CESARE III PROJECT

Interoperability of electronic fee collection systems in Europe

D1.2 REVISED CESARE MODEL

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TABLE OF CONTENTS

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Objective of the document

The project structure of CESARE III is based on 7 work packages, whereas the main task of work package 1 is the analysis of the impact of the European directive 2004/52, of new actors, of new technologies, of new charging schemes and new services as well as other interoperability projects on the current CESARE model, leading to a revised CESARE model. The other work packages will base their work on this revised model

WP1 has produced 2 deliverables; D1.1 is the documentation of the CESARE III revision process, which shows solution finding process of the WP members, and this document, D1.2"Revised CESARE Model", shows the revised CESARE model.

This document D1.2 describes in essence the findings of the work which was done in CESARE III WP1. Whereas the deliverable D1.1 leads in detail through the work and the fact and solution finding process done at various workshops within WP1, this document keeps its view on the developed CESARE Model and shows how it has been adapted to the new circumstances in the European environment concerning road user charges. It shows the model which will be proposed as a basic model for the new European Electronic Toll Service (EETS).

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1. Approach

CESARE III is the third phase of the CESARE programme (**C**ommon **E**FC **S**ystem for **a R**oad Tolling **E**uropean System), which started in 1998. The overall aim of the CESARE programme is to allow road users to make use of their on-board unit (OBU) for payment of road user charges electronically, where this is possible, throughout Europe. CESARE I was undertaken entirely by ASECAP members and was focused on the specific need of Tolled Motorway Operators. CESARE II involved several European Member States in providing comments and input. CESARE III is intended to broaden the approach developed in CESARE I and CESARE II to apply to all countries in Europe, i.e. private and governmental toll road operators.

CESARE III seeks to revise 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), a requirement from the European Directive 2004/52 on EFC Interoperability. As well, new tolling schemes for HGV's in Austria, Germany and Switzerland and the planned scheme for the UK are taken into consideration.

A major task was to find a common understanding on the names of the entities involved in interoperability process. The WP1 team came to the conclusion that not only different names are used in the different projects and countries for the same entities, but even if the same names are used for entities they often cover different functions. To achieve a common understanding seemed to be impossible. Therefore a more high level approach was taken. A basic model was elaborated that shows the main Roles in the field of the EETS.
A list of tolling functions was elaborated as another main input to WP2. These functions have to be assigned to one of the main interoperability actors and to one of the services to be developed in WP2. Functions with the involvement of two main actors are relevant for interoperability. It is important to define a responsibility for each function.

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2. Impacts since CESARE II

The CESARE II project established the contractual basis for an interoperable EFC service. According to this interoperable service, each signatory Toll road Service Provider (TSP) would be committed to accept on its network all users being subscribers to the CESARE II service.

In CESARE II, the three main entities involved are:
- the motorway operators (the TSPs), in charge of the toll road service provided ;

- the issuers, in charge of the payment method ;

- the users, who have subscribed to the additional service exclusively connected with the payment method (*i.e.* issuing the OBU and sending the invoices).
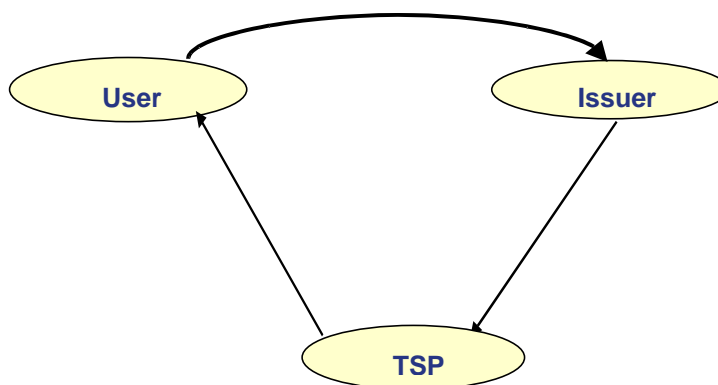

Figure 1: CESARE II organisational architecture

Since CESARE II, the tolling world has changed in various aspects. In deliverable D1.1, following new aspects have been elaborated, which have an implication on the new CESARE EETS model.

Note: in chapters 2 and 3 names such as Toll Charger, EETS Provider, Service User and Interoperability Management are used following a definition which is given at the end of chapter 4.

2.1 European Directive 2004/52 on EFC Interoperability

Since the CESARE II project was finished, the European Directive 2004/52 on EFC Interoperability requires an European Electronic Toll Services (EETS) to be established. Therefore, not only private TSP's have to be addressed, but also governmental organisations which collect road user charges. But not only organisational issues have to be revised, the impact of new technologies, for tolling as well as for enforcement, have to be taken into consideration.

The aim of the new directive is quite clear: *"Users should be able to drive with a vehicle throughout Europe having only one contract and only one set of OBE to be used for all European electronic toll systems under the Directive."*

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In deliverable D1.1 the impact as from the directive were analysed. They are:

> **Impacts from the European Directive 2004/52 on EFC Interoperability:**
>
> - Subsidiarity principle: The definition of toll scheme and service is left at the local/national level
>
> - Non-discrimination principle: EETS users and/or vehicles shall not be discriminated against by the toll system
>
> - Every electronic toll system using an on-board equipment has to accept OBE based on the EETS
>
> - Users have to be offered the EETS
>
> - EETS users have to be accepted in all electronic toll systems (that fall under the scope of the Directive)
>
> - Prescribing to use at least one of technologies for toll schemes
>
> - Break-up of existing monopolies for issuing contracts and on-board equipment to users as well as for manufacturing equipment (onboard and roadside).

2.2   New actors

The approach of CESARE III is not to make a new model, but to take the basic building blocks of CESARE II and express these in a way that takes into account all the impacts of these new and developments; actors, schemes, technology, services and the EU-Directive.

New actors are EFC-systems which are under the responsibility of governmental entities (operated by the government itself (e.g. Switzerland), by private entities which are owned by government (e.g. Austria) or ruled by public law (e.g. Germany)).

Governmental toll system operators have different legal status, different business relations and are often limited by law in their options when compared with private road operators. Most of them are restricted in their legal options in the tolling sector. Financial guarantees to foreign entities or toll collection for any organisation are in most cases not possible by law. Possibilities to agree on any obligations to other toll collection operators are very limited, but outsourcing of services from the Toll Charger to other organisations is possible.

In systems where the toll is a tax, there are no contracts between the users and the taxation authority (however there is normally an application or similar to receive an OBU). The obligation to pay the tax is given by the law. Also taxation authorities must have the ability to assess the tax due. This assessment can be different from data measured or collected by technical equipment.

The situation is slightly different if the government has outsourced the supply and operation of its EFC system to a private company (such as in Austria or Germany). The contracts for the operation of the EFC system give normally the exclusive rights to issue contracts and OBU.

The further development of the CESARE II model has therefore a more general perspective and does explicitly avoid naming sub-actors at the basic level. These sub-actors can be defined at a later stage when the main building blocks and interfaces have been evaluated. In chapter 4, the new CESARE EETS model is described in detail.

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Impact from new actors:

- Different legal status and different business rules

- Payment guarantees to other organisations not possible by governmental entities

- Governmental entities are not allowed to execute any tasks for other systems

- The toll due must be possible to be assessed/altered by the authorities in tax systems

- Some existing systems do not involve a user contract related to the use of the service

2.3   New charging schemes

Free flow systems have advanced increasingly, allowing the operation without any toll plazas for payment (e.g. Austria). In Germany, an autonomous tolling system was introduced, abandoning fixed roadside infrastructure through the use of GPS/GSM and a manual booking system. In addition to such network tolling sytems, more area fee systems have been implemented in the recent years as well, either time based (e.g. London) or distance based (e.g. Switzerland, planned system in the UK).
The impacts from new charging schemes were compiled in deliverable D1.1 as follows:

Impact from new charging schemes:

- Database (maps) necessary as basis for tolling in autonomous systems

- If there are databases on-board they need to be updated (e.g. maps, tariffs)

- Enforcement separated from tolling

- Distance-based area fee charging requires accepted distance measurement (on all roads at all times)

- Current legal framework for cross-border enforcement of tolls is less than satisfactory

- Misbehaviour or malfunctions lead to toll violations

2.4   New technologies

In recent years new technologies have been introduced in tolling. They can be divided in mainly two classes:
- technologies supporting fee determination (DSRC and satellite positioning with map matching procedures)
- technologies to communicate with OBU (DSRC and GSM, GPRS or UMTS)

Because of these new capabilities in data transfer it is possible to allocate data processing at different locations (at the OBU, the central system of the EETS Provider and at the central system of the Toll Charger). For enforcement purposes it is necessary to communicate with a DSRC link because a real-time access is necessary on the spot.

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The integration of new technologies and new charging schemes requires new OBE. Currently, the OBE is "certified" in all EFC-systems for the use in the "home" system. Especially in tax systems it is important that the tax authority has the control of all processes to determine the fee. Therefore, OBE for use as part of a common service has to be certified. A common certification has to be accepted by all Toll Chargers or the certification has to be done by each Toll Charger. Any change to certified equipment requires a re-certification, especially in an international and interoperable environment. The installation of new databases and software on OBE may also cause a re-certification of the OBE. Probably each soft- and hardware configuration has to be certified as they may interfere each other.

Impact from new technologies (as compiled in deliverable D1.1):

- Specification of common requirements for OBE to support EETS

- Process of OBE certification and acceptance by all Toll Chargers is needed.

- Specification of common requirements for centralised processes at an EETS Provider for autonomous systems (if any possible)

- Process of certification for centralised processes (if any possible) and acceptance by all autonomous Toll Chargers is needed.

- Not all sensors for supporting the fee determination and enforcement of existing systems are clearly covered by Directive

- Procedure for incorporation of new technologies needed

- No common method of charging in autonomous systems

- DSRC tolling equipment not operable in autonomous systems

- On the spot enforcement has to be possible

- Some systems require redundancy checks of prime measurement within OBE

- OBE with new technologies is more complex and expensive than simple DSRC OBE

- More complex OBU needs (professional) installation

- More complex OBU requires more detailed certification

- Certification of OBU with different or changing soft- and hardware configurations is difficult

2.5 New services

Since CESARE II, new operational rules in EFC tolling have been implemented. In some systems, the EFC service is mandatory for the use of the network i.e. every vehicle must be equipped with an OBU (e.g. in Austria for HGV). A similar system is in use in Switzerland, where all national HGV's must be equipped with an OBU, whereas foreign users may use the manual payment system or, if requested, can install an OBU to their HGV's as well.

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In other systems such as the EFC system in Germany, the choice on the available EFC service is free, i.e. the user may choose if the OBU is installed in the truck or if he wants to use the manual system.
The OBU costs are often borne by a Toll Charger in order to promote the EFC Service or to increase the political acceptance. Up to now, the Service definition including the OBU costs are always in the domain of the local/national Toll Charger. In general it is the service definition that determines the price of the OBU. If the service definition is outside the domain of the local/national Toll Charger, the OBU costs have to be covered by the service offering entity.

Impact from new services:

- It is not clear who will finance the EETS OBU

2.6 New requirements

In additions to the above mentioned impacts, other requirements and services have been introduced since CESARE II, having an influence to the new CESARE EETS model. Such requirements are:

- *variable declared characteristics* (e.g. axles, weight, vehicle class, emission class etc.) have become necessary in some EFC systems and need in some cases, if changed, a manual input.
- *special commercial conditions:* in some countries or systems, there are special commercial agreements based on the volume of passages from a Service User. Such commercial agreements may not discriminate users from other countries with similar potential, i.e. they should be granted for all users.
- *reselling tolls:* in some toll domains, reselling of tolls is possible, in others not; in toll domains where the toll is a tax, the reselling of taxes may not be possible.
- *VAT:* some toll systems are subject to VAT; commercial operators will require the possibility to reclaim the VAT. This issue was already addressed in CESARE II, but finally not solved. And concerning the Directive, the provision of a single invoice due to VAT issues might not be possible. A summary of single statements from various invoice might therefore be a solution.

Impacts from new requirements:

- Classification characteristics stored in OBU

- Fixed and variable declared characteristics are important fee relevant data

- Variable declared characteristics require manual interaction of the driver (instructions)

- Method of registration of fixed declared characteristics is important in relation to enforcement

- Special commercial conditions by some Toll Chargers have to be offered to all road users independent of the EFC Service

- Reselling of tolls is not always possible and desirable

- VAT refund was not solved in CESARE II, but will be required for a widespread EETS.

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3. High Level Requirements

3.1 Overview

The impact of the Directive, new actors, new technologies, new system concepts and new requirements are leading to new high level requirements for interoperability in general and for the EETS in particular. These high level requirements are needed to develop a general and generic basic model.

The high level requirements are covered by the service definition of WP2 and the contractual framework of WP4. WP2 develops additional and more detailed requirements.

3.2 Toll Charger and Scheme high level requirements

3.2.1 Subsidiarity principle

The tolling and collecting principles is in each Toll Charger/scheme operator's responsibility. The definition of the tariff model, technologies used and of the enforcement strategy is at the local/national level. But EETS users have to be accepted and therefore a minimum of agreed technologies has to be introduced.

3.2.2 Payment guarantee by EETS Provider

When a vehicle, equipped with an interoperable OBE, enters the toll domain, the respective Toll Charger must have assurance that the tolls will be paid by the user's EETS Provider. Therefore, the Toll Charger will have the requirement of payment guarantees from EETS Provider for the use of their services as registered by the EFC system.

If the Toll Charger has the legal authorisation, the payment guarantee shall also cover assessed charges which differ from the tolling transaction registered by the OBU and/or roadside equipment (e.g. missing single transactions for a complete motorway trip in Austria under some conditions, different assessment than registered in Switzerland upon suspicion).

3.2.3 Limitations of entities

Some entities operating a complete toll system today are not allowed to provide payment guarantees to other organisations and therefore can not act as an EETS Provider. Additionally most governmental entities are only allowed to offer services defined by toll laws. This may exclude services required by other Toll Chargers and EETS Providers.

3.2.4 Business case

Each Toll Charger has currently a service for all user groups (e.g. frequent and occasional user, domestic and foreign users etc.). Therefore the EETS is a future user group which has been previously part of the existing user groups. The Toll Charger is unlikely to receive any additional income arising from the establishing of EETS users.

The focus of the Toll Charger is to capture the fees (or relevant data) relating to their own system as efficiently and effectively as possible. Hence, the costs for the Toll Charger for supporting the EETS and handling each EETS user shall be not higher than for users of their normal services. Small implementation costs would be acceptable.

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The Toll Charger will only be willing to pay for the services he requires from the EETS Provider. The commercial conditions between the Toll Charger and the EETS Provider might reflect the quality and quantity of the received services.

3.2.5   Certified OBE

The Toll Charger wants to keep the control over its system. By accepting interoperable OBU, the Toll Charger will require that these EETS OBE fulfil defined minimum technical standards. These standards and requirements must be approved by the Toll Chargers or a common approval body before the OBE is certified for use.

3.2.6   Personalised OBU

Heavy vehicles require the personalisation of their OBU already today. This will be a requirement for the EETS Service as well.

3.2.7   Enforcement

In general, fraud detection must always be done locally. Therefore the EETS has to support the local enforcement.
The enforcement process is therefore considered out of the scope of the project, but following issues are further considered:

- The EETS OBE allows the (autonomous) Toll Charger to specify a set of measures which include cross-checking of fee relevant data.
- Some assistance may be requested by the Toll Charger from the EETS Provider for users using EETS. This may include (depending upon on local legislation):
    - identification of the registered keeper/EETS Service User
    - identification of the liable person
    - forwarding of toll and fines
    - collection of toll and fine

  These additional services should be considered in the other Work Packages.
- Blacklists have to be distributed between every EETS Provider and all Toll Chargers. However, there is no exchange of blacklists between the Toll Chargers.

3.3   Service User requirements

3.3.1   One Contract

From the Service User's perspective, *one contract* for all European toll road systems is the most important requirement.
The Service User is interested to have only one single point of contact for all business relations. Therefore, a Service User requirement is that these EETS Providers have sole responsibility for taking care of everything that can arise from the use of the OBE on the toll roads, especially when travelling abroad on those roads and where assistance is needed.
An open discussion point is if the Service User has more than one Service Provider, e.g. one for its local service and one for the interoperable service. There might be cases when such a choice is desired but the

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participants of the workpackage decided that this is a desirable, but not essential requirement. It was also noted that this was contrary to the aims of the EETS.

3.3.2 Availability of Service

The Service User expects to make the EETS contract in the country where he wants to and is interested to have a selection of different EETS Providers. He is also interested to use existing business relations and payment means. The Service User expects to be able to use the EETS to benefit as soon as possible. EETS user shall not be discriminated in toll systems compared with other users (every available tariff has to be offered to all users of the same vehicle class / configuration at that time of day etc).).

3.3.3 VAT refund

The Service User is interested to have the possibility to reclaim the VAT paid in the different systems and is interested to have the reclaiming included in the service.

3.3.4 Use of the OBE

The Service User has a high interest in reliable OBE as the responsibility for the correct OBE functionality will stay with the user. The OBE has to indicate the proper functionality in operation. Instructions in case of malfunctions shall be available from the EETS Provider. A common and easy operation of the OBE within the various systems should be envisaged. The OBE should not distract the user in an unsafe way when the vehicle is moving. The Service User should be able to monitor the correct functioning of the OBE in order to judge if he is compliant.

3.3.5 Use of the Toll Road Service

The Service User expects to be informed about the use and the tariffs of the toll road. He also expects to have clear indications on the road when different behaviour is expected from EETS users.
If the EETS Service is not working properly, a degraded mode of payment must be available in order to continue the trip (without becoming a violator).

3.4 EETS Provider requirements

The EETS Providers have the (only) direct relationship to the Service Users. Therefore, they are interested in the fact that the service for which they issue the service rights, the payment of toll through EFC, obeys to specific quality criteria.

3.4.1 Business case

The EETS Provider wants to be able to charge to the Service Users a reasonable fee for the use made of the EETS and also to the Toll Chargers.

3.4.2 Reliable and network-wide EETS implementation (non-discrimination)

That means that the EETS Providers are concerned to be sure that:
- Its Service Users can use the EETS all over the Toll Chargers' networks.
- The same tariffs for its Service Users shall be applied by the Toll Chargers to the EETS Provider as for other (local) users.
- The commercial agreements with the Toll Charger are based on fair and non discriminating principles.

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3.4.3   Reliable OBE

The EETS Provider requires reliable OBE, i.e. OBE that has been shown to operate according to agreed specifications. He wants to minimise the handling costs with OBE and guarantees the availability of the service to Service Users.

3.4.4   Fraud proof OBE and genuine transactions

The EETS Providers are responsible, by contract, to pay the Toll Chargers for financial claims of transport services used by its Service Users. In relationship to this, the EETS Providers are concerned to verify that they are able to recover the payment to the Toll Chargers from their Service Users.

They are willing to verify that:

- The OBE that they provide to the Service Users cannot be abusively produced, replicated or cloned, allowing unauthorized use by other parties.
- The Toll Charger's claims for the use of transport services by Service Users are genuine and effectively correspond to Service User's use of the network.
- The Toll Charger's claims correspond to EFC charges incurred by the Service Users. This is the same as the point above.

Moreover, the EETS Providers want to be able to:

- Revoke ("blacklist") contracts within a fixed and defined lapse of time, cancelling the obligation for payment of claims related to these contracts to the Toll Chargers.
- Prevent their OBE from being used for non-authorised services.

3.5   Legal/European requirements

3.5.1   National laws

The EETS will recognise national laws (e.g. tolling law, VAT, data protection, data privacy etc.) as suitably amended in line with the Directive.

3.5.2   Mandatory EETS

The Directive requires every Toll Charger to accept Service Users with EETS equipment and an EETS contract. Therefore an EETS Provider has to offer the Service for all Toll Charger domains.

For the EETS a common service definition is required. Changes on the EETS definition have to be applied and accepted by all participants.

A common certification of OBE and other needed services would reduce overall costs, but requires a common definition and agreement.

The service definition is dependent on what is given by the regulatory level and what can be defined on a common or bilateral contractual level.

This issue has to be considered in further details in WP4.

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4.   CESARE EETS model

4.1   The basic principles

There are three basic roles in an EFC payment system:

  – Someone *buying* a road usage
  – Someone *selling* the road usage (and are using EFC to charge for it)
  – Someone *providing an accounting system* (EFC) for paying for the service.

For interoperable EFC-systems there is also a need for an additional overall management role to take care of any overall issues (e.g. common specifications, regulations). This is defined below.

The assumption in CESARE III is that it is possible to define any Function of an interoperable EFC system in relation to these four basic Roles. Any Function must be sorted into one of these four "boxes". There is always a "home" part of a system that is used "away" for EFC-payment.

CESARE III WP1 has done an extensive analysis not only of the CESARE II model but also of a large number of interoperability models in use in Europe today (see annex C of deliverable D1.1). These schemes represent concrete realisations of interoperability in terms of real organisations that interact in certain ways. CESARE III also realised that the actual organisational solutions differ between all these schemes. Although there is a common "core" functionality different countries have different organisations, name for organisations, responsibilities, arrangements, etc. It is simply not possible to find a one-size-fits-all solution that is common for all involved EETS actors and countries.

The CESARE III approach is that the need is to define the core responsibilities and interfaces between "home" and "away" functionality, and that there is no need to define in detail how these things are solved *internally*. It can be done within each of these core Roles as long as the interfaces remain the same. Then each toll domain can define their own organisational model for how they organise things (see example below). Note also that the EETS is an "add on service" to existing frameworks that shall not need to change because of the EETS.

The CESARE III concept requires that each relevant Function in the pan-European EETS is defined and that the responsibility is assigned to one of the basic Roles of the EETS according to the model (Function is defined later in this report). It provides as well a toolbox for organisational arrangements (done in WP3 and WP4), which may be adapted to each areas requirements and organisational layout.

The *Role* in the model is a grouping of *Functions* in the co-operation that is interoperable EFC. The responsibility for a Function within a Role is taken at concrete level by an *organisation* (or a *legal entity*) being present in real life. An organisation signs contacts and guarantees the performance of Functions it is responsible for. Often an organisation is responsible for a group of Functions (but it may not have to be all the Functions of a Role). This grouping of Functions is **different for every toll charging scheme**. The nature of organisations can also be different between toll charging schemes (i.e. private organisations, governmental organisations, joint undertakings).

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Note that an organisation taking responsibility for specific Functions may freely delegate the operations of these Functions to other organisations. It may co-operate with other organisations in performing its services. It may form clusters or groupings to do this. As the EETS is an additional service to existing EFC-services the organisation may otherwise be an organisation for completely different things, being e.g. a bank, EFC-operator, issuer of payment means, road authority, government, transport company, telecom operator and more.

4.2 The CESARE EETS model

CESARE II proposed a clear separation of the role of selling road usage for the role of providing an accounting system. This was confirmed also by CESARE III but the definition needed to be more general.

With this separation of the two main Roles concerning the Tolling service, those operators of toll charging schemes which are not willing or are legally not in the position to offer the EETS Service to their clients (e.g. some governmental operators shall not operate abroad) allow the EETS to be offered to Service Users by the use of the interoperable services from a third party..

The definition of the names of the Roles shall explicitly prevent misinterpretations. Therefore no commonly used names close to expressions like "contract issuer" have been used as they would imply already some limitations on the grouping of functions or are already used for certain organisations a specific set of functions.

Within WP 1, a basic model was designed in order to give a general overview of the EETS. In this basic model, four Roles are identified as being part of an interoperable EETS service.
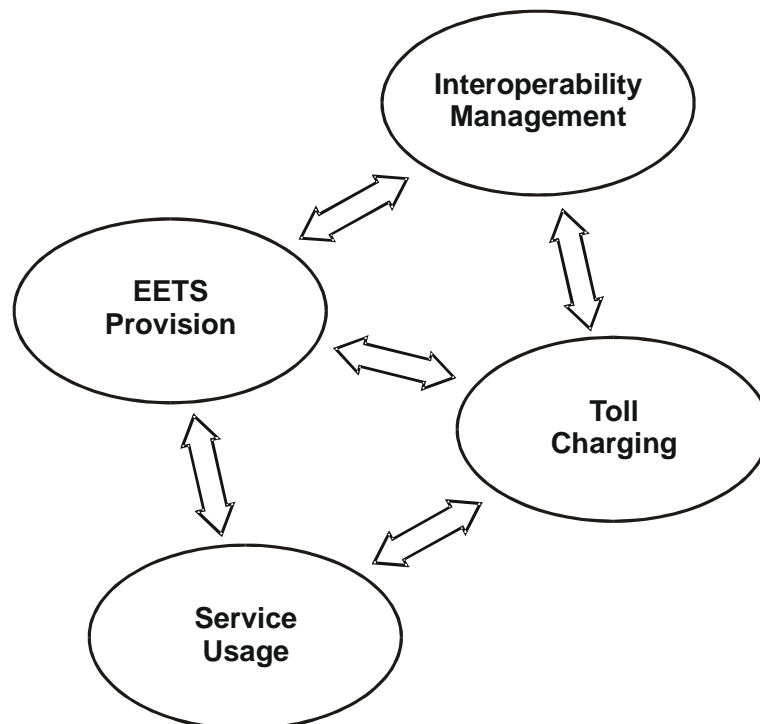

Figure 2: CESARE EETS model

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The Roles can be defined as follows:

Toll Charging Role
Toll Charging means providing a transport service (often road usage) to a Service User and charge the latter a fee for this (the "toll"). The responsibility for levying toll in a toll domain is part of the Role and results in claiming payment from a third party within the EETS Provision Role.

EETS Provision Role
EETS Provision means providing equipment (OBE), contracts and payment means to those who want to use the EETS. EETS Provision includes claiming money from users and guaranteed payment for genuine claims received from the Toll Charging Role.

Service Usage Role
Service Usage means taking advantage of the EETS for payment of tolls in the toll domains of the Toll Charging Role.

Interoperability Management Role
Interoperability Management gathers the functionality that deals with overall management of interoperable EFC. This includes rules for interoperability, id-schemes, certification, common specifications, etc.. Therefore this Role represents the regulatory Role of the EETS interoperability scheme.
The setting of rules can be on the regulatory level if (parts of) the service definition is integrated in (European or national) law – e.g. the Directive. Some of the rules can also be agreed between the participants upon a contractual relation. New organisations might be set-up for this purpose.

In real life, the Functions of one Role can be performed by a person, an organisation, or several organisations acting together, as each context can develop its own architecture.
In Cesare III, it was decided not to enter in the details of each of this architecture, but nonetheless there may be a need to name a representative of a Role that would perform all Functions of one Role, and only those Functions.

For example, an organisation within a Toll Charging Role will sign contracts with organisations within the EETS Provision Roles. This is complicated to be described using the names of the roles. In these contexts the generic representative of this role is used, i.e.:

Toll Charger:	generic representative of a toll domain within the Toll Charging Role
EETS Provider:	generic representative of an organisation taking the responsibility for the EETS Provision within the EETS Provision Role
Service User:	generic representative of the Service Usage Role
Interoperability Manager:	generic representative of the Interoperability Management Role

Important: A generic representative of a role is NOT by all means always one organisation or one entity. There can be different organisations or entities representing the role depending on the interface function between the roles.
In Annex of D1.1 there is an explanation on how actors of other models fit in the CESARE EETS model.

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4.3   Example of cross-border interoperability

The example below shows how the CESARE EETS Model will work in practice in a cross border situation with two toll domains in two countries and one EETS Provider.
A Service User which is registered in country A drives on a tollroad from country A to country B. The Service User has a contract with an EETS Provider 1 which has an office in country A. When driving in country A, the Toll Charger A claims the toll from the EETS Provider 1 which guarantees the payment of the services consumed by its Service User. The same procedure is applied in country B. Finally, the EETS Provider collects all single claims from all Toll Chargers and charges the Service User with the total amount of the tolls on a regular basis.
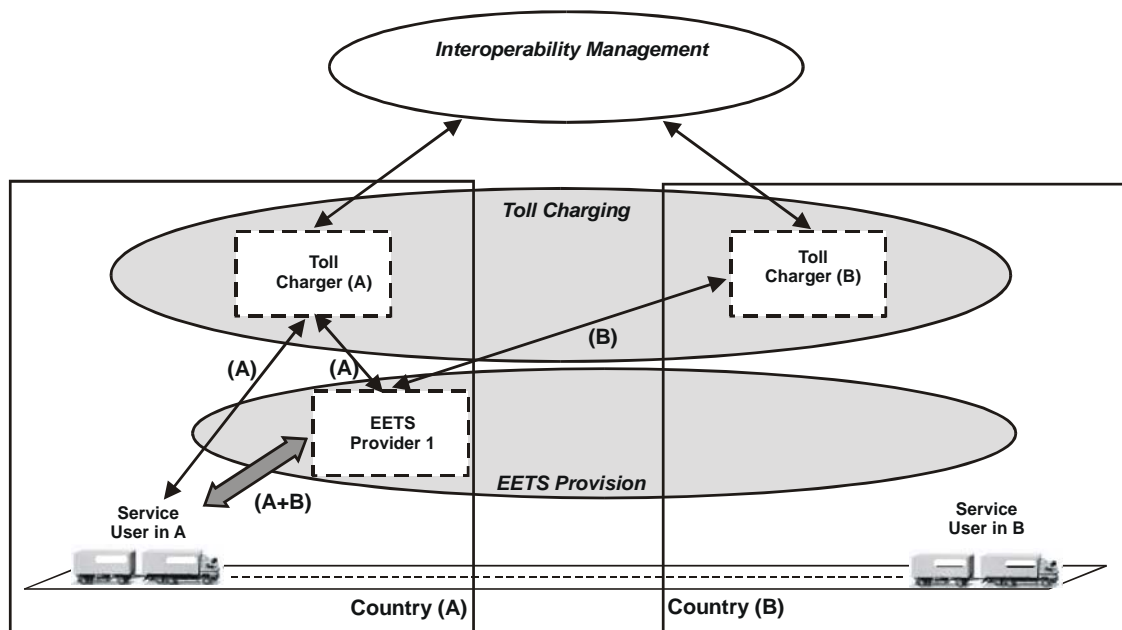This example can be extended to several countries and several EETS providers.

Figure 3: Example of cross-border interoperability