

1.201J/11.545J/ESD.210J Introduction to Transportation
Systems

.....
Fall 2006

LECTURE 26
1.201 Summary
Transitions in the World Of
Transportation
Student Evaluations of 1.201

SPEAKERS: Joseph M. Sussman
Nigel H. M. Wilson
Carl D Martland

SO WHERE HAVE WE BEEN IN 1.201?

I

- ◆ Concepts
 - ◆ Transportation System Components
 - ◆ 30 Key Points
 - ◆ Critical Issues in Transportation
 - ◆ Large-Scale Infrastructure: The Interstate
 - ◆ The basics of demand modeling
 - ◆ The basics of costing
 - ◆ Networks

SO WHERE HAVE WE BEEN IN 1.201?

II

- ◆ Traveler Transportation
 - ◆ Automobiles
 - ◆ Urban Form and Transportation
 - ◆ Urban Public Transportation
 - ◆ Intercity Traveler Transportation

SO WHERE HAVE WE BEEN IN 1.201?

III

- ◆ Freight Transportation
 - ◆ Total Logistics Costs (TLC)
 - ◆ LOS for freight modes
 - ◆ Operating and Investment Issues
 - ◆ Comparison of Various Freight Modes
 - ◆ Intermodalism

SO WHERE HAVE WE BEEN IN 1.201?

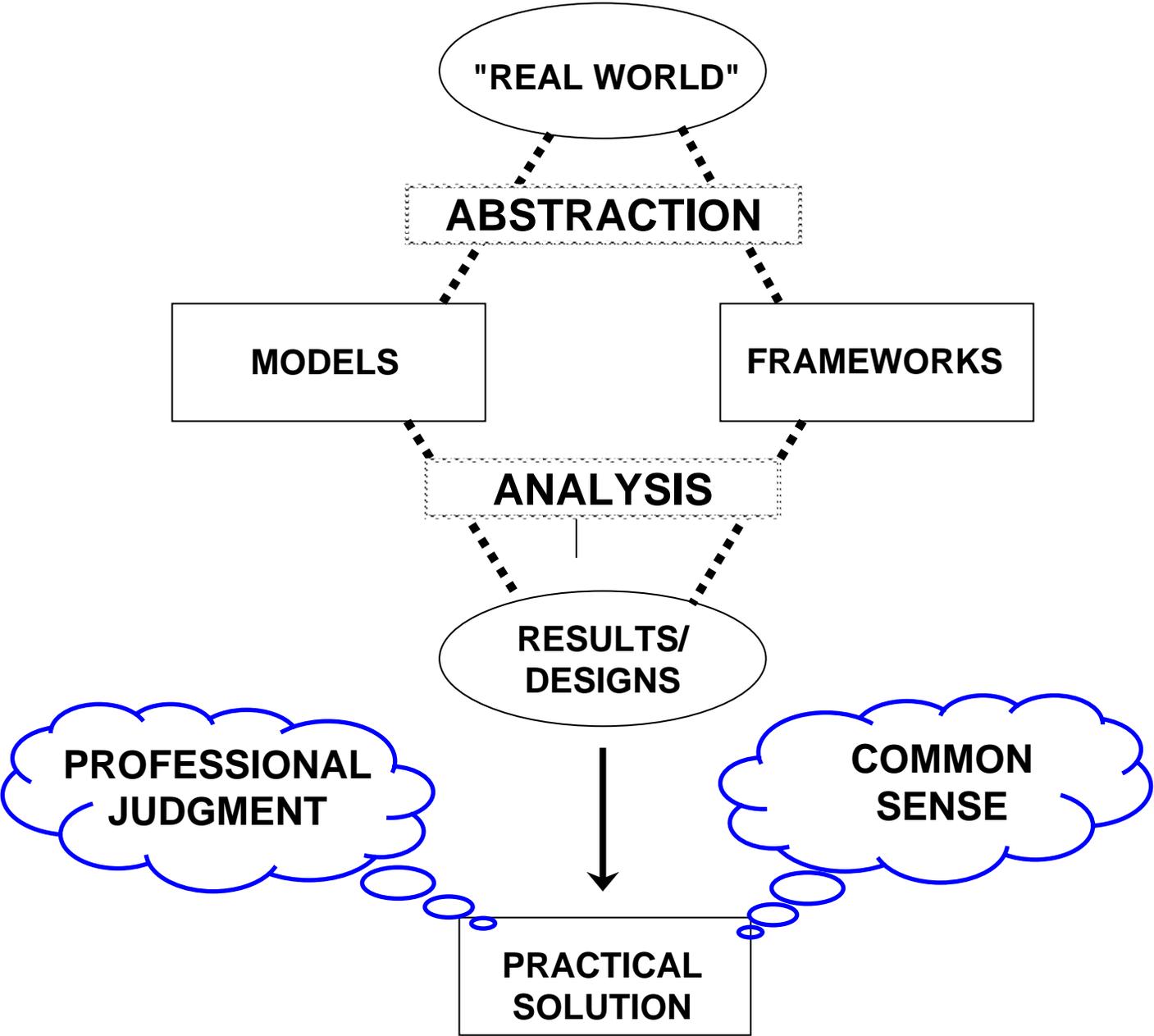
IV

- ◆ Themes
 - ◆ Project Evaluation
 - ◆ Privatization (Public Transportation)
 - ◆ Technology/ITS
 - ◆ Transportation/Environment/Sustainability - Mexico City Case
 - ◆ Large Scale Infrastructure - Urban Rail - The NY City Subway System
 - ◆ Public Policy - Highway Safety Case

SOME EMPHASIZED POINTS

(WE CAN'T DO EVERYTHING IN ONE SEMESTER!)

- ◆ Transportation as a complex system
- ◆ The Triplet of Technology/Systems/Institutions
- ◆ Level-of-Service (LOS)--freight and travelers--the importance of the customer
- ◆ The Cost/LOS trade-off - both straightforward and subtle
- ◆ Supply/Demand/Equilibrium
- ◆ The Vehicle-cycle
- ◆ Transportation as a component of a larger social-political-economic system--a force for good and otherwise



TRANSITIONS IN THE
WORLD OF TRANSPORTATION:
A SYSTEMS VIEW

Joseph M. Sussman
Transportation Quarterly
Vol. 56, No. 1, Winter 2002
Eno Transportation Foundation
Washington, DC, 2002

SUMMARY OF TRANSITIONS

FROM

TO

- | | | |
|--|---|--|
| 1. Capital Planning | → | Management and Operations Focus |
| 2. Long Timeframes | → | Real-time Control |
| 3. Urban Scale Planning and Operations | → | Regional Scale Planning and Operations |
| 4. Emphasis on Mobility | → | Emphasis on Accessibility (the Transportation/Land-Use Connection) |
| 5. "One Size Fits All" Service | } | → Customer Orientation |
| | | → Quality |
| | | → Pricing for Service |

SUMMARY OF TRANSITIONS

(CONTINUED)

FROM

TO

- | | | |
|---|---|---|
| 6. Allocate Capacity by Queuing | → | Allocate Capacity by Pricing |
| 7. Aggregate Methods for Demand Prediction | → | Disaggregate Methods for Demand Prediction |
| 8. Episodic Data for Investment Planning | → | Dynamic Data for Investment Planning (and Operations) |
| 9. Public Financing for Infrastructure and Operations | → | Private and Public/Private Partnerships for Financing of Infrastructure and Operations Using Hybrid Return on Investment Measures |
| 10. Infrastructure Construction and Maintenance Providers | → | New High-Technology Players |

SUMMARY OF TRANSITIONS

(CONTINUED)

FROM

TO

11. Static Organizations and Institutional Relationships

→ Dynamic Organizations and Institutional Relationships

12. Professional Emphasis on Design of Physical Infrastructure

→ Professional Emphasis on Transportation as a Complex, Large-Scale, Integrated, Open System

13. Economic Development

→ Sustainable Development (CLIOS)

14. Computers are "Just a Tool"

→ Ubiquitous Computing

15. FROM

TO

AND ON TO

Supply-Side Perspective

Supply/Demand Equilibrium Framework

Systems that Never Reach Equilibrium

SUMMARY OF TRANSITIONS

(CONTINUED)

FROM

TO

16. Independent
Conventional
Infrastructure Projects

→ Linked Advanced
Infrastructure Projects
Requiring a System

17. Vehicles and
Infrastructure as

→ ~~Architecture~~
Vehicles and Infrastructure
as Electronically Linked

18. ~~Independent~~
Reducing Consequences
of Crashes

→ Crash Avoidance

19. FROM

TO

AND ON TO

Modal Perspective

Intermodal
Perspective

Supply Chain
Management

20. Narrow Transportation
Specialists

→ The New Transportation
Professional

HOPE YOU ENJOYED 1.201
GOOD LUCK ON THE
FINAL!