

CESARE IV: Colóquio APCAP 2008



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Jorge Gonçalves

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CESARE: Common Electronic Fee Collection System for an ASECAP Road Tolling European Service



- ❑ CESARE I (1998-1999)
 - defined the requirements for technical and operational interoperability between the tolled motorway operations across Europe

- ❑ CESARE II (2001-2002)
 - developed a Memorandum of Understanding defining all technical, organisational and operational rules upon which contractual interoperability among ASECAP members was to be established

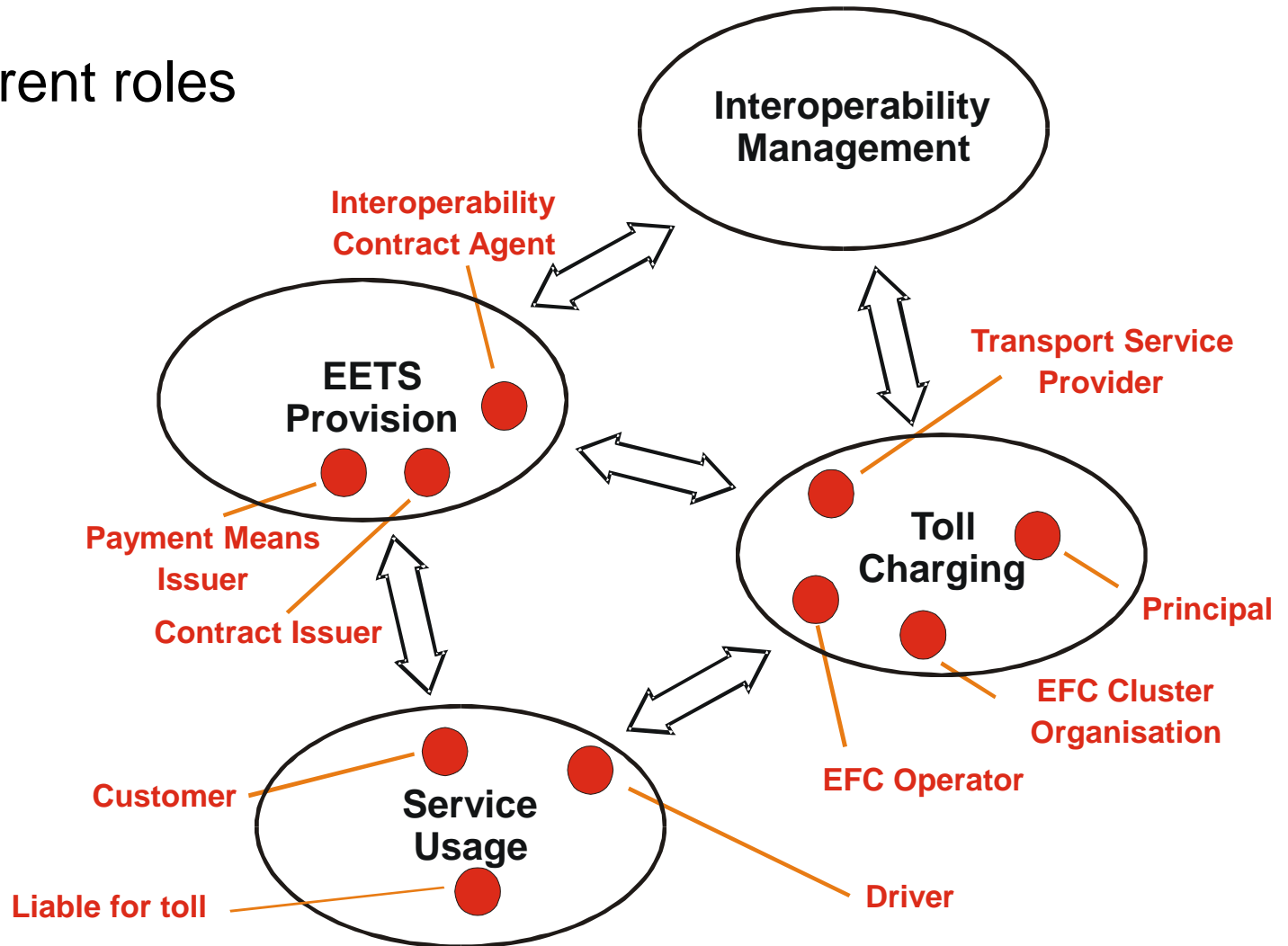
- ❑ CESARE III (2005-2006)
 - since CESARE II the European tolling environment has changed: new actors, new technologies, new enforcement services, new charging schemes and services as well as the new European Directive had to be taken into consideration
 - therefore, CESARE III revised the definition of common charging and/or payment services to be supported, paying particular attention to the definition of the European Electronic Toll Service (EETS). It will also aim to establish appropriate national organisational arrangements to support the participation of partner European countries in the contractual framework and prepare an appropriate set of draft contractual documents (MoU) to support the proposed contractual relationship defined by the revised model.

- ❑ CESARE IV (2007-2009)

CESARE III: The role model



□ 4 different roles



CESARE III: Interoperability Management



- Interoperability Management: maintenance and governance of the EETS service. The 'organisation' will specify, manage, monitor and safeguard the systems and processes used in the overall delivery of the EETS:
 - Maintaining policies and procedures such as defining the conditions of membership
 - Approving technical specifications: the specification needs to ensure the OBU design will meet all the Toll Chargers requirements
 - Managing the membership process. Vetting potential new members, monitoring the performance of members and taking sanctions against under-performing entities
 - Resolving disputes, arbitration, user complaints
 - Conducting periodic reviews of compliance on-going maintenance of the service
 - Representing members on official European bodies
 - Managing the service; agreeing modifications and changes
 - Managing certification of OBE manufacturers: type-approval and /or certification of OBUs

Overview: Scope of project (I)



- ❑ Define a set of basic guidelines for providing EETS (technical, contractual, legal and procedural)
 - The model describes „Roles“, but finally the roles (or part of them) are to be filled by „Operators“/“Actors“
- ❑ Solve open issues (from previous projects), as far as required for a functioning EETS

- ❑ **CESARE IV aims for moving from a theoretical model towards a solution which can work in practice!**

Overview: Scope of project (II)



- Define a migration path from the current status to EETS, utilizing the experience from regional projects
 - A roadmap showing how the EFC systems already in operation can proceed to offer the EETS to the Users, as well as describing how new EFC systems could offer EETS from day one
- Define and establish the Interoperability Management role
 - The final and detailed functions and procedures for the daily operation of the IM will be created to a level of detail which should enable the actor(s) in the IM role to finalize the establishment on their own.

Overview:

Out of scope is



- ❑ Constraints which cannot be changed
A simplification or change of these items could possibly be favourable for the implementation of EETS, but the project will regard these matters as given:
 - European (National) VAT regulations
 - Data privacy regulations
 - Commercial discount schemes for tolling (=national subject)
 - Enforcement from a technical and legal point of view
- ❑ Standardisation in terms of developing standards
 - The task of defining standards belongs to the European Standard Organisations (CEN, CENELEC, ETSI). It will not be a subject for CESARE IV to contribute as a project in this respect.
- ❑ Technology for tolling
 - The technologies for EETS are defined in the Directive 2004/52/EC.

Overview: Project organisation (I)



□ Participating ASECAP members

- AISCAT (ITA)
- APCAP (POR)
- ASETA (ESP)
- ASFA (FRA)
- ASFINAG (AUT) – Project leader: Tore S. Eriksroed
- DARS (SLO)
- Norvegfinans (NOR)
- Sund & Baelt (DEN)
- TEO (GRE)
- Toll Collect (GER)

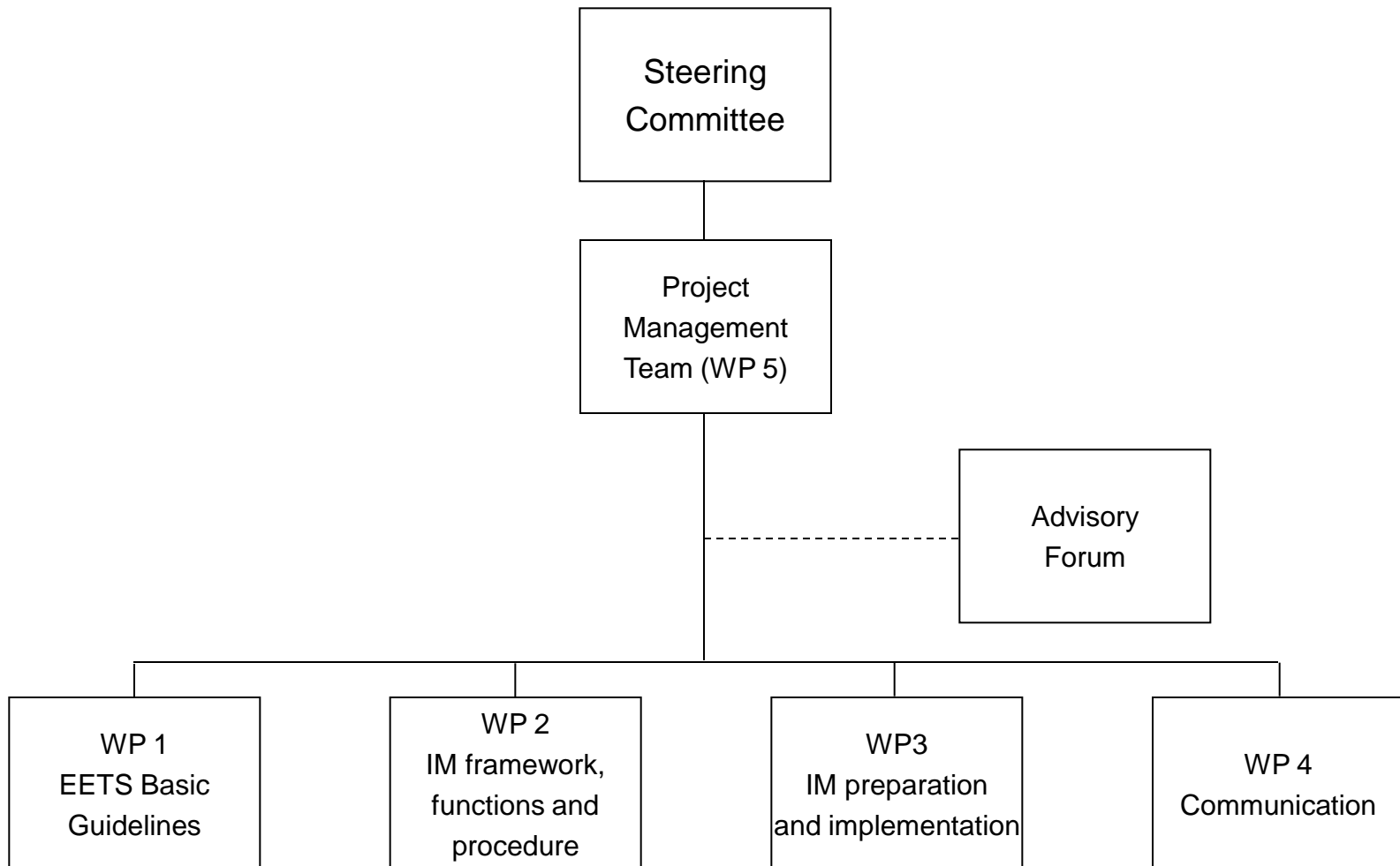
Overview: Project organisation (II)



□ Participating Public Administrations

- Finland: Ministry of Transport and Communication
- France: Ministry of Ecology and Sustainable Development
- Germany: Federal Ministry of Transport, Building und Urban Affairs
- Netherlands: Ministry of Transport, Public Works and Water Mgmt.
- Sweden: Swedish Road Administration
- Switzerland: Federal Customs Administration
- UK: Department for Transport

Overview: Project organisation (III)



Project plan: Schedule



Task number	Task description	Predecessors	-2	-1	Months	6	12	18	24	26
WP1 EETS Basic Guidelines										
1100	Verify C-III model towards the experiences from existing projects	none	[Yellow bar from -2 to -1]							
1200	Draft the final EETS basic guidelines, including a proposed migration path	1100		[Yellow bar from 0 to 6]						
1300	Compatibility analysis of the guidelines and the recommendations of the EGs	1100			[Yellow bar from 5 to 6]					
WP2 IM framework, functions and procedures										
2100	IM framework, (organisational: split regulatory and managerial)	WP1			[Yellow bar from 6 to 12]					
2200	IM functions and procedures	WP1, 2100 (partly)			[Yellow bar from 8 to 12]					
WP3 IM preparation and implementation phase										
3100	IM preparation phase	WP2					[Yellow bar from 12 to 15]			
3200	IM implementation phase	3100						[Yellow bar from 18 to 24]		
WP4 Communication										
4xxx	Communication				[Yellow bar from 0 to 24]					
WP5 Project Management										
5xxx	Project Management				[Yellow bar from 0 to 24]					

Advisory Forum: Selection of participants



- ❑ The advisory forum will not be a general platform for EETS providers or an open forum
- ❑ The participation in the advisory forum
 - Is not a pre-selection or pre-qualification for providing EETS
 - Is not a commitment for the participant to provide EETS in the future
- ❑ We have looked for participants with **experience**:
 - Fleet card companies with experience from interoperable tolling projects
 - Subsidiaries of toll chargers with experience in contract issuing
 - Other companies with relevant tolling experiences (e.g. on direct debiting)

Advisory Forum: The role



- ❑ The Advisory Forum is a pool of experts
 - Fleet card companies with experience from interoperable tolling projects
 - Subsidiaries of toll chargers with experience in contract issuing
 - Other companies with relevant tolling experiences (e.g. on direct debiting)
- ❑ The Advisory Forum provides input to the project team, according to the project needs
 - Receive (draft) documents from project team and provide comments
 - Reply to specific questions from the project team
- ❑ Possibly participation in workshops on specific subjects

- ❑ The Advisory Forum do NOT:
 - Have to agree on one single opinion for all matters
 - Have to approve documents

Advisory Forum: Critical items for interoperability (I)



- ❑ Data requirements from EP
 - Defined, „final“ set of data
- ❑ Status of EP: Banking licence?
- ❑ Autonomous vs. DSRC-Systems
 - The role of the EP change (flow of transactions from EP to TC in autonomous system)
 - Might require different boundaries for the EP/TC interface
 - Complexity can get too high for EP – no commercial basis for huge investments in order to handle complex task
- ❑ Autonomous systems: Missing standard for communication from EP-OBU (Proxy) to TC for the tolling transactions
- ❑ Standardisation

Advisory Forum: Critical items for interoperability (II)



□ Certification

- The authorisation of EP to provide EETS (as an organisation)
- Network (of TC) to be EETS-compliant
- Equipment (OBU, ...)
- Key matter: Define clear criteria for certification at European level

□ Limited markets for OBU

- Ensure attractiveness for manufacturers

□ Provision of tolling events (transactions) in real time from EP to TC in autonomous systems

- Minimal requirement to be defined for communication intervals from OBU (proxy) to TC
- Required for enforcement

Advisory Forum: Critical items for interoperability (III)



- ❑ Bankruptcy of EP
 - Securing payment guarantee
 - Bank sector: Pool for securing the banks, managed by European Central Bank
 - Risks will increase with additional tolling systems
 - Yearly audits for EP
- ❑ VAT
 - Consequences of the Intra-Community VAT regulations, changes as of Dec. 2007
 - Promoting reverse charge?
- ❑ Enforcement
 - Standardisation of enforcement (data and technology) rules at a European level?
 - Integration of EP in enforcement process? There is a need to define clearly the responsibilities / role of EP
 - Fines must be handled differently than toll payments (substitute toll)
 - Constraints due to data privacy laws

Advisory Forum: Critical items for interoperability (IV)



❑ Fraud

- Faked OBUs
- Principal responsibility of EP, but this can be linked to the processes for degraded mode
 - Why is degraded mode used?
 - The reasons can for example be OBU-Problem (EP in-charge), Problem with Roadside Equipment (TC in-charge) or OBU mounted incorrectly (User in-charge).
- Who is in-charge of detecting fraud?

❑ Governance

- Several matters regulated under other laws (e.g. road signage for toll collection)
- Management body without any power is generally of little use
- Organisational models for the management role:
 - EU-Body
 - Consultation procedure, but formal power in Regulatory Committee

WP 01 schedule



- ❑ Duration: 6 months (+2 months „pre-start“)
- ❑ Official start when contract with the European Commission was signed, 14.12.2007
- ❑ To be completed in June 2008

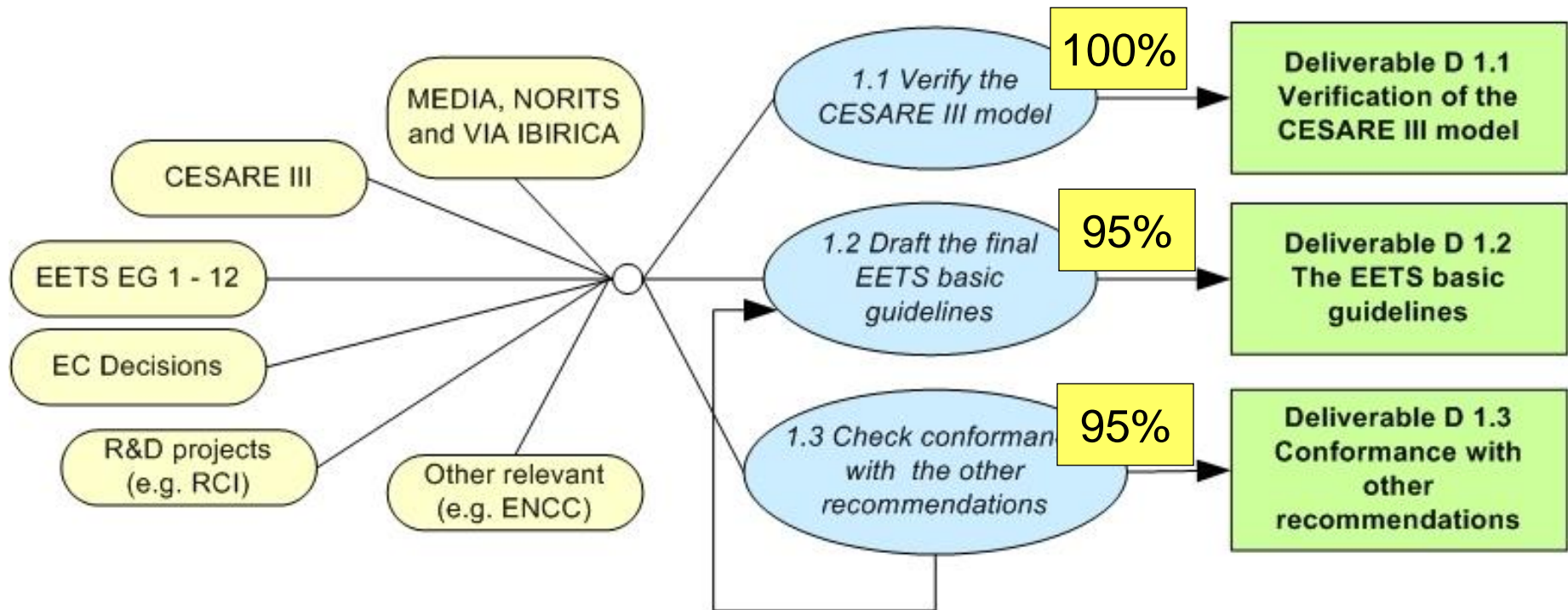
Task number	Task description	Predecessors	-2	-1	Months	6
WP1	EETS Basic Guidelines					
1100	Verify C-III model towards the experiences from existing projects	none	[Red bar from -2 to -1]			
1200	Draft the final EETS basic guidelines, including a proposed migration path	1100			[Red bar from -1 to 6, with yellow bar at 6]	
1300	Compatibility analysis of the guidelines and the recommendations of the EGs	1100				[Red bar from 5 to 6, with yellow bar at 6]

Current Status: WP 01 EETS Basic guidelines



Objectives:

- ❑ Verify CESARE III model in relation to the existing national and cross border interoperability EFC schemes
- ❑ Draft final EETS basic guidelines (technical, contractual, legal, procedural)
- ❑ Verify compliance with the EETS Expert Group recommendations



WP 01 – Task 1100: Verify the CESARE III model



- ❑ The first task of WP 01 is mainly a documentation task
- ❑ Small subgroups prepared reports from TIS-PL, MEDIA, NORITS/EasyGo, VIA-T, Via Iberica, Swiss and German systems
 - Comparison between the respective system/concept and the CESARE III role model
 - Summary of the key experiences and lessons learned, as seen by the persons involved
- ❑ Deliverable D1.1 created
 - Summary of the subgroup reports
 - Subgroup reports are annexes to the deliverable
- ❑ The deliverable D1.1 was given to the CESARE IV Steering Committee for approval
- ❑ Main purpose: input to the next tasks in project

WP 01 – Task 1100: Example

D1.1 Terminology





CESARE III	LSVA	MEDIA	NORITS	TIS-PL	German Toll Collection	Via Iberica	VIA-T
Toll Charging Role	Principal ----- Swiss Customs ----- Transport Service Provider	EFC Operator	EFC Operator	Toll Charger	Federal Republic of Germany ----- Federal Office for Goods Transport ----- Toll Collect	Transport Service Provider	Toll Charger
EETS Provision Role	Swiss Customs - ----- Authorized garages ----- Payment Means Provider	Contract Issuer	Issuer	Issuer	Toll Collect ----- Service Provider	Issuer	Service Provider
Service Usage Role	User	Customer	User	Client	Truck Companies ----- Driver	User	User
Interoperability Management Role	not present	MEDIA Association	Support Organisation	Commission de Télépéage	not present	not described	Electronic Toll Committee

WP 01 – Task 1100: Example Annex: NORITS/EasyGo



Contract Issuing		
CI.01	Issue contract to User	
CI.02	Associate payment means to OBE	The Customer is not obliged to link the OBE to a bank account, e.g. the Customer may receive an invoice that can be paid in cash. However, the most common ways of payment are invoices, a link to a credit card or a bank account
CI.03	Inform User on service	
CI.04	Acquire vehicle registration information.	Only Norwegian systems require vehicle registration information. To be implemented in Denmark 2008
CI.05	Acquire User information	

 = in line with
CESARE III

 = partly
in line with
CESARE III

WP 01 – Task 1100: Example

Annex: VIA-T

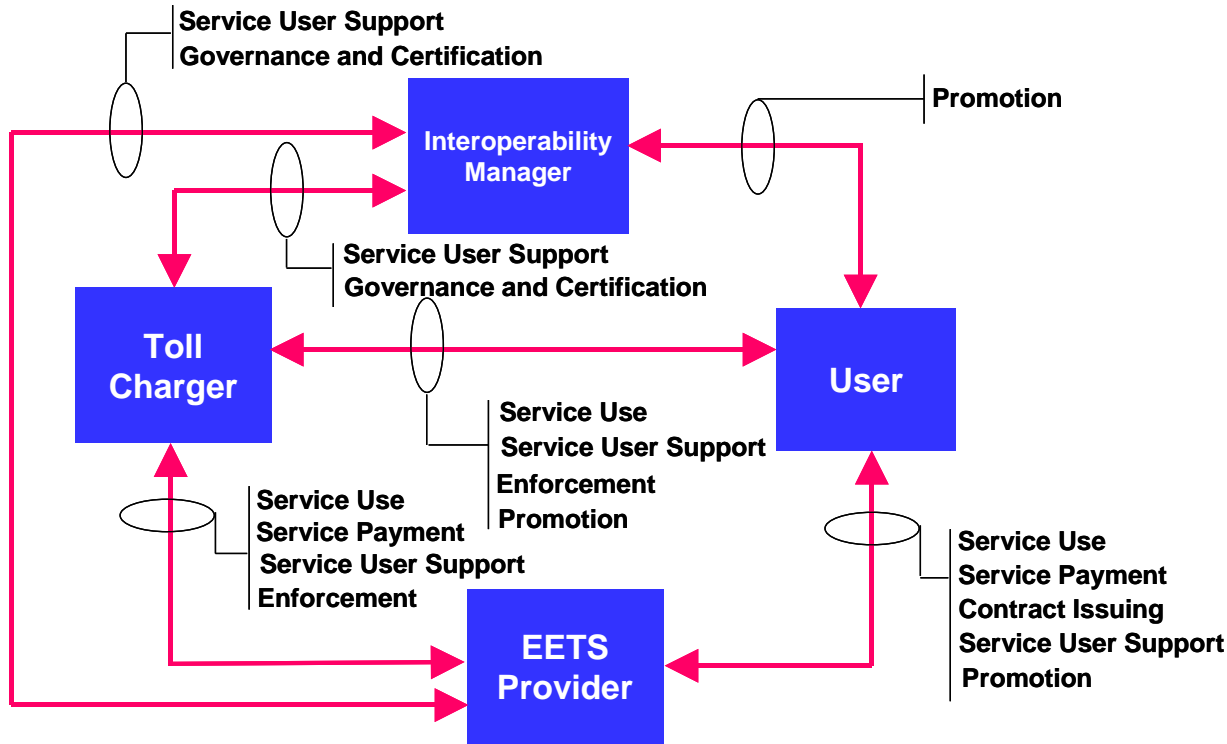


EETS-Service-Component-and-Functions ^α		Description ^α	Comparison- CESARE-III ^α
^{οα}	CONTRACT-ISSUING ^α	^α	^{οα}
CI.01 ^α	Issue-Contract-to-User ^α	¶ EETS-Providers-(EPs)- acting-as-Issuers-are-in- charge-to-issuing-OBE-and- contracts-to-Users ^α	YES ^α
CI.02 ^α	Associate-Payment-Means-to-OBE ^α	¶ VIA-T-OBEs-are- functionally-equivalent-to- credit-cards. Most-of-the- EPs-are-Banks-or-Bank- related-organizations.· OBEs-are-internally- considered-as-any-other- Payment-Means· ^α	YES ^α
CI.03 ^α	Inform-User-on-Service ^α	¶ This-is-a-mission-shared-by- TCs-and-EPs.·ASETA-has- carried-out-some-promotion- and-the-issuers-also-inform- their-customers-on-VIA-T ^α	YES-but- Partly ^α
CI.04 ^α	Acquire-Vehicle-Registration-Information ^α	¶ No-vehicle-information-is- collected-by-VIA-T-Issuers ^α	NO ^α
CI.05 ^α	Acquire-User-Information ^α	¶ Issuers-collect-personal- information-from-their- clients-for-other-purposes- than-VIA-T.·Neither-ASETA- nor-the-TCs-get-personal-	YES-but- Partly ^α

From CESARE III: Service Definition - Overview



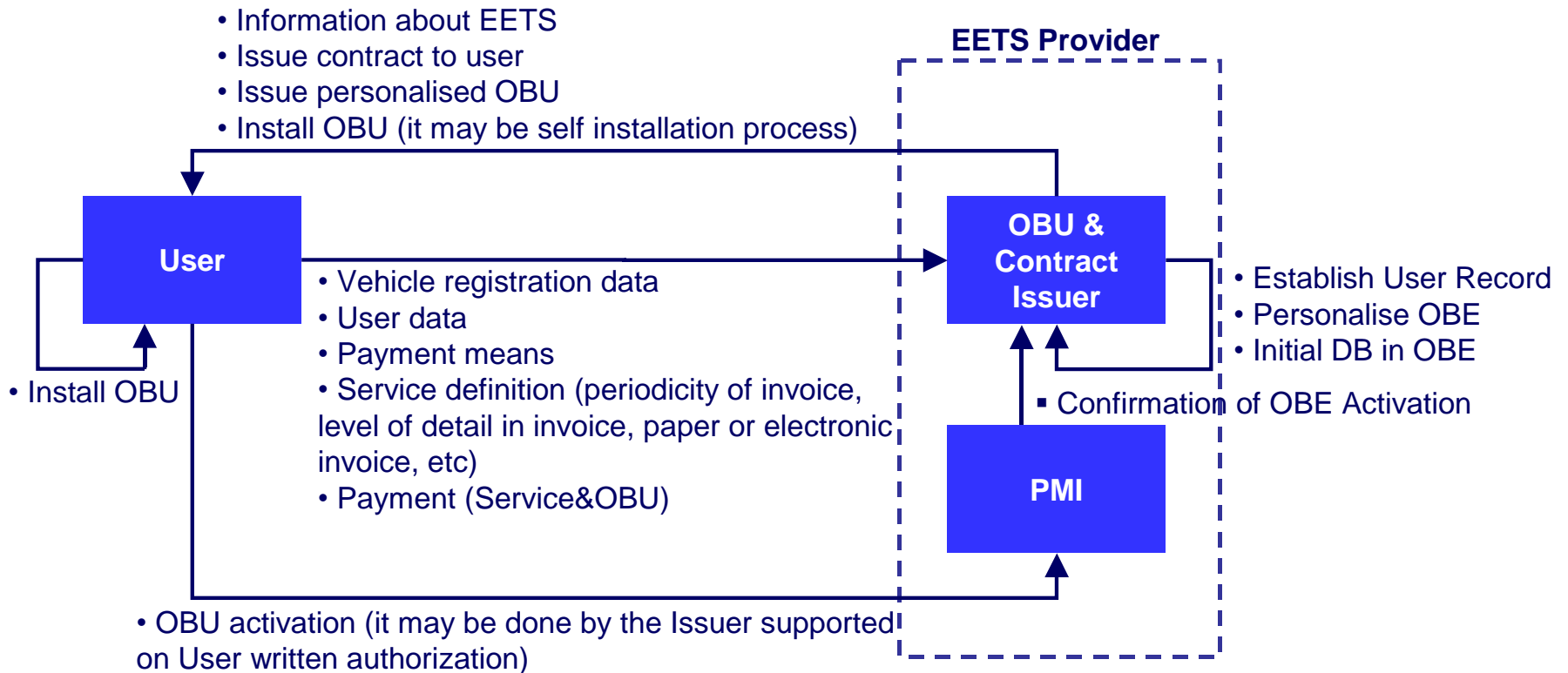
CESARE III Service Model Overview



Service Components List

- **Governance & Certification**
- **Contract Issuing**
- **Service Use on Toll Roads**
- **Service Payment**
- **Service User Support**
- **Enforcement**
- **Promotion**

From CESARE III: Contract Issuing - Service Component Model



From CESARE III: Contract Issuing - Service Component functions



EETS SERVICE COMPONENT AND FUNCTIONS		Roles	Interoperability needs	
			YES	NO
CONTRACT ISSUING				
CI.01	Issue contract to user	EP	×	
CI.02	Associate payment means to OBE	US	×	
CI.03	Inform user on service	EP	×	
CI.04	Acquire vehicle registration information	EP	×	
CI.05	Acquire User information	EP	×	
CI.06	Establish user record (contract/OBE)	EP	×	
CI.07	Establish user payment account	EP	×	
CI.08	Personalise OBE	EP	×	
CI.09	Initial database in OBE (map, tariffs)	EP	×	
CI.10	Issue OBE to user	EP	×	
CI.11	Install and mount OBE	EP/US	×	

WP 01: Approach for Task 1200

„Draft EETS Basic Guidelines“



- ❑ Specify the EETS basic guidelines, i.e., the rights and duties of the roles
 - A clarification (confirmation) of the responsibilities of each role is required
- ❑ Use the Service Definition from CESARE III as a starting point
- ❑ Evaluate each task (Service Component Function) listed in the service definition,
 - Is there a need for rules or guidelines for this service component function?
- ❑ If yes, prepare a recommendation for the split between:
 - “Necessary Conditions”
(mandatory rules - to be reflected in the Decision)
 - “Facilitative Conditions”
(recommendations – possibly for Application Guide)

WP 01: Approach for Task 1200 „Draft EETS Basic Guidelines“



Methodology: Two types of Rules („Conditions“)

Necessary Condition

A mandatory rule, reflecting a legal, procedural, functional, technical or informational (data element or data flow) **requirement**, that has to be fulfilled by each person or entity acting in one of the EETS roles in order to achieve EETS interoperability

NOTE: A Necessary condition should be reflected in the Decision and will be implemented in each member State either by legislation or by multi- or bilateral contracts

Facilitative Condition

An EETS recommendation described in terms of a legal, procedural, functional, technical or informational (data element or data flow) **advice**

NOTE: The EETS recommendation is not required for achieving EETS interoperability but should be implemented as far as possible to give the EETS users (and operators) a harmonised, available and seamless fee collection system on a European level

NOTE: A Facilitative Condition may, on a national or regional level, be reclassified up to become a Necessary Condition.

WP 01: Approach for Task 1200 „Draft EETS Basic Guidelines“



Example of Contribution: Contract Issuing

Role (Task)	Service Component	Right/Duty	No.	Condition	Related to EETS functions
SU	CI	Right	NC 1	The Service User (as defined) shall have access to the EETS by obtaining a contract on non-discriminatory basis.	CI.01
SU	CI	Right	NC 5	The Service User's personal data shall be protected from unauthorized access and use.	CI.06
SU	CI	Duty	NC 8	The Service User shall supply the EETS Provider with necessary user and vehicle registration information and shall update such information without delay (including re-measurement and re-classification data).	CI.04
EP	CI	Right	NC 13	The EETS provider has the right to receive vehicle registration information from EETS user as needed for issuing the EETS contract.	CI.04

WP 01 Task 1300 - Check conformance with other recommendations



- ❑ Expected outcome:
A verification of EETS conditions with other (previous) documents
- ❑ If the EETS basic guidelines of Task 1200 deviate from other key recommendations, then
 - Explain why and accept the difference
 - OR
 - Adapt the guidelines from Task 1200
- ❑ Results will feed in to the finalization of the EETS basic guidelines

WP 01 Task 1300 – Documents considered for examination (I)



Document	T1300 Analysis	Remarks
Reports of Expert Groups:		
EG 1+ 5: Synthesis of the Reports of the Expert Groups 1 and 5 on microwave and satellite technologies for electronic tolling	Yes – EG1	EG1 Important. The EG5 report focuses on ETC using satellite technology and can be substituted by latest reports (EG9 and RCI). It should not be considered.
EG 2: Definition of parameters to be stored in onboard equipment designed for use with the European Electronic Toll Service	Yes	Important
EG 3: Recommendations on enforcement (including cross-border enforcement) for the European Electronic Toll Service	Yes	Important
EG 4: Certification of the equipment related to the Directive	No	No, provided that the TÜV Report covers or answers the relevant questions.
EG 6: Integration of on-board units into vehicles	Yes	Yes, but minor important.
EG 7: The Role of Financial Institutions Payment and contractual aspects of EETS	Yes	Important
EG 8: Final Review of draft UNI DSRC Specifications	No	No relevance. The report focuses on the review of technical aspects of the Italian DSRC interface to ensure the opening of knowledge to manufacturers.
EG 9: Specification of the EFC application based on satellite technologies	No	No, this report is superseded by subsequent developments in RCI project (RCI Architecture)
EG 10: Recommendations on enforcement specifications and technologies for the European Electronic Toll Service	Yes	Should be considered together with the EG3
EG 11: Definition of the EFC Application for the EETS Based on Microwave Technologies	Yes	Should be considered together with the EG1
EG 12: Security aspects of the EETS	Yes	Important

WP 01 Task 1300 – Documents considered for examination (II)



Document	T1300 Analysis	Remarks
Public Documents from RCI project:		
Consortium High-Level View on RCI Architecture and Specifications	Yes	Important concerning replacement of EG5 and EG9 reports
ENCC Final Report (TÜV Report):		
Study on the Implementation of a European Network of Certification Centres (ENCC) for the purpose of the Single European Service of Electronic Fee Collection	Yes	Important concerning replacement of EG4 report. The ENCC Report took the recommendations as given by EG4 and developed them further towards an organisational concept of EETS certification.
Arena Project:		
ARENA_market-based_approach_v1.1.pdf	No	No relevant to the model in study (CESARE III Model).
MISTER Project:		
MISTER Draft Presentation to EC Tolling Regulatory Committee v2.8	No	No, this document is obsolete compared to recent developments in RCI project (RCI Architecture)
VERA-2:		
Synthesis document	No	No, VERA II focuses on traffic law. There are different requirements for toll or toll enforcement laws.
DG-TREN:		
Study on economic and social impact of the implementation of Directive 2004/52/CE on interoperability of electronic fee collection in Europe	Yes	Yes, but lesser importance - only the conclusions should be considered for review.
CEN/TC 278:		
Road transport and traffic telematics — Electronic fee collection — System architecture for vehicle related tolling (prEN ISO 17573:2008)	Yes	Important, this document focuses on many of the themes that are subject of CESARE IV study.

WP 01 Task 1300 – Example of contribution



Reference	Initial Wording	Actual Wording / Remarks	Role Checking				Input Documents Checking											T1300 members	T1300 Remarks / Amendments			
			IM	EP	TC	SU	DGTREN Study	EG1+5	EG10	EG11	EG12	EG2	EG3	EG6	EG7	ENCC Report	prEN ISO 17573:2008			RCI Architecture		
TC-FC20		TC may inform the EP in case of non-compliant activity from a user if this is detected by the TC		R	D		No divergence	No divergence	No divergence	No divergence	No divergence	No divergence	No divergence	No divergence	No divergence	No divergence	No divergence	No divergence	No divergence	No divergence		
TC-NC17	TC shall inform user on tolling when entering/leaving toll domain						No divergence	No divergence	No divergence	No divergence	No divergence	No divergence	No divergence	No divergence	No divergence	No divergence	No divergence	No divergence	Change	No divergence		ISO: TC shall inform the SU when entering/leaving toll domain about the EETS availability and the toll changing principles.

Next steps



- ❑ Complete Task 1200 (Draft EETS basic guidelines) and Task 1300 (Check conformance with other recommendations)
- ❑ Integrate inputs from CESARE IV Advisory Forum
- ❑ Detailed planning for WP 02 (IM Framework, Functions and Procedures)