

**Your Boss Just Called:**  
**How to Create an Effective Process for AM**

Chapter 13

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**Session Objective:**                      **By the end of this session, participants will be able to:**

- Explain the attributes of decisions that promote follow-through
- Design an effective adaptive management process

**Good decisions get implemented**

- The main way to get a decision implemented is to make a good decision
  - Making the decision maker look good
  - There are things about SDM and Adaptive Management that can help achieve that compelling decision

**Traps That Reduce Decision Quality**

- Not involving the *real* decision makers
- Solving the wrong problem
- Unbalanced working group (e.g., too many technical advisors)
- Lack of creative and different alternatives
- Inability to deal with competing objectives
- Too much time on refinement of unimportant details
- Not involving those who implement the decision
- Lack of credibility of content and analysis

**Outline**

- Diagnosing the problem
- The project team & other participants
- The value of prototyping
- Feedback with the decision maker
- Documentation
- Communication – the core decision
- Design and communicate the process

### **Diagnosing the Decision Problem**

- Should I work on this or pass?
- Your first task—the 0th prototype—is problem formulation
- You're looking for the core structure of the decision before you've even started
- Ask all the questions we outlined earlier, including:
  - Who is the decision maker?
  - What has to be decided?
  - What impedes the decision?
- Run a quick PrOACT analysis in your own head
- Now, is this adaptive management?
  - Is the decision iterated?
  - Is the problem rooted in scientific uncertainty? Or is this really about disputed objectives?
  - See the criteria in the DOI Technical Guide
- Are the needed resources & decision makers available?
- Decision makers may be convinced this is a good adaptive management decision problem...even when it's not.
- The point is that your initial diagnosis is what's going to lead you to next steps, like
  - Building a core team
  - Identifying and engaging the decision maker(s)
  - Developing the next prototype

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***Adaptive Management: Structured Decision Making for Recurrent Decisions***

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**Participants in the Process**

The Project Team

- A small group (1 – 5)
  - Overall team leader
  - Modeler
  - Key technical staff
  - Facilitator?
  
- Project team attributes
  - Enjoy making the decision maker look good
  - Enjoy working together
  - Skilled in a mix of areas: science, policy, decision analysis
  - Access to the decision maker
  - Can see the big picture

Important Relationships

- The Project Team needs to engage
  - Decision maker
  - Stakeholders & Partners
  - Those who'll have to implement the decision
  - Experts

The Decision Maker

- Who's the decision maker?
  - The person with the authority and resources to implement the decision
  - This can be difficult to diagnose
- Project team needs easy access to the decision maker
- Routine feedback, *at all phases*, between the project team, decision maker, stakeholders, experts and those who have to implement the decision is essential. No "wall of virtue".

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Whose Values Matter?

- The person with the authority and resources to implement the decision
- Unrealistic to assume decision makers fully understand their objectives (see Keeney 1996)
- Sometimes the decision maker wants other participants' objectives to be included
  - This is bad if they don't really want other objectives
  - Routine feedback with the decision maker is essential here
  - Participants want to be useful, not used

Stakeholders: Inclusiveness and the Compelling Decision

- Including more people in the decision can add some things (objectives, creative alternatives, fairness, ownership)
- Risks related to inclusiveness (e.g., logistics, personalities)
- Finding the sweet spot, an art form
  - Criteria
  - Stakeholder analysis
- Stakeholders want to feel useful, not used
- Inclusiveness can't overcome a bad decision
  - Working with the wrong decision maker
  - Decision doesn't flow from the objectives
  - Disputes over science v. values

Working with Experts

- Outside experts help with models or provide information that isn't available
- Expert credibility is important to decision makers
- Modeler often on the project team
- Definition and attributes (see Ayyub 2001)
  - extensive experience
  - professional recognition by peers as an expert
  - ability to work and communicate in a group setting.
- Other attributes
  - multiple points of view/approaches (for groups)
  - trust
  - understand role
  - can deal with management objectives

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Facilitator role

- Is there one?
- Eliciting objectives, alternatives
- Expert workshops (see Ayyub 2001)
- Decision workshops
- Do you just need a time keeper or one that is fully immersed in the decision problem and has a decision analysis background?

**Prototyping**  
and Feedback from the Decision Maker

Prototyping

- Round 1: A Rapid Prototype
  - Develop a full, but coarse, prototype as fast as you can
  - Focus on the key elements
- Include all the elements of a structured decision, but keep them very simple (find the skeleton of the problem)
- Assess the first prototype – feedback with the decision maker
  - Is this the right problem?
  - Does the framework make sense?
- Sensitivity analysis—where is the most important place to focus work?

Prototyping: Round 2 and Beyond

- Go to a larger group
  - Using the prototype as a rehearsal (restarting)
  - Using the prototype as a starting point (revising)
- What will you examine?
  - Changing the structure: reframing
  - Revising the objectives: stakeholder involvement
  - Developing more alternatives: engineering
  - Improving the models: research (empirical or elicited)
  - Enhancing the analysis: optimization
- Examine, test, scrutinize. Revise, repeat.
- Sometimes these needs can be anticipated early in the process, sometimes they emerge without warning

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Involvement of the Decision Maker

- The whole purpose is to aid the decision maker
  - Be deliberate about involving the decision maker(s) throughout the process
- Each prototype provides a strategic juncture for feedback
  - Getting the problem right
  - Getting the risk tolerance right
  - Objectives – What is it you really want this decision to do for you?
- Expect this all to evolve as the prototypes move forward

**Documentation & Communication**

Documentation

- People say using a SDM approach will help with documentation
- It's not going to happen on it's own
  - Lot's of decisions in a decision problem: which ones need to be documented?
    - choice of experts, objectives, alternatives, choice of models, any elicitation elements, decision thresholds
- Rationale for the decision – most important
- Is there going to be a report or paper?

Communication

- Everyone vested in the decision needs to see the core decision structure
- Focus on the core objectives, alternatives, consequences, and trade-offs and the decision itself.
- The decision maker should be able to convey to the stakeholders and other interested parties:
  - How the decision was made
  - How you connected all the dots
  - What values were expressed in the decision
  - How trade-offs were managed.

Design and Communicate the Process

- Design the process deliberately
- Outline the steps (a roadmap)
- Be clear who is involved and at what stage
- Especially be clear when the decision-maker(s) and stakeholders will be consulted
- Plan to be adaptive
- Communicate the process, to manage expectations

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**Dealing with Potential Impediments**

Dealing with Institutional Impediments

- Problem: Poor problem statements
  - *Solution:* Use the PROACT approach
  
- Problem: Framing hidden objectives as scientific uncertainty
  - *Solution:* Define objectives first, then work on technical issues
  
- Problem: Inability to garner buy-in from important stakeholders
  - *Solution 1 (bottom-up):* Convince decision implementers that it helps them to do (and communicate) the job in a transparent fashion
  - *Solution 2 (top-down):* Show decision-makers it helps the bottom line
  
- Problem: Co-opted definitions of SDM and ARM (examples: “adaptive” meaning flexible, trial-and-error, learning by doing, that is, all reactive approaches)
  - *Solution:* Use decision-theoretic approach (see McFadden et al. 2011)

Dealing with Technical Impediments

- Problem: Difficulty in solving large, complex problems
  - *Solution:* Use the PROACT approach to simplify the problem into modular steps
  
- Problem: Communication of results and approach to non-statisticians
  - *Solution:* Describe results and approach using familiar examples, and emphasize conceptual and graphical over mathematical depictions

Literature cited

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