

Vennix, Jac A. M. (1990): Mental models and computer models

In this paper Vennix is figuring out the impact of computer policy models on public policy making. Vennix is explaining why policies in the past (before 1990, when the paper was published) are not successful by mentioning several mistakes in the modeling and implementation process. Afterwards different types of models are classified and differences in the modelers' and policy makers' orientation are mentioned. Finally important advices for the policy making process under use of mathematical models are given.

Early days of computer models

- Sins of early large scale computer models
 1. Comprehensiveness → To large scope and lack of clarifying the problem.
 2. Too gross models → No use for policy makers.
 3. Hungriness → Masses of data needs.
 4. Wrongheadedness → Many different assumptions make the model confuse.
 5. Complicatedness → Large number of variables.
 6. Mechanicalness → Bad consequences of numerical / iterative errors.
 7. Expensiveness
- Guideline: "Build small models, aimed at a specific policy problem and with a balance between theory, objectivity and intuition." (Model the problem, not the world; modeling should be on an ongoing basis.)

Questioning the concept of use

- Distinguishing between different types of use:
 1. Instrumental: Using forecasts → direct translated into policy measures.
 2. Conceptual: Helping clarification → affects policy makers thinking.
 3. Symbolic: Legitimate policy actions → selectively use of policy results.
- Types of view on scientific knowledge: Problem solving, knowledge application, interactive, political, tactical and enlightenment model.

Differences in policy makers' and modelers' orientation

Factor	Modelers' orientation	Policy makers' orientation
<i>Time factor</i>	Concentrate on present	Concentrate on future
<i>Goals</i>		Lack of policy goals
<i>Time involved</i>	Takes up to years	Need of quick decisions
<i>Validation</i>	Limited to some degree	
	Try to give mathematical correct answers	Constrained by context

→Policy making is more than just mathematical modeling.

→Modelers should spend more effort in communication of results. ("Two way communication")

Recent views on computer modeling for policy support

- Models stimulate debate on a policy problem and helps in clarification.
- Model analysis provides the basis for further systematic discussion.
- Models as tools to discuss policy problems by involving the client.