

Geog 461 Learning Objective Outline

LOO 12 GIS Data Analysis in Planning Decision Situations

12.1 What constitutes a workflow task model for planning-level analysis?

[Nyerges and Jankowski GISDS Chapter 5](#) Section 5.1 Overview of the planning-level analysis workflow.

Hopkins (2001 p. 187) presents a language framework composed of four dimensions for describing and using plans - behaviors, tasks, processes and standards. These four dimensions are part of the decision situation framework of chapter 3, but focus on the 4 major dimensions of plan making. Organizational mandates such as laws and regulations motivate the planning behaviors – the move to action of plan making.

Planning Behaviors – are fundamental actions (the activities) people take when making or using plans, e.g., talking to a constituent, involving participation of citizens, coloring a map, setting up date, etc.

Planning Tasks – combinations of planning behaviors that accomplish certain functional purposes, e.g., forecasting, evaluating two options (but remember a task has a purpose, process, and outcome) for accomplishing a goal or subgoal

Planning Processes – are sequences (patterns) of tasks as in a sequence of steps; planning processes yield plans

Standards of Rationality - provide criteria by which to judge planning processes; standards of rationality are different than a rational procedure.

Observed behaviors can be explained in terms of tasks and processes that would yield plans similar to what would be accomplished if ideal processes could be implemented directly.

Plan making processes are commonly described by listing a sequence of tasks (task steps) – although the sequence might be iterative in many contexts.

For a workflow in plan making we once again turn to Steinitz work (See [Steinitz web site](#)). Several widely recognized applications of the landscape (broader than just land use) planning process are provided at that web site (Steinitz 1996). GIS workflow using his six-phase process is the foundation of the planning process.

One in particular...portions of Camp Pendleton in Southern California, a military reservation is reverting to civilian use. A long-term land use plan for the area was needed to provide guidance for what the alternative future uses might be. That project is one among several successful projects that uses the same six-phase process to organize land use plan making.

12.2 How do planning-level analysis processes compare and contrast with one another?
[Nyerges and Jankowski GISDS Chapter 5](#) Section 5.2 Comparative perspectives on planning-level analysis

In the context of land use plans...

Hopkins' (2001) describes planning processes as “patterns of tasks” yielding plans as the outcomes. As such, plan making processes are commonly described by listing a sequence of tasks – although the sequence might be iterative in many contexts.

Hopkins compares multiple process task sequences put forth by many authors. He describes how many of the descriptions are similar, and only some contradictory. For example, he cites: Wetmore – 3 tasks; Patton and Sawicki - 7 tasks ; Bryson – 9 tasks; Black, 8 tasks; Checkoway – 11 tasks

The processes are described at different levels of task resolution, some steps are more general than others, thus there are different numbers of tasks. He concludes there are two rationalities at work - procedural and communicative, whereby rationality is a way of describing “what makes (logical) sense” – although there are many rationales for why people do things.

Based on Hopkins 2001 Table 9-2 Comparing procedural and communicative rationality

Procedural (analytic) rationality	Communicative (deliberative) rationality
- All goals considered	- All interests represented
- All aspects of current and future situations assessed	- Interests informed and able to converse about situation
- All options considered	- Interests equally empowered
- All impacts from alternatives tested	- Good reasons, good argument
- All options evaluated on all criteria	- Allow all claims and assumptions to be questioned
Best alternative selected	Consensus reached

The comparison is not an either-or circumstance. Merging the two processes is appropriate to take advantage of aspects of both rationales.

- Procedural rationality is pursued in long-term plan making, as the process lays out a systematic and comprehensive set of steps so that an organization(s) considers circumstances that are commonly unknown.

- In communicative rationality, a mismatch of interests are articulated as the basis of the problem.

- Several GIS project activities undertaken by Carl Steinitz and his colleagues show that it is possible to undertake procedural and communicative rationality within the same planning process.

Turning to Transportation Planning...

Meyer and Miller (2001) outline [four major stages of a decision-oriented transportation planning](#) as an overview to National Cooperative Highway Research Program (NCHRP) 11 step process:

1. **Problem identification and/or definition** – This is a matter of clarifying perceived differences in current and desired states of affairs and interpretations of situations.
2. **Debate and choice** – Making sure a set of feasible alternatives is part of the decision mix, recognizing limited resources, the need to set priorities, the selection of one or more alternatives within a atmosphere of conflict due to differences in values, objectives, interests, and/or interpretations of data.
3. **Implementation** – Beyond the mere choice being made is the actual process of putting that choice to action as in implementation. Implementation of plans through programming of projects is the linkage between planning and programming that is now being recognized as a gap in the process of how to better coordinate change in transportation systems.
4. **Evaluation and feedback** – The last three US federal transportation laws (ISTEA, TEA-21, SAFETEA-LU : see end of outline) has made it clearer that understanding transportation system performance is a matter of monitoring appropriate characteristics through performance measurement. Providing appropriate feedback in the short, medium and long-term can provide perspective about how well the decision process is addressing the perceived needs in problem identification/definition.

Comparing Meyer and Miller 4 phases, NCHRP 11 steps, and Steinitz 6 phases.

Meyer and Miller decision oriented framework associated with planning process	NCHRP urban transportation planning process, adapted by Meyer and Miller (2001)	Steinitz landscape planning (modeling) framework
problem identification / problem definition	“Vision” expressed in terms of a triangle with nodes labeled - prosperity - quality of life - environmental quality each is related to the other	Representation modeling
Problem identification / problem definition	Goals and objectives	Representation modeling
Evaluation and feedback	Performance measures	Representation modeling
Debate and choice	Data	Representation modeling
Debate and choice	Analytical methods	Process modeling Change modeling Impact modeling
Debate and choice	Alternative improvement strategies	Decision modeling
Debate and choice	Other sources for project ideas	Representation modeling
Debate and choice	Evaluation criteria	Scenario modeling
Implementation	Fiscal and resource prioritization	Decision modeling
Implementation	Implementation of strategies	
Evaluation and feedback	System operations	

Examine Workflow in Regional Transportation Planning Process. How does GIS fit into the process depicted in the workflow diagrams?

- See GISDS Figure 5.2 Regional Transportation Plan Making Process
- See GISDS Figure 5.3 Steps in Transportation Plan Analysis
- See GISDS Figure 5.4 Travel Demand Forecasting
- See GISDS Figure 5.5 GIS Support for Transportation Analysis – travel demand forecasting

