

How to cope with complexity?
The Paradox of opening and closing
strategies

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Structure of presentation

- How to cope with complexity and uncertainty in mega infrastructure projects?
- The paradox of opening and closing strategies
- The need of adaptability and learning process
- Three crucial concepts: strategic ambiguity, redundance and resilience
- Illustration in 2 Dutch cases: HSL South + Randstadrail
- To conclude

How to cope with complexity and uncertainty?

- The sources of complexity and uncertainty: technological, social, political, material, legal
- Changeable conditions, changeable preferences, increasing social concerns
- ‘major routes’ start as projects with primary functions but may end up multi-functional
- Reoccurring controversies
- Mega projects take 20 years: the only certainty is that things go different than expected

The paradox of opening and closing strategies

- Two paradoxical strategies: the 'opening' and the 'closing' approaches
- Opening strategies *accept* complexity and uncertainty:
They open the decision-making in all respects: the goals, the knowledge, the configuration of decision arena, the organisation of process
- The closing strategies *reject* complexity and uncertainty
- They close the door in the same respects, well aware of constraints (time, money, opportunity)

The need of adaptability and learning process

- The opening and closing strategies are diametrically opposed
- The solution of the one is considered as the very problem of the other
- The truth is not in-between: both are needed
- The chain of decisions should be organized in a rational and selective way but adaptive, and fueled by strategic reflection (strategic incrementalism)

Three crucial concepts

- We adopt a pragmatic experimenting approach tracing down a selected pathway but it should be fueled by *strategic ambiguity* of project mission, by *redundancy* of knowledge and *resilience* of decision making
- The three concepts are coherent
- They create open decision-making but at the same time build forward on a pragmatic and selective approach

Strategic ambiguity

- Strategic reflection must be organized at several intervals on behalf of the framing and reframing of project mission
- Strategic ambiguity is crucial: it recognizes complexity and emergent properties:
 - Defining the mission in principal terms
 - Defining a field of tension of principles
 - Recognize conflicting values and interests
- Select trajectories within these frames

Redundancy of knowledge in order to feed feasible pathways

- Conflicts of value cannot be solved but should be translated in feasible pathways (the art of planning)
- Redundancy of knowledge is needed to enable recombination in uncertain circumstances
- Focus redundancy of knowledge on development of alternative pathways
- Values cannot be renegotiated but feasible pathways can be compared and exchanged

Resilience

- Resilience relies on the availability of redundant information enabling the recombination of pathways
- Resilience also sees on the flexibility of decision-making
- Crucial for resilient decision-making is to select decisions in such a way that space is left for future decision-making

Case HSL South Netherlands 1990s

- Focus on Rotterdam- Amsterdam trajectory
- Three alternatives:
 - A. fast connection international network
 - B. avoid the green heart landscape
 - C. Promote urban network Randstad
- A dominant, B opposition, C neglected
- Deadlock a and b; solved by compromise
- Best recombination of a, b and c not used....

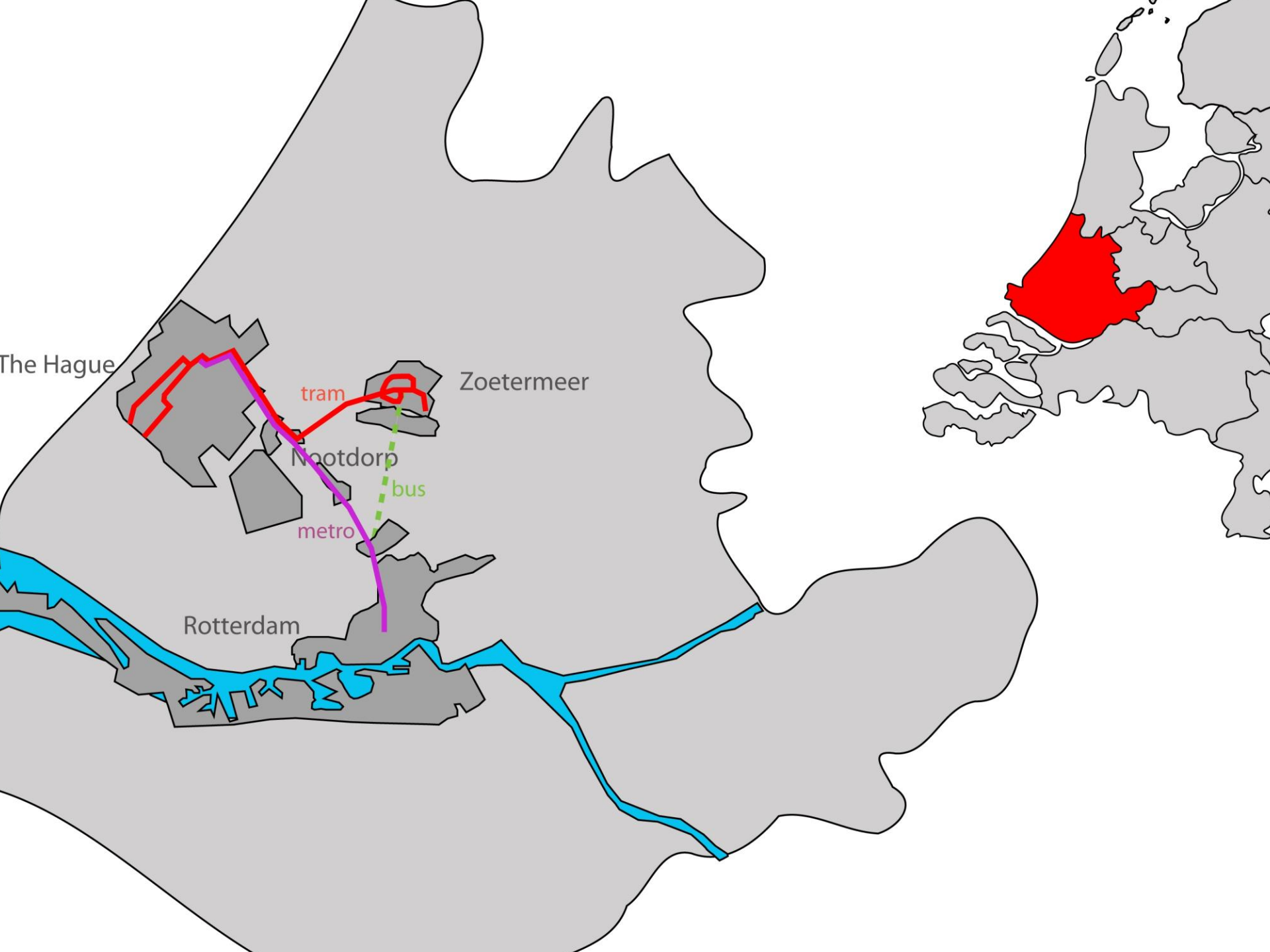






Case Randstadrail

- Regional light rail interconnecting Rotterdam, The Hague and new town Zoetermeer
- Typical infrastructure project, highly complex because of disconnected and non-convertible subway city and tramline city
- Proposal for completely new system rejected by state (10 years stalemate until 2001)
- Successful solution since reassigning power



The Hague

tram

Zoetermeer

Nootdorp

bus

metro

Rotterdam

To conclude

- HSL South: highly selective, hierarchical power but no strategic ambiguity, no deep search of redundant pathways, problematic resilience
- Optimal recombination a,b and c not used
- Randstadrail: initially not selective, no clear assignment of power but ambiguous strategy
- Only after reasserting power, effective use of ambiguity and redundant alternatives
- Resulting in effective recombination