

European interoperability: Standardisation

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Overview

- **European Directive on EFC interoperability**
- **Producing a standards work programme – Mandate 338**
- **The process for producing the work programme**
- **Issues faced by the standards organisations**
- **Some working assumptions**
- **Proposals on the work programme**
- **Where are we now**
- **Conclusions**

European Directive 2004/52/EC

- **Deals with the interoperability of electronic toll systems in the 25 European Member States**
- **Adopted in April 2004 by the Parliament**
- **Proposes a European Electronic Toll Service**
- **Staged implementation:-**
 - ◆ First stage: definition of the service by 1 July 2006
 - ◆ Second stage: HGV and Long Distance Coaches
3 years after
planned for mid 2009
 - ◆ Third stage: all vehicles,
2 years after trucks
planned for mid 2011
- **The Directive will not interfere with the pricing policies of the Member States**
 - ◆ The systems implemented should be capable to handle any charging policy decided at national levels

EFC Directive (2)

- **One single contract - one single on-board unit per vehicle**
- **Ideally one single invoice**
- **Available on the whole tolled network in Europe**
- **Used for tolls, fees or taxes**
- **Technologies**
 - ◆ satellite positioning
 - ◆ cellular communications
 - ◆ Microwave communications (5.8 GHz)

Mandate M/338

- **Standardisation is required to support the EFC Directive**
- **ESOs (CEN, CENELEC & ETSI) requested to provide the necessary standards by means of Mandate M/338**
- **M/338 issued by EC (on behalf of EU) and EFTA**
- **ESOs invited to produce a coherent set of standards, specifications and guidelines in support of the requirements of the EFC Directive**

The process for producing the work programme

- ◆ Interim report produced in June 2005
- ◆ Various presentations and invitation to comment:-
 - EC's EFC Expert Group meeting
 - EFC standardisation meetings (CEN TC278 WG 1)
 - Open Meeting
- ◆ Open invitation via CEN web site (www.cenorm.be/iss/efc)
- ◆ Direct approach by email (with invitation to Open Meeting) to:
 - ETSI
 - CENELEC
 - Convenors of CEN Working Groups
- ◆ Consultation period ended 31st August 2005
- ◆ Final report delivered 30th November 2005

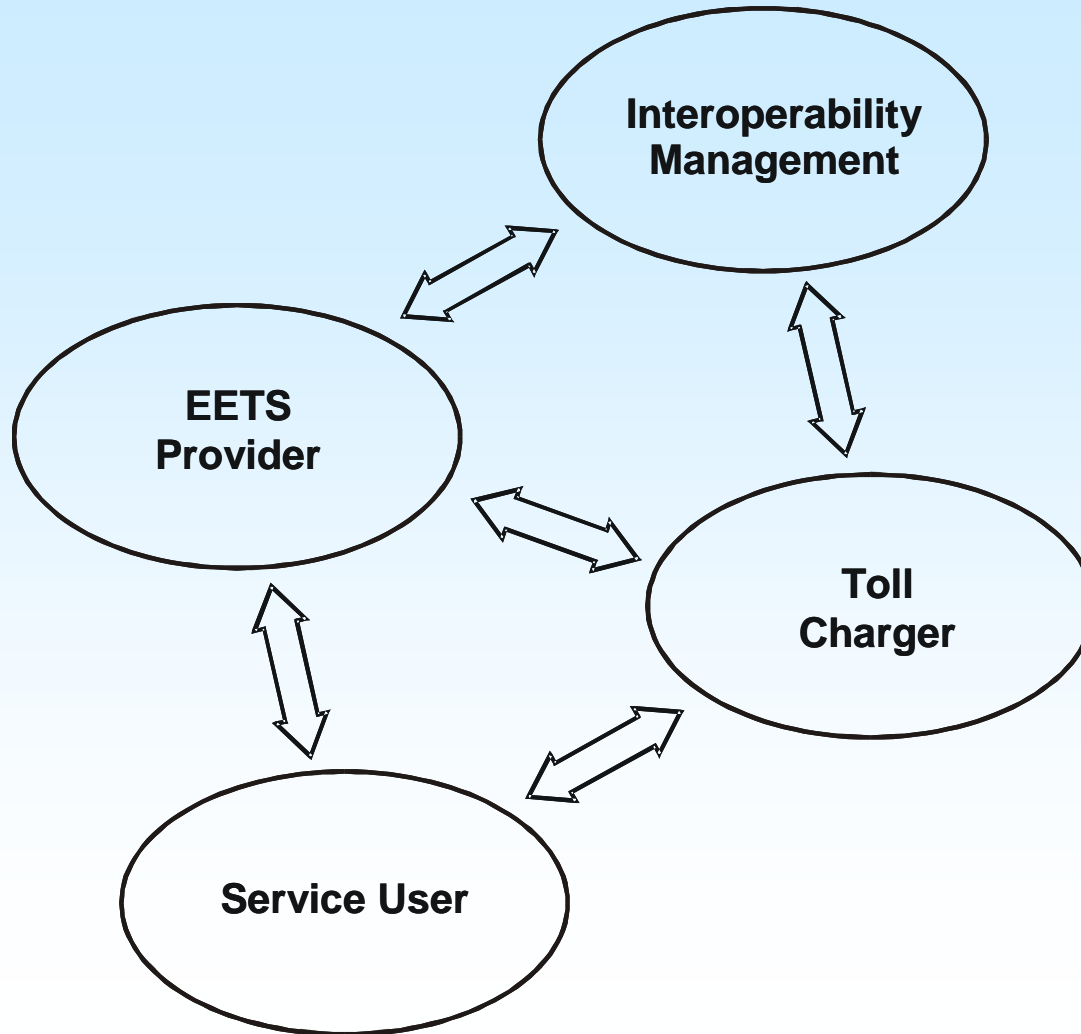
Issues

- **Reaching agreement on the interoperable service**
- **Commercial business case**
- **Creation of a new market**
- **Different user markets**
 - ◆ Light vehicles
 - ◆ Heavy vehicles
- **National requirements for acceptance**
- **Reaching agreement on the functional requirements**
- **Role of standards in the delivery of the EETS**
 - ◆ Scope of the standards
 - ◆ Health of the standards process
- **Programme management**

Working assumptions

- **No significant changes to existing systems**
- **EOBUs must support the requirements of “all” charging systems**
- **Some (public) operators will use competitive tendering for procurement of the EOBUS**
- **The required functionality of the EOBU must be defined and the specifications suite managed**
- **The EOBUS must all have an agreed common functionality capable of supporting “all” schemes**
- **Acceptance of conformant EOBUS**

Developing the business model for European interoperability



Overview of required standards

- **S1 – Toll Scheme definition**
- **S2 – Toll application definition**
- **S3 – EOBU data content definition**
- **S4 – CN message content and protocols**
- **S5 – DSRC message content and protocols**
- **S6 – data exchange between back offices**
- **S7 – Security policy and mechanisms**
- **S8 – Conformity Requirements**

- **Plus – the EETS specification**

Standards required for the EETS

S1 : Toll scheme definition

S2: Toll application definition

S3: EOBE data content definition

S4: CN message content and protocols

S5: DSRC message content and protocols

S6: Data exchange between back offices

S7: Security policy and mechanisms

S8: Conformity requirements

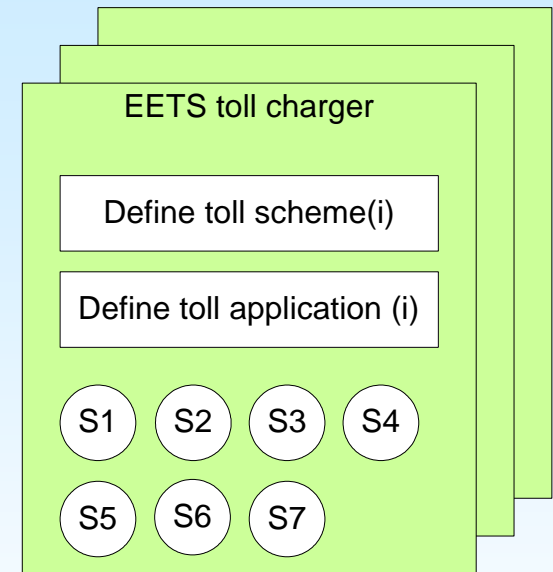
Other requirements

The EETS Specification

EETS Toll Charger

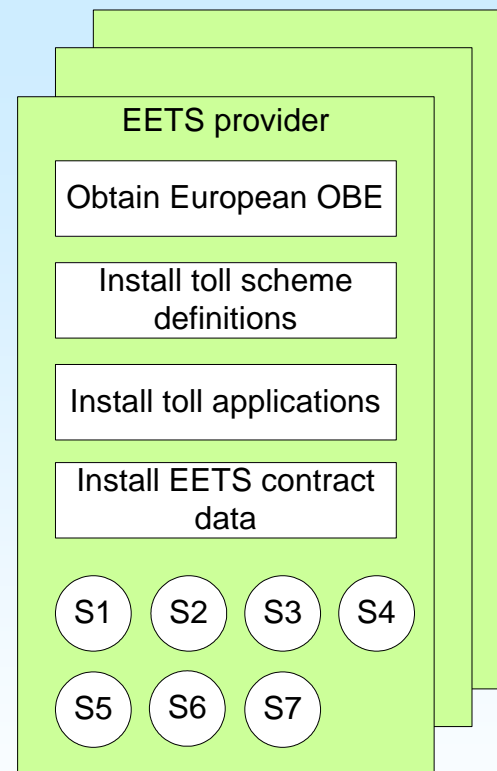
- Defines toll scheme
- Defines toll application

- Accept any certified EOBUs



EETS Provider

- Obtains a European OBE
- Install the toll schemes
- Install the toll applications
- Install contract data



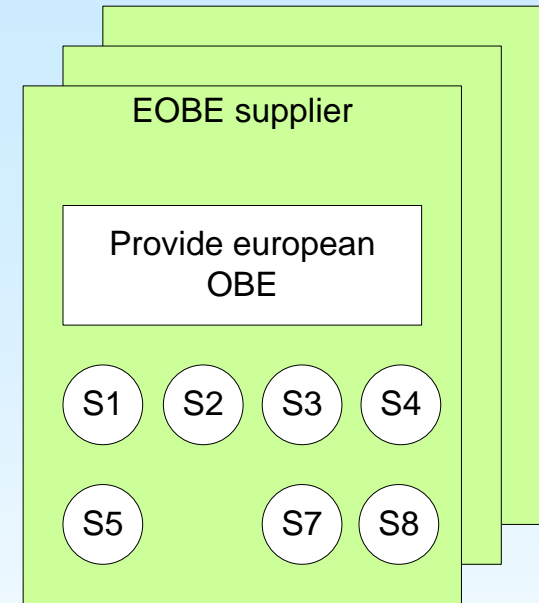
Interoperability Management

- **Management of contractual framework**
- **Key management**
- **Management of information distribution**
 - ◆ Black-lists
 - ◆ Accepted Issuer and contracts list

Eobe supplier

■ Provides a EObU

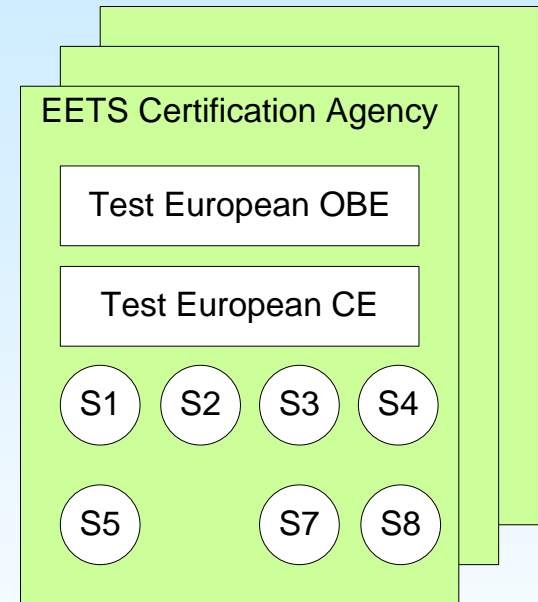
- ◆ Meets EETS specification
- ◆ Works with any toll scheme
- ◆ Works with any toll application



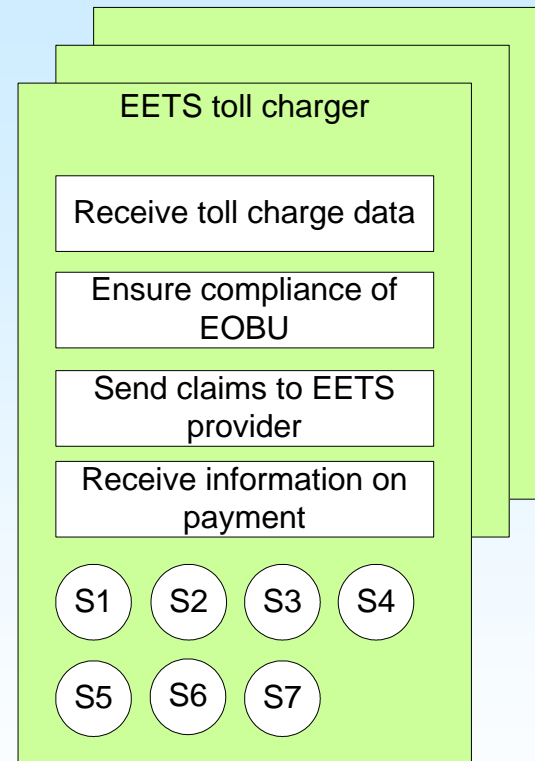
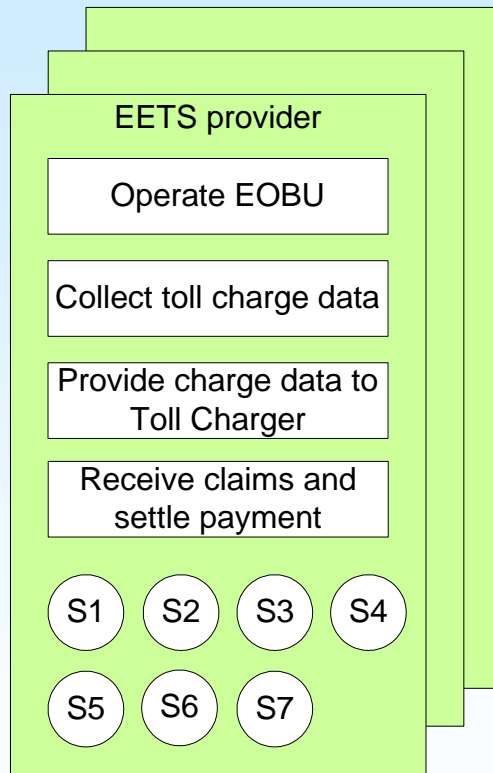
EETS Certification Agency

■ Tests the EOBU

- ◆ Provides basic functionality as defined by the standards
- ◆ Works according to EETS specification
- ◆ Works with each toll scheme



Operation of the EETS



Where are we now?

■ **Systems architecture**

- ◆ TS 17573 being revised – draft expected June 2006

■ **Clearing between operators**

- ◆ TS 14904 being revised – draft expected Dec 2006

■ **Application Interface Definition for DSRC**

- ◆ EN ISO 14906 – published 2004

■ **Test Procedures for DSRC**

- ◆ EN 14907-1 Test procedures
- ◆ EN 14907-2 Conformance test for OBU application interface

■ **Security Guidelines**

- ◆ CEN ISO / TS 17574 – published 2003

■ **CEN DSRC 5.8GHz suite**

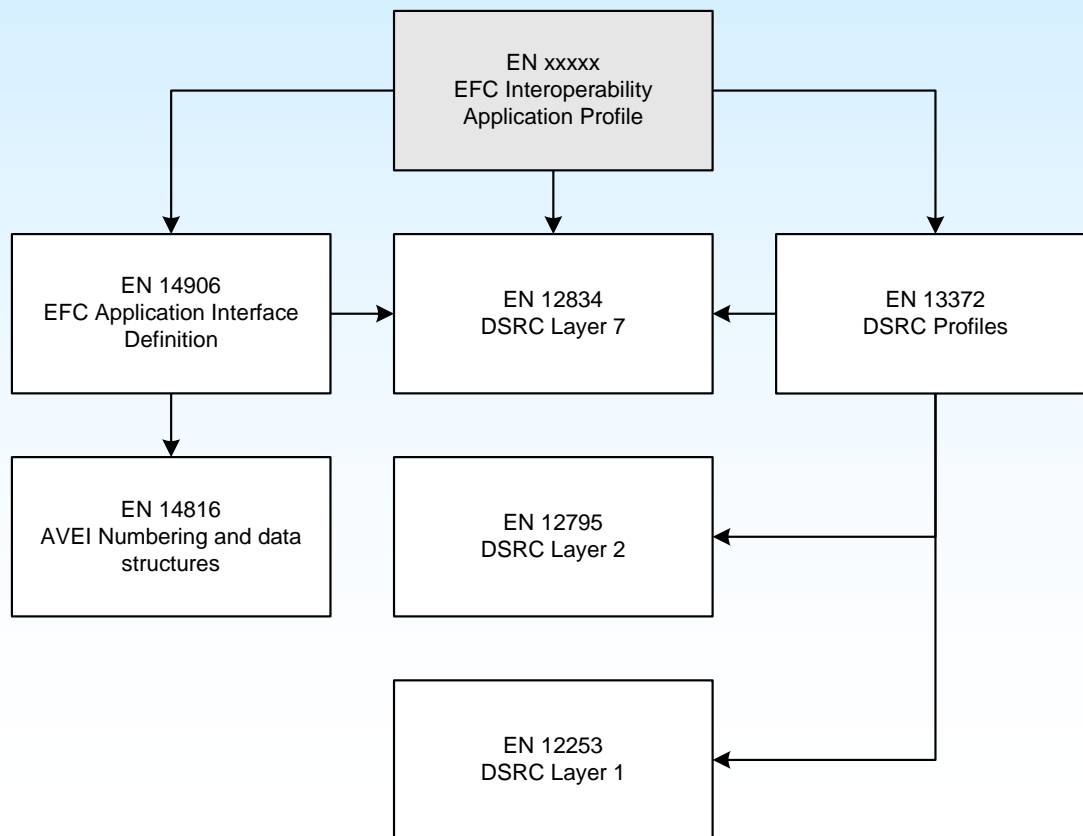
- ◆ DSRC-L1" EN 12253: 2004
- ◆ "DSRC-L2" EN 12795: 2002
- ◆ "DSRC-L7" EN 12834: 2002
- ◆ "DSRC Profiles" EN 13372: 2004

■ **EMC tests**

- ◆ ETSI EN 300 674 suite

Overview of work items under development

- **Application Interface Definition for CN/GNSS based EFC**
- **Interoperable Application Profile for DSRC**
- **Conformity evaluation of on-board and roadside equipment**



The DSRC standards have been widely used

- **TIS (Télépéage Inter-Systèmes) – 13 concessions**
- **Australian RUC systems – 10 concessions**
- **Chile – 5 concessions**
- **Switzerland – Austria**
- **France – Spain**
- **Swedish specifications**
- **Nordic interoperability (NorITS)**

Conclusion

- **Many issues yet to be addressed**
- **Commission expectations**
 - ◆ Rapid development of standards
 - ◆ Direct support for the EETS
 - ◆ ...May not be realistic
- **Resources for delivering EETS inadequate**
- **Business case as yet unproven**
 - ◆ ..although some commercial interest
- **Market does not yet have confidence in the EETS**