Framework for collaborative telematics applications for regulated commercial freight vehicles (TARV)
ISO 15638

Dr Jon Harrod Booth
Harrod Booth Consulting
Chairman, British Standards ITS Committee
Convenor, CEN TC278 WG2, “Freight, Logistics and Commercial Vehicle Operations”
Deployment of ITS

Source: TRL
Regulatory telematics

Source: TCA
Australian Intelligent Access Programme (IAP)

System Architecture

Data transfer:
Transfer of evidentiary

data to be specified

WAN

Jurisdiction

IVU

GNSS

Ignition

ECM

Power

Data acquisition:
Data to be collected and
stored to be specified

Service Provider

WAN

Non-Compliant
Reports:
Form of NCR to be
specified

Source: TCA
IAP applications in Australia

- PUMP TRUCKS (VIC, NSW, QLD)
- HIGHER MASS LIMITS (HML) (NSW, QLD & SA)
- CRANES (VIC, NSW, QLD)
- High Productivity Freight Vehicles (VIC)
- PERFORMANCE BASED STANDARDS (VIC, QLD)

Source: TCA
Australian IAP experience

- Performance-based platform
  - i.e. does not technically specify how...
- Ability to maintain and improve the Functional & Technical Specification
- Regulatory and commercial applications with one IVU (in-vehicle unit) and one Service Provider
- Allowing for Service Provider system upgrades
- Benefits for Transport Operators and Jurisdictions

Source: TCA
Regulatory applications - Australia 2010

- Access (since 2008)

  in development and review:
  - Mass
  - Fatigue (driving hours / electronic work diary)
  - Speed monitoring
  - Intelligent Speed Advisory (ISA)
  - Smart Card (Queensland)
  - 5.9 GHz spectrum allocation
  - Heavy vehicle charging (taxation reform)

Source: TCA
Business model

Source: TCA
Key components

- Role model
- Basic requirements for Service Providers
- Core in-vehicle unit (IVU) capabilities
- Rules for certification

Source: TCA
Standardisation

- ISO TC204 (Working Group 7 in conjunction with others) has begun development of multi-part ISO 15638: "Framework for collaborative telematics applications for regulated commercial freight vehicles"
- Based on deployed Australian “Intelligent Access Programme“ (IAP)
- Designed to support multiple ‘regulatory’ applications (HGV eCall & DG Track and Trace in scope)
- Multiple Service Provider model
- Uses CALM communications architecture, which supports a range of communications media: 5.9G, GSM, Satellite
<table>
<thead>
<tr>
<th>Number</th>
<th>Description</th>
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<tr>
<td>15638 -1</td>
<td>TARV – Framework and architecture</td>
</tr>
<tr>
<td>15638 -2</td>
<td>TARV – Common platform parameters using CALM</td>
</tr>
<tr>
<td>15638 -3</td>
<td>TARV – Operating requirements, certification procedures, and enforcement provisions for the providers of regulated services</td>
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<td>TARV – System security requirements</td>
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<td>TARV – Essential and core vehicle data</td>
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<td>15638 -6</td>
<td>TARV – Regulated applications</td>
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<td>15638 -7</td>
<td>TARV – Other applications</td>
</tr>
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</table>
ISO – ETSI Standards for communications architecture supporting multiple communications media
CALM - Building a service architecture

OEMs
City traffic managers
Highway operators
Service providers

Common vehicle platform
Common roadside platform
Common mobile platform

Host management centre
Security management centre
Other facilities centres...
Dangerous Goods Transport – TARV Applications (Proposed)

- Proposed TARV applications have been proposed:
  - Consignment monitoring
  - TARV Emergency messaging/eCall System

- These fit into the draft Part 6 of ISO 15638, along other regulated applications such as:
  - Remote tachograph monitoring
  - Driver work records
  - Vehicle mass monitoring
  - TARV ‘Mass’ charging
  - TARV Access control
  - TARV access monitoring
  - Vehicle location monitoring
  - Vehicle speed monitoring
  - Vehicle consignment and location monitoring
TARV Applications – Content Description

- Service description and scope
- Use case
- Concept of operations
- Statement of the goals and objectives
- Strategies, tactics, policies, and constraints
- Organisations, activities, and interactions among participants and stakeholders
- Operational processes
- Description of roles
- Service elements
- Data naming content and quality
- Service specific provisions for quality of service
- Service specific provisions for test requirements
- Specific rules for the certification
## TARV Applications – Roles (Incomplete)

<table>
<thead>
<tr>
<th>ACTOR</th>
<th>ROLE</th>
<th>ACTIVITIES</th>
<th>INTERACTIONS</th>
</tr>
</thead>
<tbody>
<tr>
<td>UNECE JWG RID</td>
<td>ADR Regulator</td>
<td>Provides international regulations and ADR Tables</td>
<td>(J) Provides international requirements; (Op) Provides international requirements</td>
</tr>
<tr>
<td>Jurisdiction (J)</td>
<td>Sets requirements for mandatory and supported ADRs</td>
<td>Publishes specifications</td>
<td>ALL</td>
</tr>
<tr>
<td>Certification authority (CA)</td>
<td>Implements jurisdiction policy at equipment and service approval level</td>
<td>Certifies IVS, Application Service instantiations</td>
<td>PSP: Certify IVS; ASP: Certify Application Service</td>
</tr>
<tr>
<td>Prime service provider (PSP)</td>
<td>Responsibility for IVS</td>
<td>Installs and/or commissions IVS</td>
<td>CA: May Apply to certify IVS; Op: Installation</td>
</tr>
</tbody>
</table>
### TARV Applications – Consignment Data (Incomplete)

<table>
<thead>
<tr>
<th>ADRm Data Concept element reference</th>
<th>Name</th>
<th>Type</th>
<th>Unit</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>ADRm-0001</td>
<td>OID</td>
<td>Integer</td>
<td>1 byte</td>
<td>ADRm data concept identifier binary value 1000010 identifying ADRm Schema A (until allocated a revised OID from a central register)</td>
</tr>
<tr>
<td>ADRm-0002</td>
<td>ID</td>
<td>Integer</td>
<td>1 byte</td>
<td>ADRm Schema A data concept format version set to 1 to discriminate from later ADRm Schema A data concept formats Later versions to be backwards compatible with existing versions. Systems receiving an ADRm Schema A data concept to support all standardised ADRm Schema A data concept versions, which are each uniquely identified using an ADRm Schema A data concept format version parameter which will always be contained in the first byte of all [current and future] ADRm Schema A Data concept versions.</td>
</tr>
<tr>
<td>ADRm-0003</td>
<td>Tanker or other vehicle type plus number of dangerous goods on-board</td>
<td>Octet string (1 Byte)</td>
<td>Binary</td>
<td>00000000-11111111 The first binary position of the octet to indicate whether the affected vehicle is a tanker or other type of vehicle where 1nnnnnnn = Tanker 0nnnnnnn = Other type of vehicle The remaining 7 binary positions of the octet to identify the number of types of dangerous goods being carried Seven binary bits. x0000000 = no ADR goods on board x1111111 = mixed load (unspecified number of types of dangerous goods present on board, but number unknown)........</td>
</tr>
</tbody>
</table>
Status and Next Steps

- Initial draft available
  - will probably progress through standardisation process, with or without, TWG intervention

- TWG:
  - (a) Request TWG review of content available draft
  - (b) TWG should consider if this is approach is interesting and worthy of further progress [cost – benefit analysis]
  - (c) If (b) is agreed, then establish a process to ensure continued engagement with relevance standardisation bodies (primarily ISO TC204 WG7)
Thank You for Your Attention