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# Public Transport Data Harmonization in ISO TC 204 WG 8

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Presented by

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# ISO TC 204 Working Group 8

## Public Transport and Emergency

- Work Program
  - Interoperable Fare Management System
  - Catalog of Worldwide Standards on Public Transport Information
  - Public Transport for the World Traveler
  - Public Transport Emergency Services



# Interoperable Fare Management System (IFMS) Family of Standards

- ❑ Part 1- Functional Architecture for Fare Management System
- ❑ Part 2- Recommended Business Practices for Set of Rules
- ❑ Part 3- Interoperability within a Multi-Application Environment
- ❑ Part 4- Public Transport Requirements for Use of Payment Applications for Fare Media
- ❑ Part 5- (TBD) Appointment of functions to real organisations

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# Public Transport for the World Traveler

- Objective: A Technical Report to address problems and barriers to world travelers, particularly in the area of developing a common interface consisting of a comprehensive set of basic information
- Status
  - Initial research findings presented at WG8 meeting May 13, 2009 in Chiang Mai, Thailand
  - Further discussion at WG8 meeting April 21, 2010 in New Orleans, LA, USA
- Milestones
  - Discussion in New Orleans, LA, USA involved expanding input from other nations and potentially integrating with Data Catalog work item.



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# Challenge to Reconcile Standards for Worldwide Adoption

- Different roles and responsibilities for Authorities, Operators, and Funding Sources
- Different local / regional/ national transportation policies and rules
- Moving towards the same IT vendors and OEMs



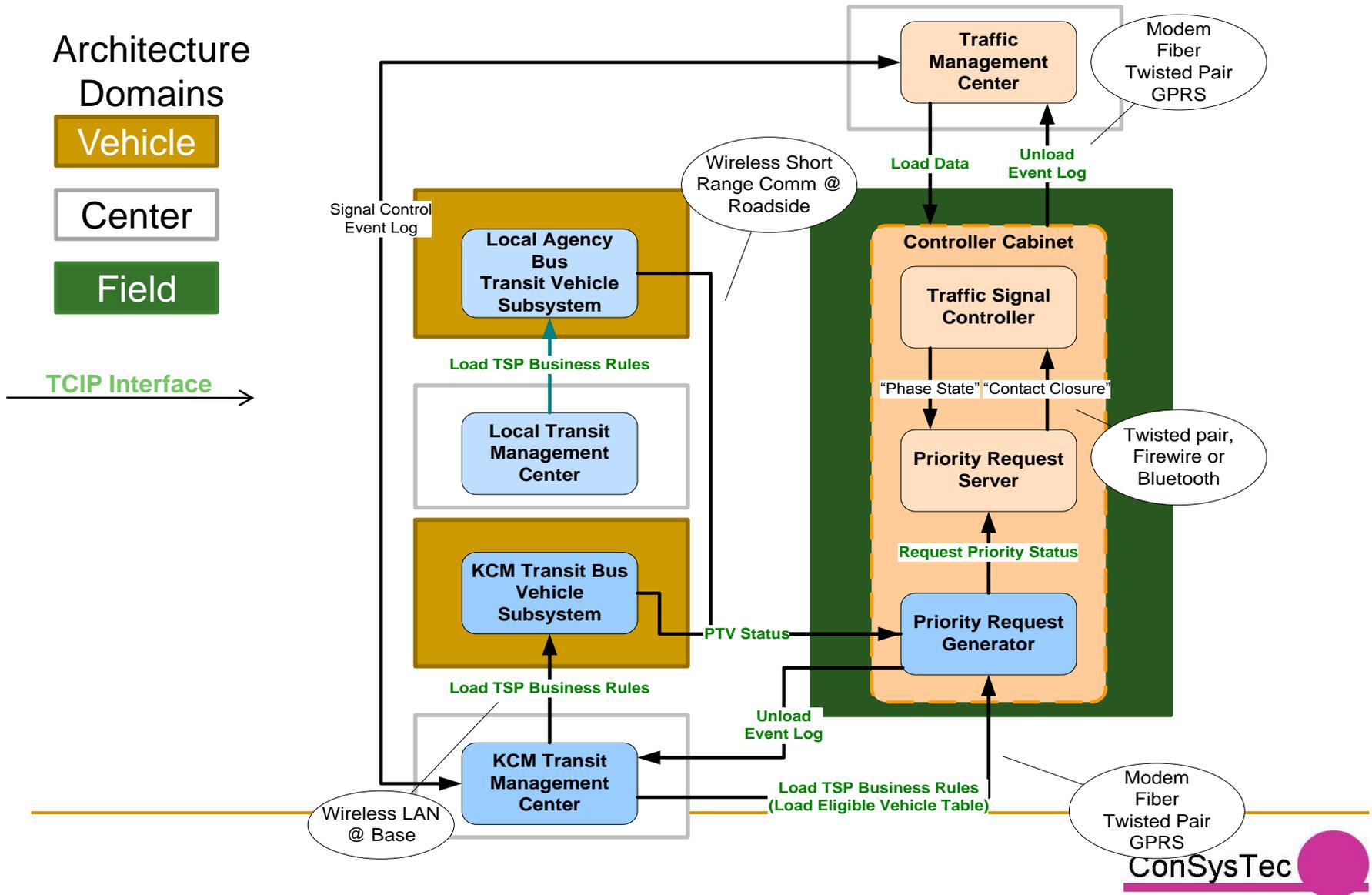
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# Back to Basics: Context for Standards

- Relationship between architecture & standards
- Standards work together
- Interoperable and stackable
  - No one standard can meet all requirements for a system
  - Want standards to be specified in layers (mix and match)



# Mapping Systems to Architecture



# Web Services Standards Stack

Adopt a flexible standards stack based on Industry Standards

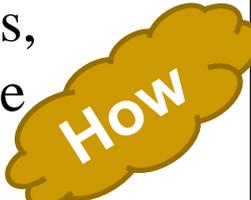
Define a Web Services Standard “Profile”

Industry and Business Semantics	TCIP*, Spatial Content Framework Standards Part 7d
Service Presentation / Event Delivery	Portal Standards
Service Orchestration	WS Choreography
Security	WS Security, SSL
Service Discovery	UDDI
Service Description	WSDL, WS-Policy
Message Processing	SOAP, NTCIP 2306 (profile of SOAP 1.1)
Data Extraction	XQuery, SQL/XML
Data Semantics	XML Schema
Data Syntax	XML, XPATH
Transformations, Encoding & Rendering	WAP, WML, Voice XML, XSLT
Transport	HTTP

**IT, e-Gov and ITS Standards Profile**  
*[Typology adapted from Forrester presentation]*

# Partitioning the Standards “Space”

Levels of Abstraction

	<i>Service Invocation</i>	<i>Information Transfer</i>
<b><i>Implementation specifications:</i></b> Recipes, Practice 	<b><i>Interface:</i></b> <ul style="list-style-type: none"><li>• Web Service specification (SOAP/WSDL)</li><li>• Datex</li></ul>	<b><i>Encoding:</i></b> <ul style="list-style-type: none"><li>• Data Structures</li><li>• XML Schema</li><li>• ASN.1</li></ul>
<b><i>Abstract model:</i></b> Guidance for Design 	<b><i>Behavior:</i></b> Exchange Patterns <ul style="list-style-type: none"><li>• Query</li><li>• Publish/Subscribe</li><li>• Broadcast</li></ul>	<b><i>Content:</i></b> <ul style="list-style-type: none"><li>• Abstract Reference Model</li><li>• Message Content, Data Dictionary</li></ul>

# US ITS Standards in the Standards Space

	<i>Service Invocation</i>	<i>Information Transfer</i>
<i>Implementation specifications</i> 	<b><i>Interface:</i></b> C2C NTCIP 2306 (SOAP/WSDL) TCIP Volume 4	<b><i>Encoding:</i></b> TCIP Volume 3 (XML Schema) All other ITS Information stds
<i>Abstract model</i> 	<b><i>Behavior:</i></b> TCIP Volume 1, Chpt 7 C2C (exchange patterns)	<b><i>Content:</i></b> TCIP Volumes 1* & 2 All other ITS standards IEEE Data Dictionary/ Msg Template

# Where are the European Standards?

	<i>Service Invocation</i>	<i>Information Transfer</i>
<i>Implementation specifications</i> 	<b>Interface:</b> SIRI (SOAP/WSDL)	<b>Encoding:</b> SIRI (XML Schema)
<i>Abstract model</i> 	<b>Behavior:</b> SIRI (exchange patterns)	<b>Content:</b> TransModel (TPEG, Datex2)

# How to bring the “world” together



# Create a Public Transport Information Catalogue

- **Objective:**
  - Develop a Catalogue of Public Transport Information Standards
  - Identify standards on Public Transport
  - Build a cross reference of all data concepts and attributes
- **Scope:** Any standard that deals with Public Transport and Passenger Information
- **Current Effort:**
  - Business Plan to justify and plan catalogue development



# What a PT Catalogue will Accomplish

- Facilitate and promote international cooperation
- Adopt a coherent and consistent Reference Data Model standard to
  - Drive a larger market base,
  - Lower costs, and
  - Enhance interoperability among the systems they procure.
- Enhance economic trade by enabling standards
- Build interoperable applications that will work cross country boundaries



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# Business Plan Presents Benefits

- Canada
- France
- Ireland
- Japan
- Korea
- Norway
- South Africa
- United Kingdom
- United States



# PT Catalogue Project

- Develop a Catalogue of Worldwide Standards on Public Transport Information
  - Focusing on passenger and situational status information
- Develop outreach and workshops on Catalogue standards including TRANSMODEL (CEN), TCIP (APTA), and others.
- Catalogue will cover areas related to:
  - General Information about contacts and standard
  - Public Transport Business Areas covered
  - Data Concepts and attributes
  - Conformity requirements including base standards



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# Catalogue Approach

- Task 1: Outreach / Education
- Task 2: Scope of Mapping
- Task 3: Mapping Regional Standards
- Task 4: Impacts on Transmodal and National Standards
- Task 5: Alternatives to Harmonize Transmodel and Regional Standards

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# Catalogue Schedule

- Will confirm project schedule at ISO TC 204 WG 8 meeting (Nov 2010 in Jeju, Korea)
  - A 2-year effort
- Spring ISO Meeting
  - 11-15 April 2011, Prague, Czech Republic



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