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# Development of Mexico's National ITS Strategic Plan

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# Mexico: Quick Facts and Comparisons

- Population: 112 million
- Area: 762,000 sq. miles (~ 25% of continental USA)
- GDP (nominal, 2010, World Bank)
  - USA: \$14.6 trillion (#1)
  - Canada: \$1.6 trillion (#11)
  - Mexico \$1.04 trillion (#14)
- Third largest US trading partner (after Canada and China)
- Roadway network
  - 73,000 miles total paved roadways
  - 6,500 miles expressways; 10,000 miles rural highways
  - Extensive urban and intercity toll road network (\$\$\$)
- US/Mexico share world's busiest land border crossing
  - San Ysidro (San Diego/Tijuana area)



# Background on Mexico's ITS Program

- ITS deployments are much more limited than in the USA
- Most ubiquitous "ITS device" is the traffic signal
- Electronic toll collection on urban and intercity highways
  - Nearly all toll roads have ETC
  - Approximately 13% of tolls are paid using ETC
- Many cities have significant CCTV camera deployments
  - Primary (and sometimes only) use is security
  - Challenges obtaining images for traffic management
- Nearly all highway ITS devices deployed on toll roads
  - Emergency call boxes ("SOS")
  - DMS
  - Freeway Service Patrol vehicles and ambulances
  - CCTV cameras (but only at toll plazas)



# Background on Mexico's ITS Program

- Several major cities have TMCs, but mostly for traffic signals only
- Federal-level Ministry of Communications and Transport (SCT) leading development of Mexico's ITS program
- ITS National Architecture completed in 2005
- ITS deployments increasing since 2008
- ITS program "push" in 2010 (4 major SCT projects)
  - National ITS Strategic Plan
  - Development of ITS Standards
    - ITS field devices
    - Adoption of NTCIP
  - ETC interoperability studies
  - Traveler information system ("INFOVIAJE") study

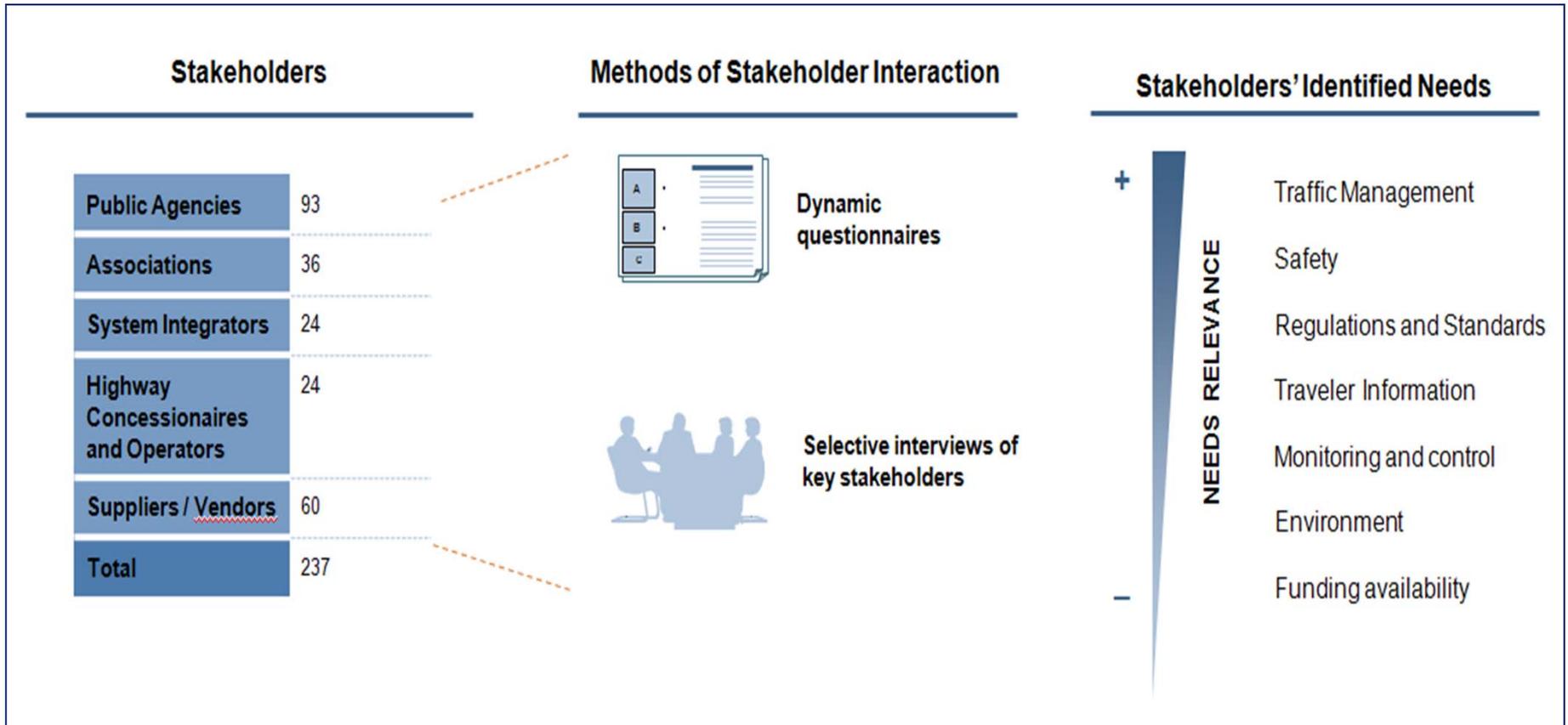


# Mexico's National ITS Strategic Plan

- Ministry of Communications and Transport (SCT) project
  - Project Manager: Mr. Jose Lobaco
- Consultant team of Gannett Fleming, IDOM and CyM
  - Project Manager: Matthew Schiemer, PE
- Duration: April – December 2010
- Scope: Primarily focused on SCT's federal highway network
  - 6,500 miles of highways
  - Mix of free and toll roads
  - Includes public and private (concessionaire) operators
  - Many aspects will serve as guide for other agencies



# Stakeholder Outreach Initiative



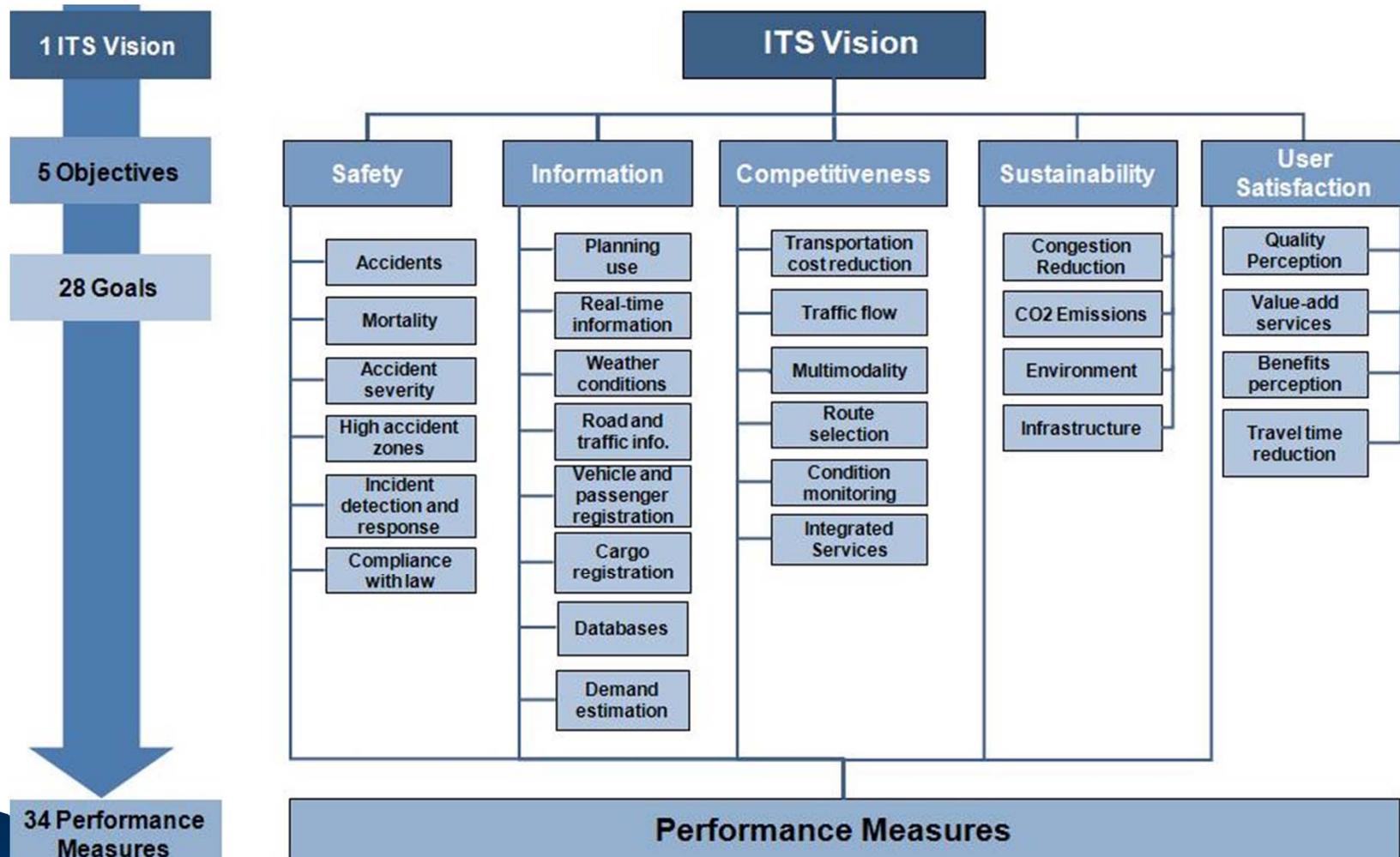
# Development of SCT's Vision for ITS

## Vision Statement for ITS on Mexican Highways

- To achieve an intelligent, modern and efficient urban and intercity highway system, based on international standards and best practices, which contributes to fulfilling the needs of users through the employment of ITS technologies and advanced operational strategies.
- To have ITS support the fulfillment of the objectives of the Nation in terms of competitiveness and economic development, placing Mexico in a leadership position in the global arena, and creating real and lasting benefits for the Mexican people.

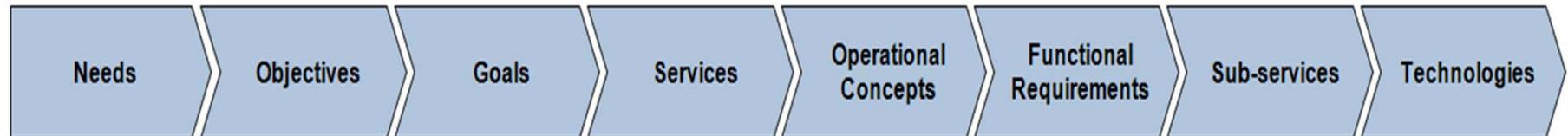


# Program-level Traceability: Vision to Performance Measures



# Project-level Traceability: Needs through Technologies

## Traceability Map



- Needs encountered and identified in the transportation network based on the SCT's experience and the input of dozens of stakeholders nationwide.

- High level, general objectives were established in the ITS architecture and restated by the Strategic Plan team according to the problems and needs identified.

- Specific, measurable goals are based on the identified needs and are linked directly to an objective.

- Services are the medium through which we seek to meet the proposed goals.

- Provides general information about ITS operational concepts to stakeholders, in a conceptual manner.

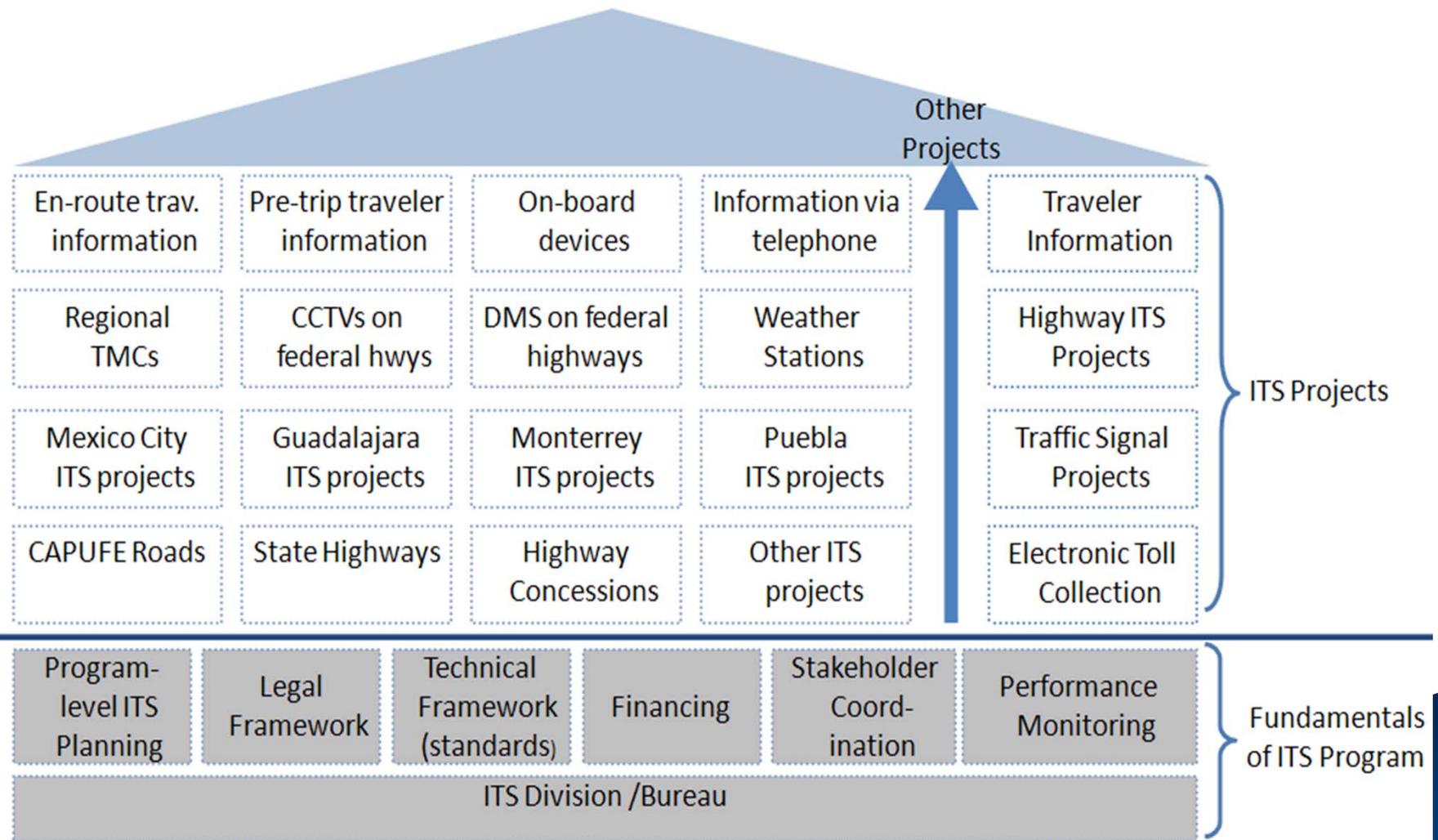
- Describe how the functionality of ITS system components should be.

- Groups of functions in which several elements, necessary for providing a service, are brought together.

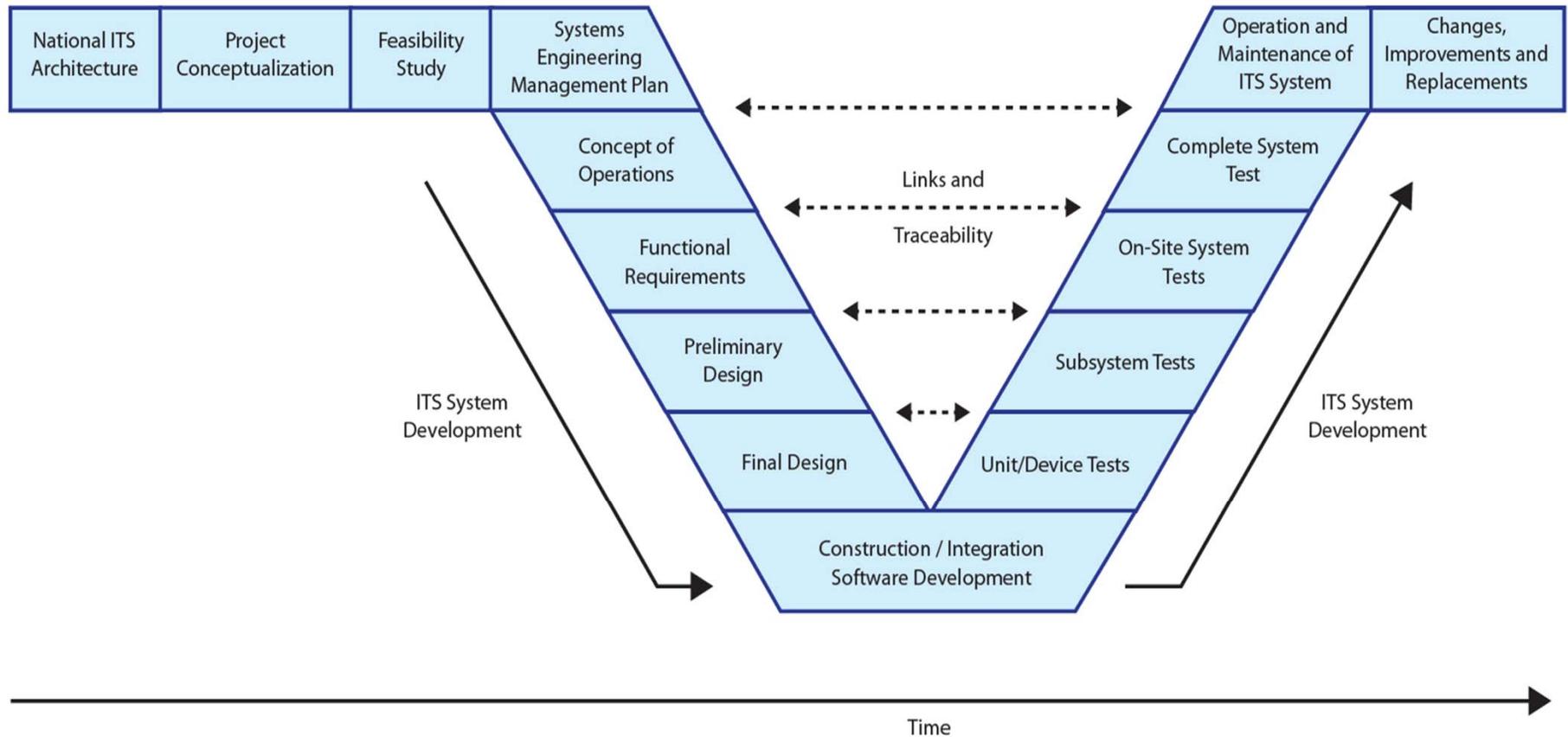
- Specific devices and technologies through which an ITS service is provided to users.



# ITS Program Fundamentals: "La Casita"



# ITS Project Development: The Systems Engineering Approach



# 74 Strategic ITS Projects in 7 Operations/ITS Regions

- ITS is a tool; operations is the focus.
- Multi-criteria analysis
  - Calderon administration's 100 key infrastructure projects
  - Key regional and national corridors (freight and passenger)



# Lessons Learned and Opportunities for US Firms

- Lessons learned that are potentially relevant in the USA
  - Concessionaire's goals are different than public sector/DOT
  - Financing/PPP more important part of project planning
  - The need to do more with less
    - Value of redundant systems (DMS cameras, comm., etc.)
    - Video quality for traffic management purposes.
- Mexican ITS opportunities for US firms
  - Planning and engineering consulting work
  - System integration
  - Hardware and software (NTCIP)



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