



EasyGo®

Interoperable tolling across Europe

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1 Introduction

This document is primarily aimed at toll operators, transport authorities and organisations that may see EasyGo as an opportunity to achieve “off-the-shelf” interoperability between regions, transport modes and technologies.

The document gives an overall description of EasyGo. Most issues are described in more detail in the agreements, annexes and guidelines that define EasyGo. References to these documents, which can be downloaded from the EasyGo website, are given throughout the document as shown in an example below:

EasyGo doc. 206 – EasyGo test strategy

EasyGo has produced a full set of contractual, technical, and operational documentation to support a cross border tolling service compliant to the EETS Directive.

Most of these documents are available on www.easygo.com.

Document 401 “Overview of annexes to contracts JVA and TSPA”, available on www.easygo.com, gives an updated overview of all valid EasyGo documents including date and version. It also includes an overview of “Terms and definitions” used in EasyGo documents.

EasyGo has been developed to meet the requirements stated in the EETS Directive, the corresponding implementing and delegated act and all relevant standards.

Up-to-date information about EasyGo, with links to Toll Chargers (TC) and Toll Service Providers (TSP), can be found on the EasyGo website www.easygo.com.

2 The EasyGo development

2.1 Background

When EasyGo commenced operations in 2007, it was an interoperable tolling service offered to users of toll roads, bridges, tunnels and ferries in Scandinavia. Since then, the service has been extended to include Austria (vehicles above 3.5 tons) as well as additional road tolls and ferry routes including those between Denmark and Germany. Also, the Slovenian Toll Charger will connect their national tolling system for vehicles above 3.5 tons to EasyGo.

Today, EasyGo is a major European HUB allowing data exchange between TCs and TSPs. Currently 13 EETS Providers are connected to the HUB enabling data exchange with toll domains in Sweden, Denmark, Austria and in the future also Slovenia.

EasyGo originally only included toll domains using DSRC technology but is now being developed to allow inclusion of toll domains using ANPR (and potentially GNSS in the future) and establishing interoperability between these toll domains.

2.2 The benefits of EasyGo

EasyGo was implemented to create interoperability between existing toll domains and to achieve a more efficient and user-friendly solution. The following benefits are considered important:

Toll Chargers

- A secure and inexpensive method for charging of foreign users. The need for enforcement of foreign vehicles is reduced.
- A high share of OBE- or ANPR-based contracts means a reduction in collection costs compared to alternative collection methods.
- A TC can connect to all TSPs via one single contact point.
- EasyGo is designed within the framework of EETS and will simplify the implementation of EETS for each TCs.
- EasyGo support both invoicing the Service User (SU) on behalf of the TC (agent model) or in the name of the TSP (reseller model). The TC agrees the choice bilaterally with the TSP.
- TCs can participate in working groups handling technical issues and thereby influence the development of the service and make sure that local needs are considered.

Toll Service Providers

- A TSP/EETS Provider can connect to all EasyGo TCs via one single contact point.
- The implementation of EETS becomes much easier as EasyGo is based on a common set of technical specifications, operational procedures and contractual relations in compliance with the EETS Directive.
- TSPs can participate in the technical working group of EasyGo and influence the development of the service.

- Increased market size and business volume.

2.3 Operational experience

Many years of commercial operation has given the EasyGo partners an in-depth knowledge of and experience from interoperable tolling. As experience has been gained, improved solutions have been introduced making the system more efficient and user friendly. Also, the contractual relations between the participating organisations have been revised to be able to handle new issues and to simplify solutions.

The partners in EasyGo have also gained important knowledge and experience in legal, technical, operational and cultural challenges which allow EasyGo to facilitate a better service and to contribute to the implementation of EETS through participation in standardisation work, expert groups, international projects and conferences.

2.4 The success of EasyGo

EasyGo was the first contractual interoperability across European borders.

As of 2023, the TSPs exchanging data via the EasyGo HUB represent several million interoperable OBEs and the service is currently available in four countries. The Service Users of the EETS Providers represent a large volume of transactions.

In 2022, more than 300 million transactions were sent through the EasyGo HUB.

Fig. 1 below shows the development in the monthly number of transactions sent via the EasyGo HUB during the last four years.

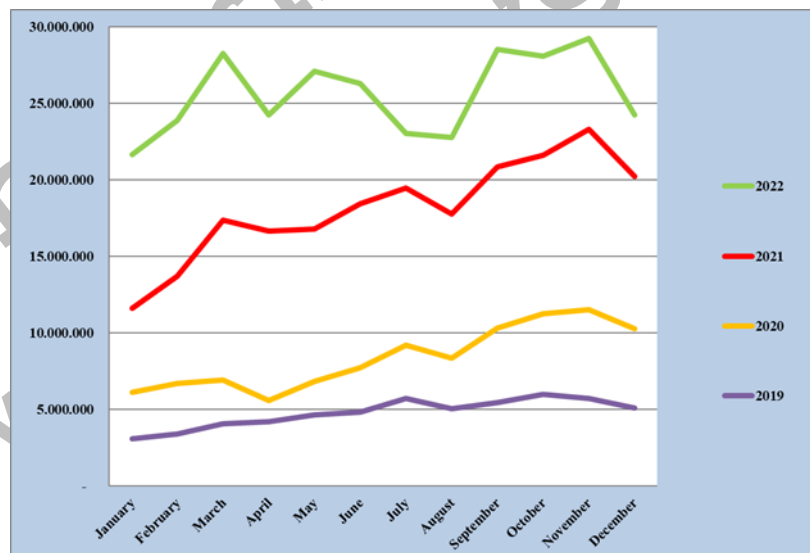


Fig. 1 Traffic development 2019 - 2022

The graph above shows the number of transactions sent between TCs and TSPs via the EasyGo HUB.

The EasyGo HUB is designed to accommodate a significant increase in the number of parties and transactions.

EasyGo has developed and implemented a quality system and has defined Key Performance Indicators which are continuously monitored and followed up. As most data are routed via the EasyGo HUB, data can easily be analysed to detect trends and give valuable statistics within the limitations defined by the GDPR.

EasyGo doc. 307 – EasyGo quality system

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www.easygo.com

3 A cooperation between Toll Chargers

3.1 The contractual framework

EasyGo is a cooperation between TCs. A TC can join EasyGo in two ways:

- As a General Party which will have a seat in the EasyGo Steering Committee and pay a share of the fixed costs of EasyGo
- As a Limited Party which will not have a seat in the Steering Committee and not pay any part of the fixed costs

The definition of the EasyGo services and the principles for the operation of these services are defined by a Joint Venture Agreement between the General Parties (see chapter 3.2).

All parties exchanging data via the EasyGo HUB are committed to the specifications and principles of EasyGo through affiliation agreements.

The EasyGo agreements have several annexes, which describe the contractual and operational aspects of EasyGo as well as technical specifications and requirements to data security and data protection which all parties need to comply with.

3.2 The toll domains and parties of EasyGo

EasyGo includes the following toll domains:

The four parties listed below are the General Parties of EasyGo and have equal representation in the EasyGo Steering Committee.

- Sweden plans to implement EasyGo (in addition to Øresundsbro Konsortiet which is already part of EasyGo) in the Congestion Tax systems in Stockholm and Gothenburg and the Infrastructure Fee systems in Motala and Sundsvall. There are currently no Swedish TSPs besides Øresundsbro Konsortiet. The Swedish Transport Agency is acting as Toll Charger and represents the new Swedish Toll Domains in EasyGo.
- ASFINAG is the national operator of tolled highways in Austria and is represented in the EasyGo Joint Venture. Trucks and buses above 3.5 tons are subject to be tolled by mandatory use of approved OBEs on these roads.
- Øresundsbro Konsortiet is TC for the link between Sweden and Denmark and has been in EasyGo since the beginning.
- Sund & Bælt Holding A/S has been part of EasyGo since 2007. Its subsidiary A/S Storebælt is TC for the Storebælt Link between Zealand and Funen.

In addition to the General Parties listed above, there are other toll domains and ferry lines in that are part of EasyGo as Limited Parties. Below are listed some of the Limited Parties:

- DARS – Slovenia
- Scandlines - ferry lines between Denmark and Germany
- Four Sea -ferry lines between Denmark and Sweden
- Molslinjen - Domestic Danish ferry lines and between Sweden and Denmark (Bornholm)

Each TC has, in line with the requirements stated in the EETS Directive, produced an EETS Domain Statement, which describes the main attributes of their toll domains. These Statements are available on the website of the individual TC.

3.3 Organisation

Interoperability in EasyGo is based on the standard EN ISO 17573 – “EFC-system architecture for vehicle related tolling”. The four main roles are shown below.

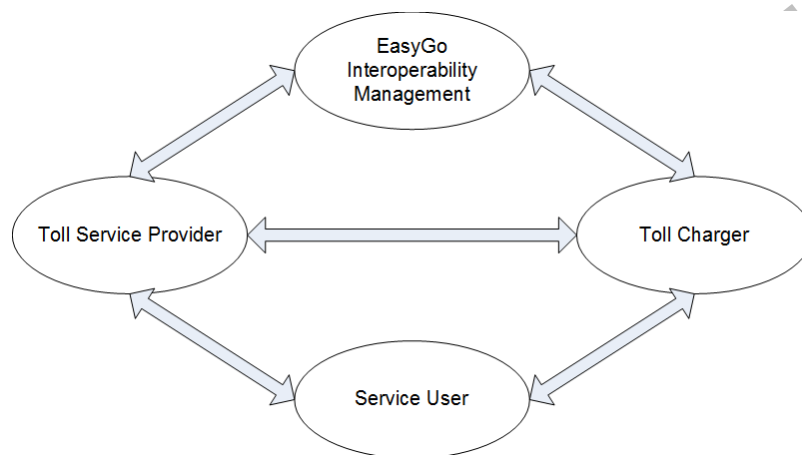


Fig. 2 Roles in the EasyGo environment

The chart below shows how interoperability management is organised within EasyGo.

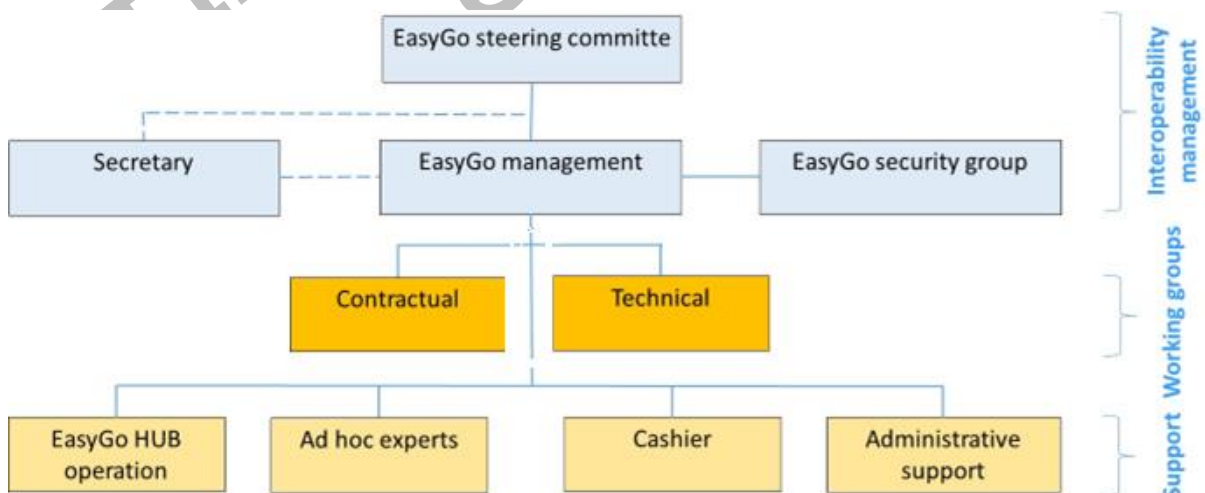


Fig. 3 EasyGo support organisation

EasyGo Management handles the day-to-day operation as well as the development of EasyGo within the framework given by the EasyGo Steering Committee. EasyGo Management consists of personnel from the General Parties which are already involved in similar activities in their local organisations.

Annex 1.1 – Definition of support organisation

It should be noted that the interpretation of “Interoperability management” in EasyGo differs from the definition of interoperability management in EETS.

3.4 Financial structure

3.4.1 Currencies and invoicing

EasyGo handles three currencies (DKK, SEK and €). TCs receive payment in their preferred currency. SUs may pay in their local currency to their Service Providers. The choice of currency is agreed bilaterally in the contract between TC and TSP respective in the contract between TSP and SU.

A Template for a common invoice layout has been agreed for all countries.

EasyGo doc. 304 – Invoicing specifications (Guidelines)

3.4.2 Costs and contributions

The costs of EasyGo include:

- Interoperability management
- Operation, development and maintenance of the EasyGo HUB
- Common information activities including www.easygo.com

The operation of EasyGo is financed by:

- Fixed costs which are shared equally between the General Parties
- A variable cost for each TC depending on the number of transactions routed via the EasyGo HUB
- Affiliation fees from new TCs

Annex 1.2 – Budget and contribution quotas

4 Mission, vision, and strategy

EasyGo has adopted the following mission, vision, and strategy:

Mission: *EasyGo shall provide common procedures and a data exchange HUB supporting interoperability in the European tolling market, offering a cost-effective solution, which ensures compliance to European legislation while respecting local legislation, regulations and standards, as well as a secure, flexible and interoperable system with regards to technologies and individual requirements.*

Vision: *Being at the centre of European tolling!*

Strategy: *EasyGo shall contribute to interoperability by developing principles, procedures and guidelines for bilateral and multilateral relations between parties connected via the EasyGo HUB*

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5 Operation and technology

5.1 Business processes

The main interactions between TCs, TSPs and SUs are illustrated below:

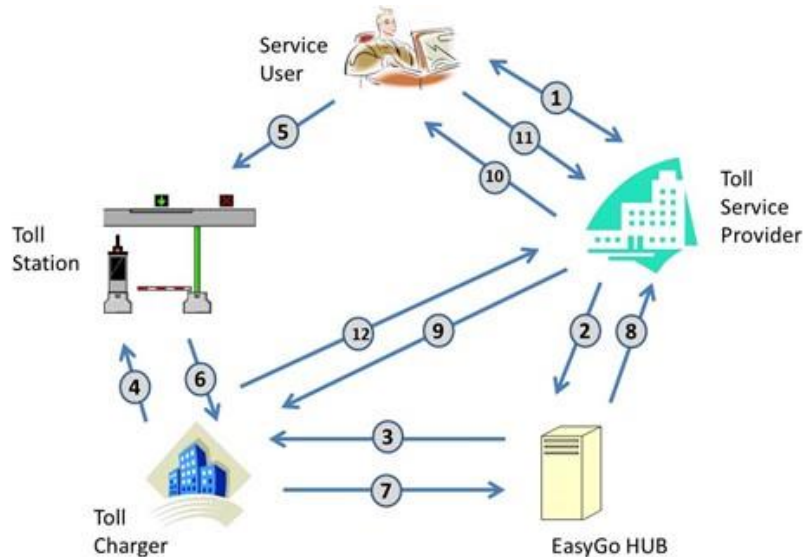


Fig. 4 EasyGo functionality

- 1 The SU signs a contract with a TSP and receives an OBE (not for contracts limited to ANPR)
- 2-4 The TSP sends validation data to TC via the EasyGo HUB
- 5 The SU uses the tolled infrastructure of a TC paying with his/her OBE/contract or ANPR/contract
- 6-8 Transaction data is sent from the TC to the TSP via the EasyGo HUB
- 9 The TSP pays the TC for the fee associated with the use of the tolled infrastructure
- 10-11 The TSP invoices the SU and receives payment
- 12 The TC pays the TSP an issuer fee as compensation for collecting the toll fee

EasyGo doc. 201 – Requirements for central system and EasyGo HUB

Annex 4.3 – Business processes

5.2 Data types and data exchange

EasyGo is implemented according to the standards and specifications defined by EETS. Some, but not all these standards are referred to in this document. Others can be found in the relevant EasyGo documents.

Information security is the practice of defending information from unauthorized access, use, disclosure, disruption, modification, reading, inspection, recording or destruction. To handle information security EasyGo has adopted a security policy with definition of security requirements and measures.

EasyGo doc. 103 – EasyGo Security Policy

The daily operation of EasyGo is based on the exchange of parameter tables, validation lists and transaction lists between the parties. Each TC and TSP in EasyGo require just one single connection point, the EasyGo HUB, which makes it possible to exchange data with all other parties in EasyGo. All EasyGo TSPs and TCs in Sweden, Denmark and Austria are connected to the EasyGo HUB. External TCs and TSPs are also connected via the EasyGo HUB.

EasyGo doc. 201 – Requirements for central system and EasyGo HUB

EasyGo doc. 208 – Requirements for VPN access to the EasyGo HUB

The data exchanged via the EasyGo HUB is:

	Type of information	From	To	Content
Parameter tables	Actor Table (ACT)	TC, TSP and HUB	HUB, TC and TSP	ActorID, company and contact data are collected and distributed to all TCs and TSPs
	Toll Station Table (TST)	Each TC	All TSP	The properties of their toll collection system to allow correct data in invoices etc.
	Accepted Issuer Table (AIT)	Each TSP	All TC	Approved TSPs including the number series of their OBEs
Validation lists	Black lists / Exception lists (NAT)	Each TSP	All TC	Lists of not accepted OBEs
	HGV-lists (Heavy Goods Vehicles) / white lists (HGV)	Each TSP	All TC	Lists of issued OBEs / registered number plates
Transaction lists	Transaction information files (TIF)	Each TC	Each TSP	Transactions made by TSP's approved OBE/contract or ANPR/contract
	Transaction information confirmation (TIC)	Each TSP	Each TC	Each TSP to confirm receipt of transaction information file
	Financial information file (FIF)	Each TC	Each TSP	Additional transaction information
	Financial information file confirmation (FIC)	Each TSP	Each TC	Additional transaction information confirmation

Table 1 Data types and data exchange

For critical data, it is required that the recipient checks the received data and acknowledges this by a confirmation to the sender. In the case of blacklists/white lists and transaction files, confirmations are sent via the EasyGo HUB.

EasyGo doc. 201 – Requirements for central system and EasyGo HUB

EasyGo doc. 203 – Technical requirements data formats and interface specifications

5.3 OBEs and road-side equipment

EasyGo is based on the use of DSRC OBEs complying to the 15509 standard.

In addition to the DSRC based OBEs the EasyGo HUB can handle transactions from GNSS- and ANPR-based systems.

Some toll domains require the use of OBEs that are personalised with vehicle characteristics while other accept non-personalised OBEs where the necessary vehicle characteristics are available in validation data received from the TSPs.

EasyGo doc. Series 202 – Roadside and on-board equipment

5.4 Vehicle classification, prices, currencies and invoices

Every TC/Member State sets the fare structure and toll fees in their toll domains. Some TCs use classification equipment at the toll stations for determining the vehicle class while others use information supplied by the TSP (in the HGV-list) or check the vehicle characteristics in the national vehicle register. In EETS OBEs the vehicle characteristics are also written into the OBE and in some cases the driver is able to set the number of axles on the OBE.

Some countries have implemented variable toll fees depending on environmental properties of the vehicle. If the vehicle properties are not stated in the OBE or in the HGV list, the vehicle may be charged the highest price.

6 New Toll Chargers and Toll Service Providers

6.1 Who can join?

EasyGo invites interested parties to study the documentation available on www.easygo.com. EasyGo is working actively to extend the partnership to further improve user convenience and operational efficiency, as well as to strengthen its position as a leader in interoperable tolling in Europe.

6.1.1 Toll Chargers

TCs joining EasyGo do so either as a “General Party” or as a “Limited Party”. A General Party will have a seat in the EasyGo Steering Committee and will (bearing its own costs and share of common costs) take part in the interoperability management and development of EasyGo.

A Limited Party will neither have a seat in the Steering Committee nor contribute to the common costs of the interoperability management of EasyGo. They are, however, invited to participate in some working groups.

6.1.2 Toll Service Provider

TSPs will have to sign a contract with one or more EasyGo TCs to exchange data with EasyGo TCs via the EasyGo HUB.

6.2 Tests and certification

The planning and performance of the tests of EasyGo systems and interfaces are based on test procedures that meet the requirements of EETS. The most important test areas are:

- Communication and exchange of files with the EasyGo HUB and the TSPs/TCs
- OBEs and necessary personalisation equipment (TSP)
- Customer support services
- Quality monitoring

EasyGo doc. Series 202 – Roadside and on-board equipment

EasyGo doc. 206 – EasyGo test strategy

EasyGo doc. 207 – EasyGo test specifications

EasyGo Management is responsible for assisting in testing and for verifying that the files and data fulfil the EasyGo specifications and shall supply available statistics relevant for quality assessment.

6.3 Costs

When joining EasyGo, a new TC or TSP must pay a one-time affiliation fee and carry all costs related to the adaptation of its own systems, establishing necessary procedures and testing of communication with the EasyGo HUB.

A new TC or TSP shall also cover the costs of the EasyGo personnel taking part in the tests. See also chapter 3.4 for operational costs.

7 Frequently asked questions

Examples of questions which have been raised concerning EasyGo are listed below.

Q1: What does EasyGo not include?

EasyGo does not include:

- Financial settlement between TCs and TSPs
- EasyGo does not take part in direct customer relations.

Q2: Does EasyGo include hosting regular TC/TSP meetings?

Today, EasyGo does not host regular meetings between all TCS and TSPs. However, regular meetings are held in working groups where TCs and TSPs are invited to join. Ad hoc workshops are also arranged where specific topics are discussed.

Q3: Does EasyGo include dispute management?

EasyGo does not involve itself in direct disputes between TCs and TSPs with a bilateral agreement between them. If the dispute, however, involves the operation of the EasyGo HUB or it is a result of interpretation of EasyGo specifications or procedures, EasyGo will take part in the dialogue to solve such issues. EasyGo will also, with basis in the affiliation agreement between EasyGo and parties connected to the EasyGo HUB, have the authority to suspend services if a party breaches the agreements therein. This can for example be the case if a party does not follow the data security requirements of EasyGo.

Q4: How do TCs ensure equal treatment of TSPs?

EasyGo is compliant to the EETS Directive which states that TSPs shall be treated equally.

Q5: Does EasyGo promote the EasyGo services?

To some degree EasyGo promotes the services it provides. EasyGo is a cooperation between TCs and each TC pays for the use of the service based on the number of transactions it sends via the EasyGo HUB. It is therefore beneficial for these TCs to invite other TCs into the cooperation so that more TCs can share the costs and contribute to a more efficient maintenance and development of the service.

Q6: What is required for adding a new TC?

A new TC needs to be approved by the EasyGo Steering Committee. The main criteria are that the new TC must confirm that it will comply to the technical specifications and operational procedures of EasyGo and accept the costs involved with the implementation and operation of EasyGo.

Q7: What effort does it take to contract a new TSP?

A TSP who wants to connect to EasyGo must enter into an agreement with one or more EasyGo TC and comply with the technical specifications and operational procedures of EasyGo including testing of interfaces and data exchange etc.

Q9: Are there GNSS toll domains in EasyGo?

Currently there are no GNSS toll domains in EasyGo. It is however of interest to include GNSS based toll domains as all parties from time to time discuss the use of this technology in their toll domains. DSRC is currently the preferred technology. ANPR is being used for less frequent users at Øresund and Storebælt and at the Swedish congestion charging systems. APNR is now an increasingly interesting technology, because it is included in the revised EETS Directive. It is also of interest to EasyGo to include GNSS toll domains to share the infrastructure costs between more parties.

Q10: Are there different relations/contracts for enforcement only and for enforcement plus financial streams?

Enforcement is the responsibility of the individual TC. EasyGo does, however, support TCs by distributing whitelists containing the number plate of SUs which can be charged in case of malfunction when trying to read an OBE.

Q11: Does EasyGo require special OBEs?

EasyGo does not require special OBEs. When a TSP enters into an agreement with a TC to allow the use of its OBEs in the TCs' toll domain or when a TSP introduces new OBEs, an end-to-end test including the EasyGo HUB is carried out to verify the functionality of the new OBEs.

Q12: How is Service Level Agreements agreed and what is included?

EasyGo has defined several KPIs as described in their "EasyGo quality system" (Annex 3.7). For TSPs who has connected to EasyGo the last years, the service levels are included in the bilateral agreement between the TSP and each TC.

Q13: Does EasyGo include monitoring and reporting of the services?

Within the limitations of the GDPR, EasyGo monitors a number of KPIs and reports these to relevant parties. This is a part of the EasyGo quality system.

Q14: Does EasyGo include whitelist and/or blacklist management?

Yes. EasyGo includes collection of whitelists / blacklists from the TSPs which are assembled and distributed to TCs. The data is filtered so that only relevant data is sent to each TC.

Q15: Who conducts the audits based on the security policy?

Each TC can perform audits itself (or let an external auditor do it) and confirm compliance to the common security rules.

Q16: Are there any cost-benefit figures of EasyGo available?

The main advantages of EasyGo are to allow each TC to connect to all TSPs via one VPN connection to the EasyGo HUB. Likewise, each TSP can connect to all TCs via one VPN connection to the EasyGo HUB. EasyGo also has a complete set of detailed specifications and procedures which support interoperability between toll domains and the parties. These are continuously being updated to ensure compliance to the EETS Directive and relevant standards. EasyGo also arranges workshops and seminars to allow benchmarking and best practice between EasyGo TCs and TSPs. TCs can take part in EasyGo working groups and thereby take part in the continued revision of specifications and procedures and influence these to meet the local requirements of each toll domain.

The cost of collection from an EasyGo user is much less than the cost of a non-equipped user (Foreign users become local users).

The cost for each TC connected to the EasyGo HUB is proportional to the number of transactions being sent to TSPs via the EasyGo HUB. As the total number of transactions is rapidly increasing the cost per transaction is being significantly reduced.

There are currently no cost-benefit figures available, but analyses have been initiated to produce such figures.

Q17: Are there any figures available for the investment, fixed and variable costs of TC and TSP?

See above.

Q19: What does the payment and clearing model look like from the point of view of EasyGo toll chargers (incl. scope of the data passed from EasyGo to the toll chargers)?

EasyGo allows TCs and TSPs to exchange data including transactions between themselves. EasyGo provides the required data for the TC and TSP to settle their payments. The EasyGo HUB does, however, not carry out financial clearing which must be handled bilaterally between TC and TSP.

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