

ITS:

A Multilevel View of Criteria for Success

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Overview

□ **ITS Architecture**

- Brief Introduction to Technology, Systems and Institutional Layers

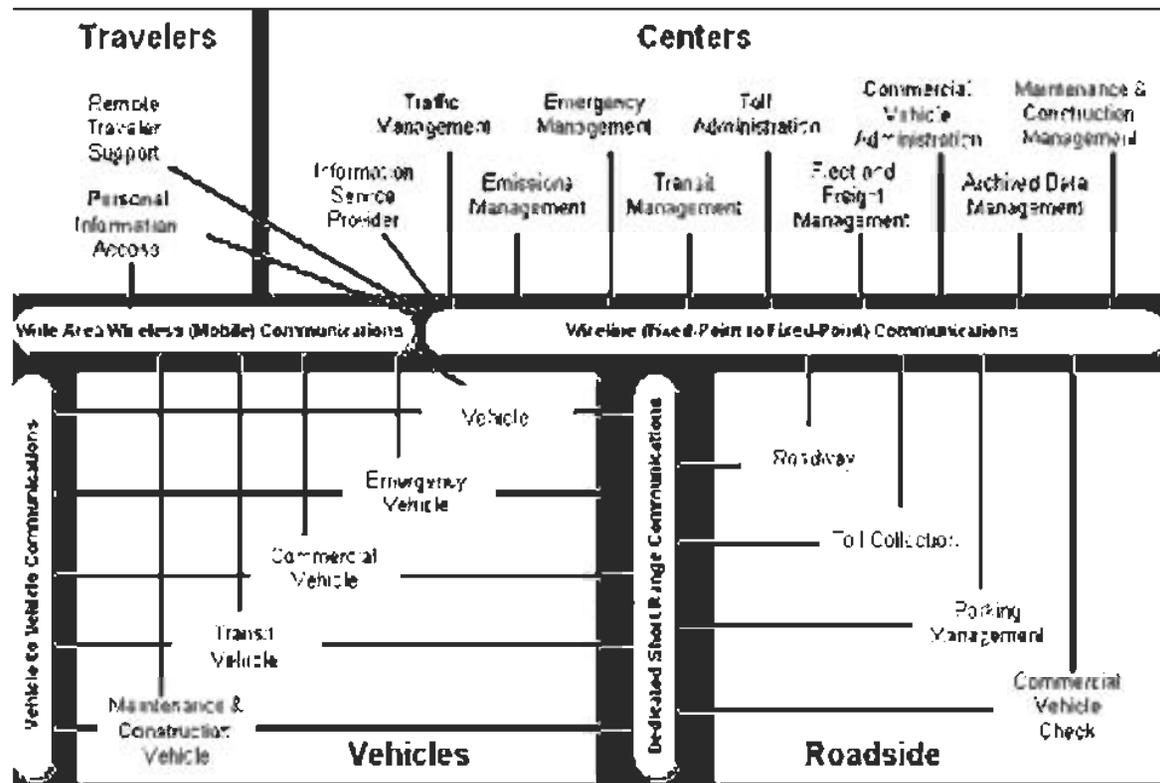
□ **ITS Criteria of Success**

- Review of Federal Program Review and Implications for Strategy

□ **ITS Directions**

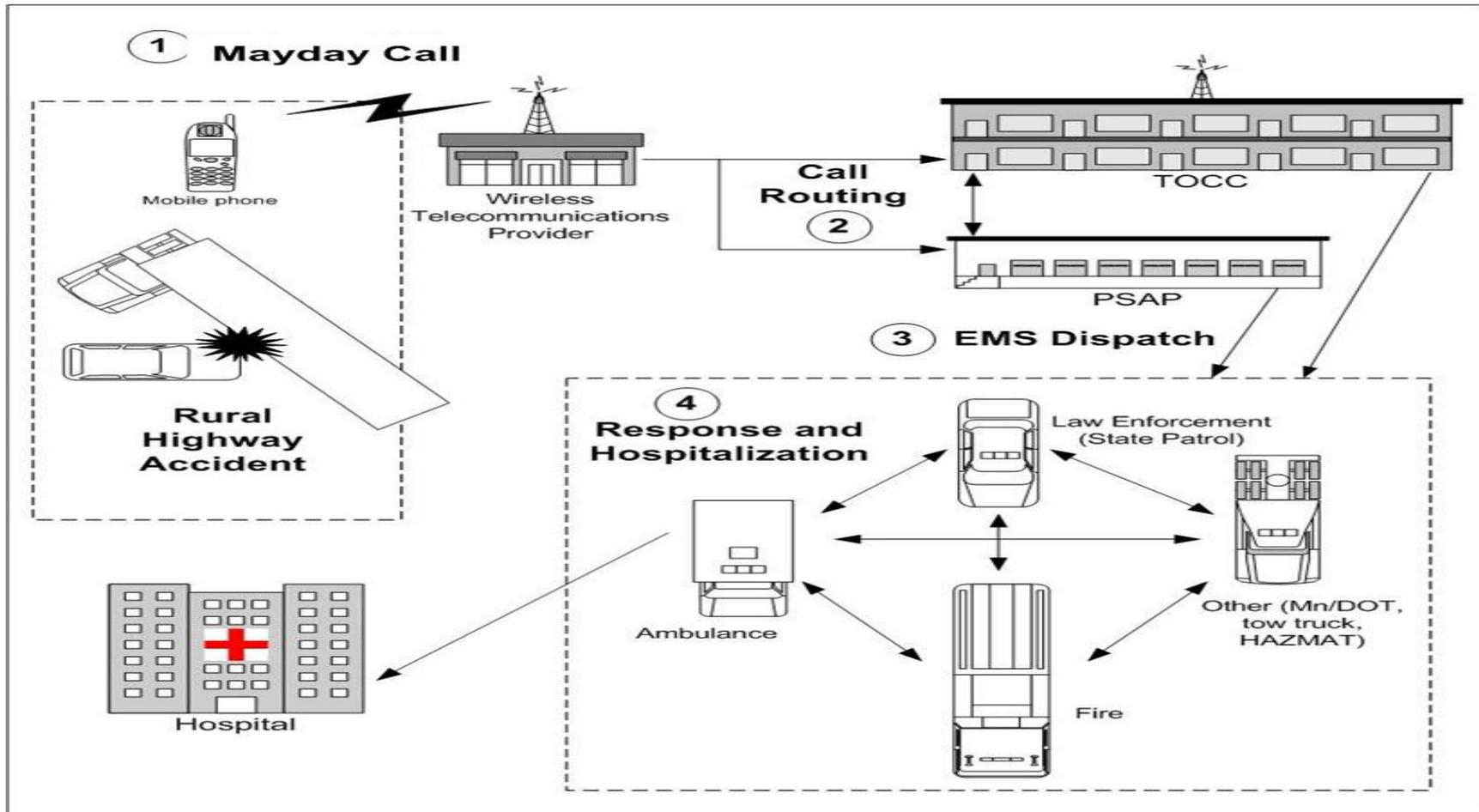
- Toward User Driven, High Performance Systems

Figure 1. National ITS Architecture Overview



Source: U.S. Department of Transportation

End-to-End Performance



From Architecture to Performance

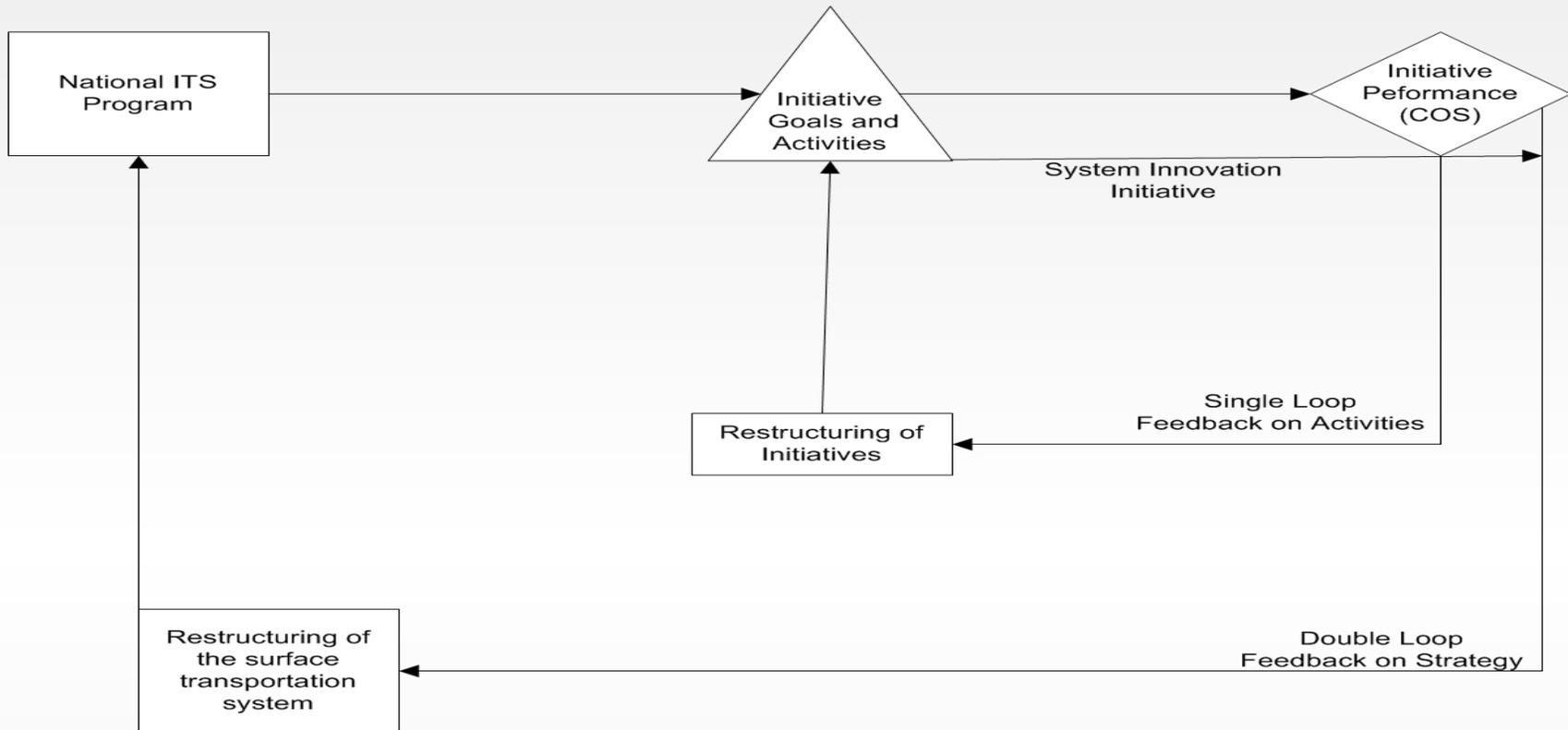
Interval (in minutes)	Urban Areas		Rural Areas*		MSP-D2800*	
	Mean	Range	Mean	Range	Mean	Range
Accident/EMS Notification	2.1	0-28	5.8	0-275	4.9	0-61
Accident/EMS Arrival at Scene	10.3	1-73	21.3	1-285	20.8	2-94
Accident/EMS Arrival at Hospital	33.0	5-86	51.8	12-197	60.5	17-197
*Outliers omitted.						
Source: FARS & Minnesota FARS, 2003.						



Federal ITS Program Review

- Fall 2004
- Executive Level Concern About the Pattern of Development
- Technically Defensible Roadmaps, But What Is the Process and Strategy?
- Adapted a Version of the Balanced Scorecard

Tactical and Strategic





General Findings

□ **Tactical**

- The various ITS initiatives are being undertaken in a logical sequence of effort, but there are some issues as to the timeframe and focus of activities.

□ **Strategic**

- While the program focus on initiatives is understood and supported, there is interest in pursuing “bigger picture” implications of ITS.



Federal ITS Recommendations

□ **Tactical**

- Recommendation 1: Implement Criteria of Success (COS) for the Nine Initiatives

□ **Strategic**

- Recommendation 2: Launch Crosscutting Systems Innovation Initiative



1: Criteria of Success Measures

□ **Criteria 1: Evidence on Problem-ITS Match**

- Demonstrate progress in developing evidence about the connection between the transportation problem being addressed and contribution of ITS to that problem
- Note: Provides opportunity for involvement of research community in producing data and perspectives



1: Criteria of Success Measures

□ **Criteria 2: Acceptable Architecture**

- Demonstrate progress in leading, assisting or otherwise identifying architectural solutions for candidate systems
- Note: This includes architecture implications, in terms of allocation of roles, responsibilities and costs.



1: Criteria of Success Measures

□ **Criteria 3: Stakeholder Acceptance**

- Demonstrate progress in obtaining key stakeholder participation and support for candidate solutions
- Note: This could involve tool development and a systematic means for quasi-independent input from stakeholders



1: Criteria of Success Measures

□ **Criteria 4: Field Evidence of Initiative Impacts**

- Demonstrate progress in deployment-related experience with candidate solutions
- Note: This could include DOT-sponsored field operational tests, as well as innovative testing outside of the program either domestically or internationally

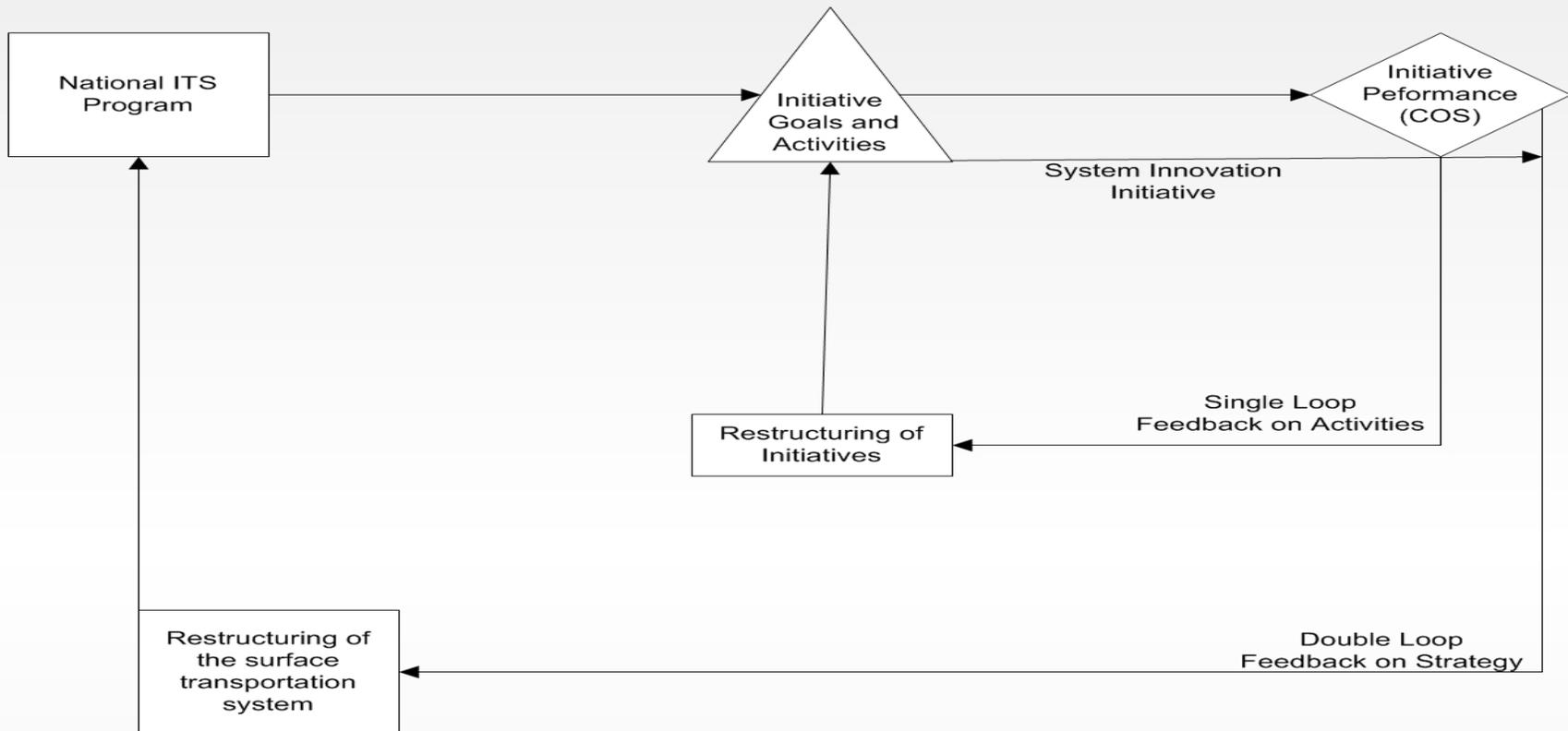
Implementation Scenario (Rec. 1)

- ❑ Criteria would be refined based on input from Management Council and the Strategic Planning Group
- ❑ Each of the initiative roadmaps would be revised as appropriate to include activities (including new efforts) relative to these criteria
- ❑ Summary “dashboard” for these criteria would be devised, leading to a dynamic monitoring information system for Initiative Managers and Management Council
- ❑ Framework would be used guide ongoing and midcourse initiative reviews, including go/no go decisions

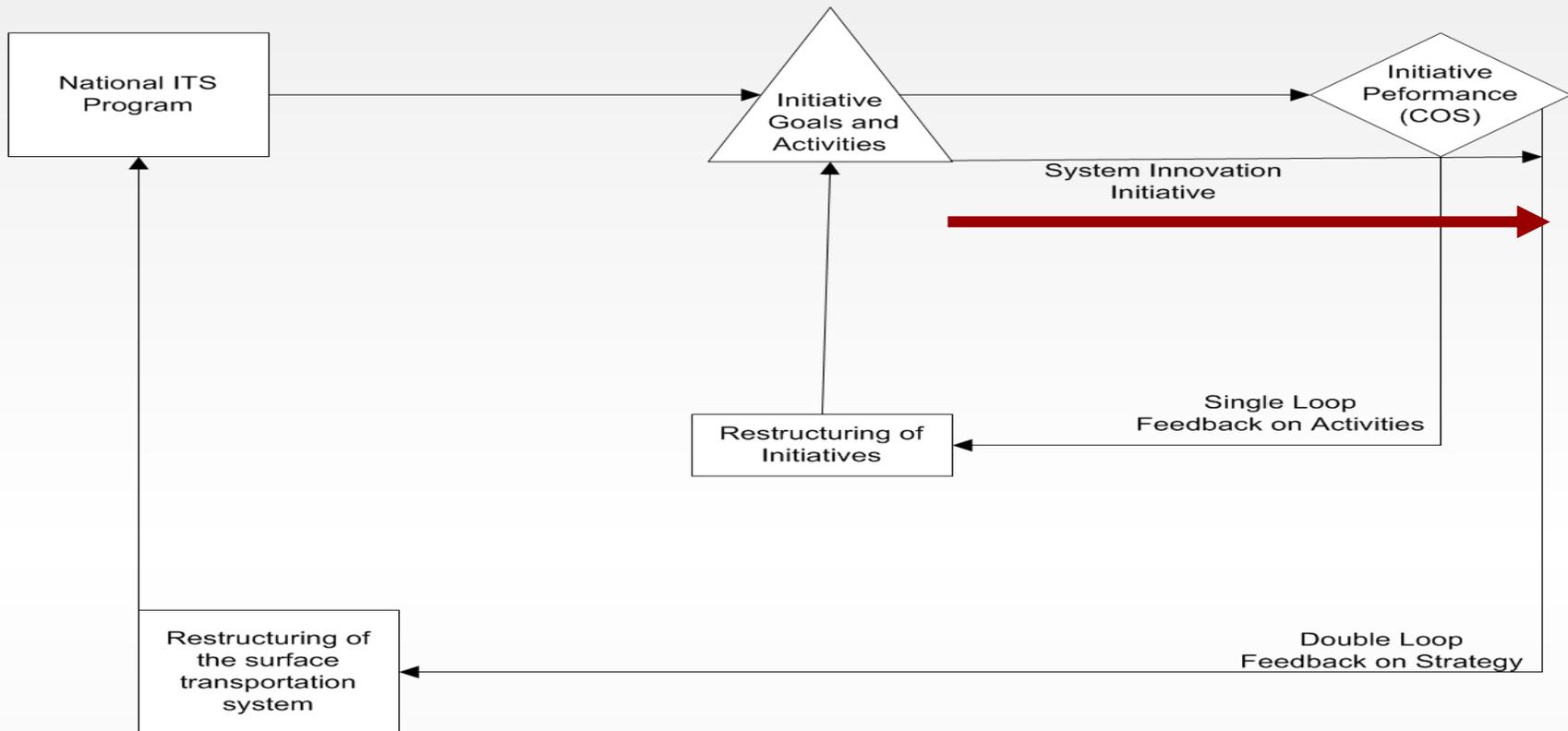
Scorecard Matrix

<i>ITS Initiatives</i>	<i>Criteria of Success (COS)</i>			
	1- Problem	2-Architecture	3-Acceptance	4- Deployment
	Is there a problem-ITS match?	Is there an acceptable architecture?	Is there acceptance among key stakeholders?	Is there demonstrable evidence of success
ITS Initiative 1	Process: Results: Decisions:			
ITS Initiative 2		Process: Results: Decisions:		
ITS Initiative 3			Process: Results: Decisions:	
ITS Initiative 4				Process: Results: Decisions:

Moving from Tactical to Strategic



Moving from Tactical to Strategic



2: Crosscutting Systems Innovation Initiative

- **Technology Scans (ITS-Problem COS).**
 - Commission technology scans of industry developments and potential impacts on ITS and transportation systems.
 - Objective is to benefit from major technological trends as well as to avoid being blindsided by developments outside of the program

2: Crosscutting Systems Innovation Initiative

- Enterprise Transformation Showcases (Architecture COS)**
 - Conduct investigations on how ITS initiatives and related developments can assist the surface transportation industry in developing high-quality, real-time transportation management and safety services, including provision of timely data to planning, operating, and end-user segments

2: Crosscutting Systems Innovation Initiative

- **System Innovation Partnerships (Stakeholder COS)**
 - Establish working group of experts that can be tapped to understand industry developments and partnership opportunities that cut across initiatives
 - Solicit innovative partnerships, such as in new infrastructure systems (e.g., wireless developments), local/regional institutional innovations, and/or global applications, drawing from a diverse array of industry participants

2: Crosscutting Systems Innovation Initiative

- **Major System Impact Research and Analysis (Demonstrable Impact COS).**
 - Develop and implement innovative partnerships to create demonstrable system impacts (“swat assessment team”)
 - This element would leverage off local innovations with the specific intent to demonstrating systems impacts in terms of productivity, travel reduction, and/or safety

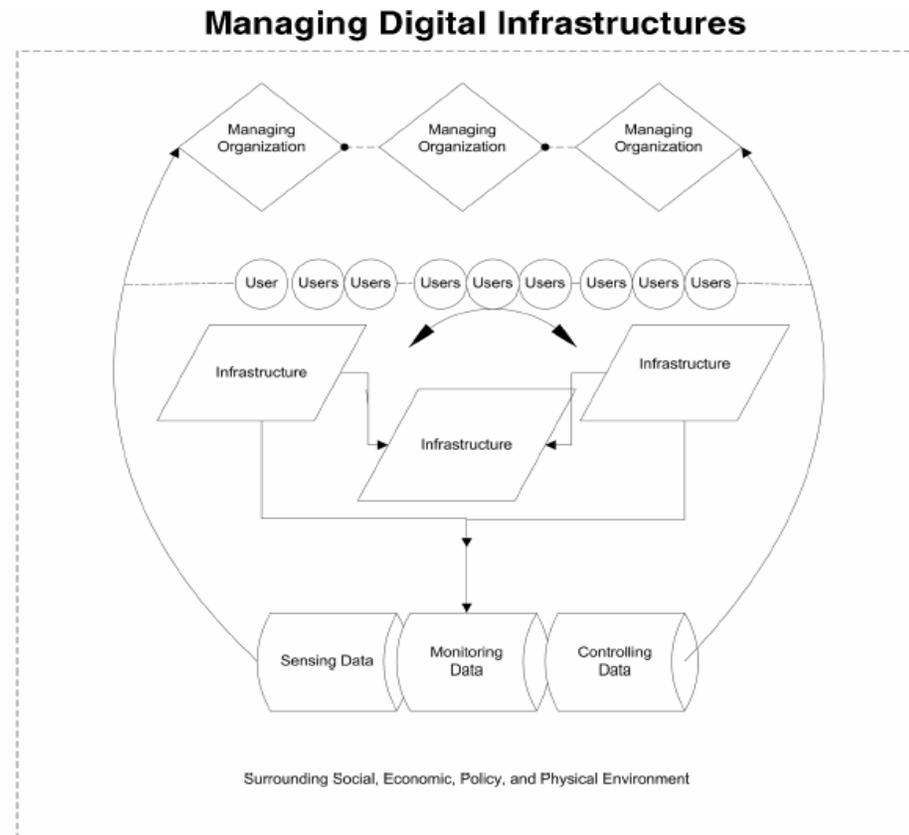
Implementation Scenario (Rec 2)

- An SII-leader would be appointed and would work with planning team to refine the objectives, projects, and resources needed to undertake the initiative
- An initiative plan would be developed in 60-90 days, with a Broad Area Announcement (BAA) and related partnerships to be undertaken in early 2005
- The BAA would solicit partnerships in areas such technology scans, DOT enterprise architecture and organizational showcases, targeted impact assessments, and global developments
- A select number of systems innovation partnerships could be established in 2005 and, like the other initiatives, these activities would be subject to a mid-course review

Directions: Toward User Driven High Performance Systems

“A common thread woven through these trends, research projects, demonstration projects, and technological developments is the emergent transformation of the transportation system from something that is industrial in its organization---a concrete, asphalt and steel system that uninformed consumers travel over in predictably inefficient ways, to something which is understood and used a manner that is highly dynamic, user specific, demand responsive, and information intensive.”

Directions: Managing Digital Infrastructures



Conclusion

- Regional ITS Systems Need to:
 - Incorporate Technological, Transportation Systems, and Institutional Elements
 - This Integration Must Be Dynamic, Recognizing Process and Performance
 - There Should Be Multiple Criteria of Success, Not Just Technical Success
 - ITS is in Service to High Performance Systems, Where Users Play a Critical Role