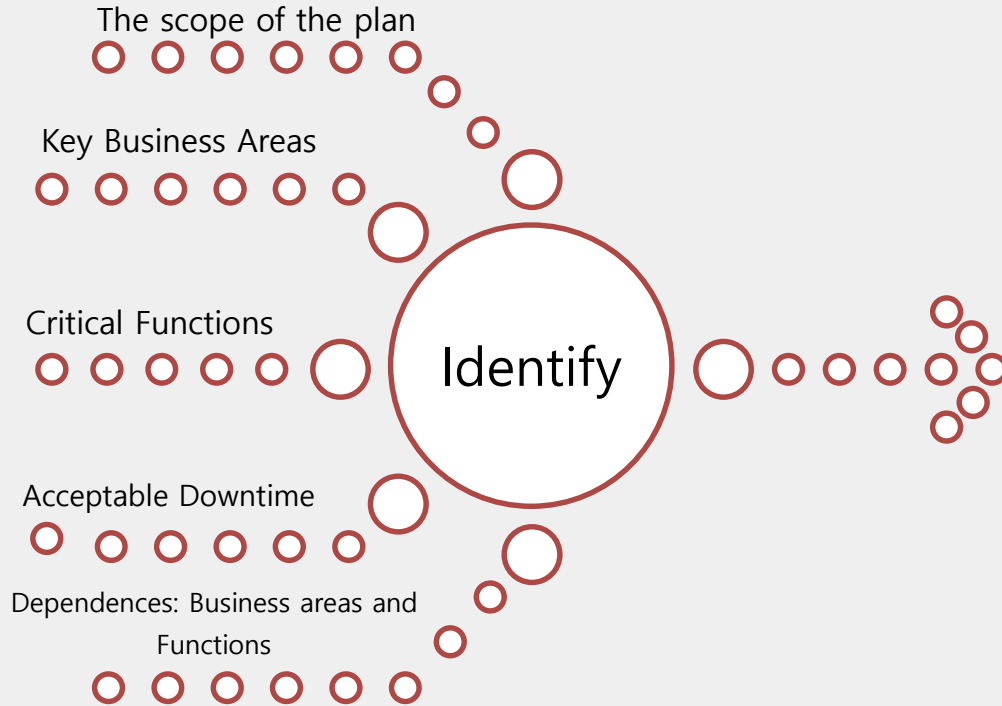
# Business Continuity Planning



**Business continuity planning (BCP) is the creation of a strategy through the recognition of threats and risks facing a company, with an eye to ensure that personnel and assets are protected and able to function in the event of a disaster.**



# Business Impact Analysis



# Identifying Business Functions

Human Resources

Finance

Facilities and Security

Marketing and Sales

Manufacturing

Information Technology



# Understanding Impact Critically



Critical Function: Mission-Control

Essential Function: Vital

Necessary Function: Important

Desirable Function: Minor



# Terminology

## MTD

- Maximum Tolerable Downtime

## RTO

- Recovery Time Objective

## WRT

- Work Recovery Time

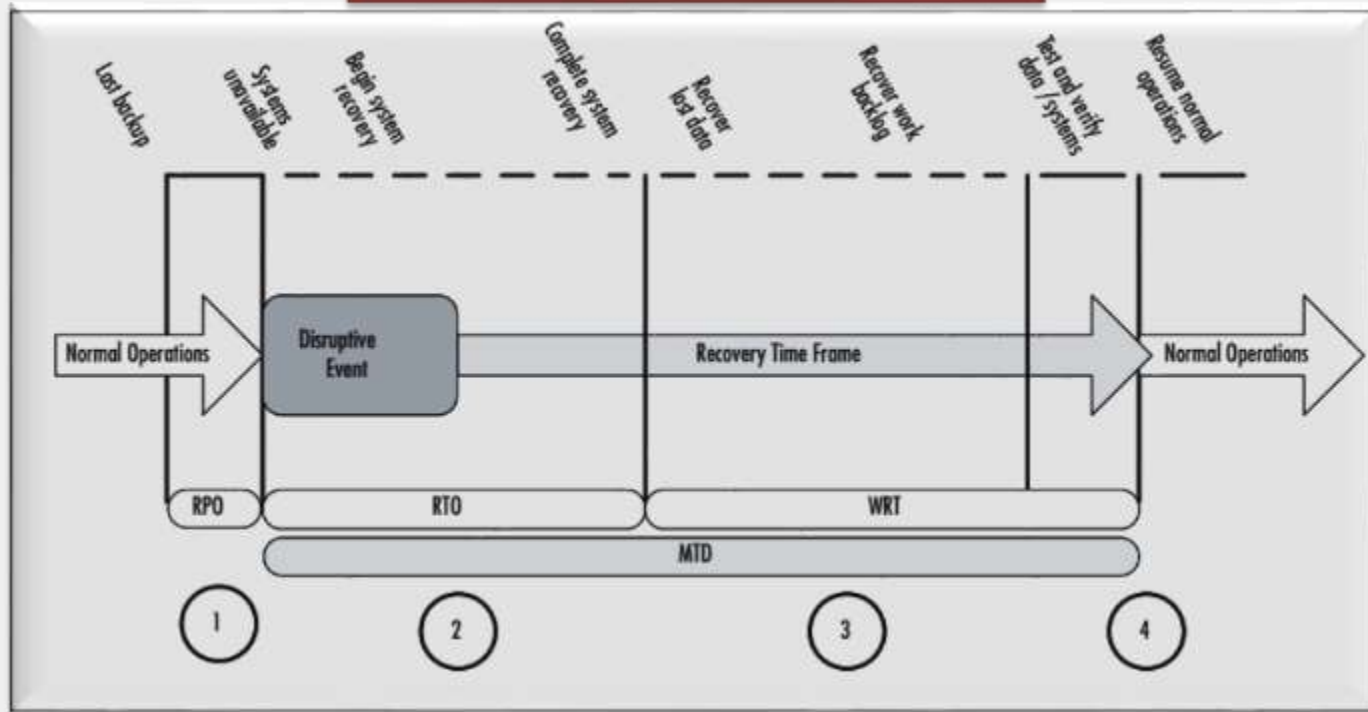
## RPO

- Recovery Point Objective



# Terminology

## Critical Recovery Timeframes



# Terminology

## Purchasing BIA

If the Asset User Review Were Unavailable For:	Using the Provided BIA Impact Table, What Would Be the Impact To:				
	Health/ Safety	Interruption of Production	Public Image	Environmental Release	Financial
<24 hours	N/A			N/A	
24-72 hours					
73 hours-5 days		3	4		4
6-9 days					
10 days or more					

## Accounts payable BIA

If the Asset User Review Were Unavailable For:	Using the Provided BIA Impact Table, What Would Be the Impact To:				
	Health/ Safety	Interruption of Production	Public Image	Environmental Release	Financial
<24 hours	N/A				
24-72 hours		2	4	3	3
73 hours-5 days					
6-9 days					
10 days or more					



# Creating BIA Process

## Gathering Data

- Questionnaires
- BIA Workshops
- Interview Process

## Determining Impact

- Qualitative Criteria
- Quantifiable Criteria

## Reporting To Senior Manager





# Gathering Data

Questionnaires

BIA Workshops

Interview Process



# Determining Impact

Qualitative Criteria	Quantifiable Criteria
Service Quality	Lost sales
Product Quality	Lost Revenue
Customer Relationships	Lost Investments
Public Image	Fines



# Determining Impact

Scoring Key

Color	Ranking
Red	Mission critical; restore first
Orange	Highly critical; restore directly after mission critical
Yellow	Moderately critical; restore in third wave
Green	Important; restore after moderately critical
Blue	Support systems; nice to have, restore when possible

Scoring Table

Category	Weight	Grade	Score
Impact – “Impact” to employee or student health and safety	5.0	0 1 2 3 4 5	
Impact – “Impact” to university image	4.5	0 1 2 3 4 5	
Impact – “Impact” to operations, education, or research	4.0	0 1 2 3 4 5	
Financial impact – “Impact”	4.0	0 1 2 3 4 5	
Legal/regulatory compliance impact – “Impact”	3.0	0 1 2 3 4 5	
BIA – “BIA” rating			



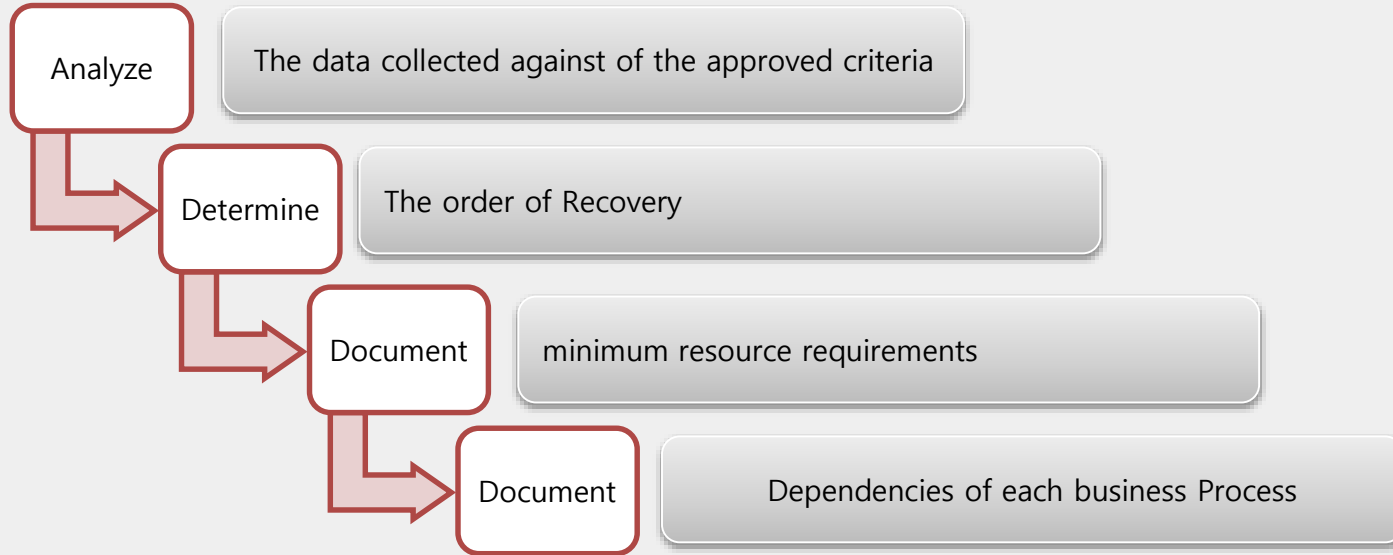
# Determining Impact

## Definitions

Category	Image	Regulatory Compliance	Revenue (All Sources)	Expense	Health/Safety
5 Severe	Significant, sustained negative international or national media exposure Funding sources are threatened Threat — “Threat” of loss of accreditation	Criminal penalties or fines greater than \$10M Major regulatory sanctions, criticism, actions	Irrevocable direct loss of endowment or operating revenue from tuition, grants, donations greater than \$10M	Increase in costs (i.e., maintenance, labor, supplier fees, etc.) greater than \$10M	Multi-campuswide infectious disease epidemic Loss of life or limb
4 Major	Ongoing negative regional or national media exposure Loss of key research partners (e.g., NIH) Loss of students or faculty	Penalties or fines of \$2M to \$10M	Irrevocable direct loss of endowment or operating revenue \$2M to \$10M	Increase in costs (i.e., maintenance, labor, supplier fees, etc.) \$2M to \$10M	Single campuswide infectious disease epidemic Severe injuries requiring hospitalization
3 Moderate	Ongoing (less than 2 weeks) negative local media exposure Disruption of educational or research activities	Penalties or fines of \$500K to \$2M	Irrevocable direct loss of endowment or operating revenue \$500K to \$2M	Increase in costs (i.e., maintenance, labor, supplier fees, etc.) \$500K to \$2M	Significant local outbreak of infectious disease Cuts and bruises requiring first aid



# BIA Report



# BIA Report

## BIA Sample Summary Report

<i>Business Activity: Activity Owner: Weight Assigned?</i>				
<i>No.</i>	<i>Application (See #2 Below)</i>	<i>Does Application Support Mission Critical Activity? (See #3 Below)</i>	<i>Does Application Contain Confidential Information?</i>	<i>Acceptable Downtime Period (Hours, Days, Weeks, Etc.)? (See #4 Below)</i>
1				
2				
3				
4				
5				
6				
7				
8				





# Cost-Benefit Analysis

**“A systematic approach to the problem of choosing the best method of allocating scarce resources to a given objective”**

- Comparing alternatives
- Evaluating cash flows over time
- Repair your car, purchase a new car
- Buy a house, buy a condo, rent an apartment





# Essential Definitions

Cash Flow

Interest Rate

Discount Rate

Future Value

Present Value



# PV and FV Equations

$$FV = P * (1 + r)^n$$

$r$  = interest rate

$$PV = P / (1 + r')^n$$

$r'$  = discount rate



# Net Present Value

- If NPV is  $> 0$ , accept the project
- If NPV is  $< 0$ , reject the project

$$NPV = \sum_{j=1}^n c_j / (1 + r)^j$$

For Expenses or Cost: NPV Min is desirable

For Profitability or revenues: NPV Max is desirable



# NPV Example

Year	1	2	3	4	5
COA #1: Keep and Repair					
Capital	4000				
Maintenance cost		1800	1800	2800	3800
Salvage value					0
Discount factor	1.000	0.926	0.857	0.794	0.735
Present value	4000.0	1666.7	1543.2	2222.7	2793.1
NPV =	\$ 12,225.72				
COA #2: Buy New Machine					
Capital or overhaul	7500				
Maintenance cost	0	900	1800	2700	3600
Salvage value					0
Discount factor	1.000	0.926	0.857	0.794	0.735
Present value	7500.0	833.3	1543.2	2143.3	2646.1
NPV =	\$ 14,666.00				



# Risk and Uncertainty

## ➤ Risk

1. Cost Estimating Risk
2. Schedule/Technical Risk
3. Requirement Risk

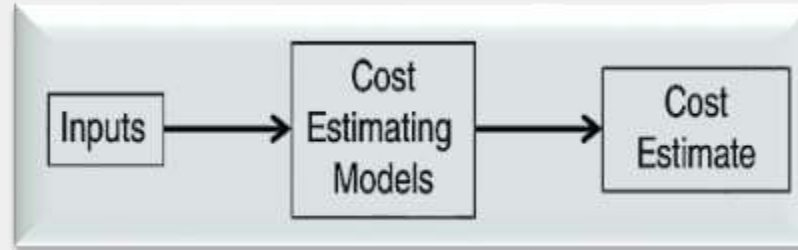
## ➤ Uncertainties

1. What is the probability that cost will be within certain bounds?
2. How much could our cost overrun?



# Risk and Uncertainty

- X months to complete (where X is less than Y)
- An 85% learning curve
- 80% commonality with a previous system
- A very strong business base with contractors
- An inflation rate of only 1.0%



Flow diagram for cost estimating

- Y months to complete
- A 90% learning curve
- 70% commonality with a previous system
- A solid business base with contractors
- An inflation rate of 2.5 %

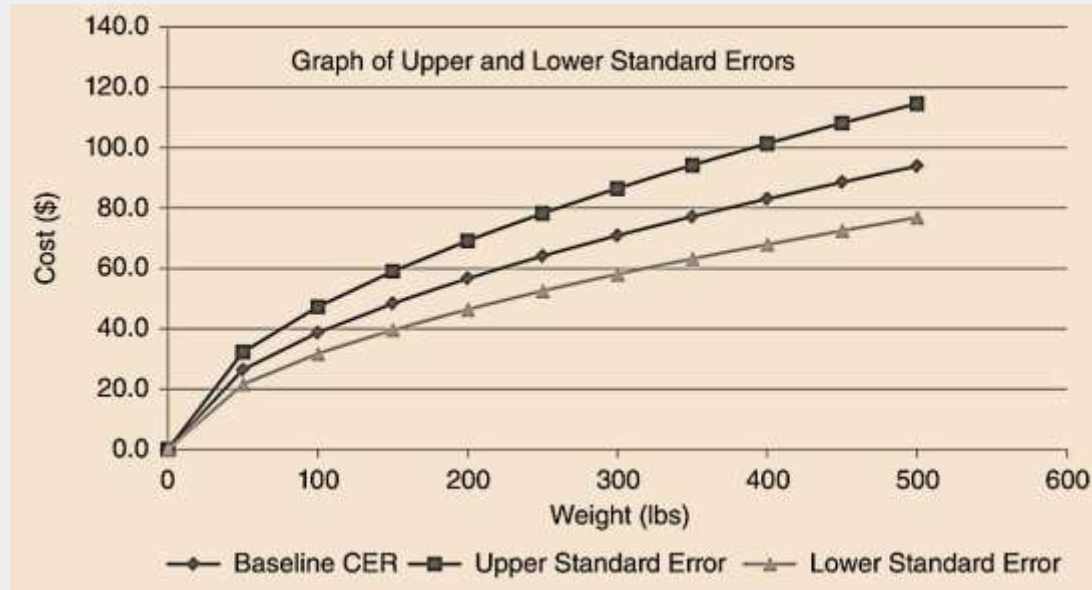
- Z months to complete (where Z is greater than Y)
- A 95% learning curve
- 55% commonality with a previous system
- A weak business base with contractors
- An inflation rate of 4.0%



# Risk and Uncertainty

## How do the Uncertainties Affect Our Estimate?

$$\text{Cost} = 3.06 * (\text{Weight in lbs})^{0.551}$$



# Risk and Uncertainty



Monte Carlo Simulation Result using Crystal Ball





# Conclusion

- CBA

Cost-benefit analysis (CBA), sometimes called benefit costs analysis (BCA), is a systematic approach to calculating and comparing the benefits and costs of a course of action in a given situation. The goal of CBA is to determine which option returns the optimal ratio of benefits to costs, thereby solving the issue regarding opportunity cost. It may be used to compare potential courses of action or simply to evaluate the desirability of a single decision, project, or policy. Common areas of application include commercial transactions, functional business decisions, policy decisions (especially government policy), or project investments.

- BIA

A business impact analysis (BIA) is a process that identifies and evaluates the potential effects (financial, life/safety, regulatory, legal/contractual, reputation and so forth) of natural and man-made events on business operations.

