Cooperative Systems generic business case

Maurice Feijen (Rijkswaterstaat)

Contents

Introduction

- **Business case development with Work Package 4 of the CoSy Taskforce**

- **2 defined activities:**

Introduction:

Step 1: Generic business case

Setup structure document

- Definition key parameters
- Definition scenarios
- Definition concept business models
- Overview priority- and other CoSy services

Step 2: Elaboration national business cases (Q2-2011)

- Determine social and economic benefits of services (for all scenarios)
- Determine costs (for all scenarios)
- Determine risks (for all scenarios)

Contents BC document

Management summary

1. Introduction
2. Key parameters
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4. Business models
5. Benefits CS services
6. Costs
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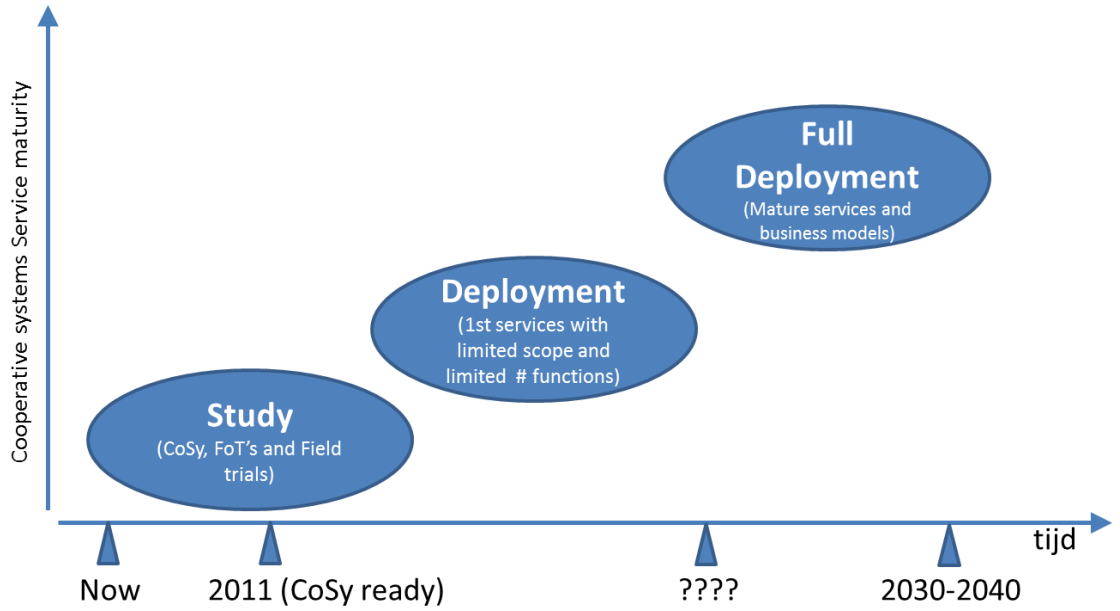
8. Costs Benefit Analysis
9. Risks
10. Conclusions & recommendations

Scope

1. **Relates to EasyWay objectives (safety, mobility & sustainability)**

2. **Deployment with 100% penetration will take time (>20 years):**



3. **Generic BC (only) suitable to indicate feasibility of possible European deployment (not a justification for national rollouts)**

Scope

4. **BC will use specific and limited set of CS services**
   - Current set of priority services or modified set? ← CBA analysis

5. **Stakeholders – drivers, road operators, authorities, industries**

6. **Relevant cost parameters for road operators (existing versus new services)**

7. **Limited accuracy**
   - Sufficient accuracy expected within 3 years

8. **BC only elaborated for Europe as a whole, Netherlands, Germany and France**

Key parameters

- **Time horizon (20-30 years)**
- **Discount rate**
- **Value of saved travel time loss**
- **Value of crashes avoided**
- **Value of reduced emissions**
- **Vehicle sales**
- **After sales CS units**
- **Online Board Unit costs**
- **Infrastructure costs**
  - Incl. communication cost
- **Road Side Unit cots (RSE)**
- **Network Operations Centre costs (NOC)**

Scenarios

There are various uncertainties and aspects that may lead to various (and many) possible deployment scenarios, i.e., the business case scenarios.

One of the key aspects that relates to the deployment of CS is the **vehicle-infrastructure dilemma**: Which should be installed first, in car devices in vehicles or the infrastructure?

The latest IntelliDrive research suggests there are two main questions for CS to be answered:

1. Will CS be indeed as effective as promised? I.e., how effective will CS, the combination of V2V + V2I be in practise?

2. Can CS be implemented mostly with V2V and without V2I? I.e., to what extent is an infrastructure needed beside V2V?

These questions form the basis of the following four scenarios:

Scenarios

Scenario 1: Regulated CS + limited V2I

CS legislation for the automotive industry will break the vehicle-or-infrastructure-first dilemma; legislation will create the demand and most optimal growth possible of CS On Board Units and will decrease the threshold for road operators to make significant investments. Most services are provided by V2V and lV2I is deployed at low density

Conditions:

CS has been proven very/sufficiently effective by research, data collection and tests

Performed research indicates that little (V2I) infrastructure is required beside V2V to achieve the safety objectives

Scenario 2: Regulated CS + full V2I

CS legislation for the automotive industry will break the vehicle-or-infrastructure-first dilemma; legislation will create the demand most optimal growth possible of CS On Board Units and will decrease the threshold for road operators to make significant investments. Beside V2V V2I is deployed at high density.

Conditions:

CS has been proven very/sufficiently effective by research, data collection and tests

Performed research indicates that a full (V2I) infrastructure is required beside V2V to achieve the safety objectives

Scenario 3: Non-regulated CS, limited V2I

No CS legislation will be imposed. The automotive industry will install CS On Board Units at its own pace (lower than pace of scenarios 1 and 2). V2I is deployed at low density

Conditions:

Research, data collection and tests have shown a sufficient level effectiveness, but does not satisfy rulemaking. Therefore CS will deployed to a limited extent

Scenario 4: Non-regulated CS, full V2I

No CS legislation will be imposed. The automotive industry will install CS On Board Units at its own pace (lower than pace of scenarios 1 and 2). V2I is deployed at high density

Conditions:

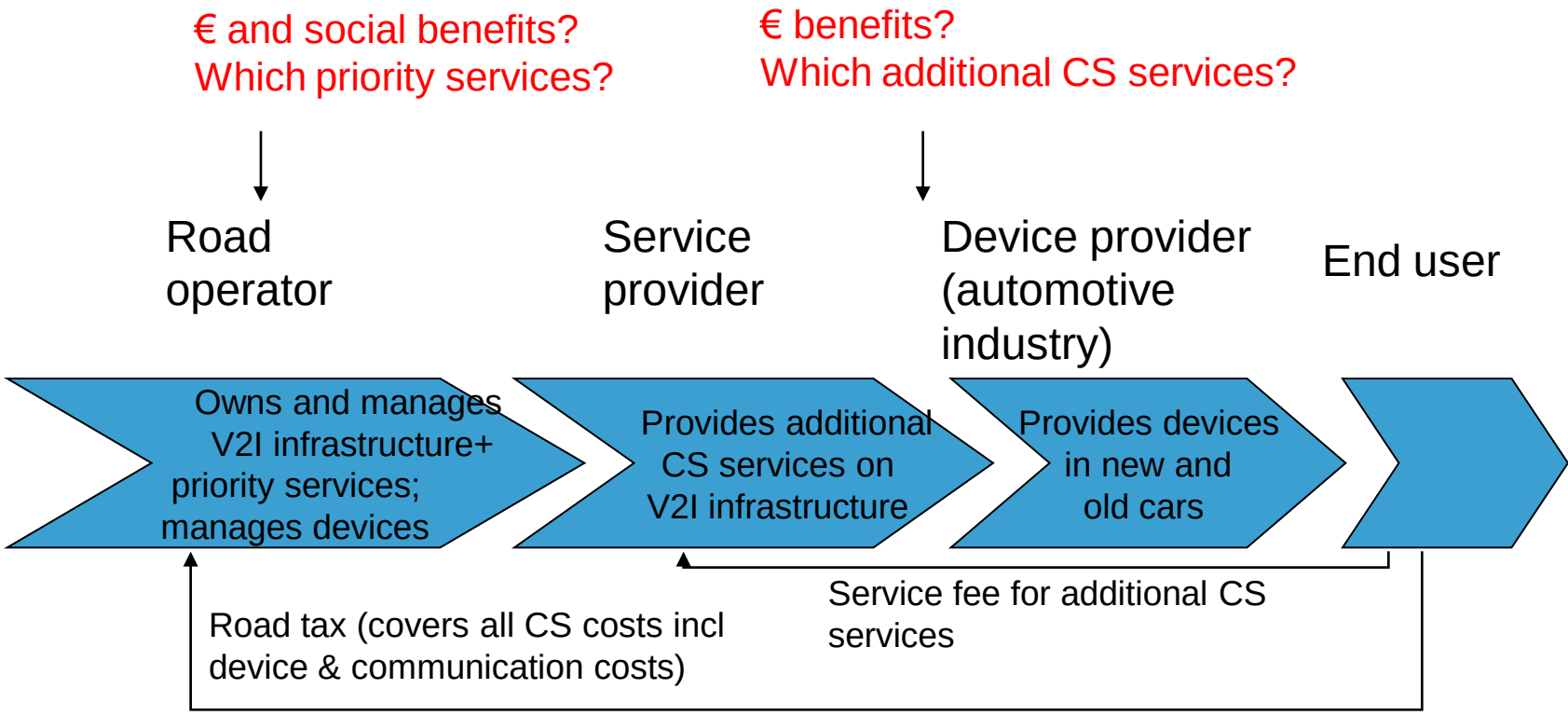
Research, data collection and tests have shown a sufficient level effectiveness. The automotive industry and road operators are committed to deploy V2I and CS to full extent

Business models

A. Closed model

Everything - CS infrastructure, priority services communication & devices- fully managed by road operators

Additional services managed by service provider



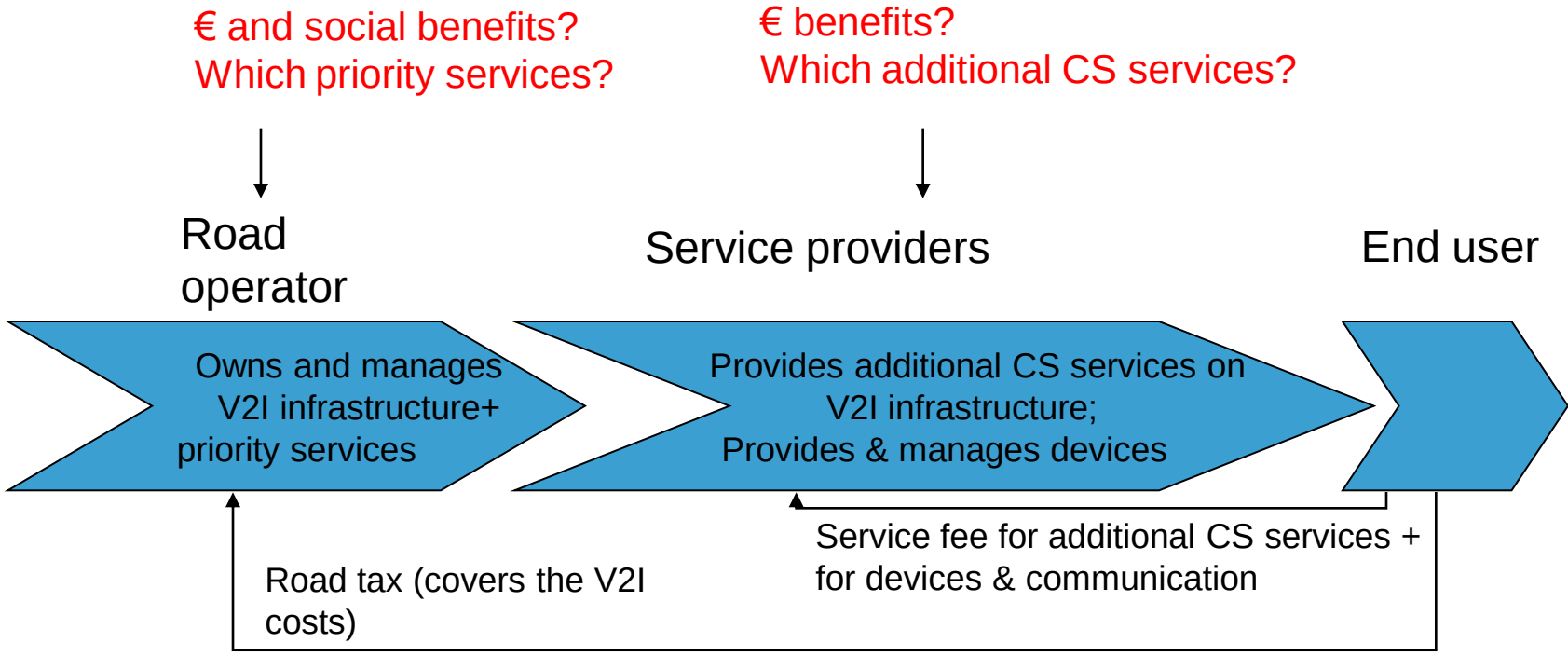
- **Advantage: simplicity**
- **Disadvantage: high(er) investments for road operators**

Business models

B. Open model

V2I infrastructure managed by road operators

Devices & communication left to the service provider/automotive industry



- **Advantage: lower investments and operating cost for road operators; innovation CS in car devices and services through competition**

- **Disadvantage: more complex model**

Given the long deployment period how do we make the model(s) attractive for road operators and service providers?

Questions?