Analytical Decision Making for Financial Managers

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Monterey, California
“Major decisions should be made by choices among explicit, balanced, feasible alternatives”

“The Secretary should have an active analytic staff to provide him with relevant data and unbiased perspectives”

“Open and explicit analysis, available to all parties, must form the basis for major decisions”
Who are we?

Defense Resources Management Institute (DRMI)

• Sponsored by Secretary of Defense
  – Department of Defense (DoD) Instruction 5010.35

• Established in 1965 at the Naval Postgraduate School (NPS)
  – Dr. Charles Hitch, OSD comptroller under SecDef McNamara, used NPS faculty to teach analytical and business approaches to make the best use of defense resources
Course Goals

• To develop a broad-based analytical framework for defense decision makers
  – emphasizing the economic and efficient allocation of scarce defense resources to competing mission areas.

• To provide an environment for the comparative exchange of ideas related to the management of national security
What do we teach?

**Resident Courses:**

- **General**
  - International Defense Management Course (IDMC)—10 weeks; 2 per year
  - **Defense Resources Management Course (DRMC)**—4 weeks; 4 per year
  - Senior International Defense Management Course (SIDMC)—4 weeks; once per year

- **Specific**
  - Multi-Criteria Decision Making—2 weeks
  - Introduction to Budget Concepts—8 days
  - Risk Management—2 weeks
  - Performance Management & Budgeting—1 week
  - Human Capital RM—2 weeks

**Non-Resident Events:**

- Mobile Courses—1-2 weeks
- Workshops—3-5 days
- Seminars—3-5 days

- Tailored to country’s specific needs
- Conducted in appropriate language
- Opportunity to quickly build a large cohort
• **Target audience:**
  – Military E-7 and above; 0-3 and above
  – Civilian GS-9 and above

• **NO tuition charged for DoD military and civilians**

• **Sending agency responsible for travel and per diem** *(Army Centrally Funded FY19)*

• **Website:** http://my.nps.edu/web/drmi
Analysis

The process of breaking a complex topic or problem into smaller parts to gain a better understanding of it

Decision Making is hard
Decision Maker and Analyst

New problem (never encountered)
U.S. Mexican border in 19th Century

Decision maker

Experience and judgment

Analyst

SOLUTION
Why Do Analysis?

• Analysis can be difficult, time consuming, and expensive
• But analysis creates
  – Answers that are accessible to critical examination
  – Answers that can be retraced by others
  – Answers that account for different factors and elements

• It leads to better decisions
Linking Strategies to Budgets

Threat \(\rightarrow\) Strategy/Policy \(\rightarrow\) Forces/Capabilities \(\rightarrow\) Budgets

I know a real threat … the Z monster….
Linking Strategies to Budgets

Planning → Programming → Budgeting

Threat ➔ Strategy/Policy ➔ Forces/Capabilities ➔ Budgets
Linking Strategies to Budgets

Planning \(\Rightarrow\) Programming \(\Rightarrow\) Budgeting

Threat \(\Rightarrow\) Strategy/Policy \(\Rightarrow\) Forces/Capabilities \(\Rightarrow\) Budgets

- Pure Requirement
- Muddle in the middle
- Minimum Essential
Threat → Strategy/Policy → Forces/Capabilities → Budgets

Planning ↓ Programming ↓ Budgeting ↓

- Threat
- Pure Requirement
- Muddle in the middle
- Minimum Essential

Want to live this way, but we can not afford it
Trade offs
We can afford it !! but we don’t want to live this way
Linking Strategies To Budgets
Operating Process

Implementation Process

Strategic Planning Process
Determine Goals, Policies and Objectives
Selection of Programs

Determine Goals, Policies and Objectives
Selection of Programs

Program Analysis
Specific Constraints
Development of Organizational Structure

Implement Program Analysis
Specific Constraints
Development of Organizational Structure

Externalities
Technological
Cultural
Historical
Economic
Psychological
Political
Legal

Inputs
Outputs

Economy
Efficiency
Performance Standards

Develop Program Analysis
Specific Constraints
Development of Organizational Structure

Oh boy.. Here we go 15
Example:
Base Closures

Decision to close bases, and criteria for selecting bases.

Choice of bases, estimates of costs.

Operations Analysis
Planning and scheduling.

Program Analysis

Systems Analysis
Operating Process

Process

Develop Programs Within Given Objectives
Select Forces, Budgets

Strategic Planning Process
Determine Goals, Policies and Objectives
Select Programs

Implementation Process

Program Analysis

Alternatives

Systems Analysis

Constraints

Threats

Environment

Technological
Economic
Political
Legal
Psychological
Cultural
Historical

National Security

Operations Analysis
Use budget and forces to achieve performance objectives
Elements of Analysis

**GOAL(S)** what is to be achieved

**OBJECTIVE(S)** what is needed to achieve the goal(s)

**ALTERNATIVE(S)**
the potential solutions/policies/options we could choose to achieve the goal(s)
Course(s) of Action (COA)

**MODEL(S)**
the means by which we estimate, measure, or evaluate the Consequences of an alternative

**PREFERENCE(S)**
rules for ranking the alternatives (best to worst)
Goal

• A statement of what you want to achieve

• A binary concept. Yes or No
  - You either achieve it OR you don’t
  - Can include an element of time

  “What”
Example Goals

• A statement of what you want to achieve

• To detect and interdict 80% of all border crossings
• To repair all radio failures within one week
• Reduce suicide rates by 60% by 2019
• To stay awake through this entire PDI module
Goal

• Necessary to define a target
  – A desired level of achievement
  – It is either reached or not reached
  – Can be answered with a “yes” or “no”

• Examples
  – Eliminate improvised explosive devices (IED)
  – Acquire surveillance capability yielding two days warning time
Discovering Your Goal(s)

- **DESCRIPTION**
  - Scenario
  - The way things **are**

- **COMPARE**
  - Needs
  - Goals
  - Objectives

- **PRESCRIPTIVE**
  - Scenario
  - The way things **should** be
Objective

• A statement of what you should do to help achieve the goal

• Defines a conceptual direction in which to move

• Almost always uses “to maximize…” or “to minimize…”

“How”
Example Objectives

• A statement of what you should do to help achieve the goal

• Goal: To become Audit Compliant by …?

• Maximize Financial Improvement
• Maximize Fiscal Training
• Maximize Separation of Duties
• Maximize Process Standardization
## The Process of Analysis

<table>
<thead>
<tr>
<th>Step</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>FORMULATION</strong></td>
<td>define issues of concern, clarify the Goals and Objectives, define the problem</td>
</tr>
<tr>
<td>(conceptual phase)</td>
<td></td>
</tr>
<tr>
<td><strong>SEARCH</strong></td>
<td>develop alternatives, look for data, identify important relationships</td>
</tr>
<tr>
<td>(research phase)</td>
<td></td>
</tr>
<tr>
<td><strong>EVALUATION</strong></td>
<td>build models; use them to predict consequences of alternatives</td>
</tr>
<tr>
<td>(analytic phase)</td>
<td></td>
</tr>
<tr>
<td><strong>INTERPRETATION</strong></td>
<td>compare alternatives based on outcomes predicted by the models, derive conclusions, indicate course(s) of action</td>
</tr>
<tr>
<td>(judgmental phase)</td>
<td></td>
</tr>
</tbody>
</table>
The Process of Analysis

Formulation (conceptual phase)
- Define issues of concern
- Clarify objective
- Scope problem

Search (research phase)
- Develop alternatives
- Look for data
- Identify alternatives
- Build mental models

Evaluation (analytic phase)
- Build mathematical models
- Use models to predict consequences

Interpretation (judgmental phase)
- Compare alternatives based on model predictions
- Derive conclusions
- Indicate courses of action
Process and Elements of Analysis

Formulation (conceptual phase) → Search (research phase) → Evaluation (analytic phase) → Interpretation (judgmental phase)

Goal
- Alternatives
  - Model
    - Model output
      - Preferences
    - How well are we doing on our?

Objective
- Data
Define Issues of Concern

Clarify Objectives

Collect Data

Identify Alternatives

Build Models

Predict Consequences

Compare Outcomes

Test for Sensitivity

Evaluate & Decide

Question Assumptions

ITERATION

I’m good so far….that looks like a circle…
Example: SAC Air Base Study
When Do You Stop?

Define Issues of Concern

Clarify Objectives

Collect Data

Identify Alternatives

Build Models

Predict Consequences

Compare Outcomes

Test for Sensitivity

Evaluate & Decide

Question Assumptions

If assumptions are still valid, stop here!
Process and Elements of Analysis

Formulation (conceptual phase) → Search (research phase) → Evaluation (analytic phase) → Interpretation (judgmental phase)

- Goal
- Objective
- Alternatives
- Model output
- Preferences

How well are we doing on our objective?
Formulation

• What is the **REAL** problem?

• What is the **RIGHT** question to ask?

• What is **RELEVANT** to consider?
  – What scope? Wide? Narrow?
  – What do we include?
  – What are the boundaries?
Everything Begins with the Need to Solve a Problem

- Whenever there is a **Difference** between what **can** be done and what you **want** to do..
- AND...
- You do not know how to achieve the desire, there is a **Problem**

- For each problem there may be several needs.
- A **need** is a condition requiring relief
What is the problem?

• “Why?”
  – “Why do you want or think you need X?”
  – “Why do you say that?”
  – Peel away the onion with a series of “WHY?”

• “What aspect of the current situation is unsatisfactory?”

A problem statement is a clear description of the issue(s) that need to be addressed by at least one stakeholder.
Identifying Objectives: First Steps

• Start with strategic objectives: review planning and strategy documents
• Identify appropriate stakeholders and involve them in the process
  – Decision makers
  – Superiors or commanding officers
  – Other leaders
  – Operators or customers
  – Community leaders
  – Government agencies
  – Legislative bodies
Generating Possible Objectives

- Expansive generation of objectives (pruning and structuring comes later)
- Solicit others’ ideas but avoid group work initially
- Brainstorming: solicit objectives from stakeholders without evaluating them
  - You may or may not want stakeholders in a room together
  - Try to focus on objectives not positions or alternatives
Process and Elements of Analysis

Formulation (conceptual phase) → Search (research phase) → Evaluation (analytic phase) → Interpretation (judgmental phase)

Goal
Objective
Alternatives
Data
Model
Model output
Preferences

How well are we doing on our
• What are the **ALTERNATIVES**?
• What **DATA** do we need?
• What are the important **RELATIONSHIPS**?
Finding Alternatives

• All courses of action available to you

• Find an appropriate set of possible alternatives to examine
  • Too few -> may not find the best one
  • Too many -> may reduce quality of analysis

• Feasible, Suitable, Acceptable, Distinguishable, and Complete
Process and Elements of Analysis

- Formulation (conceptual phase)
- Search (research phase)
- Evaluation (analytic phase)
- Interpretation (judgmental phase)

Goal

Objective

Alternatives

Data

Model output

Preferences

How well are we doing on our...
“...Models are abstract representations of reality which help us to perceive significant relations in the real world...”

“...In no case are models photographic reproductions of reality; if they were, they would be so complicated that they would be of no use to us. They have to abstract from a great deal of the real world -- focusing on what is relevant for the problem at hand, ignoring what is irrelevant.”

Hitch and McKean
Economics of Defense in the Nuclear Age, 1960
Role of Models

Real World

Real Behavior

Observation/
Simplification

Real Conclusions

Theoretical World

Model

Analyze

Model Conclusions

Observe

Interpretation
Types of Models

- Mental Models
- Symbolic Models
- Physical Models
- Mathematical Models
- Verbal Models

All Models
If I decide to choose that alternative……

……then I expect this as a consequence.
Mathematical Models
(Forms of Representation)

1. Algebraic - using equations

\[ y = a + bx \]

2. Graphical - using pictures

3. Tabular - using tables of numbers

<table>
<thead>
<tr>
<th>x</th>
<th>y</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>0.532</td>
</tr>
<tr>
<td>1</td>
<td>0.932</td>
</tr>
<tr>
<td>2</td>
<td>1.332</td>
</tr>
</tbody>
</table>
Model Building

Identify the problem
Describe the problem (Assumptions)
Can you formulate the model?
Build Model (Assumptions)
Can you solve the Model?
Test the Model
Is the model useful?
Implement and use the model
Finish

No Simplify

No Simplify

No Refine
Consider three alternatives for a rental car:

**Avion:** $70 per week plus $0.30 per mile.

**Hurts:** $100 per week with free mileage for the first 200 miles, then $0.80 per mile.

**Bottoms:** $160 per week with free mileage.

Which is the best choice?
Rental Car Mental Model

- Rental Car Choice
- Miles Driven
- Mileage Rate
- Weekly "Flat" Rate
- Mileage Cost
- Weekly Rental Cost
ALGEBRAIC MODEL:

- A: Cost = 70 + .30(mileage)
- H: Cost = if mileage <= 200 then cost =100 else cost = 100 + .8(mileage - 200)
- B: Cost = 160
## TABULAR MODEL:

<table>
<thead>
<tr>
<th>MILES</th>
<th>AVION</th>
<th>HURTS</th>
<th>BOTTOM DOLLAR</th>
</tr>
</thead>
<tbody>
<tr>
<td>50</td>
<td>85</td>
<td>100</td>
<td>160</td>
</tr>
<tr>
<td>100</td>
<td>100</td>
<td>100</td>
<td>160</td>
</tr>
<tr>
<td>200</td>
<td>130</td>
<td>100</td>
<td>160</td>
</tr>
<tr>
<td>300</td>
<td>160</td>
<td>180</td>
<td>160</td>
</tr>
<tr>
<td>375</td>
<td>183</td>
<td>240</td>
<td>160</td>
</tr>
</tbody>
</table>
Weekly Auto Rental Cost

Cost

Mileage

Avion  Hurts  Bottomdollar
Model Building

• Decision rule becomes clear - when to switch
• Reduces problem to its most important element - mileage
• Aids in understanding the influence of parameters
  – What happens if the flat rate on Bottom Dollar drops to $120?
  – What happens if the mileage rate on Hurts is reduced to $0.60
Model Complexity

• A model *always* simplifies reality
• Incorporate enough detail so that:
  – Results meet your needs
  – Model is consistent with available data
  – Model can be analyzed in the time available
Optimal complexity depends on the decision context!
“Everything should be made as simple as possible, but not simpler.”

Albert Einstein
Decision Environments

Certainty

Uncertainty

Complete information

Incomplete information
“... as we know, there are known knowns; there are things we know we know.

We also know there are known unknowns; that is to say we know there are some things we do not know.

But there are also unknown unknowns -- the ones we don't know we don't know ...”

Secretary of Defense Donald H. Rumsfeld
Certainty

You know:
• all the alternatives
• the one future condition
• all the outcomes

Uncertainty
<table>
<thead>
<tr>
<th>Alternative 1</th>
<th>Future Condition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alternative 2</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>Alternative 3</td>
<td></td>
</tr>
</tbody>
</table>
Decision Environments

Certainty

Uncertainty

Complete information

Incomplete information

You do not know one or more of:

• all the alternatives
• all the future conditions
• all the outcomes
• all the probabilities of the future conditions
Certainty

Uncertainty

Complete information

Incomplete information

You know:
- all the alternatives
- all the future conditions
- all the outcomes
- all the probabilities of the future conditions
## Static Decisions

### Decision Matrix

<table>
<thead>
<tr>
<th>Alternative</th>
<th>Future Condition 1</th>
<th>Future Condition 2</th>
<th>· · ·</th>
<th>Future Condition N</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alternative 1</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Alternative 2</td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>·</td>
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<td>·</td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Alternative K</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Outcomes**
Malaria Prevention Mental Map

Exposed to Malaria?

Take Malaria Pills?

Payoff
# Malaria Prevention (Decision Matrix)

<table>
<thead>
<tr>
<th></th>
<th>( F_1 ) Exposed to Malaria</th>
<th>( F_2 ) Not exposed to Malaria</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Take Malaria Pills</strong></td>
<td>😊</td>
<td>😞</td>
</tr>
<tr>
<td><strong>Don’t Take Malaria Pills</strong></td>
<td>😞</td>
<td>😊</td>
</tr>
</tbody>
</table>
Dynamic Decisions

What happens when choice of an alternative changes the matrix?

• when the likelihoods change?
• when the number of future conditions change?
• when there is a sequence of decisions?
Tree Model

**NODES**

- Decision node
- Future condition node

**BRANCHES**
Malaria Prevention (Decision Tree)

Payoffs

Take Malaria Pills

Exposed to Malaria

Not Exposed to Malaria

Don’t Take Malaria Pills

Exposed to Malaria

Not Exposed to Malaria

I’m so happy!!
Why use a decision tree? (Sequential decisions)

- If you have been exposed to malaria, you can take medications immediately after exposure to prevent malaria
  - Lowers your chances of malaria
Malaria Prevention
Mental Map

Exposed to Malaria?

Take Post-Exposure Pills?

Take Malaria Pills?

Develop Malaria?

Payoff

Am I looking at this thing correctly?
Malaria Prevention

- **Take Malaria Pills**
  - Exposed to Malaria
    - Take Post-Exposure Pills
      - Malaria
    - No Post-Exposure Pills
      - No Malaria
  - Not Exposed to Malaria
    - Take Post-Exposure Pills
      - Malaria
    - No Post-Exposure Pills
      - No Malaria

- **Don’t Take Malaria Pills**
  - Exposed to Malaria
    - Take Post-Exposure Pills
      - Malaria
    - No Post-Exposure Pills
      - No Malaria
  - Not Exposed to Malaria
    - Take Post-Exposure Pills
      - Malaria
    - No Post-Exposure Pills
      - No Malaria
Process and Elements of Analysis

1. **Formulation (conceptual phase)**
2. **Search (research phase)**
3. **Evaluation (analytic phase)**
4. **Interpretation (judgmental phase)**

Goal

Objective

Alternatives

Data

Model

Model output

Preferences

How well are we doing on our?
Which Alternative is Better?

$\text{Cost}$

$\text{Benefits}$

A
B
C
Which Alternative is Better?
Which Alternative is Better?
A Simple Rule?

- When deciding whether or not to undertake an activity, do it if the benefits are greater than the costs
  - Can you identify and measure the benefits?
  - Can you identify and measure the costs?
- With unlimited resources, if there is any positive benefit, then no matter what it costs make the investment?
Why Worry About Cost?

• *Any* course of action, *any* decision, will exact a cost
  – Cost is a measure of the *consequences* of our decision

• As long as resources are limited, cost will be a factor in our decision
Decision Criteria

- Equal Benefits
  - Minimize costs
- Equal Costs
  - Maximize benefits
- Different Costs and Benefits
  - If benefits can be monetized
    - Net Present Value
  - If not...
    - Need to make tradeoffs!
Getting Started

• Identify feasible, mutually exclusive alternatives
• Define the planning horizon
• Develop cash flow profiles
• Specify the interest rate to be used
Planning Horizon

• The period of time over which the cash flows of alternatives are compared
  – Must be the same for each alternative
  – Must consider useful life of alternatives

• Common approaches
  – Least common multiple of lives
  – Shortest life
  – Standard horizon
Measuring Costs

- The resources used to carry out an activity
  - Cost estimate
- Opportunity cost
  - What are you giving up if you choose this activity?
- External costs
  - Costs that are borne by others
Opportunity Cost

- 1 Mine Resistant Ambush Protected (MRAP) vehicle costs approximately $600,000
- 1 set of Interceptor Body Armor costs approximately $1,600
- The “opportunity cost” of the MRAP is 375 sets of body armor

What’s my opportunity cost of sitting here now??
Measuring Benefits

• Benefits to whom?
  – Society
  – Government
  – Military
  – Individual

• What exactly is a "benefit"?
  – Tangible and intangible

• Can the benefits be stated in terms of their monetary value?
From “Military Cost-Benefit Analysis (CBA): Theory & Practice” (F. Melese, A. Richter, and B. Solomon)

“Working at RAND in the immediate post-war era, Hitch teamed with another economist, Roland McKean, to publish a pioneering text entitled “The Economics of Defense in the Nuclear Age” (Hitch and McKean 1960). The authors emphasize two main ways in which Military CBA can be applied: i) to guide defense policy (i.e. the allocation of resources between major missions or military goals) and ii) to guide defense investments (i.e. choices between alternative projects or programs to achieve a given mission/goal). A significant challenge in applying CBA to defense decisions is the complex and often controversial task of measuring “benefits.””
Benefit to Whom?

A new dam and reservoir project has been proposed for Carmel Valley. What are the benefits of this project?

1. Residents of Carmel Valley
   - Lower water rate

2. Owners of property flooded by dam
   - Loss of property

3. Residents of Monterey peninsula
   - Less water rationing
   - Lower property values
   - Increased recreational use

4. Environment
   - Loss of habitat
Can you Monetize the Benefits and Costs?
A dam and reservoir project will cost $5,000 per year and will reduce flood damage by $100,000 annually. It will also result in the loss of agricultural use valued at $60,000 per year. What are the benefits and costs of this project?

1. Benefits = $100,000 – $60,000 = $40,000
   Costs = $5,000

2. Benefits = $100,000
   Costs = $5,000 + $60,000 = $65,000
Benefit-Cost Ratio can be misleading

1. Benefits = $100,000 – $60,000 = $40,000
   Costs = $5,000
   B/C = 40/5 = 8

2. Benefits = $100,000
   Costs = $5,000 + $60,000 = $65,000
   B/C = 100/65 = 1.54

1. Benefits – Costs = $40,000 - $5,000 = $35,000

2. Benefits - Costs = $100,000 - $65,000 = $35,000
Benefit- Cost Analysis

• Identify standing
  – whose benefits and costs count
• Identify benefits and costs of policy, alternative or project
• Measure, convert benefits and costs to money
• Compute present value of cost and benefits
• (A-94 and debate about 7% validity)

\[ P = \frac{F_n}{(1 + r)^n} \]

- \( F_n \) = future value in period \( n \)
- \( P \) = present value
- \( r \) = discount rate
- \( n \) = number of periods
What if you Can’t Monetize the Benefits?
Marginal Analysis

• When the benefits can be quantified with a **single measure**

• Compare the marginal benefit vs. marginal cost for each alternative

• Select the alternative with the highest MB/MC
Marginal Benefit

MB is the change in Total Benefit of adding one more unit of input:

\[ \text{MB}_{\text{Labor}} = \frac{\Delta Q}{\Delta L} = \frac{Q_2 - Q_1}{L_2 - L_1} \]

If I hire one more teacher and the total number of students graduating goes from 30 to 40, then the MB of that teacher is 10 students.
Marginal Cost

MC is the change in Total Cost of adding one more unit of input:

\[
MC = \frac{\Delta TC}{\Delta Q} = \frac{TC_2 - TC_1}{Q_2 - Q_1}
\]

If the additional teacher increases total cost by $50K, then the MC of that teacher is $50K
Marginal Reasoning

With a binding budget constraint, optimal results are obtained when activities are carried to the point where the marginal return per unit of cost is the same for all activities:

\[
\frac{MB_1}{MC_1} = \frac{MB_2}{MC_2} = \frac{MB_3}{MC_3} = \ldots
\]
Cost-Effectiveness Analysis

• When there are multiple benefits that cannot be quantified in monetary terms
  – Define effectiveness based on desired benefits or capabilities
  – Measure benefits or capabilities of each alternative and assign a value
  – Combine values for a measure of effectiveness

• Incremental analysis
  – $\Delta$ effectiveness vs. $\Delta$ cost
• Cost-Effectiveness is appropriate whenever it is unnecessary or impractical to consider the dollar value of the benefits.

• Analysis of alternative defense systems often falls in this category.

*OMB Circular A-94, par. 5b*
Pitfalls in All Analysis

- Not enough time spent defining the problem.
- Examining a restricted range of alternatives.
- Too much time spent in the details of the models.
Advantages of Analysis

- Answers are accessible to critical examination
- Answers can be retraced by others
- Answers can be modified by others
"Take ambiguity away from leadership, and you take away tough decisions and responsibility. What you're left with is overpaid administration."
- Jason Seiden, American Author

"In any moment of decision the best thing you can do is the right thing, the next best thing is the wrong thing, and the worst thing you can do is nothing."
- Theodore Roosevelt, 26th President of the United States

"Indecision becomes decision with time."
- Author Unknown