

## Decision-making in an austere environment ?

From Theory to Practice

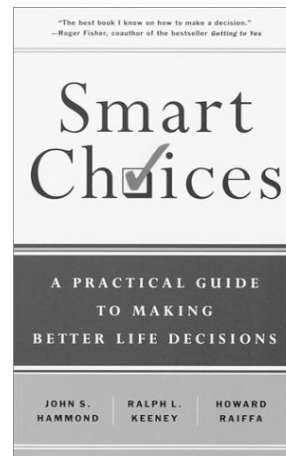


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Budget Process Committee, November 21, 2008

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## A Real Life Story: Prof. Raiffa and his student...



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## Disclaimers

- Easier to be an armchair consultant than a responsible decision-maker
- Prioritization outcome in a collective context is always unfair to somebody (Arrow's impossibility theorem)
- Budget cuts make it even more difficult
  - ✓ A Google search on "methods for budget cuts" yielded 7,5 million hits
- Lip service: Political rhetoric set aside, education sector will be hitting hard

## A brief comment on dealing with budget cuts

- Prioritization sounds right, but "across-the-board" cut is more politically correct, yet not "optimal... globally"
  - E.g. UNLV's approach (3.42% cut across the board)
- Policy that we hear often among University administrators:
  - General reduction, AND
  - Programmatic reduction
  - → But difficult process
- May be too stay at the policy level:
  - Centralized planning and Decentralized execution
  - Individual academic units know best



## Tips for prioritization

- **Key facts to consider:**
  - A model to allow consideration of several criteria at once (quantitative/qualitative; conflicting)
  - Allow for subjective evaluation
- **The Condorcet principle (1750):**
  - When an action A is better than another action B in the majority of decision criteria, and
  - There is no criterion by which A is clearly worse than B, we can safely argue that A is – overall – better than B, or in other, A outranks B.

## The Condorcet Principle

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- **Example**
  - Merging the TIM with Shidler (A) would be a right decision from many points of view (cost, effectiveness, use for supporting other programs, etc.), keeping TIM as a small School. (B)
  - BUT, merger would trigger a huge protest than “not-having-a-merger”,
  - Therefore, A does not outranks B

## Multi-criteria Group Prioritization Process

- Agree on vision and objectives
  - Strategic plan should be use as the guide
- Define all the possible options
  - Conditions of completeness (see later)
- Identify all possible decision criteria
  - Condition of exhaustiveness and mutually independence
- Assign weights to criteria (to show relative importance)
- Evaluate options using a (dimensionless) grading scheme
- Find the “best” solution based on the 2 Condorcet principles

## Some group decision techniques

- **Sum of the ranks:** Each member ranks order  $n$  solutions; the option that has the smallest sum is the one to choose
- **Sum of the scores:** On a [1-10] scale (10 being best), each member assign a score to each option; the option that has the highest total score is the one to choose (*additive property*)
- **Product of the score:** On a [1-10] scale (10 being best), each member assign a score to each option; the option that has the highest product score is the one to choose (*multiplicative property*)
- **Sum of outranking relations:** Each member ranks order  $n$  solutions; for each option, compute the number options that it is better, then the option that has the highest number of outrankings across members is the one to choose

## Additional fine-tuning...

- Some organizations give weights to decision makers
  - Based on seniority (e.g., Military 1-0-0-0-0)
  - Based on degree of important (e.g., based on number of students)
  - Etc.
- There are other techniques, but a bit more sophisticated
- Use of software and consulting to facilitate process

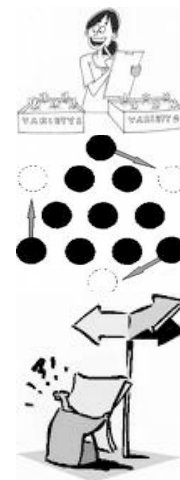
Software Demo if there is interest

## A Review of Manager's Decision Toolbox to go along with the prioritization process

- The Model: The economic paradigm
- Simon's Decision Making Model and Problem Solving Model
- Wallas's Model of Creativity
- Lewin and Schein's Model of Change
- Bui and Shakun's Negotiation Model
- Leadership's Model

## Economic Paradigm - A Practical Perspective

- Define Objective(s)
  - Keep Strategic Plan in mind in all decisions
- Identify Assumptions
  - Scrutinize them, they are potential causes of failure
- Identify Alternatives
  - Have we explored all possible solutions?
- Analyze Each Alternative
  - Do not kid ourselves
- Choose "Best" Alternative
  - This is when a strategic plan helps
- Execute Chosen Alternative



## Model of Decision Making and Problem Solving

- Intelligence
- Design
- Choice
- Implementation
- Monitoring



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## Model of Creativity: “Town hall meetings”

- Preparation - “outside the box”
- Incubation - matching ideas to “new” needs
- Illumination - “Eureka” (killer’s application)
- Verification - technologically and economically feasible
- Examples:
  - Washington State University Process
  - Toshiba’s FAX machine in the 1980’s (Photocopy + Phone)
  - Apple Inc.’s iPhone (mobile phone + Internet + iPod)

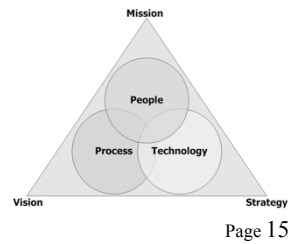


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## Change Model

- **Unfreeze**
  - Use budget cut as a “means” to force change
- **Implementation**
  - Change organization structure to facilitate implementation
- **Freeze**
  - Well, change is the only change, but sustainability is critical for HI-ED



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## A Model of Social Change: Try to embed the prioritization process

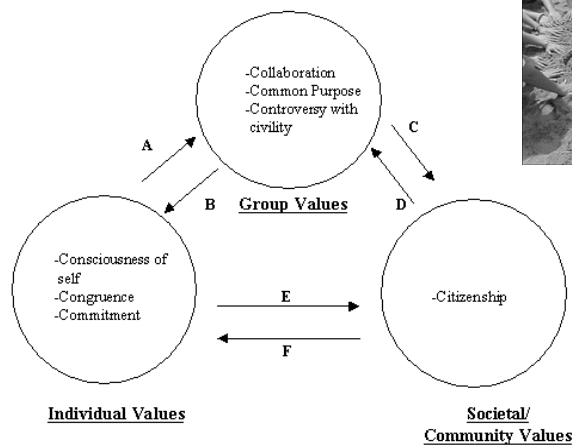


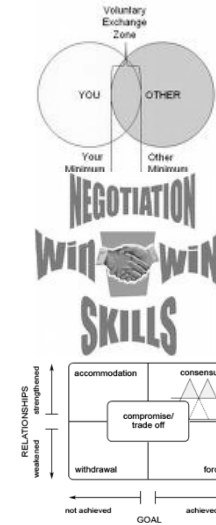
Figure 1. The 7 C's organized by level of focus

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## Negotiation Model

- **Expand Solution Space**
  - Explore new curricula (combined), new structures, etc.
- **Change Values**
  - There might exist different way to achieve academic excellence/reputation
- **Change Goals/Objectives**
  - This requires some top-level leadership and consensus here
- **Change Actors/Players**



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## Decision Making under Uncertainty & Risk Management



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## Causes of Uncertainty

- Lack of information
- Complexity of information (abundance)
- Conflicting evidence
- Ambiguity of information
- Interpretation of information (measurement)



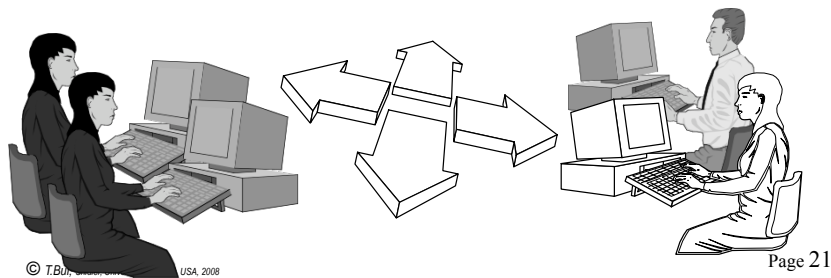
## Contingency Planning

- Involves the preparation and partial implementation of alternative work processes in the event of a business failure of varying proportions



## Basic Principles

- Must be planned ahead to save valuable recovery time
- Preparation reduces harmful stress
- Good communication infrastructures





## Final Remarks

- Decision methods as a means for decision makers to **think** about the problem.
- **You** take the final decision with the final responsibility
- There is always some uncertainty that we cannot control, but it helps to use:
  - **Sensitivity analysis**
  - **Contingency planning**

## Leadership model

- Intelligence – get the facts quickly
- Decision – make decision quickly
- Action – make decisive decision
  - Situational decision (solve quickly and effectively a particular problem) → situational leadership (A Hero of the day!)
  - Sustained decision (solve problem without causing other problems) → sustained leadership

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## Characteristics of a “Good Committee”

- Go beyond operational issues (budget balancing), think strategy
- Stay focus– decide what should be considered for decision / what not
- Set high standards– decision reflects your expectations / Hi standards HI results
- Kindle passion – link decision to a mission / a dream for faculty/staff/students to look up
- Lead other to lead delegate leadership (there is some risk but the benefit could be big)
- Role of Experience – Experienced people still need a framework to model their thinking

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## Final Remarks

- Prioritization is a very complex process
- Use triangulation approach to move toward a holistic approach to decision-making, one that captures both rationality and irrationality, and certainty and risk
- Get stakeholders involved

