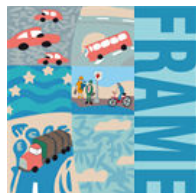


The FRAME Architecture Introduction



Presentation to ACTIF Team
Paris, 23 September 2013

Peter Jesty and Richard Bossom
FRAME Team



Terminology

- **ITS Architecture**
 - A System Architecture for ITS
- **ITS Framework Architecture**
 - A System Architecture of “all ITS” from which user defined sub-sets can be created



The FRAME Architecture

Official Name

- “European ITS Framework Architecture”

Colloquial Name

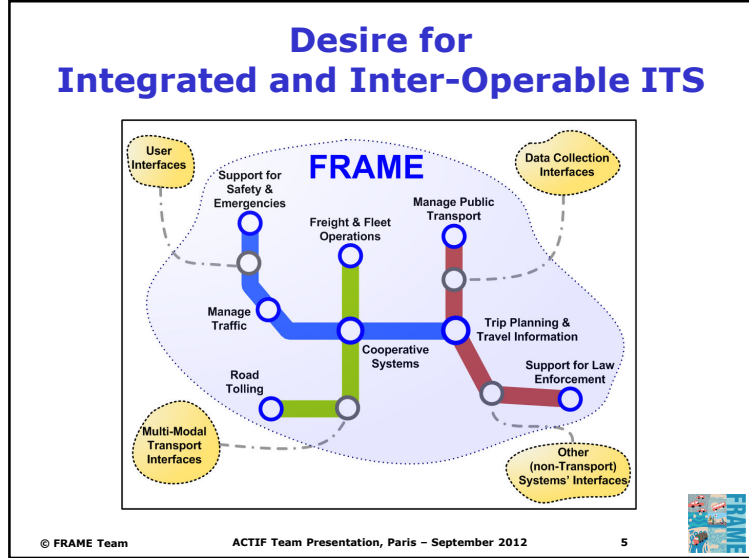
- **F**Ramework **A**rchitecture **M**ade for **E**urope

FRAME

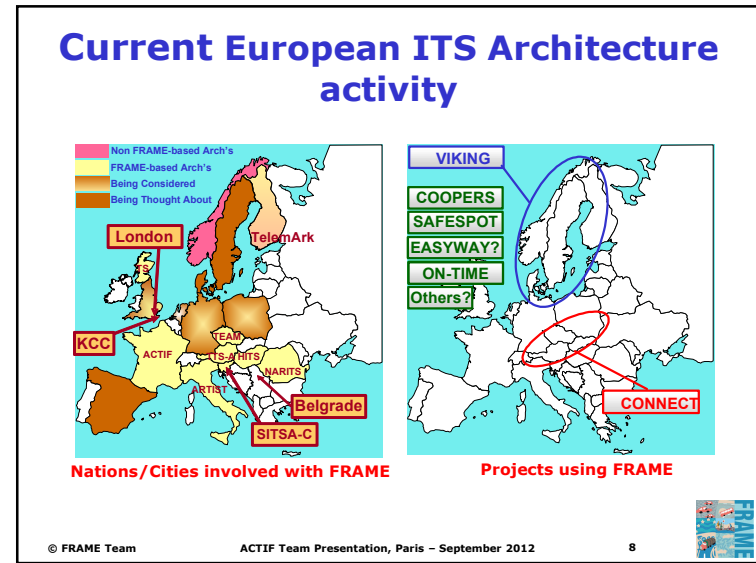
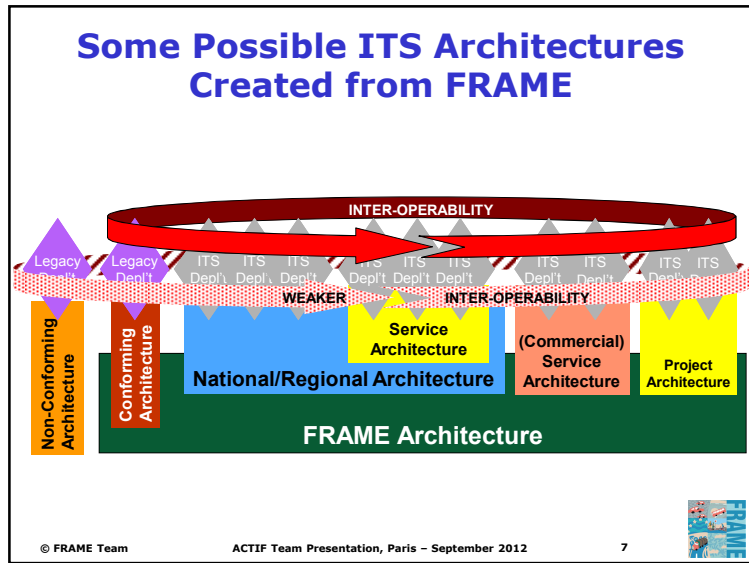


Where has it come from, and how is it being used






- ### Brief History
- **Recommended by High-Level Group on Transport Telematics, and approved by European Council of Ministers**
 - To facilitate an open market of ITS products throughout the EU
 - **Created by the project KAREN**
 - Version 1 published in 2000
 - **Maintained and supported by the projects FRAME-S and FRAME-NET**
 - Version 3 published in 2004
 - Browsing and Selection Tools created
 - **Cooperative Systems added by the project E-FRAME**
 - Version 4.1 published in 2011
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The methodology used by FRAME


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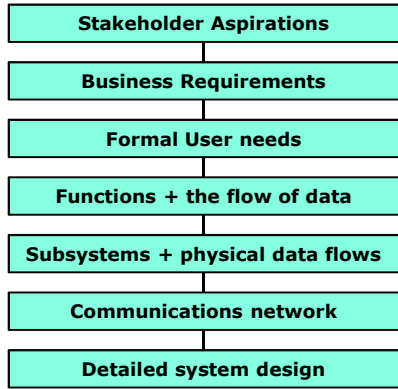
What is a System Architecture?

- A top-level framework showing how the implementation will appear
- Provides the strategic plan for the further design work
- It is **non-deterministic** providing technology independence by showing:
 - “What is needed”
 - “How is it to be implemented”
- Only includes top-level assumptions
 - Minimum necessary
 - Maximum Possible


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System Architecture Layers



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ITS Viewpoints

Typically

- **Functional Viewpoint**
 - Functions and the flow of data between them
- **Physical Viewpoint**
 - Location of the functions, and the communication links between them
- **Communications Viewpoint**
 - Description of the communication links
- **Organisational Viewpoint**
 - Who owns what, and the communication links between them
- *Other viewpoints are also possible*

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The European ITS Framework (FRAME) Architecture

FRAMEWORK Architecture

- Extensive User Needs
- Extensive system structure
 - Functional Viewpoint ONLY
 - Shows (almost) all ITS in EU

AND

A methodology to

- Select Functional Viewpoint subset required
- Create Viewpoints, e.g. Physical, Organisational

Tools are provided to do this

And its all FREE!

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The FRAME Methodology

1) User Needs

From Stakeholder Aspirations to User Needs

2) Functional viewpoint

- From User Needs to Functions
- Context Diagram
- Data Flow Diagram

3) Physical viewpoint

- Location Functions to physical subsystems
- Subsystem Diagram

4) Communications viewpoint

- Types of Data
- Communication channel
- Speed required
- Level of security

5) Organisational viewpoint

Who is responsible for/owns/operates each subsystem



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Other ITS Architectures

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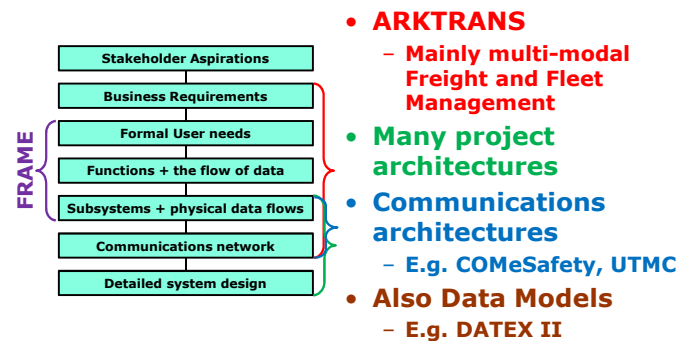
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Typical Examples

Architectures show structure at different levels



Many are not freely available

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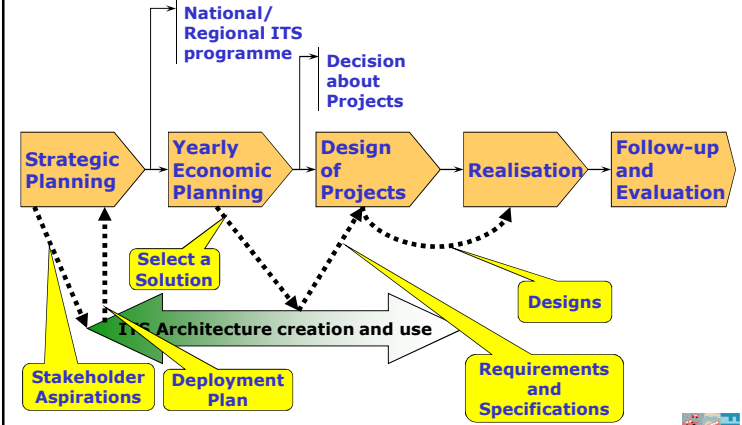
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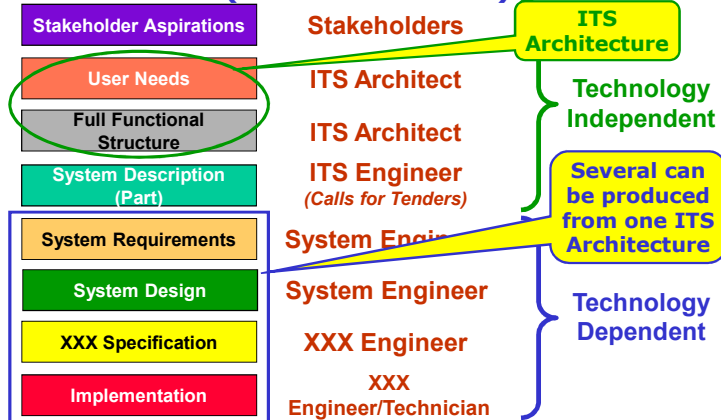
Where do ITS architectures, based on the FRAME Architecture, fit into a project programme?



Long Term ITS Planning and Deployment



Large Scale ITS Implementation (Waterfall Model)



Using an ITS Architecture in the ITS implementation process

