SIDT, National Conference and International Seminar
Venice, 6th-7th October 2011

Transportation Planning: Decision-making, Public Engagement and Systems Engineering

Prof. Ing. Ennio Cascetta
Dipartimento di Ingegneria dei Trasporti "L. Tocchetti"
Università degli Studi di Napoli Federico II
E-mail:ennio.cascetta@unina.it

BACKGROUND

❑ Interventions on the transportation system often deal with decisions taken by public institutions (State, Regions, Provinces, Municipalities) and/or they concern with the collectivity at different levels.

Planning and designing a transportation system means managing a public decision-making process.

❑ **Public decisions** make up a more critical question due to the complexity of the legal procedures and the fragmentation of the decision-makers system and the interests involved.

17-FEB-2008 Stampa Torino da pag. 34

Tav, nodo Torino

Ecco le criticità della linea che incrocia case, industrie e tangenziale

5 gli anni di lavoro

150 milioni al chilometro

Retroscena

MAURIZIO TROPEANO

La ferrovia riqualifica spazi urbani

È


CORRIERE DELLA SERA
Politica Veltroni: rimonta del Pd. Udc, appello ai centristi
Alitalia, Bossi in piazza
«Malpensa non si tocca»
Manifestazione Il senatur al governatore: «Urla Padania libera»
Bossi e Formigoni insieme:
«Malpensa non si tocca»
Migliaia all'aeroporto. La Lega: aiuti alla Sea
I NUMERI DELL'AEROPORTO
750
24 milioni
472 mila
69 %
47 %


IL GAZZETTINO
ATTUALITÀ
7
GRANDI OPERE Il governatore Zaia deciso a coinvolgere le amministrazioni locali. Per evitare rivolte
«Tav, una grande opportunità Ora tocca ai sindaci»
«Questo è il banco di prova della tenuta della comunità»
«Non ha senso chiedere autonomia e poi non esercitarla»
Barricate come in Val di Susa? «Dialogo, niente prove muscolari»

IL GAZZETTINO 15

IL VICEMINISTRO
La conferma di Castelli: la scelta è già stata fatta

CAPOLAVORI
I più grandi romanzi della letteratura straniera
IL GAZZETTINO

NORDEST

ALTA VELOCITÀ Polemica dopo l'intervista a Zaia. «In trincea ci siamo noi: categorie diverse, agricoltori contrari»

Tav, la paura e la rabbia dei sindaci

«Bene se verremo interpellati. Ma il tracciato "basso" non serve alle spiagge e ha un effetto impattante sul Veneto Orientale»

31 dicembre

LA PRESIDENTE DELLA PROVINCIA
Zaccariotto: «L'asse lungo la A4 compromette meno il territorio»

Il Sole 24 ORE

La Tav tedesca fa il pieno in tv

Record di spettatori per l'arbitrato sul controverso progetto di Stoccarda

BACKGROUND

The decision is conceived in the course of a process. It can be better interpreted making reference to the process, more than to the final action which is often only the result of partial choices.

The decision-making process is not only a technical exercise, but it is a **POLITICAL PROCESS**.

It happens that the **quality** of the choice made depends on **decision-making process** ! A bad one implies **not to take a decison**, to do nothing.

OUTLINE

- **The decision-making process**
  - **The components**
  - The models
- Public Engagement
  - Definition and levels
  - PE and decision-making
- The role of transportation systems engineering

The decision-making process

- **Decision-makers** – Those formally in charge of the choice
- **Decision-making process coordination** – people and procedures used to plan and govern each stage of the process
- **Stakeholder**s - those who hold a stake in a particular issue, even though they have not a formal role in the decision-making process
- **Opportunities/problems to be solved** – They stimulare the decision-making process and impact choices and behaviors
- **Objectives (formal\ informal)** – Targets pursued by decision makerrs and stakeholders through the interventions
- **Proposals/plans and projects –** A project is the definition of a set of physical and operational interventions. A plan is a rational set of projects
- **Contextual barriers –** They describe anything restricting or causing the delay or cancellation of a project. They set constraints, such as institutional, legal and financial restrictions;
- **Process barriers** – see later
- **Coalitions –** Groups of actors whose objectives converge to one solution
- **Implementation** – Development of the project or part of it

The decision-making process

STAKEHOLDERS

Istitutions/Autorithies	Social parties and enterprise	Transport operators	Local communities	Financial institutions
European Union	National and local enterprise associations	Transport companies	Environmental associations	Banks
National government	National and local trade union	Consultants	Transport users associations	Fund
Ministry of Transport	National and local craft union	Transport company associations	Media (TV, newspapers, etc.)	Insurance
Other Ministeries	Building firm and production enterprise of vehicles and technologies		Local interest groups (eg. borough associations)	
Parliament and parliament commissions	Retailers associations		Citizens	
Regional government	National and local builders associations		Visitators	
Regional transport authority regionale				
Regional council and council commissions				
Local authorities (Province and Municipality)				
Local transport authority				
Town council and council commissions				
Other bodies and local transport agencies				
Political parties and single members				
Project staff				

The decision-making process

PROCESS BARRIERS

They arise in the course of the project and they can be classified into:

Management: problems due to limited resources and skills, or unexpected delays experienced on a daily basis.

Communication: problems associated with achieving acceptance by stakeholders, and with communication issues/challenges.

The decision-making process

E.g. NIMBY (Not In My Back Yard) SYNDROME

The decision-making process

OTHER SYNDROMS

- **NIABY** - Not In Anyone's Backyard
- **NAMBI** - Not Against My Business or Industry
- **BANANA** - Build Absolutely Nothing Anywhere Near Anything (or Anyone)

OUTLINE

- The decision-making process
  - The components
  - **The models**
- Public Engagement
  - Definition and levels
  - PE and decision-making
- The role of transportation systems engineering

The decision-making process

MODELS

1. RATIONAL MODELS

2. A-RATIONAL MODELS

The decision-making process

RATIONAL MODELS

Rationality means:

- ***consistency*** (internally among the projects and externally with other planning choices)
- ***feasibility*** (feasible proposals and/or subsequent feasibility evaluation)
- ***awarness*** (impacts evaluation)
- ***comparabitlity*** (comparison among possible alternatives)
- ***dynamic*** (taking into account that choices may change if inputs change)

The decision-making process

RATIONAL MODELS

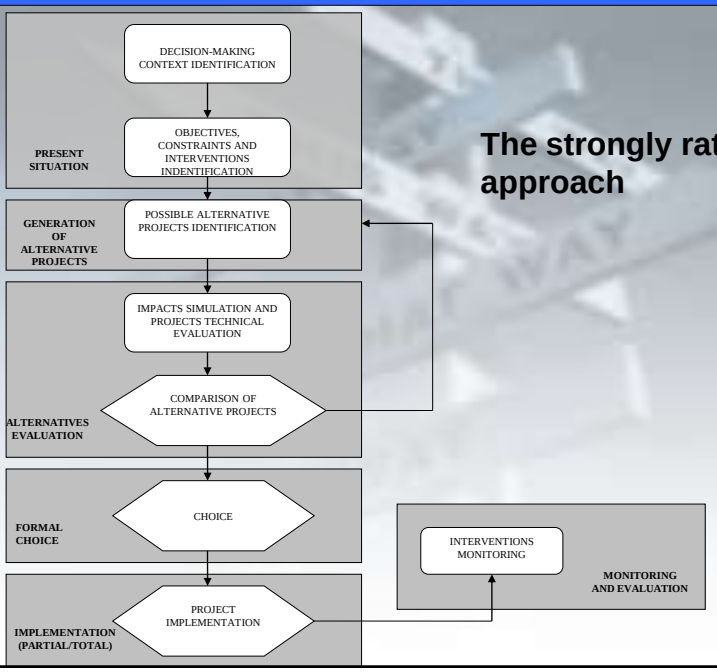
STRONG RATIONALITY

homo oeconomicus is a utility maximizer relative to his/her choices.

COGNITIVE OR BOUNDED RATIONALITY

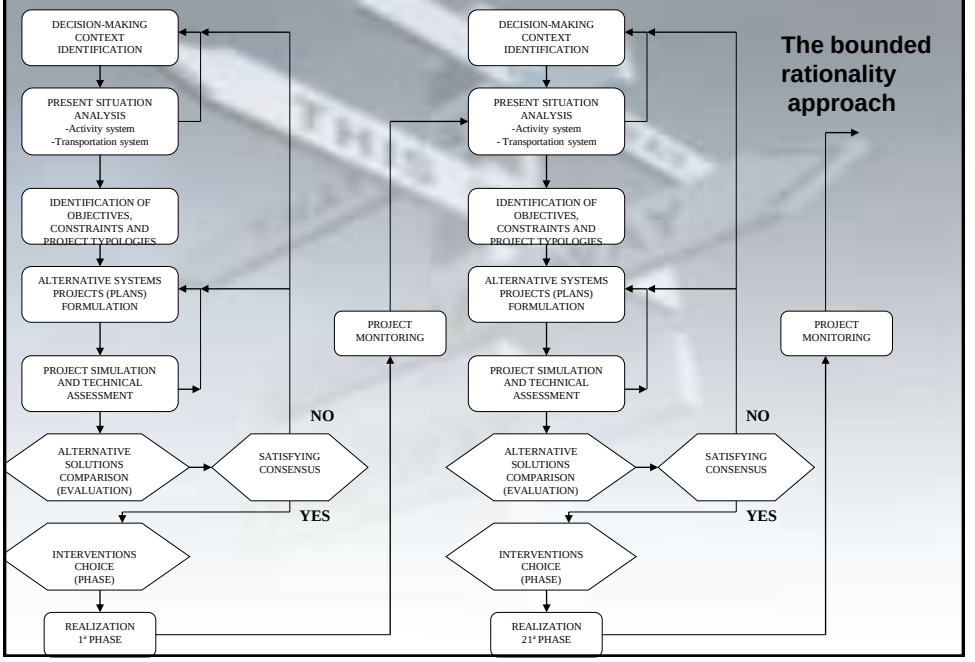
The decision-maker has limited time, capacity and budget resources and therefore **he/she chooses an alternative which is satisfyng, learning from previous choices** (Jones, 1999; Smith, 1999).

The decision-making process



The strongly rational approach

The decision-making process



The decision-making process

A-RATIONAL MODEL

The garbage can (Coehen et al., 1972)

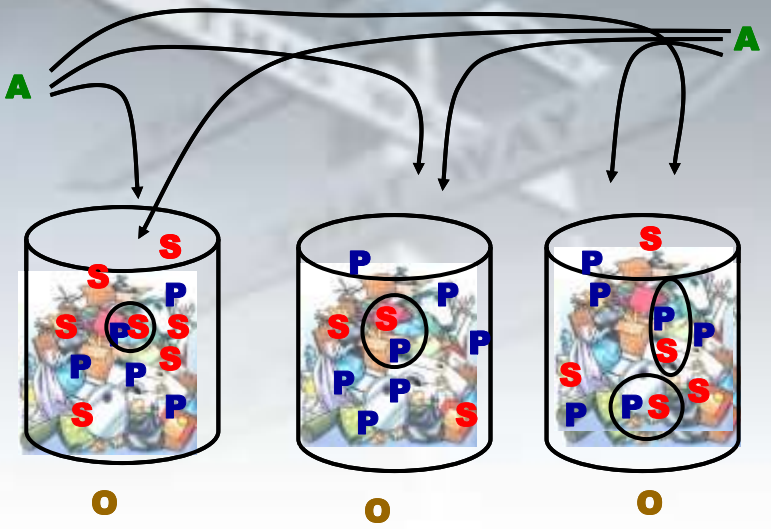
The variables

- Actors/participants(**A**)
- Problems (**P**)
- Solutions (**S**)
- decision Opportunities (**O**)

O are the cans in which **A** throw **P** and **S**. The decision depends on the random coupling of **P** and **S**.

The decision-making process

The garbage can model



The decision-making process

The garbage can model

In transport it is not rare to find cases where choice made is the one that the different actors is the solution to a given problem.

P: Congestion on an existing road

S: Proposal of a new road infrastructure

O: New European funds to be allocated; new administration

OUTLINE

- Some problems of the Italian transportation system
- The decision-making process
  - The components
  - The models
- **Public Engagement**
  - **Definition and levels**
  - PE and decision-making
- The role of transportation systems engineering

Public Engagement

- Public Engagement (PE) is the process of identifying and incorporating stakeholder concerns, needs and values in the transport decision-making process.
- It is a two-way communication process that provides a mechanism for exchanging information and promoting stakeholder interaction with the formal decision-makers and the transport project team.
- The overall goal of engagement is to achieve a transparent decision-making process with greater input from stakeholders and their support of the decisions that are taken.

The decision-making process

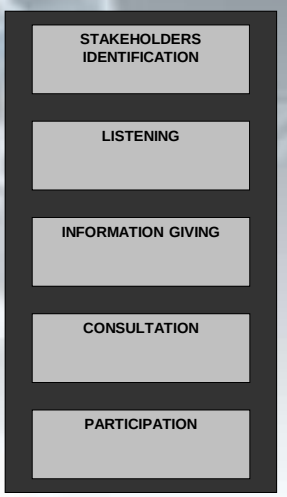
THE LACK OF PE MAY INDUCE THE DAD (DECIDE ANNOUNCE DEFEND) SYNDROME

LIMITS OF THE DAD:

- it fosters barriers
- It increase costs
- It increases times

Public Engagement

The 5 PE levels



Public Engagement

PE tools

Information giving and gathering	
Printed public information materials	A letter Posters Brochure Newsletter Technical report
Telephone and media	Telephone Local radio and TV shows
Internet	Internet Web based forum
Surveying individuals	Questionnaire surveys Key person interviews

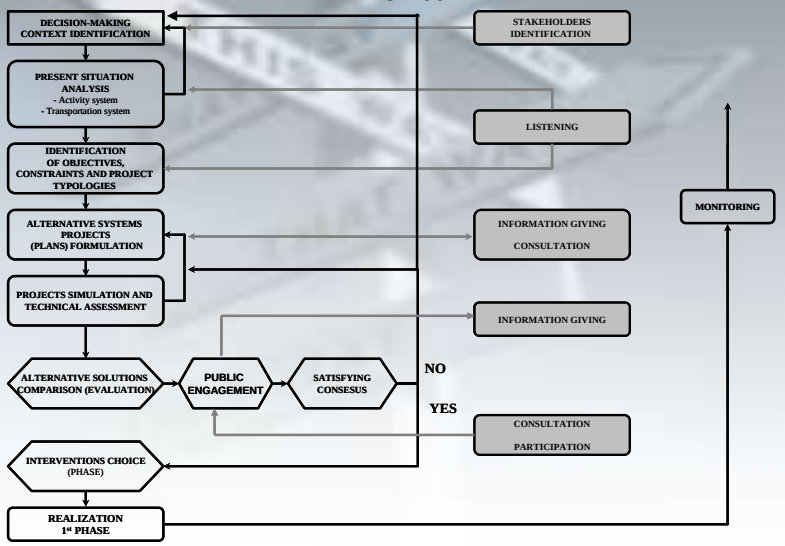
Interactive engagement	
Information events	Exhibition Public meeting
Engaging selected stakeholder groups	Study tours Focus groups Workshop Citizen jury Technical working party
Engaging large groups	Stakeholder conference Weekend event Open space event

OUTLINE

- The decision-making process
  - The components
  - The models
- **Public Engagement**
  - Definition and levels
  - **PE and decision-making**
- The role of transportation systems engineering

PE and decision-making

The transportation planning process and the role of PE (highlighted in grey)



OUTLINE

- The decision-making process
  - The components
  - The models
- Public Engagement
  - Definition and levels
  - PE and decision-making
- **The role of transportation systems engineering**

The role of transportation systems engineering

- PE and traditional transportation planning approaches, models and tools have interacted very little.
- Almost all scientific contributions on transportation planning recognise the difficulty of the corresponding public decision-making process and the multiple conflicting interests involved (Manheim, 1979; Meyer and Miller, 2000; Ortuzar and Willumsen, 2001; Cascetta, 2009).
- Little effort has been made to include PE in the planning conceptual model and extend the role of traditional planning tools, such as mathematical models and DSS, to be used in PE activities.

The role of transportation systems engineering

Traditional role in design of evaluation

- Present situation analysis
- Definition of alternative scenarios (plans and projects)
- Simulation and scenarios comparison

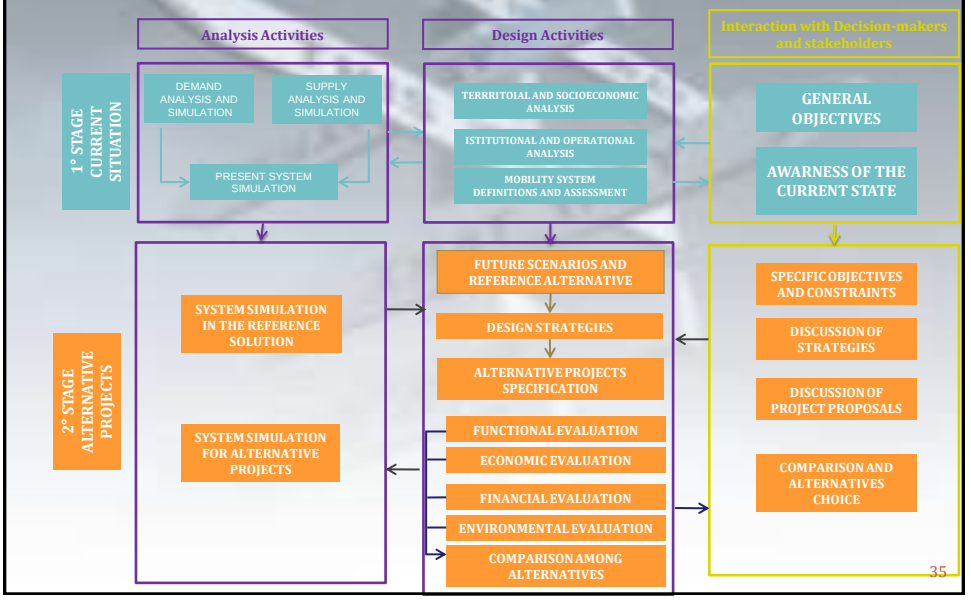
The risk of DAD (Decide Announce Defend) syndrome

Engineers do it better!

The role of transportation systems engineering

The technical activities in transportation systems engineering

Stages and professional skills involved in transportation planning and design



The role of transportation systems engineering

Requirements to systems engineering

- ❑ Results for non-specialists (post-processing)
- ❑ Comparison with similar projects / policies elsewere
- ❑ Impacts on different stakeholders (loosers\winners)
- ❑ Ease in the formulation of new alternatives