

EasyWay



Annual Forum 2010



Shortcut to the future.

Lisbon • November 16th-18th



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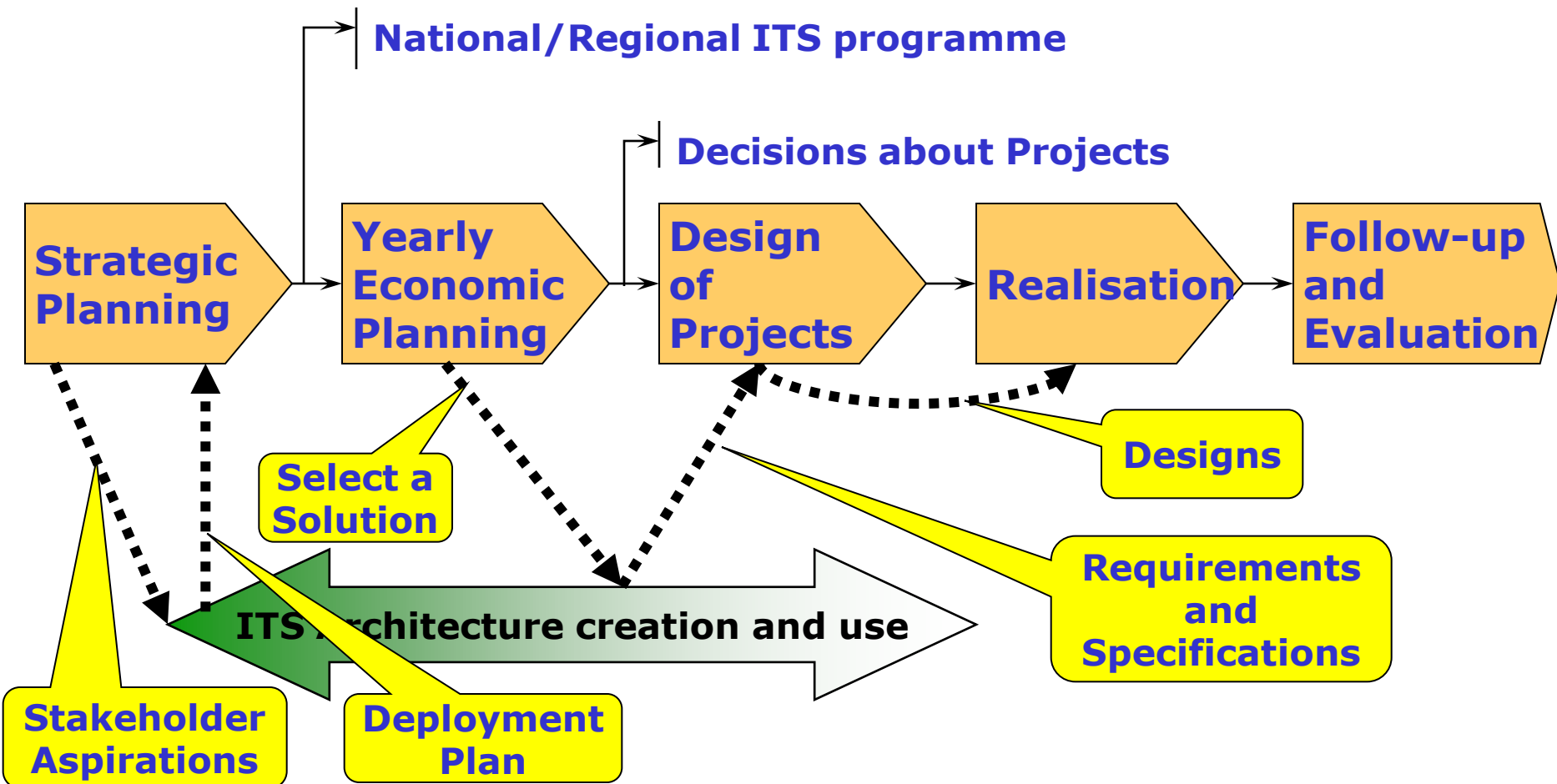
The FRAME Architecture for Cooperative Systems

Richard Bossom & Peter Jesty – E-FRAME Project

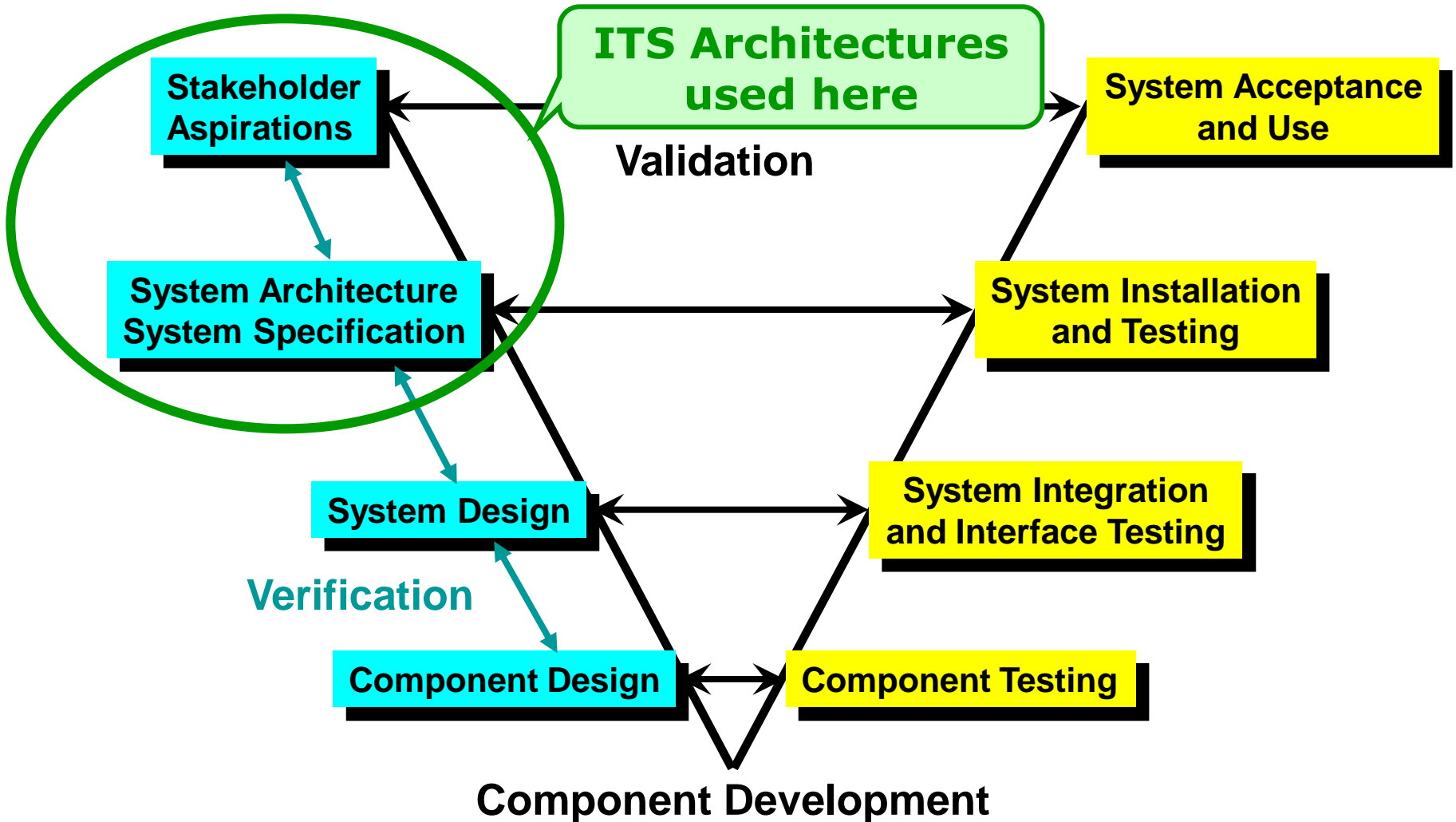


When do you use the
FRAME Architecture?

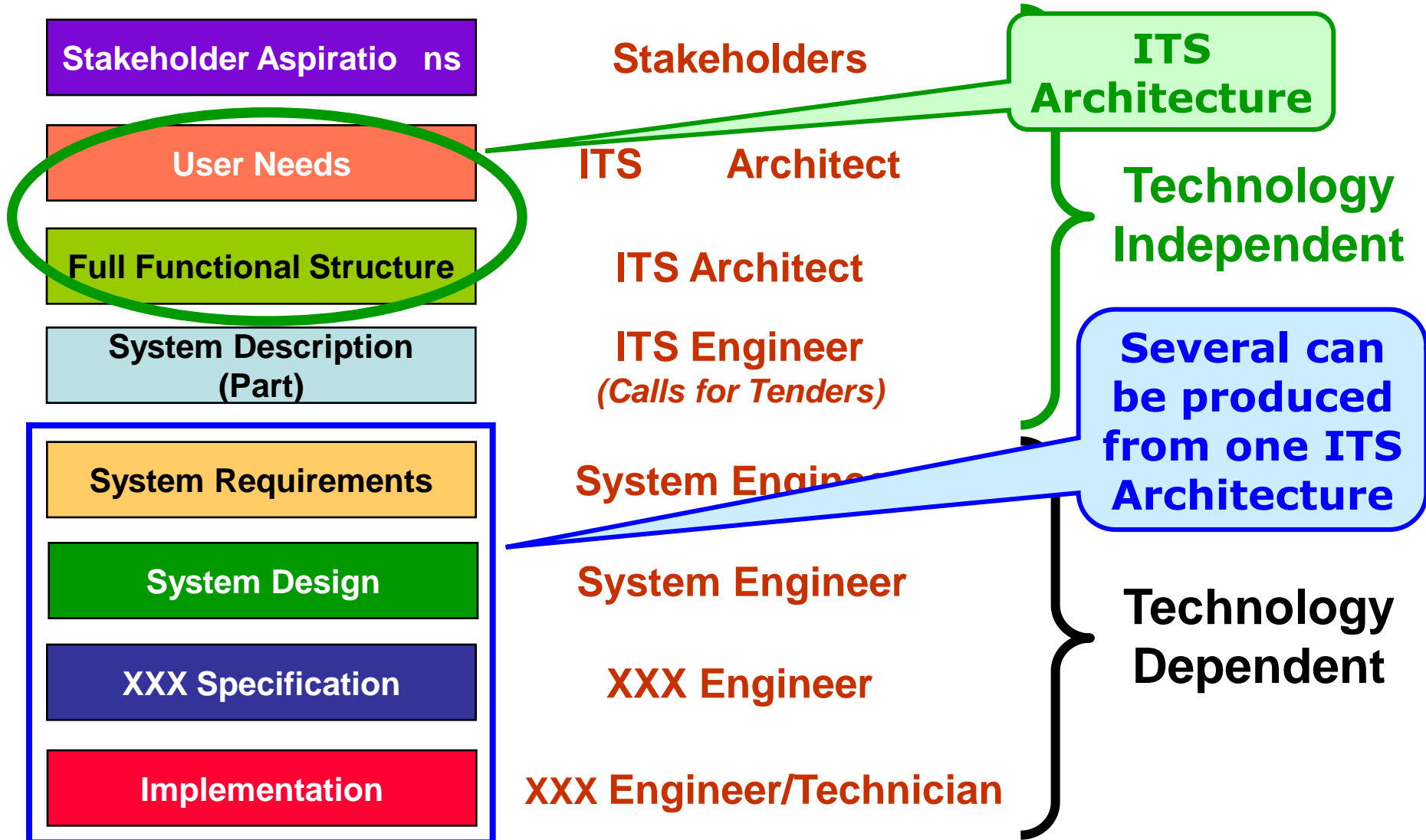
Planning and Deployment



Systems Engineering “V” Model



Large ITS Implementation





What is in an ITS Architecture
and how do you get it from
FRAME?



Principal Components of an ITS Architecture

- **User Needs**

Provided by FRAME

- Formal statements of what is required

- **Functional Viewpoint**

- Functions (and data flows) to satisfy the User Needs

- **Physical Viewpoint**

**Different for each
ITS Architecture**

- Location of the functions

- **Communications Viewpoint**

- Links between locations

- **Organisational Viewpoint**

- Who owns/manages what

FRAME Architecture Tools

- **Browsing Tool enables a user to see:**
 - Data Flow Diagrams of the entire Functional Viewpoint of the FRAME Architecture
 - Descriptions of all the elements
- **Selection Tool provides help to create:**
 - A coherent sub-set Functional Viewpoint of the FRAME Architecture
 - To satisfy the local Stakeholder Aspirations
 - One or more Physical Viewpoints of the sub-set Functional Viewpoint
 - To satisfy local conditions



Services in the FRAME Architecture

- **Provide coverage of following areas of ITS:**
 - **Electronic Fee Collection**
 - **Emergency Notification and Response:** includes roadside and in-vehicle notification
 - **Traffic Management:** includes Urban, Inter-urban, Parking, Tunnels and Bridges, plus Maintenance
 - **Public Transport Management:** includes Schedules, Fares, and On-demand services
 - **In-vehicle Systems:** includes cooperative systems
 - **Traveller Assistance:** includes pre-journey and on-journey trip planning, plus travel information
 - **Law Enforcement**
 - **Freight and Fleet Management**
- **Cooperative Systems includes many services**



Cooperative Systems Services in the FRAME Architecture

Traffic Safety – Road Hazard Warning

Traffic Safety – Ghost Driver Management

Traffic Safety – Lane Utilisation

Traffic Safety – Speed Management

Traffic Safety – Headway Management

Traffic Safety – Collision Warning

Traffic Safety – Vehicle Breakdown Warning

Traffic Safety – Vulnerable Road User Warning

Traffic Safety – Emergency Vehicle Warning

Traffic Efficiency – Traffic Flow Optimisation

Traffic Efficiency – Adaptive Traffic Signals

Traffic Efficiency – Flexible Lane Allocation

Freight and Fleet Applications – Fleet Management

Freight and Fleet Applications – Hazardous Goods Management

Freight and Fleet Applications – Loading Zone Management

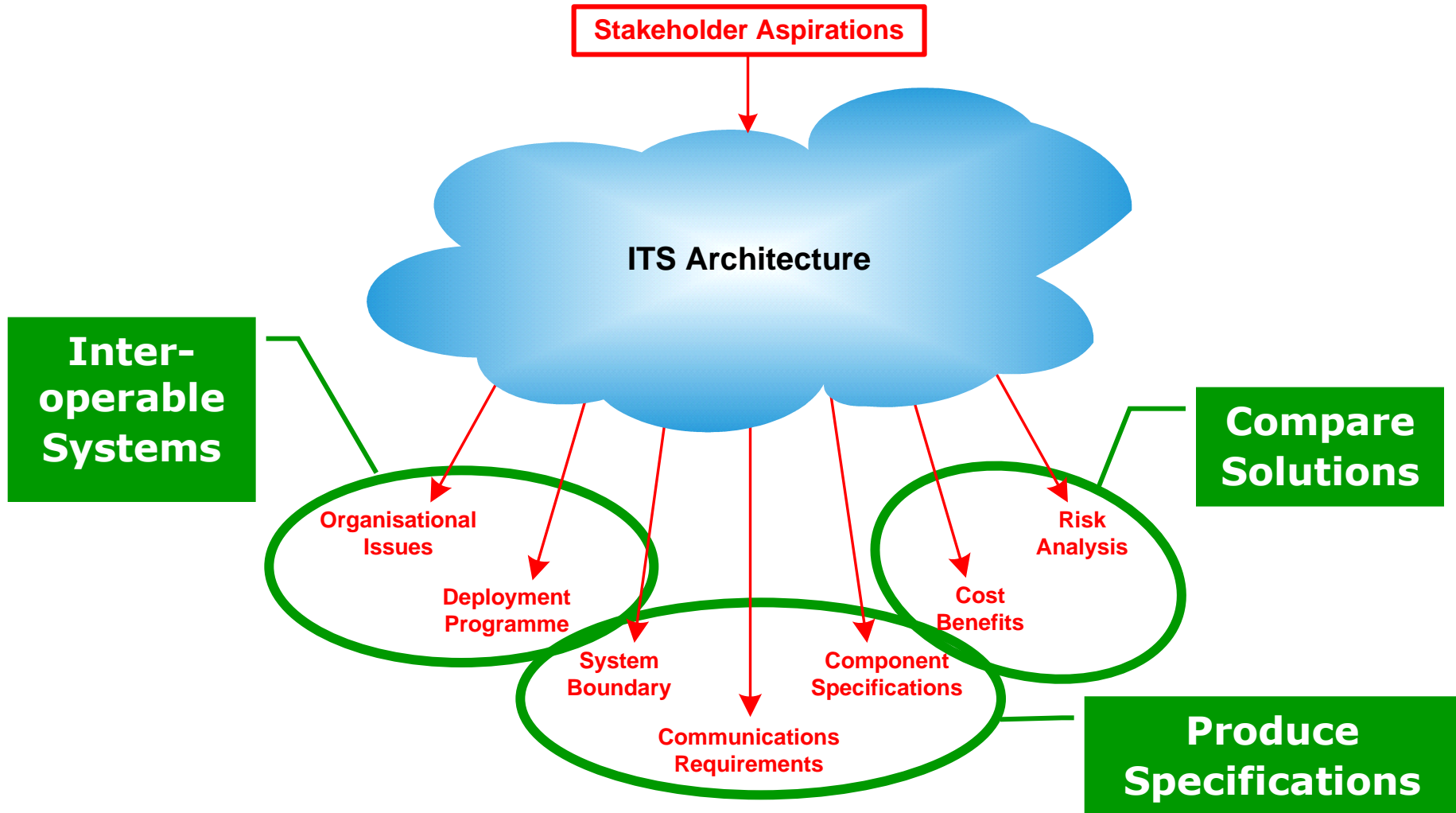
Value-added Services – Enhanced Route Guidance and Navigation

Supporting Services – Service Continuity

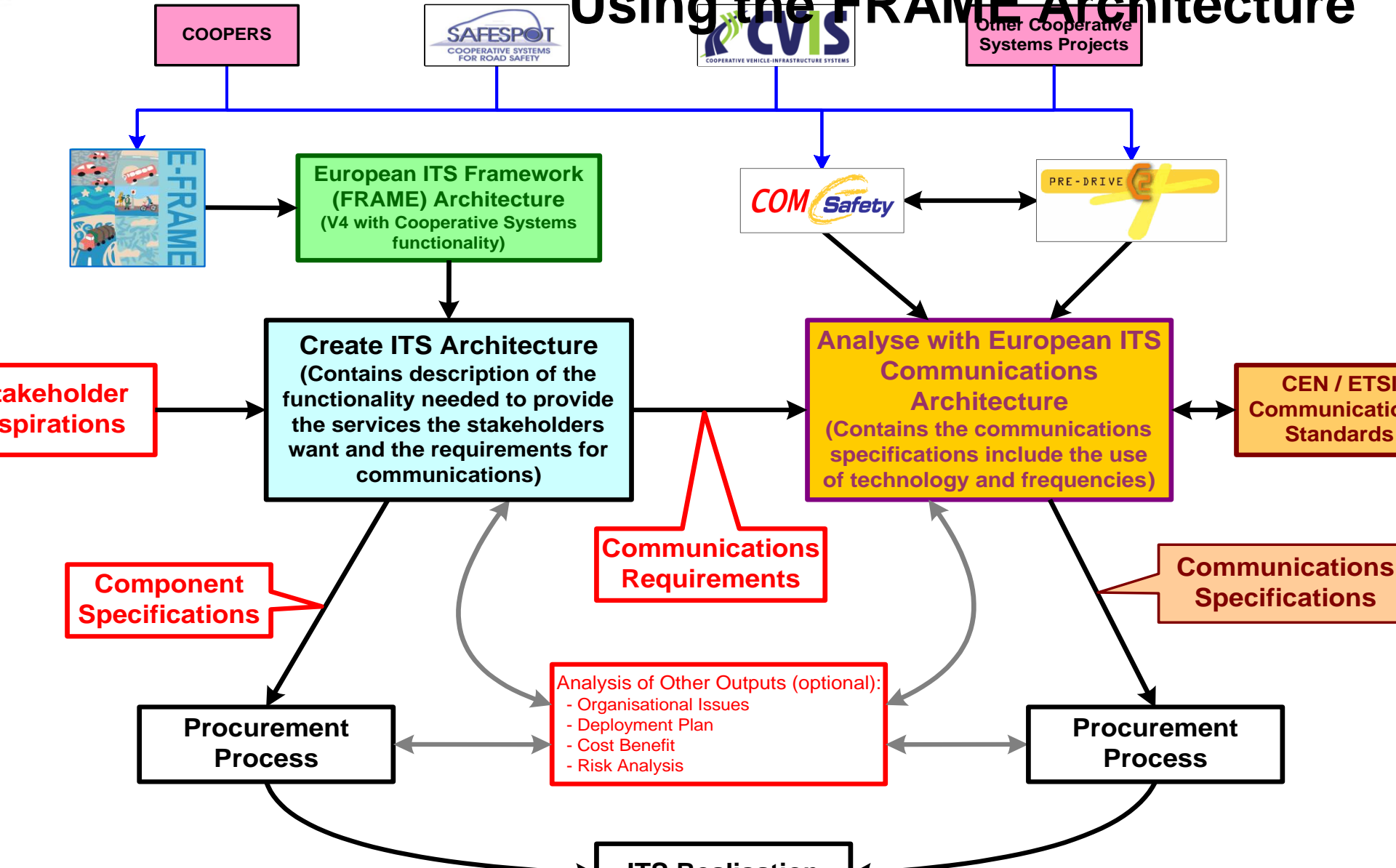


What can you do with an ITS Architecture?

Results from an ITS Architecture



Using the FRAME Architecture





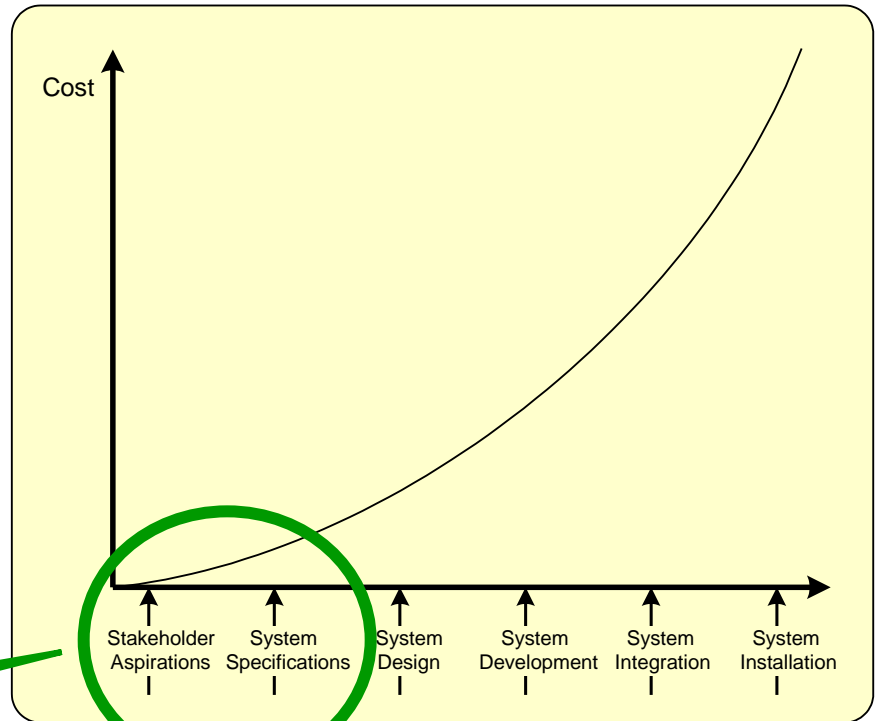
Why use the FRAME Architecture?

- **Cost:**
 - FRAME Architecture, and its tools are free!
 - FRAME Architecture contains about 80% of work that will be needed
- **Compatibility and Communication:**
 - A common approach across Europe
 - A common planning “language” for neighbours
- **Knowledge Pool:**
 - Increasing body of experience available
 - FRAME Forum provides opportunity for sharing knowledge and experience



Impact on Development Costs (10:100:1000 Rule)

- **Cost of fixing problems in System development increases exponentially with time**
- **ITS Architectures can expose these problems early in the development cycle**
- **Early fixing costs less**



**ITS Architectures
used here**



Thank you for listening

**FRAME Architecture Tools + Help
and support are available from
FRAME website:**

<http://www.frame-online.net>