

Ministerie van Verkeer en Waterstaat

Personenvervoer

# **Concept Description Kilometre Price**

May 2007

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## Version history

Date	Version	Status	Changed by	Reason.
12/03/07	0.1	Draft	SEI	First draft
30/03/07	0.2	Draft	EGI, RLA	Draft for discussion
20/04/07	0.3	Working	EGI, RLA	Final draft for review
03/05/07	1.0	Final	EGI, RLA	Final version. Review comments included from SEI, EBO, VHA, JBR, PBR, KHÖ, Jan Vis (RWS-AVV). Acronyms and glossary added.

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# 1. Introduction

## 1.1 Document scope

This document provides a high-level functional description of system and organisation for the Kilometre Price, hereafter referred to as 'KMP'. The scope of this document is the final objective ('eindbeeld') which means that intermediate objective ('tussenbeeld') has not been taken into consideration.

This document describes the **primary** system, using On-Board Equipment (OBE) to measure the usage of the vehicle. In addition, a simpler **secondary** system may be realised for occasional users or as fallback in case of equipment failure. This secondary system is outside the scope of (the current version of) this document.

The systems architecture, including an allocation of processes to sub-systems in the vehicle, at the roadside or in back offices is outside the scope of this document.

Auxiliary, not KMP-specific processes, such as HRM or real estate processes, and workflow processes are also outside the scope of this document and will be part of other documents. Triggers that initiate processes described in this document, for example the trigger 'request for a contract', are therefore out of scope of this document as well.

Note that the subdivision of processes used in this document does not exclude a process being divided into sub-processes and each of these sub-processes being assigned to more than one organisation. For example, the Customer Care process (see section 6) may exist of a Customer Care sub-process for enforcement purposes, which may be assigned to the organisation responsible for other enforcement processes. The clustering of processes to distinct roles, and the assignment of roles to public or private organisations will be part of other documents.

## 1.2 Document purpose

This document is intended to give a high-level overview of specific tasks/processes that have to be in place in the *operational* phase of the KMP. The document describes the processes necessary for KMP on an abstract level connecting these processes using data flows (i.e. information flows). Each process and data flow identified is defined in this document up to the appropriate level.

Secondly, it provides a common terminology to prevent different interpretations and to simplify the communication between parties involved.

### **1.3 Document context**

This document is starting point for a series of documents (to be written) that will define the scope of distinct clusters of tasks for the KMP that will be tendered/assigned by the Ministry of Transport.

The processes and data flows defined in this document serve as a basic description of KMP functionality. On this basis, subsequent documentation can be derived and developed such as system architecture documentation, system design descriptions and requirements specifications. It also serve as a reference for other disciplines working on KMP.

### **1.4 Document structure**

Section 1 – this section – contains an introduction.

Section 2, 'Terms, acronyms and notation' introduces the terms abbreviations and notation used in this document.

Section 3, 'KMP description and context', provides a brief description of the functionality of the KMP, its context and assumptions made.

Section 4, 'Level 1 processes KMP', describes the five major processes and the data flows that are crossing the KMP boundary.

The remaining sections, i.e. Sections 5 - 9, describe the interrelation of these processes, including data outbound and internal flows. Each of these sections starts with an overview of the relations to the other major processes, before detailing the process itself.

## 2. Terms, acronyms and notation

### 2.1 Terms

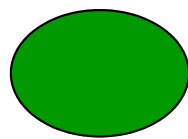
See Annex B.

### 2.2 Acronyms

See Annex A.

### 2.3 Notation

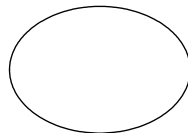
#### Legend



Process that is being described



Top-level process that interacts with the process that is being described



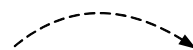
Process that interacts with the process that is being described, but which exists on a higher level



External data flow (i.e. crossing the KMP boundary)



Outbound (i.e. leaving a process) or internal data flow (i.e. from one process to another)



Physical flow



Outbound or internal data flow, greyed for readability reasons to indicate that it holds for all processes



## 3.KMP description and context

### 3.1 Background and scope of the KMP

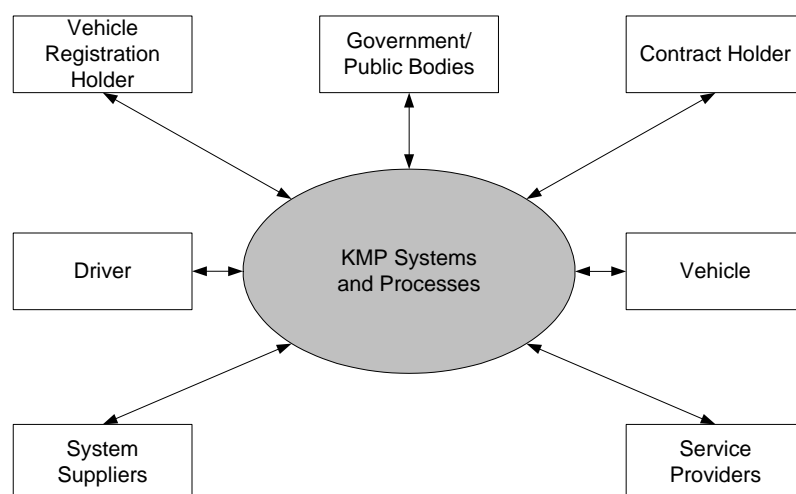
The Government Agreement (2007) formulates the intention to start the introduction of the KMP as soon as possible. A first phase should become operational during this government period (i.e. before 2<sup>nd</sup> quarter of 2011), provided that operational costs and risks are reduced to reasonable levels.

The KMP converts (parts of) existing taxes on purchase and ownership of a vehicle to a fee per distance driven. The fee will be due for any distance driven in the Netherlands. The tariff will depend on:

- *Vehicle characteristics.* As for current taxes, heavy vehicles have a relatively high price per km, 'clean' or 'economic' vehicles have a lower tariff. Vehicle characteristics may be static (e.g. the type of vehicle) and/or dynamic (e.g. the number of axles, presence of a trailer). See also Assumption 5 in section 3.3.
- *Time and location.* This type of differentiation is intended as a means to reduce congestion or local environmental problems (e.g. quality of air).

### 3.2 Context model

The following abstract context model is used to represent the entities that influence the KMP systems and processes, either internally or externally. Each of these entities provides information to systems used or receives information from systems used, to make decisions within the KMP processes. These entities must therefore be taken into account in the design of KMP.



The entities are:

- *Government / public bodies.* The government determines the 'rules of the game' of KMP by imposing and enforcing laws, rules, and setting tariff structures. These can be local, regional, national and/or European governments. This includes:
  - *Vehicle Registration Authority.* The vehicle registration authority is the authority that keeps the official register in which the vehicle and its owner or its lessee are listed and which issues the vehicle's registration certificate.
  - *Tariff Authority.* The Tariff Authority is responsible for setting up and maintaining the KMP tariff policy.
  - *Enforcement Authority.* The Enforcement Authority is responsible for checking if KMP legislation is met.
  
- *Contract Holder.* The Contract Holder is the entity that receives the KMP invoice eventually, see also Assumption 11 in section 3.3. The Contract Holder has a KMP contract with one or more KMP Service Provider(s), for example for OBE maintenance, or for KMP registration. Examples of Contract Holders could be the actual driver, the Vehicle Registration Holder, or the vehicle owner.
  
- *Vehicle Registration Holder.* This entity is liable for the KMP fee. However, the Contract Holder may pay the fee on its behalf.
  
- *Vehicle.* The Vehicle is included in the context model as one of the fee determining entities as well as for licence plate recognition purposes and for being equipped with OBE. The Vehicle is no active element within the actual KMP processes.
  
- *Driver.* This is the entity actually driving the vehicle. The Driver receives feedback from the OBE. The Driver is no active entity within the actual KMP processes.
  
- *System Suppliers.* The System Suppliers provide the systems (hardware) that are required within the KMP. Examples of systems are OBE, enforcement systems, central IT systems, and European (EETS) OBE.
  
- *Service Providers.* The Service Providers provide (KMP-related) services to Contract Holders or other entities. Examples of services are installing or maintaining hardware provided by System Suppliers of OBE and enforcement equipment and GNSS, and supporting billing and payment collection process functionalities (e.g. by financial institutions).

### 3.3 Working assumptions

When writing this document certain choices were still open for discussion, e.g. choices related to legislation, the organisational model, the system architecture, and the technologies to be used as well as the procurement strategy. Therefore, the following assumptions were made for this document:

*Assumption 1.* The Contract Holder has a contractual relation with a Service Provider for KMP services.

Rationale: This assumption is introduced to clearly identify one entity that signs up to the KMP not necessarily being the vehicle owner or Vehicle Registration Holder. E.g. a leasing company may be the vehicle owner, but the leasing driver may sign a contract for KMP services.

*Assumption 2.* The Vehicle Registration Holder registered in the Netherlands is liable for the KMP fee. However, other parties, e.g. the Contact Holder, may pay the fee on behalf of the Vehicle Registration Holder.

Rationale: In case of prosecution for violation, it must be clear which entity is liable for legal charges. Depending on legislation choices to be made, the Contract Holder, Vehicle Registration Holder and Driver (separately or jointly) can be held liable for the KMP payment. For the readability of this document, Assumption 2 is made.

*Assumption 3.* An external authority<sup>1</sup> will be responsible for tariff policy. This tariff policy is input for defining the KMP tariff scheme. Within the context model this authority will be referred to as Tariff Authority. This authority is (managed and controlled closely by) the Dutch government.

Rationale: The applied tariffs per kilometre driven and per moment in time will be determined by an external body to assure objectivity and equal treatment. This assumption does not exclude the possibility for service providers to introduce additional rates or reductions.

*Assumption 4.* OBE (On-Board Equipment) is used to register the KMP-relevant usage of the vehicle. This equipment has a one-to-one relationship with the vehicle (i.e. a vehicle is uniquely, logically linked to the OBE and vice versa).

Rationale: This is generally referred to as 'autonomous OBE concept': the OBE collects and sends the movement data itself. As opposed to a solution where vehicle passages are recorded by equipment at the roadside. Note that the autonomous OBE concept is considered the final objective ('eindbeeld') of KMP.

*Assumption 5.* The vehicle characteristics as linked to the OBE are fixed (static) and cannot be adjusted using an operational OBE.

Rationale: This assumption minimises the OBE functionality (e.g. it is not possible for the Driver to change the number of axles (for trucks) or to add a trailer to the vehicle characteristics) and avoids complex enforcement functionality to check if the OBE corresponds to the current vehicle characteristics. Changing the vehicle characteristics can be done when the OBE

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<sup>1</sup> It is possible that more than one Tariff Authority exists.

is updated (see section 6). Note that policy concerning this subject is not yet determined. It may be necessary to introduce dynamic vehicle characteristics which may invalidate this assumption.

*Assumption 6.* The OBE needs minimal user interaction to register the KMP-relevant usage of the vehicle.

Rationale: The use of the KMP must be simple and may not invoke additional actions from the driver, especially not while driving, for reasons of public support, user-friendliness, and road safety. User registration of kilometres driven using for example pen and paper are therefore out of scope. User action may be necessary e.g. for sending the movement data from the OBE to the back office for processing.

*Assumption 7.* The KMP applies to all kilometres driven in the Netherlands and the tariff depends on time, location and vehicle characteristics.

Rationale: The KMP applies to all kilometres driven within the Netherlands, i.e. inside and outside the Dutch road network.

*Assumption 8.* The KMP applies to all motor vehicles (e.g. cars, buses, motorcycles, vans, trucks) as established by Dutch law, except for those vehicle categories that are explicitly excluded in the legislation and tariff policy to be defined (e.g. ambulance, fire engine, police car).

Rationale: It must be clear to which vehicles KMP applies.

*Assumption 9.* Sending claims to international service providers is considered in scope for this document.

Rationale: Foreign vehicles linked to international service provider contracts may make use of the KMP. These international service providers may send (aggregated) movement and/or charging data to the KMP, either directly or indirectly via the vehicles OBE. In other words, the role of international (EETS) service providers providing other services than KMP services, is not in scope of KMP; the Toll Charger role within EETS is in scope of this document, however.

*Assumption 10.* This document describes the primary system of the final objective, using OBE to measure the usage of the vehicle. In addition, a simpler secondary system may be realised for occasional users or as fallback in case of equipment failure. Such a secondary system is outside the scope of this document.

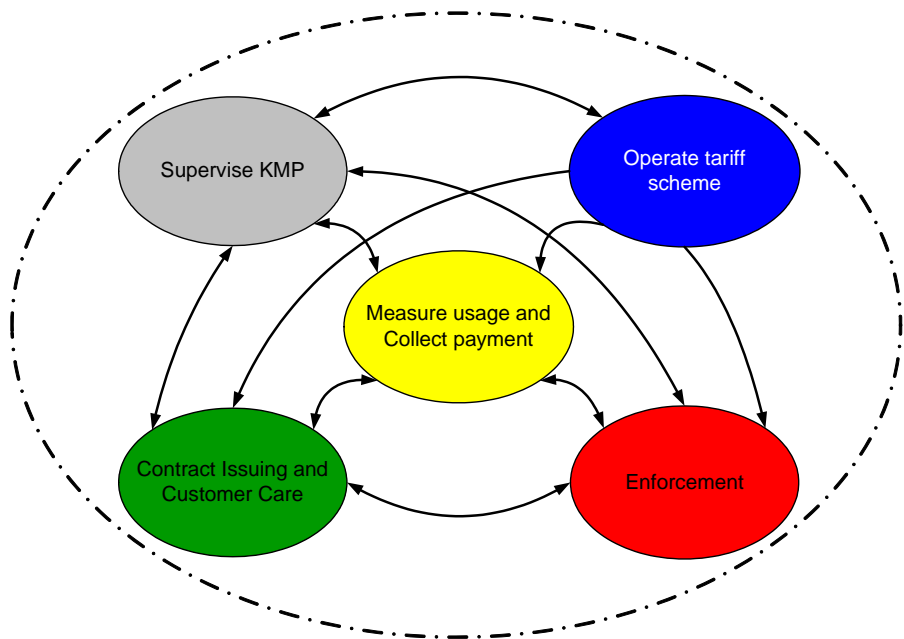
Rationale: This assumption is added to simplify matters for the initial versions of this document. In a later stage, processes for a secondary system (supporting foreign and incidental drivers) may be incorporated.

*Assumption 11.* The Card Holder receives a periodic invoice for the kilometres driven within the Netherlands.

Rationale: Periodic invoicing can be done in different ways, e.g. a monthly deduction of a prepaid balance with an annual statement (like currently done for public utilities), monthly payment of kilometres driven per month by subsequent calculation. Real-time payment via declarations sent by the Contract Holder is however not excluded.

## 4. Level 1 processes KMP

### 4.1 Overview of processes



The figure above shows the main processes of the KMP. The remainder of this section gives a brief summary of these processes. The subsequent sections (sections 5 to 9) provide a comprehensive description of each process (level 1) and their sub-processes (level 2 and in some cases level 3).

**Measure usage and collect payment.** This is the main process for the KMP. It comprises the following:

- Continuous measuring of the kilometres driven by vehicles (as far as relevant for the KMP).
- Collecting movement data (e.g. distance, time, geographical data) and OBE related data (e.g. identification, integrity).
- Transforming (either in Back Office or in OBE) the collected movement data into amounts to be charged using the current tariff scheme, for example via map matching.
- Gathering information from monitoring the proper functioning of the OBE.
- Assembling information to be provided to the Contract Holder.
- Sending invoices and collecting the payment for the amount due.

**Contract Issuing and Customer Care.** This process comprises equipping vehicles with OBE, initialising the OBE for use in the KMP, establishing a contract with the vehicle owner/vehicle registration holder/driver and handling of inquiries and complaints. It consists of:

- Issuing, and maintaining and terminating KMP contracts.

- Enabling a vehicle for KMP:
  - Distributing the OBE.
  - Installing the OBE in vehicle.
  - Initialising the OBE for KMP.
  - Commissioning/decommissioning the OBE.
- Maintaining the OBE:
  - Updating the OBE for KMP.
  - Checking and repairing an OBE.
  - Blocking OBE (e.g. in case of loss).
- Handling of any inquiries and complaints for customer care purposes.

**Operate tariff scheme.** This process comprises the transformation of tariff policy into the operational parameters for the KMP. It consists of:

- Maintaining tariff scheme.
- Maintaining vehicle classes.
- Maintaining geo-object and time-object data.

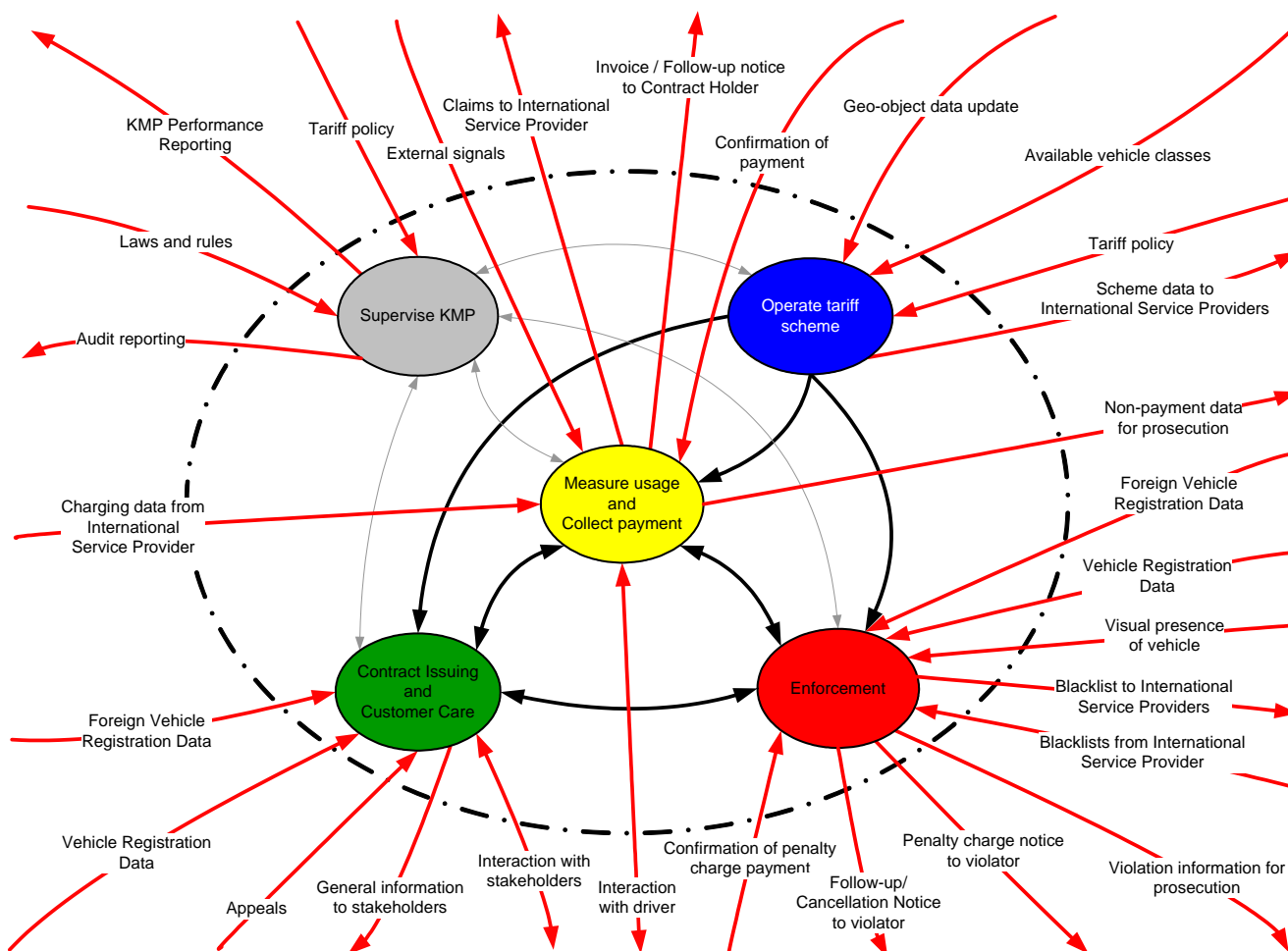
**Enforcement.** This process comprises all activities to detect and penalise violations of the KMP. It consists of:

- Checking consistency of declarations.
- Performing physical checks:
  - Performing remote and nearby checks.
  - Performing physical OBE checks.
  - Stopping vehicles.
- Deciding on and penalise violations.
- Managing blacklists.

**Supervise KMP.** This process comprises all activities to assess that the entire system meets the required performance and is compliant with relevant rules and regulations. It consists of:

- Maintaining KMP scheme standards.
- Performance monitoring KMP.
- Certifying and auditing organisations and authorities.
- Type approving and certifying system components.

## 4.2 External data flows



The external data flows (crossing the KMP boundary) are listed below in alphabetical order. The link to entities in the context model is not included as the organisational model of KMP is still subject of discussion.

*Appeals.* This data flow contains appeals from entities liable for penalty charges that wish to defend against an imposed penalty. The appeals are handled by customer care activities in the process 'Contract issuing and Customer care'.

*Audit Reporting.* This data flow contains the results of internal audits performed on each individual (sub-)process.

*Available vehicle classes.* This data flow contains the vehicles classes available on the market that may participate in the KMP and that should be taken into account while defining the tariff scheme.

*Blacklists from International Service Provider.* This includes OBE IDs and Vehicle Registration Numbers from foreign Service Providers of

OBE and vehicle that are subject to enforcement. Following the European Directive 2004/52/EC, vehicles with functioning OBE and a Contract Holder with a valid contract from foreign Service Providers of European Electronic Toll Service (EETS) must be regarded as compliant in the KMP. Such foreign Service Providers may circulate blacklists for OBE that are subject to enforcement in the KMP processes.

*Blacklists to International Service Providers.* This includes OBE IDs and Vehicle Registration Numbers from KMP Service Providers of OBE and vehicle that are subject to enforcement. Foreign Service Providers may circulate blacklists for OBE that are subject to KMP enforcement in their processes.

*Charging data from International Service Provider.* For users with a contract from an International Service Provider, the generation of charging data itself lies outside the system boundaries of the KMP. The charging data will contain all information required to calculate the charge. It may require further processing within the KMP to generate correct input for the billing data.

*Claims to International Service Provider.* This data flow consists of the KMP amounts and service details to be charged to Contract Holders of International Service Providers. For such Contract Holders, the payment collection will be done by this International Service Provider.

*Confirmation of payment.* This data flow represents the confirmation information of an invoiced and received payment. The concerning invoice status is then changed to state that the invoice was paid. These confirmations can also be for payments of foreign users of the Dutch road network.

*Confirmation of penalty charge payment.* This data flow represents the confirmation of the payment of a penalty charge (fine) by the violator.

*External signals.* This data flow contains information originating from systems outside the KMP, used for determination and measurement of road usage. Examples are satellite GNSS signals (GPS and or Galileo), GNSS augmentation signals or localisation information from mobile networks.

*Follow-up notice to Contract Holder.* This data flow contains information for reminding a Contract Holder of a previously sent and yet unpaid invoice. A surcharge may be added to the KMP fee due.

*Follow-up/Cancellation notice to violator.* This data flow contains either information for a reminder to pay a fine due to a violation of the KMP, or a message that the penalty charge has been cancelled.

*Foreign Vehicle Registration Data.* This information contains information relevant for the KMP for road users with a foreign license plate, such as the registered holder of the vehicle, address and domicile, characteristics of the vehicle. It is required for 'Enforcement' (and



possibly for 'Contract Issuing' and 'Operate Tariff Scheme'). For foreign vehicles the information shall originate from a foreign Vehicle Register.

*General information to stakeholders.* This data flow includes general information provision to stakeholders. A stakeholder is everyone concerned with the KMP, so for example Customer Care is not only for Contract Holders enquiring their invoice, but also for OBE suppliers.

*Geo-object data update.* This data flow includes changes to the Dutch road network, for example new roads being built or KMP boundaries being changed.

*Interaction with driver.* This data flow consists of information to the driver on the status of the OBE (OK/NOK). It might also contain information on the current tariff or amount due for the current trip. Furthermore, it may contain the driver's input to the OBE, e.g. regarding changes in dynamic vehicle characteristics.

*Interaction with stakeholders.* This data flow contains information that may be required from stakeholders. Stakeholders are for example Contract Holders and (foreign) Vehicle Registration Holders. Types of interaction are requesting and issuing a contract while registering for the KMP. It may contain Vehicle Registration Data, Contract Holder details and payment preferences. It also includes specific inquiries and complaints by stakeholders as handled by customer care activities.

*Invoice to Contract Holder.* This data flow contains information on the amount due for the KMP and certain details of road usage. Invoices may be sent to the Contract Holder on paper or in electronic form.

*KMP Performance reporting.* This data flow contains information on the overall performance of the KMP. It will contain information on periodic measurements of financial and technical performance, and audits of crucial processes. It can be used for reporting to any entity outside the KMP that needs performance data (e.g. legislators, parliament, interest groups).

*Laws and rules.* This data flow comprises any legislation with an explicit or implicit influence on the working of the KMP and may be used to assess the current functioning when supervising the KMP.

*Non-payment data for prosecution.* This data flow represents information on Contract Holders and invoices which have not been paid (after repeated follow-up notices). The information can then be used to press legal charges.

*Penalty charge notice to violator.* If a failure to meet the obligations for the KMP is observed, a penalty charge notice may be sent to the person responsible (i.e. Contract Holder, Vehicle Registration Holder, Driver).

*Scheme data to International Service Providers.* This data flow contains information on the tariff system, network, time- and geo-objects and required data formats as needed by the International Service Provider to be able to deliver the required charging/billing data for its Contract Holders.

*Tariff policy.* This data flow consists of decisions affecting tariffs, tariff schemes and tariff structures. A national or local government takes these decisions, outside the system boundaries of the KMP.

*Vehicle Registration Data.* This data flow mainly consists of information from the Dutch national Vehicle Register. It contains information relevant for the KMP, such as the registered holder of the vehicle, address and domicile, and vehicle characteristics. The data are used for 'Enforcement' and may be used in the 'Contract Issuing' process as well.

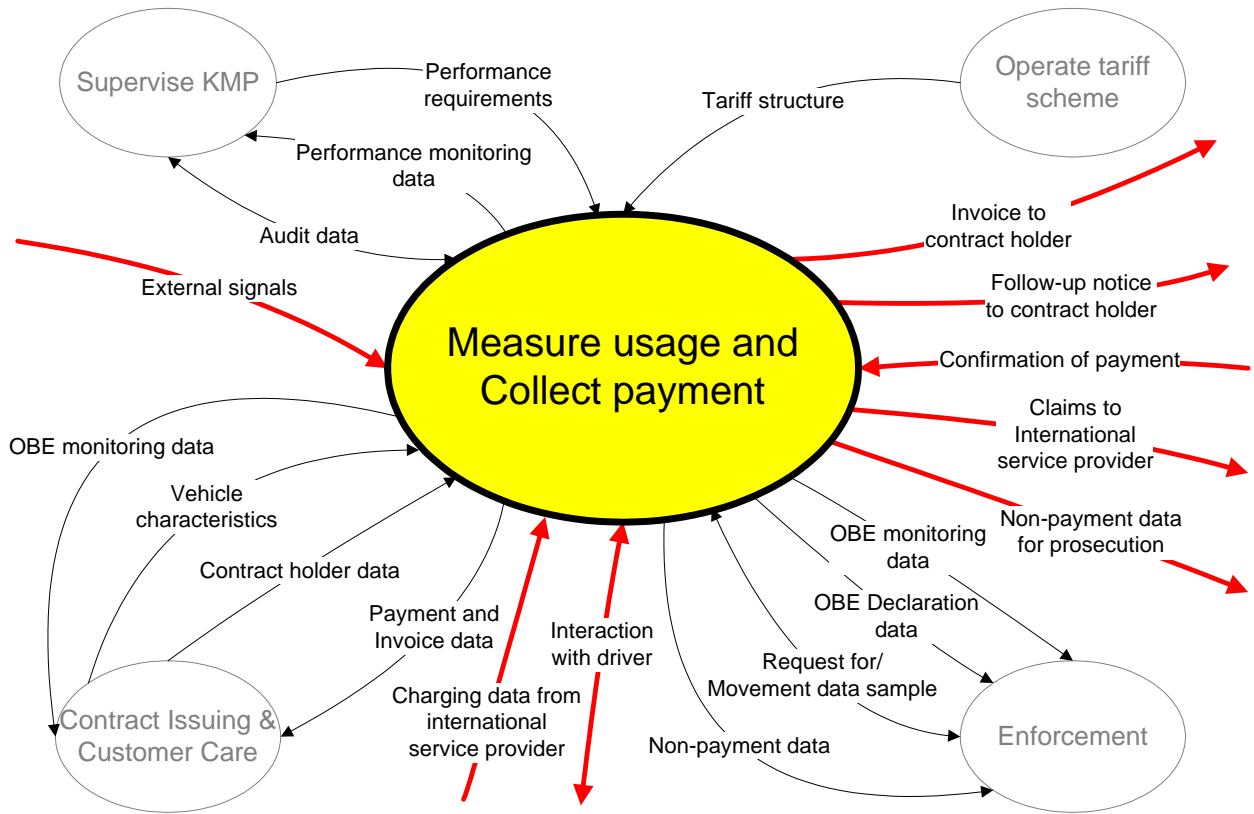
*Violation information for prosecution.* This data flow contains information provided to external entities for the follow-up of repetitious or very severe violations beyond standard penalty measures handled within the enforcement process of the KMP.

*Visual presence of vehicle.* This represents the visual presence of a vehicle on a certain road, including its visual identity (i.e. Vehicle Number Plate). This information is used for enforcement purposes. Note that in the future electronic vehicle identification may replace or be added to this visual identity.

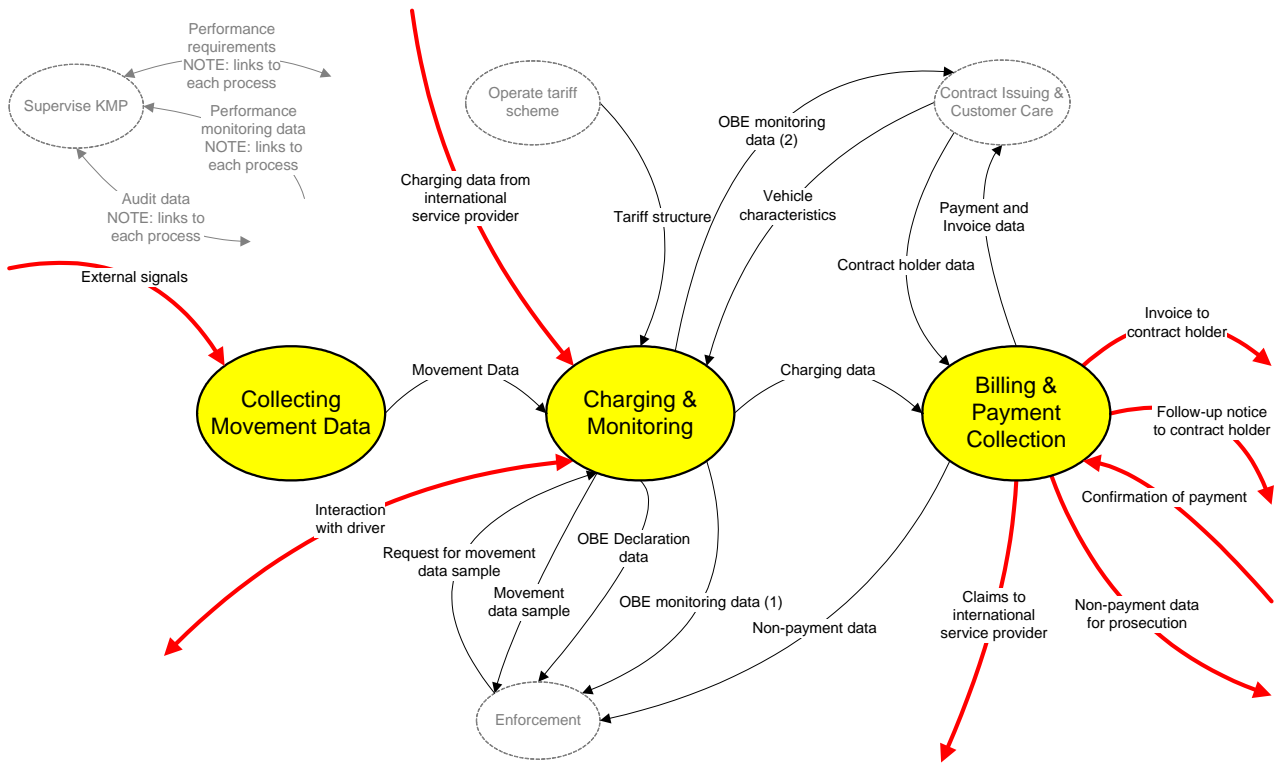
**NOTE** The following sections describe each of the level 1 KMP processes. Per process only outbound flows and internal flows are described.

# 5. Level 2: Measure Usage and Collect Payment

This chapter provides a 2<sup>nd</sup> level description of the process 'Measure Usage and Collect Payment', as described in section 4.1.



### 5.1 Overview of processes



**Collecting Movement Data.** This process consists of collecting the raw data from which the road usage can be measured. The raw data is expected to contain positions with timestamps with a specified sample interval, possibly enriched using additional data from auxiliary sensors to improve accuracy or availability of the measurement. Additional sensor data may contain position, velocity, acceleration, direction or distance information. It is assumed that this process takes place in equipment in the vehicle (OBE).

**Charging & Monitoring.** This process transforms raw data (e.g. positions with timestamps) into amounts to be charged. This process requires a tariff structure from 'Operate Tariff Scheme' and the determination of the applicable tariff class for the vehicle given its vehicle characteristics. This process also monitors the proper functioning of the OBE.

**Billing & Payment Collection.** This process consists of preparing and sending the invoices (i.e. billing) and collecting the chargeable amounts from the Contract Holder (i.e. payment collection). It also contains the follow-up notice process for Contract Holders who fail to pay in time and escalation processes for invoices that have not been paid (note that this is not handled via Enforcement).

## 5.2 Outbound data flows

*Audit data.* To safeguard principles of equal treatment of citizens, systems and operations of the KMP processes are subject to periodic audits. This data flow contains data that is used as input to these periodic audits performed in the 'Supervise KMP' process.

*Movement data sample.* This data flow represents a sample of the movement data (e.g. previous day, last 100 kilometres driven) for enforcement purposes when checking for infringements.

*Non-payment data.* This data flow contains information on Contract Holders and invoices that have not been paid within the period fixed for payment. The information is provided to the Enforcement process to be decided on the violation caused by non-payment.

*OBE Declaration data.* This data flow contains the information as received from the OBE, concerning the usage (note that the level of content in this flow depends on implementation choices).

*OBE monitoring data (1).* This data flow contains a dedicated subset of information from the OBE as sent to 'Enforcement', concerning the status of the process and the equipment. It may contain a log of special system events (e.g. power switch on/off, download/upload of data, large discontinuities in position, OBE status NOK warning).

*OBE monitoring data (2).* This data flow contains a dedicated subset of information from the OBE as sent to 'Contract Issuing & Customer Care', concerning the status of the process and the equipment. It may contain a log of special system events (e.g. power switch on/off, download/upload of data, large discontinuities in position, OBE status NOK warning).

*Payment and invoice data.* This data flow contains information on all invoices sent to Contract Holders and the associated payment status. This information is used by customer care (see process 'Contract Issuing & Customer Care').

*Performance monitoring data.* This data flow represents any data that can be used to assess, manage and supervise the KMP (e.g. total numbers, duration, advices, etc.)

## 5.3 Internal data flows

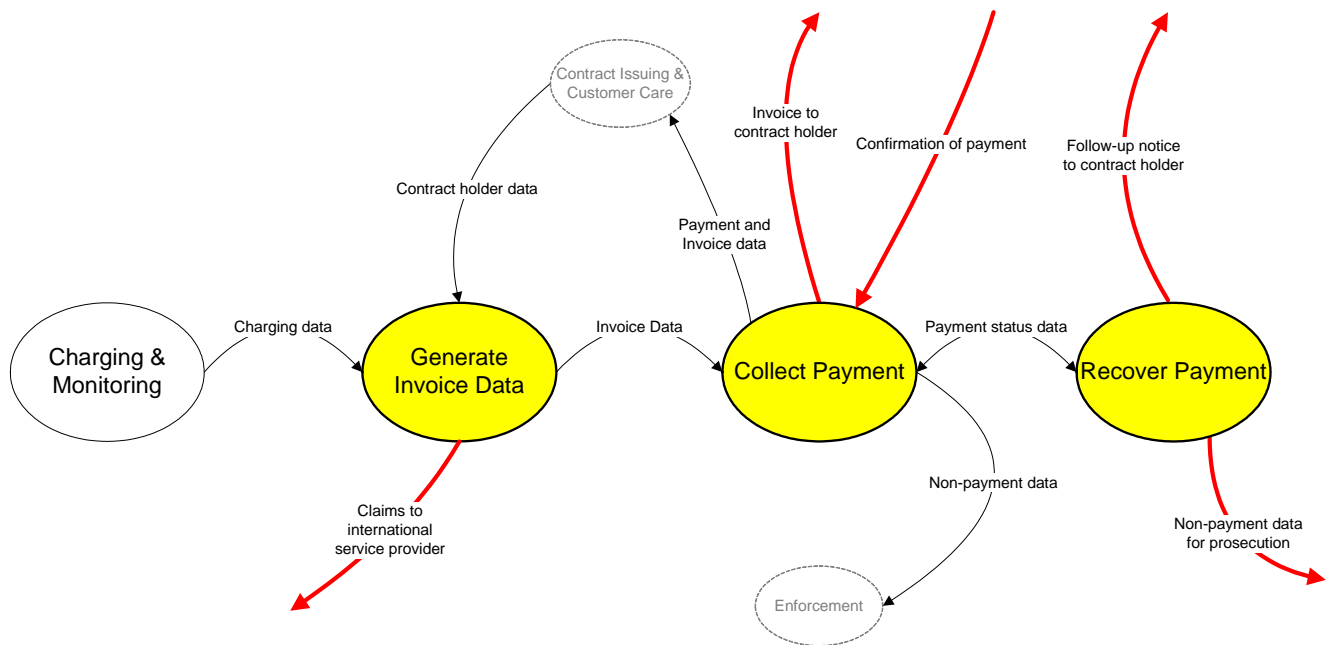
*Charging data.* This data flow contains the resulting amount and specification of usage required for invoicing a Contract Holder.

*Movement Data.* This data flow contains the 'raw measurement data' that is used to determine the chargeable usage of the vehicle. This includes information on position, time, and possibly other sensor data. In case the process 'Collect Movement Data' is partly or fully allocated

to the OBE, an ID to uniquely identify the vehicle/contract to which the data applies is part of the flow.

## 5.4 Level 3: Billing & Payment Collection

### 5.4.1 Overview of processes



**Generate Invoice Data.** This process uses the Charging Data to generate data for invoices to be sent. Specific Contract Holder data is added and claims to international Service Providers are accumulated. The Invoice Data is then sent for processing to the process 'Collect Payment'.

**Collect Payment.** This process handles the sending of invoices and tracking the payment status of fees due.

**Recover Payment.** This process covers the escalation for non-payment of KMP fees. The process handles follow-up notices with possible surcharges for non-payment and may escalate to legal prosecution for recurrent non-payment.

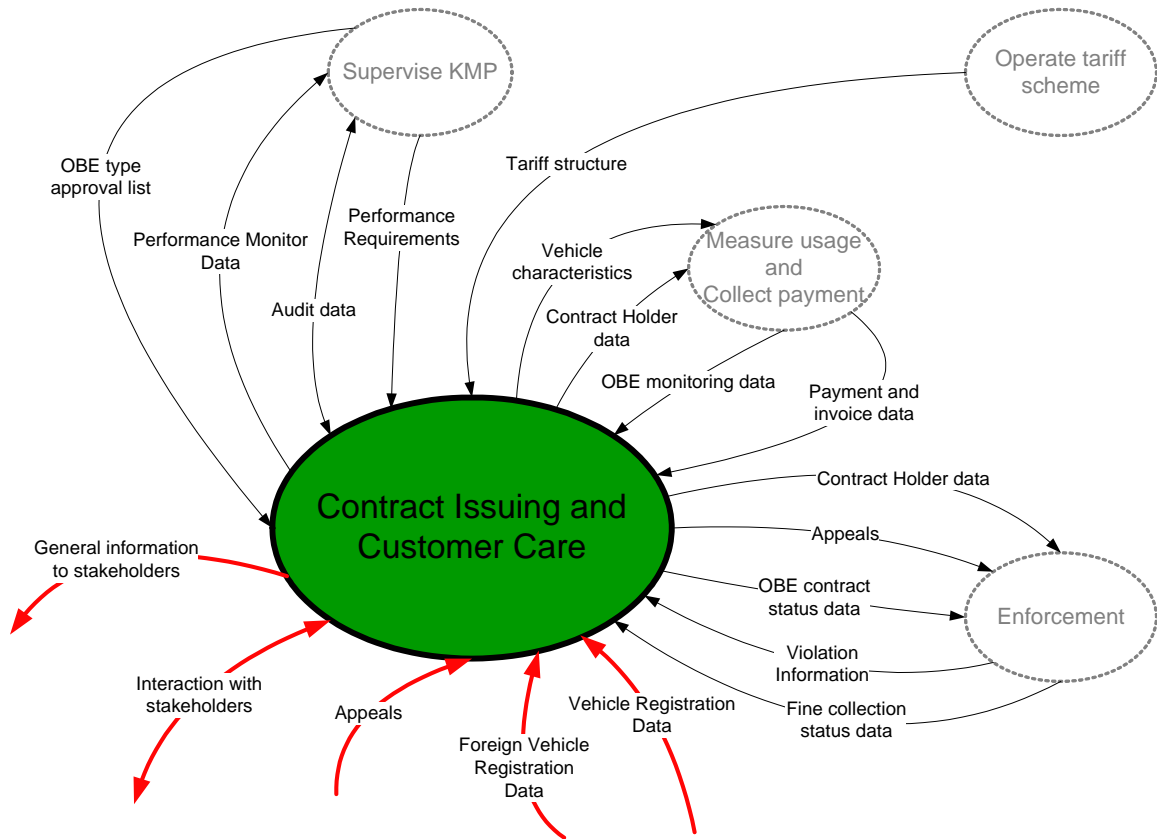
### 5.4.2 Internal data flows

*Invoice data.* This data flow represents data for the invoices to be sent as generated from the Charging Data.

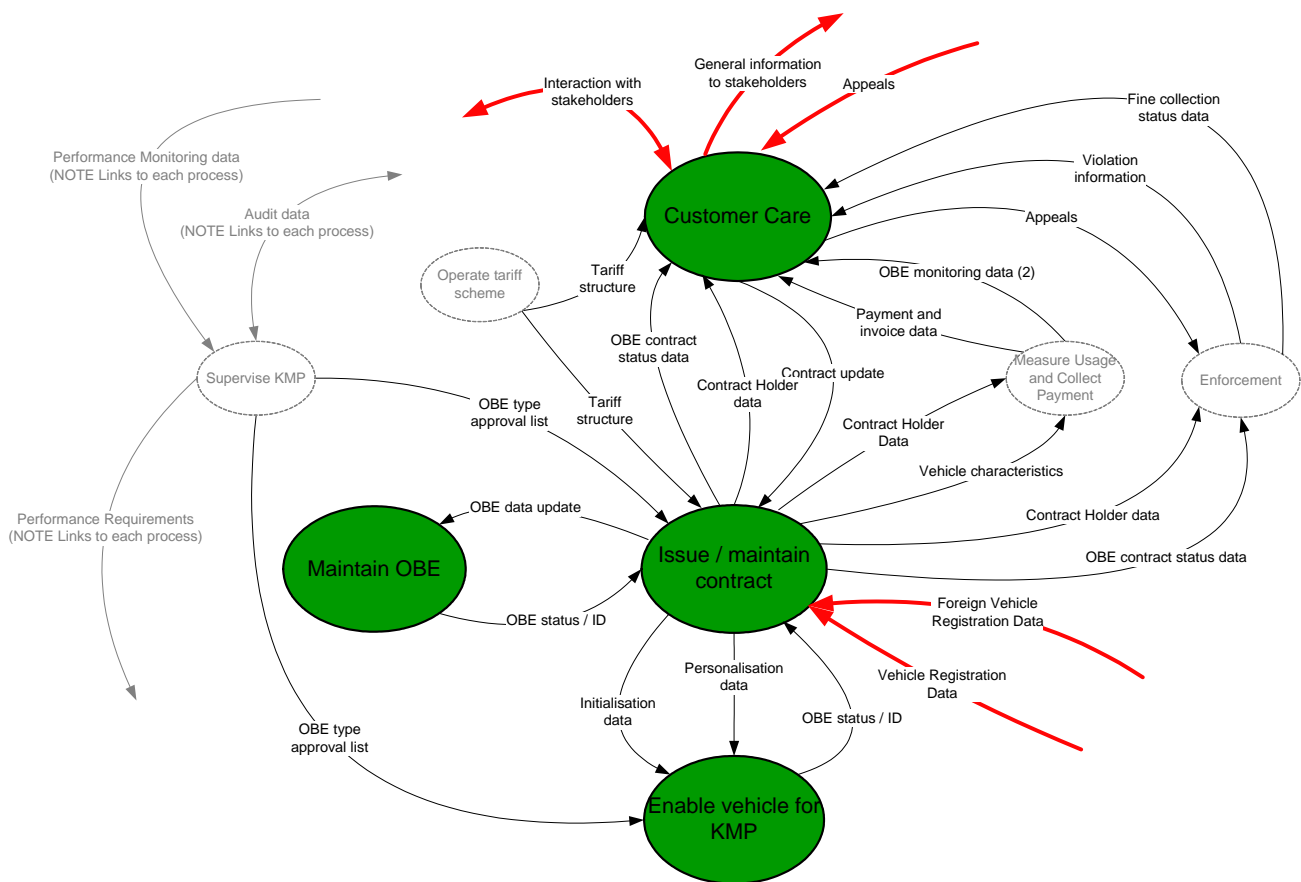
*Payment status data.* This data flow contains information on the payment status of debts.

## 6. Level 2: Contract Issuing and Customer Care

This chapter provides a 2<sup>nd</sup> level description of the process 'Contract Issuing and Customer Care', as described in section 4.1.



## 6.1 Overview of processes



**Customer Care.** This process comprises generation and distribution of general information to the public concerning rights and obligations, tariffs, vehicle classes, installation, repair and replacement of OBE etc. It also consists of interaction with individual stakeholders (complaint services and help desk) such as Contract Holders on invoices, payments, notifications concerning defect OBE and penalty charge notices.

**Issue/maintain contract.** It is assumed that there will be a contractual relation between the Contract Holder and an organisation for the provision of services for the KMP (the so-called Service Provider). This process acquires and stores all data relating to the contract (relating to Contract Holder, vehicle, OBE and payment preferences), and processes changes.

**Enable vehicle for KMP.** This process concerns the enabling of the vehicle for KMP purposes. It comprises the life cycle of the OBE within KMP: from distribution to end-users, installation in vehicles, initialisation, commissioning to decommissioning of OBE.

**Maintain OBE.** This process comprises the update of the OBE to enable changes in tariffs, geo objects, functional improvements etc. and the repair/replacement of defect OBE.



## 6.2 Outbound data flows

*Appeals.* This data flow to 'Enforcement' contains a subset of information from the external data flow *Appeals* containing appeals from Contract Holders or Vehicle Registration Holders who wish to defend against an imposed penalty.

*Audit data.* To safeguard principles of equal treatment of citizens, systems and operations of the KMP processes are subject to periodic audits. This data flow contains data that is used as input to these periodic audits performed in the 'Supervise KMP' process.

*Contract Holder data.* This data flow to 'Measure usage and Collect payment' and 'Enforcement' contains personal details such as names, addresses, payment conditions and other information of Contract Holders, necessary for billing and enforcement purposes. This data flow may contain a subset of Contract Holder data relevant per top-level process.

*OBE contract status data.* This flow to 'Enforcement' contains data to be stored in the OBE that is specific for the Contract Holder, vehicle type and vehicle (e.g. Vehicle Registration Number) and contains the status of the OBE (e.g. commissioned).

*Performance monitoring data.* This data flow represents any data that can be used to assess, manage and supervise the KMP (e.g. total numbers, duration, advices, etc.)

*Vehicle characteristics.* This data flow contains vehicle characteristics needed for charging within the process 'Measure usage and Collect payment'.

## 6.3 Internal data flows

*Contract Holder Data.* See section 6.2.

*Contract update.* This data flow contains updates to contract details that have impact on the KMP. Examples of updates are change of vehicle and change in address routed through Customer Care via interaction with the Contract Holder.

*Initialisation data.* This data flow contains generic and vehicle class specific KPM data that needs to be stored in OBE installed in vehicles. It may contain geographical data, applicable tariffs for all vehicle characteristics and software modules. The 'Enable vehicle for KMP' process loads this data into the OBE.

*OBE Contract Status Data.* See section 6.2.

*OBE data update.* During the operational life of the OBE, tariff structures, geo-objects, security data, software version etc. may

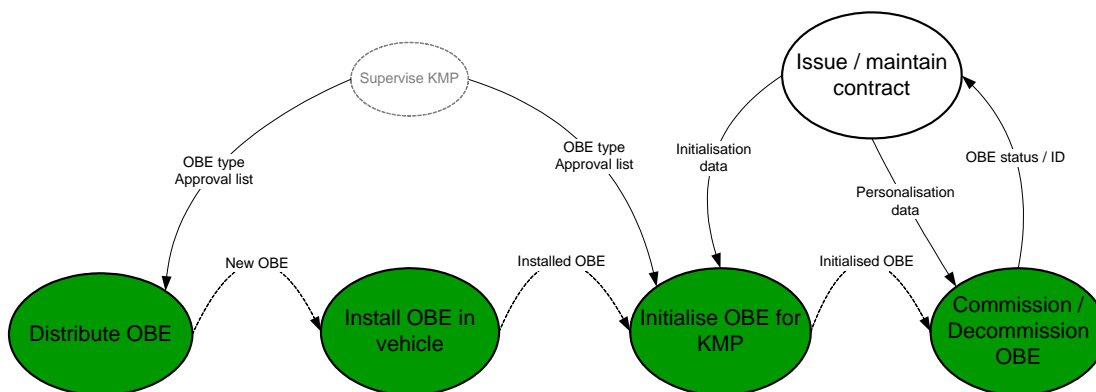
change. This data flow contains updates to the data stored in the OBE during the 'Maintain OBE' process, for example tariff structure, security data, or OBE system software.

*OBE status / ID.* Contains information on the OBE status, e.g. commissioned or decommissioned, repaired (a case for which a defect has been reported may require specific handling in the 'Enforcement' process), new software version installed.

*Personalisation data.* This data flow contains data that is stored in the OBE in the 'Enable vehicle for KMP' process. The data is specific for the Contract Holder, vehicle class and vehicle (e.g. Vehicle Registration Number) and contains the status of the OBE (e.g. commissioned).

## 6.4 Level 3: Enable vehicle for KMP

### 6.4.1 Overview of processes



When enabling a vehicle for KMP, several processes need to be in place. The order of these processes can vary depending on the implementation of the KMP. As an example, the OBE can be installed while already being initialised and commissioned/personalised. OBE can also be installed in a more generic state i.e. before initialisation and personalisation. The latter is depicted in the figure above.

**Distribute OBE.** This process concerns the distribution of OBE to end-users. Distribution may take place via retail, mail order, via installation workshops or other. To help the end-users to select a type approved OBE, an OBE type approval list is available.

**Install OBE in vehicle.** This process concerns the installation of OBE in vehicles. Installation is likely to comprise fixation of a box on/under the dashboard, connection to the vehicle battery and ignition. It may require mounting of a separate antenna. Installation may take place in (certified) workshops. It is not excluded however that the Vehicle Registration Holder performs the installation himself.

**Initialise OBE for KMP.** This process concerns loading generic KMP identification data, scheme and generic tariff structure data into the

OBE. Within this process it is checked whether the OBE exists in the OBE type approval list.

**Commission/decommission OBE.** This process switches the OBE status to operational. It requires functional and correctly initialised and personalised OBE. The ID and status of OBE is registered with the associated contracts (in the central systems of relevant Service Providers<sup>2</sup>). As part of the commissioning process Contract Holder data and security data (optionally) is stored in the OBE, for example in a secure module. Commissioning is – normally – the final step before the OBE starts its operational life. At the end of its operational life, the OBE is decommissioned.

Note: OBE may be a dedicated stand-alone device, but also integrated in a multi-purpose in-car platform.

### 6.4.2 Internal data flows

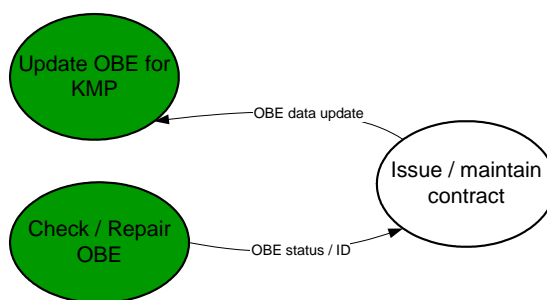
*Installed OBE.* This is the 'physical' flow of OBE that have been installed in vehicles.

*Initialised OBE.* This is the 'physical' flow of OBE that have been initialised for KMP.

*New OBE.* This is the 'physical' flow of new OBE. OBE can either be type approved or not type approved (illegal). The later are however not suitable for KMP and will be refused in the 'Initialise OBE for KMP' process.

## 6.5 Level 3: Maintain OBE

### 6.5.1 Overview of processes



**Update OBE for KMP.** This process comprises the update of operational data (and possibly software) in the OBE to enable changes in tariffs, geo objects, functional improvements etc. The communication of update information may take place via a wireless channel.

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<sup>2</sup> A Contract Holder can have multiple contracts with several Service Providers, Examples are an OBE maintenance contract and a KMP contract, that enables the Contract Holder to participate in the KMP.

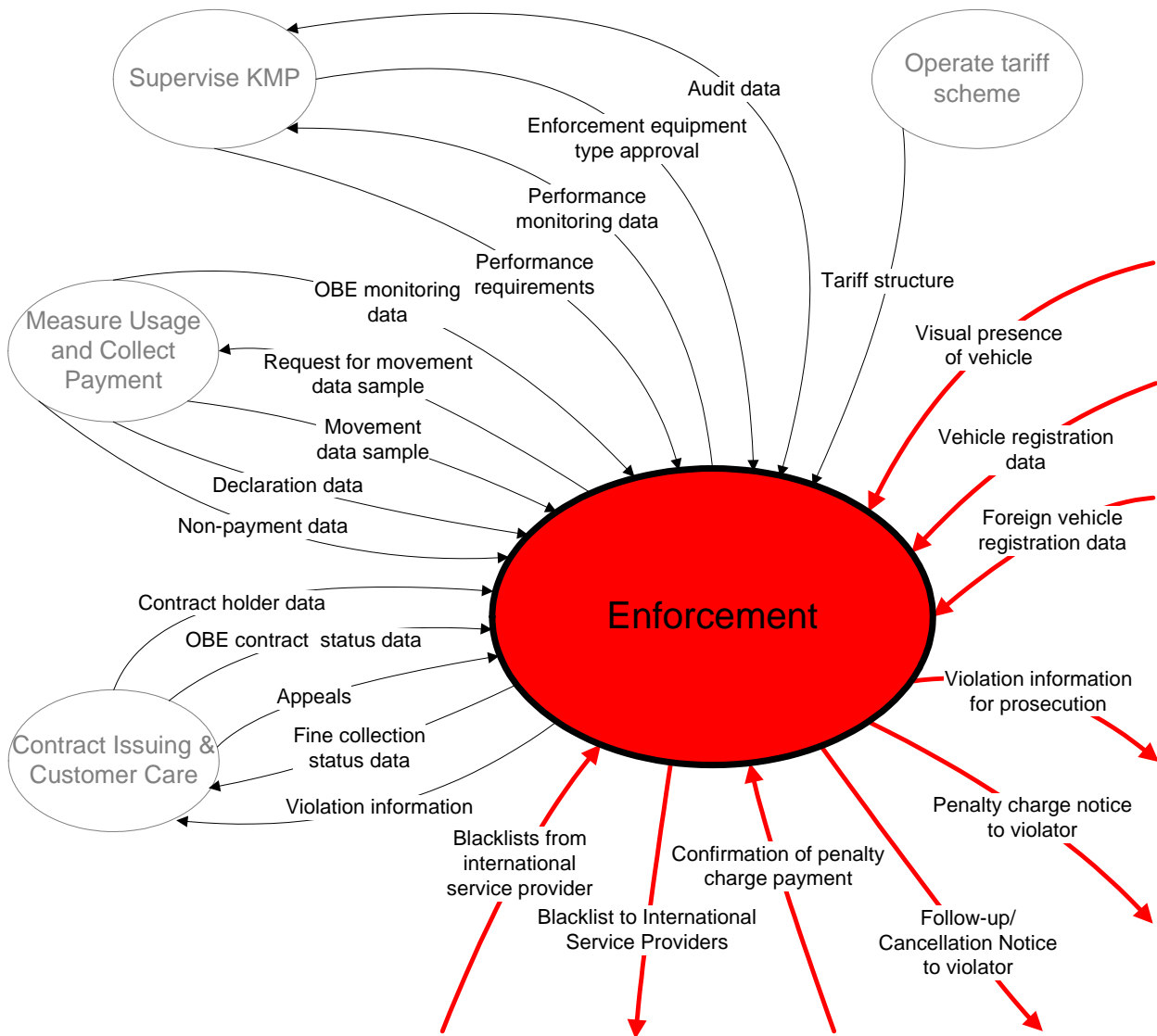
**Check / Repair OBE.** This process concerns repair/replacement of defect OBE. After repair, the new OBE status is forwarded to Issue/maintain contract. A (periodic) routine check of the OBE may also be part of this process.

**6.5.2 Internal data flows**

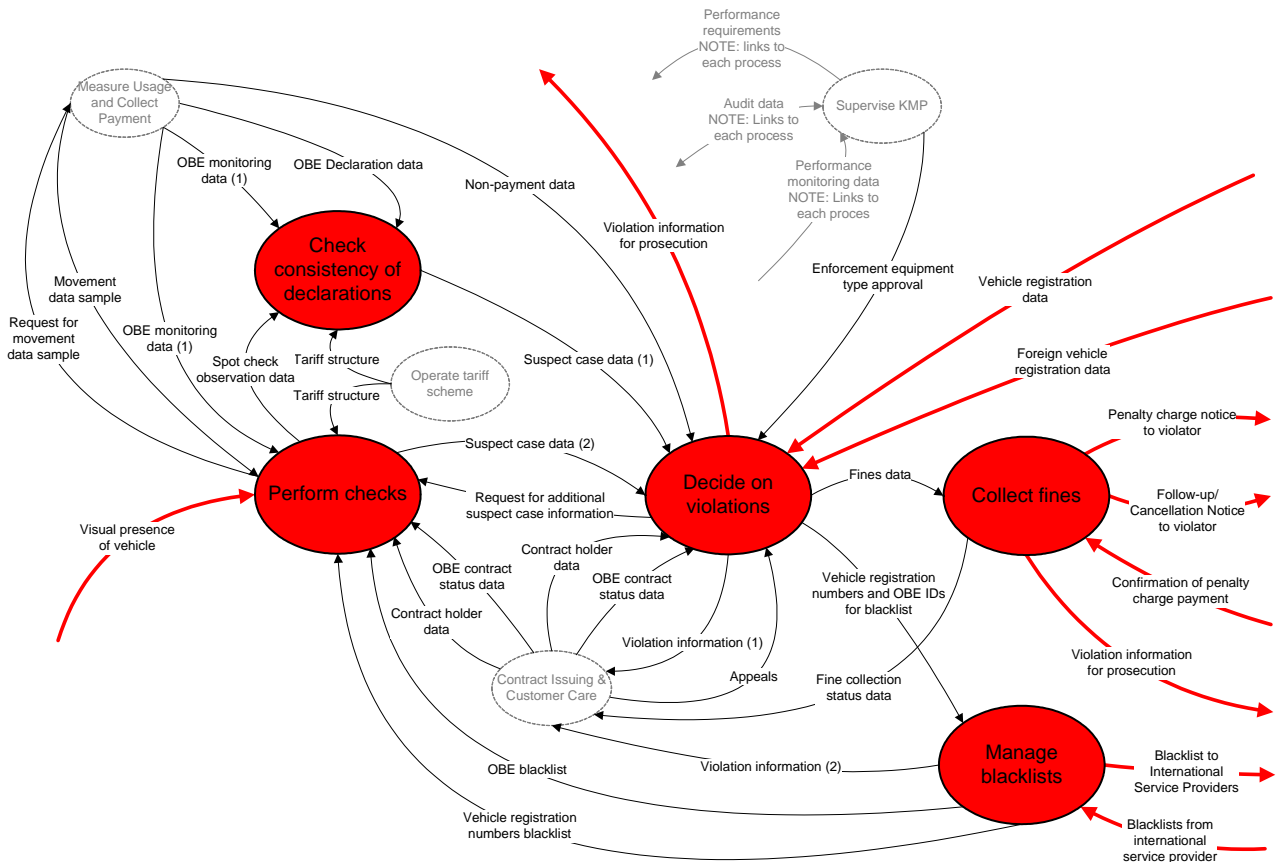
Within this process no additional data flows are introduced. Data flows that have been described on a higher level are described in section 6.3.

# 7.Level 2: Enforcement

This chapter provides a 2<sup>nd</sup> level description of the process 'Enforcement', as described in section 4.1.



## 7.1 Overview of processes



**Check consistency of declarations.** This process checks the plausibility of the periodic declaration and monitoring data from the OBE. It also checks the consistency of an OBE declaration and between successive OBE declarations. When an unrealistic pattern is observed – which may indicate fraud or malfunction – the process ‘Decide on violations’ is triggered.

**Perform checks.** This process checks the OBE and/or vehicle for inconsistencies and/or infringements, either as part of a nearby check, a physical check, or a remote check. A nearby check is done using on-road enforcement equipment (stationary, transportable, or mobile). A physical check is done e.g. in a workshop. A remote check is done using long range data communication (assuming that two-way communication is possible with the OBE). The process also comprises stopping a vehicle due to severe violations. In case of malfunction of the OBE, unauthorised tampering, or suspicion of non-compliant behaviour, the process ‘Decide on violations’ is triggered. The process ‘Perform checks’ is further detailed in section 7.4.

**Decide on violations.** This is the core process for enforcement. Based on suspect case data from the processes that check compliance and consistency, a decision is made whether a Contract Holder is seen as a

violator and will be subject to a penalty charge. The process may use the list of type approved enforcement equipment to double-check the validity of a suspect case when deciding on a violation. This process also selects OBEs and VRNs to be added to the blacklist for on-road enforcement.

**Collect fines.** This process handles the collection of fines when a decision was made to impose a fine on a violator. A penalty charge notice is sent to that violator. Under certain conditions (e.g. penalty charge notice is never paid), a case may be selected for legal prosecution of the party liable by mechanisms outside the KMP.

**Manage blacklists.** This process maintains lists of vehicles (in the form of Vehicle Registration Numbers) and OBEs (in the form of OBE identifiers) that require special attention in the enforcement process. Special attention may imply stopping the vehicle by an enforcement crew. The process enriches the blacklist with blacklist information from international service providers (e.g. EETS).

## 7.2 Outbound data flows

*Audit data.* To safeguard principles of equal treatment of citizens, systems and operations of the KMP processes are subject to periodic audits. This data flow contains data that is used as input to these periodic audits performed in the 'Supervise KMP' process.

*Fine collection status data.* This data flow consists of information on the status of fines to be paid (penalty charges due) for customer care purposes.

*Performance monitoring data.* This data flow represents any data that can be used to assess, manage and supervise the KMP (e.g. total numbers, duration, advices, etc.)

*Request for movement data sample.* This data flow represents the request from the Enforcement process for movement data samples (see section 5.2) to be used as input for performing checks.

*Violation information (1).* This data flow to 'Contract Issuing & Customer Care' contains details of imposed sanctions (normally Penalty Charges), their motivation, appeals and execution status. This data flow is required for handling complaints and inquiries.

*Violation information (2).* This data flow to 'Contract Issuing & Customer Care' contains information on blacklisted OBE (using OBE ID) and vehicles (using VRN).

## 7.3 Internal data flows

*Fines data.* This data flow represents information on violations for which it was decided to fine the violator. This includes items such as OBE ID and violation information.

*OBE blacklist.* This data flow consists of OBE IDs that require special treatment in the process 'Perform checks'.

*Request for additional suspect case information.* This data flow includes information on a suspect case for which additional information is needed to base violation decision on.

*Spot check declaration data.* This data flow represents information generated during checks (remote or nearby checks) to support checking the consistency of declarations.

*Suspect case data (1).* This data flow represents information on suspect cases found when checking the consistency of declarations. It contains an identification of the OBE and/or vehicle, a description and possible cause of the observed non-compliance, and supporting evidence.

*Suspect case data (2).* This data flow represents information on suspect cases found when performing physical checks. It contains an identification of the OBE and/or vehicle, a description and possible cause of the observed non-compliance, and supporting evidence.

*Vehicle Registration Numbers and OBE IDs for blacklist.* This data flow consists of VRNs and OBE IDs selected by the process 'Decide on Violations' for addition to or removal from the blacklist.

*Vehicle Registration Numbers blacklist.* This data flow consists of Vehicle Registration Numbers that are candidate for on-road enforcement (see process 'Perform checks').





charge notices) are not always effective. Normally, the process makes use of an enforcement crew with a vehicle. Input for this process is a blacklist of VRNs. An alternative set up can be realised in combination with roadside spot-checking equipment. The roadside spot-checking equipment may forward specific VRNs (recognised using ANPR) of vehicles detected to be non-compliant to the enforcement crew in a vehicle further down the road. The enforcement crew takes action to stop the suspect vehicle.

#### **7.4.2 Outbound data flows**

*Spot check declaration data (1)*. This data flow represents information generated during checks nearby checks to support checking the consistency of declarations.

*Spot check declaration data (2)*. This data flow represents information generated during checks remote checks to support checking the consistency of declarations.

*Suspect case data (2.1)*. This data flow represents information on suspect cases found during performing nearby checks. It contains an identification of the OBE and/or vehicle, a description and possible cause of the observed non-compliance, and supporting evidence.

*Suspect case data (2.2)*. This data flow represents information on suspect cases found during performing a physical OBE check. It contains an identification of the OBE and/or vehicle, a description and possible cause of the observed non-compliance, and supporting evidence.

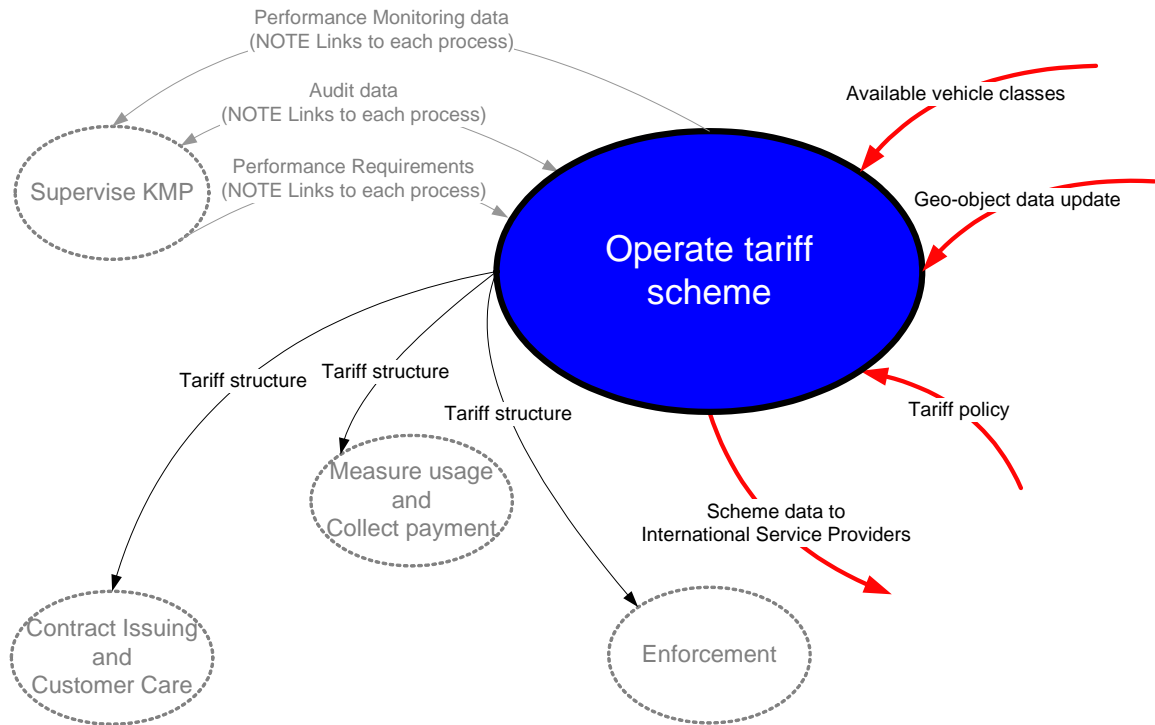
*Suspect case data (2.3)*. This data flow represents information on suspect cases found during a remote OBE check. It contains an identification of the OBE and/or vehicle, a description and possible cause of the observed non-compliance, and supporting evidence.

#### **7.4.3 Internal data flows**

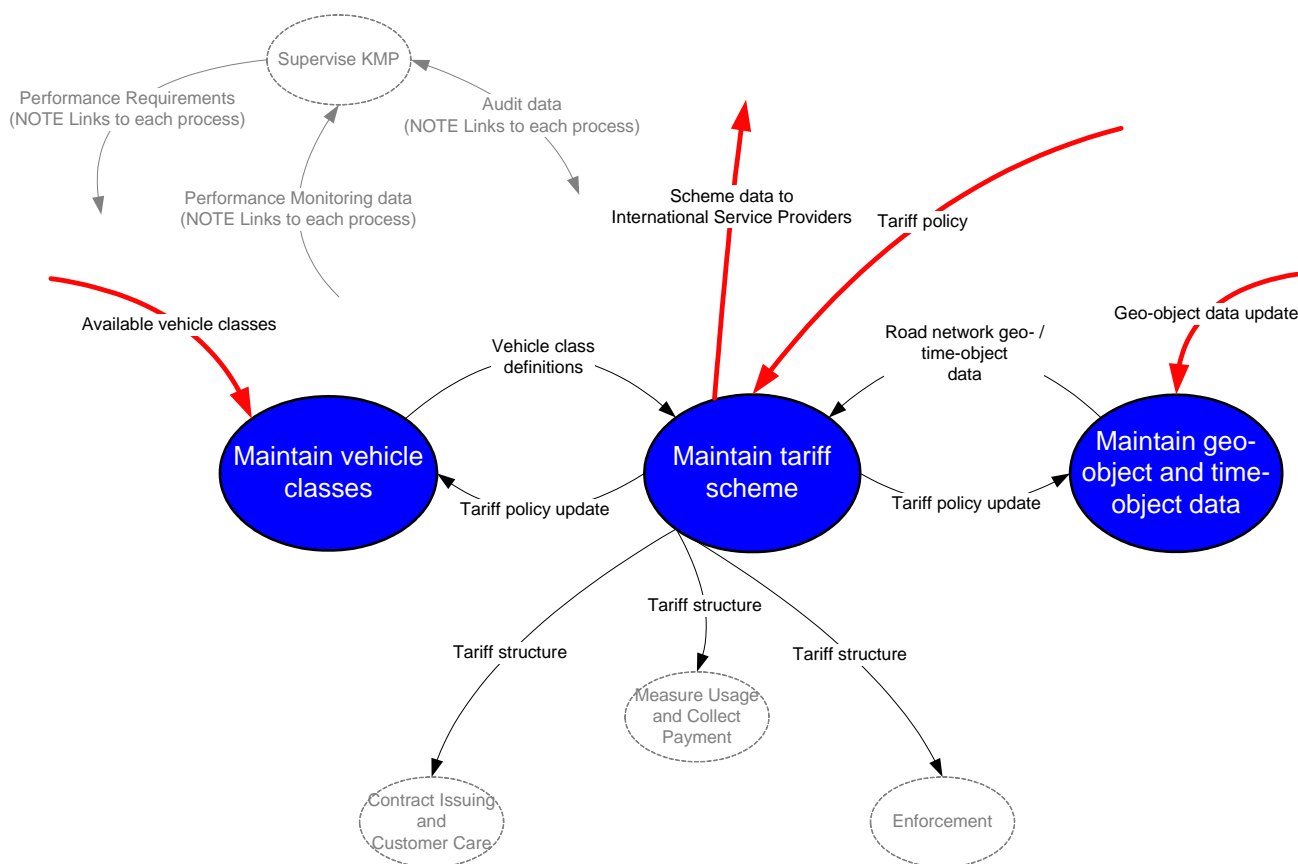
*Vehicle registration number of violator*. This data flow consists of vehicle registration numbers of vehicles and/or OBEs that are indicated as linked to notorious violators and triggers the process 'Stop Vehicles'.

# 8. Level 2: Operate Tariff Scheme

This chapter provides a 2<sup>nd</sup> level description of the process 'Operate Tariff Scheme', as described in section 4.1.



## 8.1 Overview of processes



**Maintain vehicle classes.** As policies may change over time, and new types of – possibly cleaner – vehicles may enter the market, the class definitions and associated tariffs will be subject to change.

**Maintain geo-object and time-object data.** The KMP supports time- and place-dependent tariffs. This may be implemented as a flat tariff per kilometre (yet depending on vehicle class) for any distance travelled within the Netherlands, and an additional rate for distance travelled on/within designated geo-objects and/or within designated time-blocks. The set of geo-objects will be subject to changes, to cater for changes in traffic, pricing policies and changes in the road network. Geo-objects may be defined in terms of road segments, bridges, pastures, etc.

**Maintain tariff system.** This process integrates definitions of vehicle classes and geo-objects into a complete tariff system defining the price per km for any vehicle type for given location and time.

## 8.2 Outbound data flows

*Audit data.* To safeguard principles of equal treatment of citizens, systems and operations of the KMP processes are subject to periodic

audits. This data flow contains data that is used as input to these periodic audits performed in the 'Supervise KMP' process.

*Performance monitoring data.* This data flow represents any data that can be used to assess, manage and supervise the KMP (e.g. total numbers, duration, advices, etc.)

*Tariff structure.* This data flow to 'Contract Issuing and Customer Care' and 'Measure usage and collect payment' contains tariff structures for all vehicle categories and vehicle characteristics. This data flow is required by customer care for handling complaints and inquiries and required by the 'Charging & Monitoring' for determination of the charging data.

### **8.3 Internal data flows**

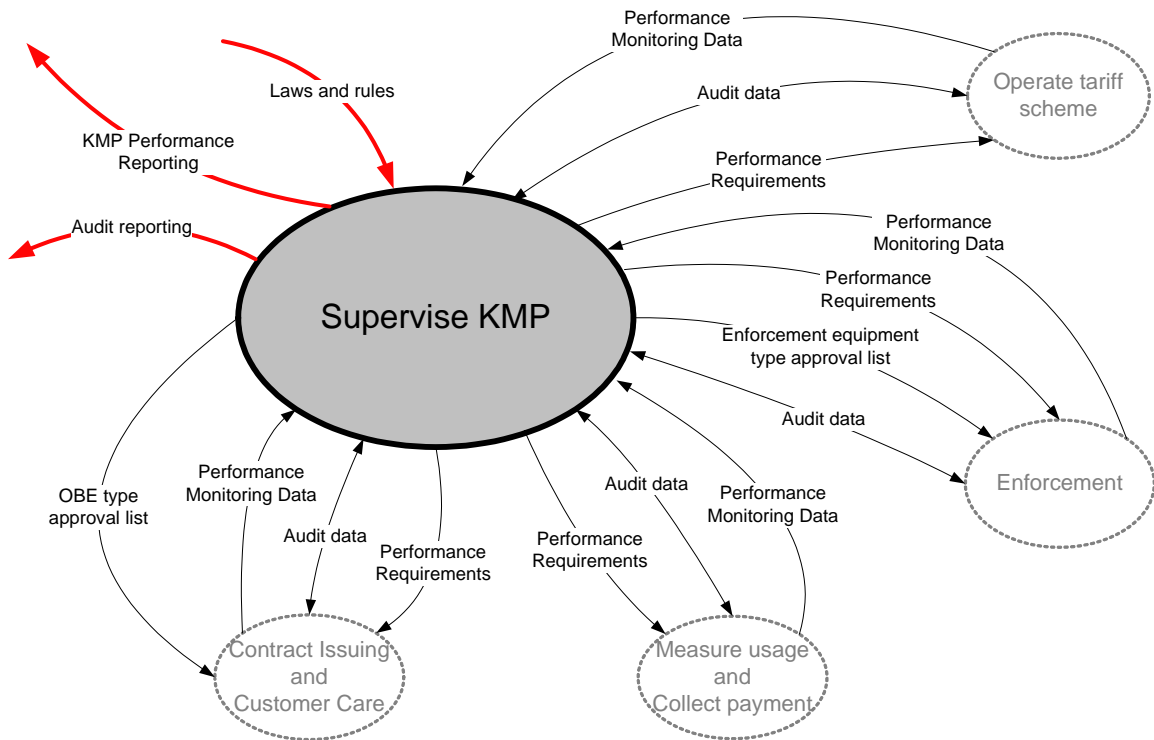
*Road network geo- /time-object data.* This data flow contains a definition of all geo-objects where mark-up tariffs apply, the mark-up value, and restrictions in time/date as to when the mark-up tariff applies.

*Vehicle class definitions.* This data flow consists of definitions of all vehicle classes recognized in the KMP system. A vehicle class is determined by a distinct set of vehicle parameters (to be defined). For a given vehicle class the tariffs (basic and mark-up tariffs) are identical.

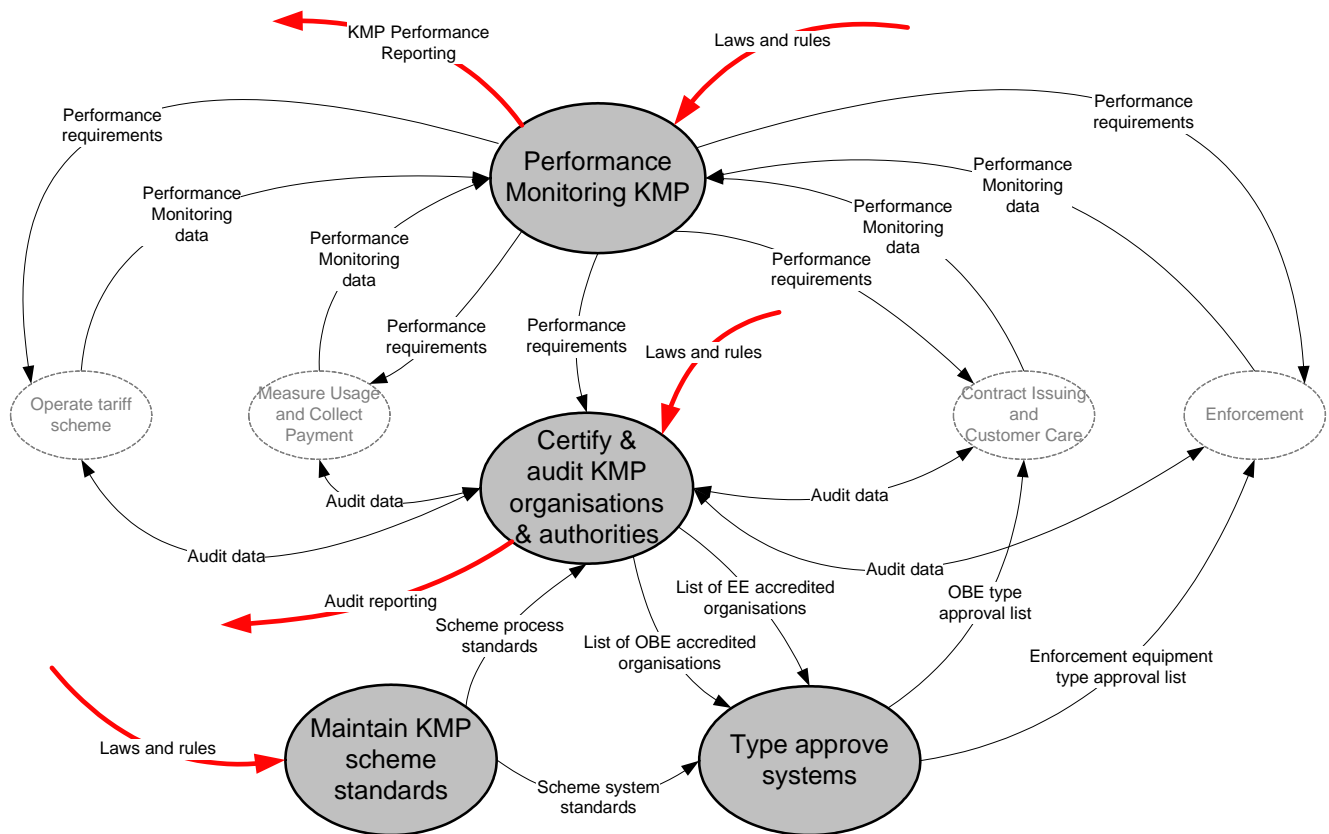
*Tariff policy update.* This data flow contains the updates in the KMP tariff policy that may impose changes to the tariff associated to the vehicle class definitions and road network geo- and time-object data.

## 9. Level 2: Supervise KMP

This chapter provides a 2<sup>nd</sup> level description of the process 'Supervise KMP', as described in section 4.1.



## 9.1 Overview of processes



**Performance Monitoring KMP.** This process monitors the output and quality of main processes for the KMP continuously. Basic quality factors may for example relate to the amount of kilometres travelled that are charged, the total amount of charges per period, percentage of charges collected, percentage of vehicles checked, percentage of users found to be non-compliant etc.

**Certify and audit KMP organisations & authorities.** KMP organisations and authorities, such as Service Providers, may execute major processes for the KMP. To safeguard principles of equal treatment of citizens, systems and operations, these entities must be certified initially, and are subject to periodic audits.

**Type approve systems.** This process verifies that OBE and enforcement equipment fulfil the minimum requirements of the KMP. In case of a positive result, a type approval certificate is granted. This certificate is required to initialise the systems for the KMP.

**Maintain KMP scheme standards.** Within this process the KMP standards and specifications used within KMP are maintained. E.g. updates of functional specification and interface requirement specifications.

## 9.2 Outbound data flows

*Audit data.* To safeguard principles of equal treatment of citizens, systems and operations of the KMP processes are subject to periodic audits. This data flow contains data that is output of these periodic audits performed in the 'Certify and audit KMP organisations & authorities' process.

*Enforcement equipment type approval list.* This data flow to 'Enforcement' contains a list of all enforcement equipment types that have been granted a 'type approval certificate', i.e. fulfil the minimum requirements of the KMP. This list is sent to 'Decide on Violations' to make sure the right enforcement equipment is used during the physical checks ('Perform physical checks').

*OBE type approval list.* This data flow to 'Contract Issuing and Customer Care' contains a list of all OBE types that have been granted a 'type approval certificate', i.e. fulfil the minimum requirements of the KMP.

*Performance Requirements.* This data flow contains the requirements that have been defined for individual KMP (sub-)processes regarding the performance and functioning of these processes.

## 9.3 Internal data flows

*List of accredited EE organisations.* This data flow contains a list of organisations that have obtained accreditation to perform type approval of enforcement equipment (EE).

*List of accredited OBE organisations.* This data flow contains a list of organisations that have obtained accreditation to perform type approval of OBE.

*Performance Requirements.* See section 9.2.

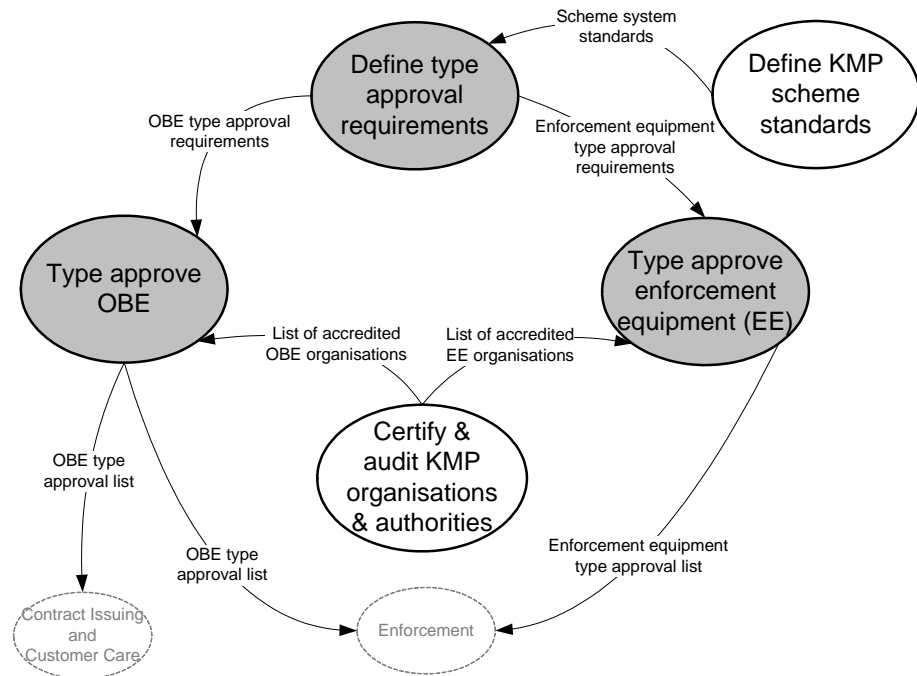
*Scheme process standards.* This data flow represents the collection of (approved) standards and specifications for KMP, to be used for reference in the 'Certify & audit MKP organisations & authorities' process.

*Scheme system standards.* This data flow represents the collection of (approved) standards and specifications for KMP, to be used for reference in the 'Type approve systems' process.



## 9.4 Level 3: Type approve systems

### 9.4.1 Overview of processes



**Define type approval requirements.** In this process the minimum requirements of the KMP are defined that need to be fulfilled by the OBE and enforcement equipment during the type approval processes.

**Type approve OBE.** This process verifies that OBE fulfil the minimum requirements of the KMP. In case of a positive result, a type approval certificate is granted. This certificate is required to initialise the OBE for the KMP.

**Type approve enforcement equipment.** This process verifies that equipment used for enforcement fulfil the minimum requirements of the KMP. In case of a positive result, a type approval certificate is granted.

#### 9.4.2 Internal data flows

*OBE Type approval requirements.* This data flow contains the minimum requirements of the KMP that need to be fulfilled by the OBE during the type approval processes.

*Enforcement Equipment Type approval requirements.* This data flow contains the minimum requirements of the KMP that need to be fulfilled by the enforcement equipment during the type approval processes.

## Annex A Acronyms

Acronym	Meaning	Description and remarks
ANPR	Automatic Number Plate Recognition	Automatic Recognition of Licence Plate Numbers on vehicles, using OCR techniques
BO	Back Office	See glossary
BPM	Belasting op Personenauto's en Motorrijwielen	Tax on passenger cars and motorcycles
BTW	Belasting Toegevoegde Waarde	See <b>VAT</b>
CBP	College Bescherming Persoonsgegevens	See <b>DPA</b>
CJIB	Centraal Justitieel Incassobureau	Central Fine Collection Agency (see <a href="http://www.cjib.nl">www.cjib.nl</a> )
CN	Cellular Network	Generally GSM
DBFMO	Design Build Finance Maintain Operate	
DPA	Data Protection Authority	The Dutch DPA supervises the compliance with acts that regulate the use of personal data. This means that the Dutch DPA supervises the compliance with and application of the Wet bescherming persoonsgegevens (WBP; Personal Data Protection Act), the Wet politieregisters (Wpolr; Data Protection [Police Files] Act) and the Wet gemeentelijke basisadministratie (Wgba; Municipal Database [Personal Records] Act). (see <a href="http://www.cbp.nl">www.cbp.nl</a> )
DSRC	Dedicated Short Range Communications	Short- to medium-range (2-30 m) wireless protocol specifically designed for automotive use. It offers communication between the vehicle and roadside equipment. As defined in NEN-EN 12253:2004, NEN-EN13372:2004, NEN-EN12834:2003
EETS	European Electronic Toll Service	European Directive 2004/52/EC provides for the interoperability of toll collectionsystems within the European Union. The Directive requires a further definition of the European Electronic Toll Service (EETS). The EETS is expected to enter into service in 2010 for trucks and 2012 for other vehicles.
FTE	Full-Time Equivalent	1 person available for 36/38/40 hours per week.
GNSS	Global Navigation Satellite System	i.e. GPS, GLONASS and Galileo. Global Navigation Satellite System (GNSS) is the standard generic term for satellite navigation systems that provide autonomous geo-spatial positioning with global coverage. A GNSS allow small electronic receivers to determine their location using time signals transmitted by radio from satellites.
GPRS	General Packet Radio Service	GPRS is a Mobile Data Service available to users of GSM mobile phones. GPRS data transfer is typically used for midrange (3-10 km) wireless communication, charged per megabyte of transferred data, while data communication via traditional circuit switching is billed per minute of connection time, independent of whether the user has actually transferred data or has been in an

## Acronyms

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Acronym	Meaning	Description and remarks
		idle state.
GPS	Global Positioning System	The Global Positioning System (GPS), is currently the only fully-functional GNSS. It uses 24+ satellites. GPS was developed and is operated by the United States Department of Defense.
GSM	Global System for Mobile communications	Standard for mobile phone communication
HGV	Heavy Goods Vehicle	See <b>LGV</b>
HWN	Hoofdwegennet	Main part of the Dutch road network consisting of highways (app. 2600 km) + most important non-highways (app.700 km) . RWS is responsible for road management on this part of the network.
IEM	Incidental Expenditure Mark-up	Mark-up percentage on calculated costs, to cover for contingencies
IRDA	InfraRed Data Access	wireless datacommunication up to 100 mtrs. using InfraRed light
IVW	Inspectie Verkeer en Waterstaat	The Transport and Water Management Inspectorate monitors and promotes the safe, sustainable use of our roads, water, airspace and railways for people and businesses, and issues public reports on what it achieves in its work. (see <a href="http://www.ivw.nl">www.ivw.nl</a> )
KLPD	Korps Landelijke Politie Diensten	National Police Services Agency, see <a href="http://www.politie.nl/KLPD/">www.politie.nl/KLPD/</a>
KMP	Kilometerprijs/Kilometre Price	Price per Kilometre, the official name for the complete set of processes following the intended measure to pay per km travelled. Policy of the Netherlands government to convert existing fixed taxes on usage and ownership of a vehicle into a charge per kilometer driven.

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## Acronyms

Acronym	Meaning	Description and remarks
LGV	Large Good Vehicles	<p>Large Goods Vehicle (LGV), or category N2 and N3, is the formal term in the European Union for goods vehicles (i.e. lorries) with a maximum allowed mass (MAM) inclusive of load over 3.5 tonnes. Category N2 is up to 12,000 kg, with Category N3 greater than 12,000 kg.</p> <p>The former term Heavy Goods Vehicle (HGV) is, however, still very commonly used. The term was changed from HGV to LGV as not all countries in Europe had a word for heavy. The LGV driver's licence is divided into three categories. Category C1 (Class 3) allows holders to drive rigid vehicles up to 7.5 tonnes and C (Class 2) allows for the driving of lorries over the 7.5 tonne limit. Category C+E (Class 1) allows the holder to drive articulated lorries and lorries towing a trailer over 750 Kg. Drivers passing their Category B (Car) test before 1st Jan 1997 are already entitled to drive category C1 vehicles.</p> <p>All LGV's are required by law to be fitted with Tachograph equipment which records the driver's activity during driving.</p>
MRB	Motorrijtuigenbelasting	Annual tax on the ownership of motor vehicles
OBE	On-Board Equipment	See glossary
OBE ID	OBE Identifier	A set of characters that uniquely identifies OBE within the KMP context.
OCR	Optical Character Recognition	The process to translate images of handwritten or typewritten text (usually captured by a scanner) into machine-editable text, or to translate pictures of characters into a standard encoding scheme representing them (e.g. ASCII or Unicode). OCR began as a field of research in pattern recognition, artificial intelligence and machine vision.
OWN	Onderliggend Wegennet	All Dutch public roads which are not part of the HWN.
PPC	Public Private Comparator	Instrument ontwikkeld door het Ministerie van Financien ter ondersteuning van besluitvorming over de rol van private partijen in een publiek project
PPS	Publiek Private Samenwerking	
RDW	Rijksdienst voor het Wegverkeer	The national vehicle authority responsible for the safety and environmental aspects of the vehicle fleet in the Netherlands. In addition, the RDW registers the data of vehicles, their owners and the corresponding documents issued, such as vehicle registration certificates and numbers, and driving licences. RDW maintains the Dutch Vehicle Register.
RSE	Road-Side Equipment	Enforcement equipment which is placed alongside or above the road
RWS	Rijkswaterstaat	Part of the Dutch Ministry of Transport, responsible for road management on the HWN (amongst other tasks).
SIM	Subscriber Identity Module	Security module used in GSM

## Acronyms

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<b>Acronym</b>	<b>Meaning</b>	<b>Description and remarks</b>
VAS	Value Added Services	Optional services that add value to the standard functionality of the OBE
VAT	Value Added Tax	A type of tax which is added to the nett price of goods and services
VED	Vehicle Excise Duty	See <b>MRB</b>
VIN	Vehicle Identification Number	Unique number imprinted in the chassis of the vehicle
VRM	Vehicle Registration Mark	Set of characters on the vehicle licence plate
VRN	Vehicle Registration Number	A set of characters that is visible on a vehicle's number plate and uniquely identifies a vehicle within its country of registration.

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**Annex B Glossary**

<b>Term</b>	<b>Description</b>	<b>Dutch term</b>
Appeal	Notice of objection by a Contract Holder concerning the invoice or penalty charge sent and the amounts charged	Bezwaarschrift
Back Office	A system or cluster of systems organised centrally to collect and process data	Backoffice
Billing	The process that covers the generation and distribution of invoices for KMP to a Contract Holder. The charging data is input to this process.	Facturatie
Blacklist	List of vehicles (in the form of Vehicle Registration Numbers) and OBEs (in the form of OBE identifiers) that require special attention in the enforcement process. Also foreign Vehicle Registration Numbers and OBE IDs from foreign Service Providers that are subject to special attention in relation to enforcement are listed.	Zwarte lijst
Charging	The process that determines the charging data based on the movement data.	Heffing
Charging data	The resulting amount to be charged and specification of the usage, containing the minimum set of data required for invoicing the Contract Holder. This data is derived from the OBE Declaration Data and is processed to not include any privacy infringing data	Heffingsgegevens
Collect movement data	This is the collection of raw movement data linked to an OBE ID. This data may consist of position, distance, time, direction, and other data	Verzamelen van verplaatsingsgegevens
Collect Payment	This process handles the sending of invoices and tracking the payment status of fees due.	Inning
Commissioning/ decommissioning OBE	The final step before the OBE starts its operational life; OBE status is switched to operational by registering the OBE ID and status with the associated contract data in the central system. Contract Holder data and security data (optionally) is stored in the OBE. At the end of its operational life, the OBE is decommissioned.	Activeren/Deactiveren
Contract Holder	An entity that has a contractual relation with a Service Provider regarding OBE B21	Contractant
Contract Issuing	The process of issuing the contracts with Contract Holders	Sluiten van een contract

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## Glossary

<b>Term</b>	<b>Description</b>	<b>Dutch term</b>
Customer Care	Handling of inquiries, complaints and appeals and provisioning of information concerning KMP	Klantenservice
Directive 2004/52/EC	Interoperability directive, see 'EETS'.	Richtlijn 2004/52/EC ('Interoperabiliteitsrichtlijn')
Driver	The actual person driving the vehicle.	Bestuurder
EETS Provider	Provider of the European Electronic Toll Service	EETS Aanbieder
Enforcement	All activities to detect and penalise violations of the KMP	Handhaving
Enforcement equipment	Any tools, applications or hardware to put enforcement into practice	Handhavingsapparatuur
External data flow	Data flow that is crossing the KMP boundary.	Externe gegevensstroom
External Signal	Any data that contains information originating from systems outside the KMP, used for determination and measurement of road usage. Examples are satellite GNSS signals (GPS and or Galileo), GNSS augmentation signals or localisation information from cellular networks (CN).	Extern signaal
Final Objective	The KMP as it is foreseen to operate in its final and completed status (i.e. OBE for all motor vehicles, payment for all kilometres driven, tariff depending on time, location, vehicle class).	Eindbeeld
Galileo	GNSS currently under development by the Galileo European Union. It is expected to become operational by 2012.	
Geo-object data	An abstraction of a phenomenon in reality, directly or indirectly associated with a location relative to the earth's surface (for KMP e.g. road, motorway, bridge, exit, pedestrian area, driveway, flyover (viaduct), tunnel, etc.)	Geo-objectgegevens
Initialising OBE for KMP	Loading generic KMP identification data and tariff structure data and possibly security data into the type approved OBE.	Initialiseren van voertuigapparatuur voor KMP
Install OBE	The process of installing the on-board equipment in a vehicle	Installeren van voertuigapparatuur
Intermediate Objective	The KMP as it is foreseen to operate in its intermediate status. This could be in different forms: gantry based charging, regional solutions, only the main road network, only a subset of the vehicle categories (e.g. only leased cars, only trucks), etc. Main characteristics of this objective are: simple, less complex, low-tech, temporarily.	Tussenbeeld

## Glossary

<b>Term</b>	<b>Description</b>	<b>Dutch term</b>
International Service Provider	Provider of international services relating to OBE-provisioning, OBE maintenance and billing. An EETS-provider is a special case of an International Service Provider.	Internationale Dienstverlener
LKW-Maut	Charge for heavy goods vehicles for kilometres travelled on highways operational in Germany	LKW-Maut
Mobile enforcement	Enforcement using electronic enforcement equipment installed in a car, on a trailer or hand-held to conduct random or systematic checks at arbitrary points of the road network [prEN 17573-1:2006 (E)]	Mobiele handhaving/controle
Monitoring	The process of collecting OBE Monitoring Data	Monitoring
Motor Vehicles	A vehicle subject to the KMP	Motorrijvoertuig
Movement Data	Raw data from which the road usage can be determined. The raw data is expected to contain positions with timestamps with a specified sample interval, possibly enriched using additional data from auxiliary sensors to improve accuracy or availability of the measurement. Additional sensor data may contain position, velocity, acceleration, direction or distance information.	Verplaatsingsgegevens
OBE Declaration Data	Information submitted by the OBE to a backoffice from which the appropriate charge can be determined.	OBE Aangiftegegevens
OBE Monitoring Data	Data concerning the functioning of the OBE (on/off, errors, failures, tampering, etc.)	OBE Monitoringgegevens
On-Board Equipment	The set of necessary tools (hardware and software) for the purpose of collecting movement data and possible charging data. This includes the On-Board Unit.	OBE of Voertuigapparatuur
Operate Tariff Scheme	The process comprising the transformation of tariff policy into the operational parameters for the KMP	Onderhoud Tariefschema
Penalty Charge	Amount of money to be paid as a penalty for non-compliant behaviour.	Sanctie
Penalty Charge Notice	Information sent to a violator to announce a penalty charge	Bekeuring
Physical Check	Verification of the physical OBE and/or vehicle, either as part of a spot check or a periodic check	Fysieke controle
Public Authority / Public Body	Governmental organisation or organisation operating under responsibility of the government	Publiekrechtelijke Instelling / Publiekrechtelijke Organisatie
Scheme standards	Set of specifications and standards to be used for KMP related processes and	Systeemstandaarden



## Glossary

Term	Description	Dutch term
	systems	
Sensor Data	Measured data relating to the movement of the vehicle (e.g. direction, speed etc.) collected by the OBE	Sensorgegevens
Service Provider	A company that provides KMP related services	Dienstverlener
Stationary enforcement	Automatic enforcement using equipment located at specifically designated points, eligible vehicles are automatically checked using electronic equipment [prEN 17573-1:2006 (E)]	Stationaire handhaving/controle
Supervise KMP	The process comprising all activities to assess that the entire KMP system meets the required performance and is compliant with relevant rules and regulations.	KMP Toezicht
Suspect Case	Possible case of non-compliant user behaviour (from the Enforcement process)	Verdacht Geval
Suspect Case Data	Information describing the suspect case. It contains an identification of the OBE and/or vehicle, a description and possible cause of the observed non-compliance, and supporting evidence.	Gegevens mbt. Verdacht Geval
System suppliers	A company that provides KMP related systems/equipment	Systeemleveranciers
Tariff Authority	The entity responsible for setting up and maintaining the KMP tariff policy. This authority is managed and controlled closely by the Dutch government.	Tarieveninstantie
Tariff Policy	Information consisting of decisions regarding tariffs. A national or local government takes these decisions, outside the system boundaries of the KMP.	Tarievenbeleid
Tariff Scheme	Operational parameters for the KMP derived from the tariff policy to determine the appropriate tariff for any vehicle class, date/time and location in the Netherlands.	Tarievenschema
Tariff Structure	Data to be stored in the OBE of individual vehicles. It may contain time- and geographic-object data, applicable tariffs for all vehicle characteristics. Note that the Tariff Structure is not used for Thin Client solutions.	Tarievenstructuur
Thick Client	An OBE that calculates the charges due from movement data and geo-object data and tariff structures stored in the OBE.	Dikke OBE
Thin Client	An OBE that only collects movement data which are transformed into charging data by a process in the backoffice.	Dunne OBE

## Glossary

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<b>Term</b>	<b>Description</b>	<b>Dutch term</b>
Transportable enforcement	Automatic enforcement using equipment checking the most significant parameters to determine compliant behaviour based on Automatic Number Plate Recognition [prEN 17573-1:2006 (E)], and/or scanning of the OBE if possible.	Verplaatsbare handhaving/controle
Type approval	Verifying that systems fulfil the minimum requirements of the KMP. In case of a positive result, a type approval certificate/letter of approval may be granted.	Typegoedkeuring
Vehicle Characteristics	Attributes of a vehicle relevant for the KMP tariffs (e.g. weight, vehicle type, type of fuel, number of wheels, number of axles)	Voertuigkenmerken
Vehicle Class	Description of a category of vehicle depending on vehicle characteristics as distinguished by the tariff structure	Voertuigklasse
Vehicle Owner	The person or legal entity that owns the vehicle.	Voertuigeigenaar
Vehicle Register	Official register of vehicles and their licence plate numbers registered in a country. The Dutch Vehicle Register is maintained by RDW (Rijksdienst voor het Wegverkeer).	Kentekenregister
Vehicle Registration Authority	The entity legally responsible for the registration of vehicle and maintaining vehicle registration databases. In the Netherlands this is the RDW (Rijksdienst voor het Wegverkeer)	Kentekenregistratiehouder
Vehicle Registration Holder	The entity which is legally linked to the vehicle as recorded in the Vehicle Register. In the Netherlands this is the Vehicle Owner.	Kentekenhouder
Violation Information	Data that describes possible violation of the KMP, either for Customer Care purposes or for prosecution	Gegevens mbt een overtreding