



Aalto University
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Model-based organizational decision making: A behavioral lens

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Introduction

- Models and data play important, perhaps increasingly large roles in organizational decision-making (e.g., Rust & Huang, 2014)
 - Methodological advances
 - Computational power
 - Communication technologies
 - “Big data”
 - The potential contribution of OR
 - Method development (traditional OR)
 - People/process side of modeling (behavioral OR) (Hämäläinen et al., 2013)
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Research problem

- Operational research “needs to more closely reflect the needs of organisations and its practitioners” (Ranyard et al., 2015, p. 1);
 - A problem since the 1970s! (e.g., Ackoff, 1977)
 - To address this challenge, the goal of the study is to clarify the nature of decision-making challenges that organizations face
- ⇒ Types of uses for modeling in organizations, which impacts
- Benefits and possible drawbacks of those uses
 - Ways in which methods should be evaluated

“Carnegie School” organization theory

Active community in management and organization research (e.g., Augier, 2013; Cyert & March, 1963; Gavetti et al., 2007, 2012; March & Simon, 1958; Simon, 1947)

- Bounded rationality, i.e., “*human behavior is intendedly rational but only limitedly so*” (Simon, 1997 [1947], p. 88)
- Organizations are collectives of individuals with conflicts of interest among them; however, organizations may achieve *quasi-resolution of conflict* (Cyert & March, 1993 [1963], p. 121)
- Organizations have a strong tendency to stick with the *status quo*, unless this fails

Dual-process model of organizational decision making

Routine decision making

- Used in familiar situations
- The decision-making procedure is established on the basis of experience or data concerning “what works”
- Once established, decision maker tend to take problem framing and decision-making approach for granted
- **Rationale:** Speed, efficiency and reliability
- Changes in the environment can cause routine decision making to **fail**

Problem solving

- Triggered by novel situations or when routine decision making fails
- Little experience and data to base actions on
- Problem frame and decision options are constructed rather than given
- **Rationale:** No existing routinized decision-making process for the task at hand
- **Disadvantages** include low speed, resource-intensity and unreliability

Trade-offs of modeling in organizational decision making

Routine decision making

Benefits

- Modeling provide a process and recommendations that outperform unaided decision making

Drawbacks

- However, modeling may narrow decision frames, causing suboptimal decision making and inflexibility

Problem solving

Benefits

- Modeling makes problem solving process more transparent, productive, stimulating, collaborative *etc.*

Drawbacks

- However, modeling is costly and takes time, diverting resources and attention form other (possibly more worthy) uses

Methods' evaluation criteria

Routine decision making

Technical

- External validity, robustness of decision recommendations, *etc.*

Behavioral

- Avoidance procedural mistakes

Problem solving

Technical

- Some technical performance criteria (esp. external validity) are difficult or impossible to establish

Behavioral

- The capacity of modeling to produce desirable behavioral impacts (e.g., learning, knowledge integration, conflict reconciliation)

Discussion and future directions

- The type of decision-making activity that is being supported has important implications for what we should expect from modeling
- Practitioners should be sensitive to the possible negative impacts of modeling (e.g., narrowing problem frames, opportunity costs)
 - More research is needed on what drives these phenomena
- Understanding of the organizational decision-making process should drive method development within OR
 - Follow-up empirical studies and more theoretical work is needed



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Thank you

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(Drop me a line if you want the full paper)