



Mutual access to ticketing systems



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Customer at the centre

Enabling legislation

Finland is the first country in the world to have a law integrating all modes of transport and enabling new, user-oriented transport services. We believe that the Government's role in responding to the disruption of the transport sector is to ensure that legislation supports the development of new services.

The Finnish Act on Transport Services views the transport system as one entity and provides the needed elements for a technology-neutral digitalisation of transport services and new transport models. The main aim of the Act is to make possible customer-oriented, smooth and multimodal transport services. Mobility as a Service (MaaS) is the central theme of the Act. In other words, transport should no longer be a question of transport modes, but about providing the best service for the customer.

A transport system that supports MaaS

MaaS is a mobility service offered to a customer. A MaaS service provider brokers and integrates the services of several transport modes according to the customer's needs and sells the entire travel chain needed by the customer. For customers, MaaS offers smoothness and ease of mobility because one service can provide a broad selection of transport modes.

Efficient MaaS services need support from the transport system and the regulatory framework. Further, openness of data and the interoperability of the systems involved must be ensured. Regulations should not prevent providers from developing new service models nor their entry into the market. Additionally, the transport infrastructure, such as routes, stations and parking, must support the smooth use of the new services. ■



Access to essential data

Data availability — a prerequisite for new mobility services

Although the amount of data is doubling every two years, we still lack key data in a re-usable format. Since MaaS services and autonomous driving are also being developed at an increasing pace, the transport sector is one of the first sectors where the better use of data can be harnessed for tangible results. By combining data from both public and private services, we can create services that more effectively meet the needs of customers.

Therefore, we need essential data on transport services to be provided in a digital format and in such a way that the data can be automatically shared with and processed by all parties involved. According to the Act, regardless of the mode of transport, a provider of passenger mobility services has to ensure that essential, up-to-date data on its services is available from an open interface in a standard, easy to edit, and computer-readable format. Such essential data includes, for example, information on routes, stops, timetables, prices, availability and accessibility. The minimum set of data may be specified by government decree.

Users' trust stems from the transparency of data processing

While it is important to create business opportunities, we must not forget the individual. Service providers must ensure that interfaces can be opened without compromising the information security and privacy of the service. To this end, business models are needed where the rights of the individual are fully respected, and where this can be achieved in ways that encourage trustworthy digital business models and data use. Individuals need to have control of their data in a way that makes it effortless for them to exercise their digital rights and share their data with the service providers they trust. The service provider can then use and combine the data transparently for the customer's benefit. ■

Transport data policy

Data policy in the transport sector is not only about promoting mobility services. In the future, data will link together mobility services, autonomous transport, transport infrastructure, and traffic and fleet management in all transport modes into one holistic system.

This development promotes transport efficiency, safety, and environmental and climate goals, which are the underlying societal objectives of all transport policy.

Focus on interoperability

Opening access to ticketing systems

The availability of data itself, however, is not enough — it must be possible to move data between service providers. Two key elements then for interoperable ticketing for transport services are network connectivity and backend connectivity.

According to the Act, service providers will have access to ticketing and payment systems of transport services for road and rail passengers via an application programming interface (API). The service providers will then be able to access and combine tickets, and offer passengers at least a basic-priced single trip ticket(s) for their entire travel chain.

However, if MaaS providers cannot sell tickets at a student or senior citizen discount, for example, their services will hardly be attractive. For this reason, the Act authorises the service provider to act on the passenger's behalf, with their consent, when buying tickets. This applies where a transport service provider has an electronic service channel and the passenger has an account with the transport service provider in which their personal data is stored. The passenger can give consent to a third party to use this personal data so that the third party can sell discounted tickets to the passenger and offer them other benefits, too.

Fair, reasonable and non-discriminatory terms

Access to information and information systems offered through open interfaces and any support services, terms and conditions of use, software, licenses and other services that may be required to access them must be offered on fair, reasonable and non-discriminatory terms. For example, a fee can be charged as long as it meets the set terms. The Finnish Transport and Communications Agency is responsible for ensuring that the terms meet the set requirements and that the transport market works properly.

Interoperability of MaaS operators

MaaS operators are part of the mobility ecosystem. Therefore, the principle of interoperability needs to apply to them, too. Consequently, operators combining interfaces must ensure that their services are interoperable with other similar services. In addition, MaaS operators have to open the interfaces needed to verify travel rights and they have to ensure that the travel rights may be verified using generally applied technologies.



Connectivity between ticketing systems

Publicly funded transport is an important part of the transport services available. It is also mainly responsible for the legacy systems in use for ticketing. Since the public sector should be a driving force in enabling MaaS, the Act requires that the public sector may only procure mobility services from service providers with backend-supported ticket and payment systems that allow for interoperability. This backend connectivity makes it possible to offer seamless ticketing, account-based personalised ticketing, and the use of multiple ticket validation technologies for consumers such as payment cards and smart phones. In addition, it ensures that reporting and calculations are more accurate for revenue sharing. Since travel chains can combine public and private funding, this enhanced accuracy provides more transparent bookkeeping to meet the requirements of state funding rules. ■

Interoperability, not integration

The Finnish approach of interoperability will allow service providers to sell tickets of other transport modes to customers as part of their service concept. In this way, custom-made mobility chains are possible and the system is easily scalable. With integrated systems, this is not the case. The level of integration can be relatively high for public transport (one system for all) in some countries. But this is not an indicator of how easy it is to sell multimodal travel chains as there is no open interfaces or market mechanism to facilitate the inclusion of all modes and service providers.

One year of experiences

Principles of modern legislation

Modern legislation should not be aimed at giving detailed instructions, but instead should be result-driven and enabling. The Act on Transport Services does not give provisions on what transport services should be, but rather it provides for the freedom to create the most viable solutions in each context. As long as the basic criteria for safety and consumer protection are fulfilled, the Act will provide market players with a far more dynamic operating environment than did earlier legislation.

This approach has proven useful. New services have already been developed. Although most of the services operate in urban areas, there also are multiple pilots in rural areas.

While the Act was an important deregulation project (e.g. making it possible to combine different modes of transport, and remove taxi licence quotas), it was not only aimed at cutting red tape. New rules on data were added, since they were needed to create a level playing field. However, no detailed technical rules were given; instead the Act uses more general concepts such as open interface and fair, reasonable and non-discriminatory terms. The market players know best what solutions suit them and the market, so the legislator should not be too keen to specify technical details. This way, the legislation does not become outdated and become itself a barrier to market development.

The legislation seems to be working well for the most part. However, there has been one dispute over what should be considered fair and reasonable access to a ticketing system.

While the technical side is left for the market players to define in a more detailed fashion, it needs to be clear what data should be shared. Therefore, the minimum data to be opened was listed in a government decree, which makes it easier to amend the list.

This approach of defining a minimum set of data seems to be working well. The reason may be that the list was drafted in workshops open to all market players.

Soft law guidance

Since the data rules are of quite a general nature, the need for more guidance was recognised. To provide this, the Finnish Transport and Communications Agency established the Lippu network, which brings together market players, relevant authorities and unions. Together, they drafted a code of conduct on ticketing interfaces, developed and piloted model API and conducted studies on data protection aspects. Where necessary, the Finnish Transport and Communications Agency will issue more detailed technical orders on how actors may demonstrate that they fulfil the requirements referred to in subsection 2 and how they may apply for an assessment [Section 160 § Act on Transport Services].

It seems that technical questions were not that big of an issue. Most of the uncertainties seemed to revolve around data protection and liability issues. Therefore, a legal study was commissioned to look at both of these. The result is that while these questions are important to keep in mind, there should not be any unforeseen problems. The cooperation continues.

Heterogeneous actors

When drafting the new legislation, we were well aware that there are transport operators of all sizes. We did not want to burden any of them with the new rules. Therefore, practical support was provided for smaller operators [e.g. a tool to digitise information into data and to create an API]. Some monetary support was granted for larger operators, since updating their complex systems can be costly. Finally, information support through the Lippu network was provided for all.

With the digitising tool, even one-person companies have been able to meet the requirements. More emphasis is now being put on communicating information that is not required nor necessary to publish [e.g. a person's home address].

At first, there was no monetary support, since building an API is cheaper than designing a new system and the updates are beneficial to the service provider's business. However, the progress was a bit slow and it was considered important to encourage the technological development of ticketing systems even beyond the requirements of the Act [e.g. the use of the EMV standard].

Codes of conduct

Codes of conduct are soft law — they are not legally binding nor are they a model contract.

They cover for example:

- Information security
- Information about exceptional situations
- Processing of personal data
- Payments
- Use of trademarks
- Liabilities, especially passenger rights in multimodal chains

NAP work

The essential data on transport services is accessed through APIs. The National Access Point (NAP) is the catalogue of such APIs. We did not want to have a centralised data warehouse, because a decentralised system provides more up-to-date information and is not so attractive to cyber threats.

The NAP service has a good coverage of transport services. The catalogue has more than 6,100 companies contributing to the provision of around 2,500 services. Even the smaller operators have published their data. This has required targeted communications activities and guidance.

While a decentralised system works well for sharing data, there have been difficulties in automatically observing changes made, for instance, to timetables. More development work is needed to address this and other issues.

NOTE: These are preliminary results, and more time is needed to assess the final situation. ■

Ideas for the EU

Overarching principles

Market development is hindered by the over-centralisation of data. New transport services should be enabled by ensuring fair rights to the necessary data.

In order for travel chains to be effectively formed, third-parties must also be able to sell tickets. Therefore, interoperability between ticket and payment systems is needed.

Access to data and to ticketing and payment systems must be provided through an open interface in the information system. Access should be provided on fair, reasonable and non-discriminatory terms.

The principle of data sharing and access to ticketing and payment systems should be put in EU legislation in each transport mode. The list of data sets to be shared should be in an annex so that it can be amended in a more flexible way with delegated acts. Contractual issues and technical details should be left for the market actors to decide, and the EC could help them to create a code of conduct and guidance on security.

Where to start?

The goal in the EU's transport policy has always been to provide citizens the best possible services. However, sometimes when time passes, legislation can create unintended obstacles. Therefore, the first thing to do should be to assess the current regulation. For example, the following pieces could benefit from a fitness check:

- Regulation No 1371/2007 on rail passenger's rights and obligations (currently under negotiations)
- Regulation No 80/2009 of the European Parliament and of the Council of 14 January 2009 on a Code of Conduct for computerised reservation systems
- Commission Delegated Regulation (EU) 2017/1926 with regard to the provision of EU-wide multimodal travel information services. ■

Background – Enabling market access in Finland

Transport markets brought under the same law

Traditionally regulation of the transport sector has been modal-based at both national and EU level. The Finnish transport reform brought transport market legislation concerning all the different modes of transport under one and the same act, the Act on Transport services. The act combined and renewed the provisions affecting transport of both passengers and goods.

Previously, the transport market in Finland was strictly regulated and driven by public measures. The main aim of the act was to create a market environment that corresponds to today's open and innovative way of thinking. The Act promotes free and fair competition in the passenger transport market, as well as the competitiveness of the service providers of both goods and passenger transport.

Improved market access and ability to operate in the market

The legislative measures of the Act facilitate market access, dismantle competitive barriers and reduce operators' administrative burdens. The Act streamlined the requirements and application processes for licenses, and a significant amount of unnecessary mode-specific regulation was abolished.

Most of the deregulation concerned road transport legislation, where the requirements for transport services differed between the different

modes of transport. National regulations regarding taxis were subject to the most substantial deregulation.

Following the transport reform and harmonisation, actors are now able to practise their profession more freely. For example, the Act allows holders of passenger and goods transport licenses to operate taxi services simply by submitting a notification to the Finnish Transport and Communications Agency, Traficom. During the preparation of the Act, it was ensured that the legal state of the transport sector would remain consistent with the EU law. The Act on Transport Services shows that a comprehensive harmonisation of transport legislation is possible and recommended at the national level even if the EU legislation would still be mode-specific. ■

Highlights of the new market environment

- Streamlined requirements subject to license – easier market access
- One license to operate different road transport services – enabling new service models
- Clear and harmonised rules to all transport services
- The overall register reform – improved data utilization and more transparent market
- Opening taxi market to competition
- Goods transport with a van (+2000–3500 kg) with notification only

➔ Streamlined road transport operations subject to license

	PASSENGER TRANSPORT	GOODS TRANSPORT
TAXI LICENSE <i>Fleet</i> A car, van, truck and certain other vehicles specified in the law which are registered for professional use.	PASSENGER TRANSPORT LICENSE <i>Fleet</i> Motor vehicles used in commercial passenger transport, suitable for carrying more than eight passengers.	GOODS TRANSPORT LICENSE <i>Fleet</i> A vehicle or a combination of vehicles with the maximum permissible loaded mass exceeding 3,500 kg.
Licence is valid for 10 years and can be issued to both individuals and legal entities.	Goods and passenger transport licences are valid for 10 years and can be issued to individuals or legal entities. A licence permits also to offer taxi services.	
LICENCE REQUIREMENTS	TAXI LICENSE	GOODS AND PASSENGER TRANSPORT LICENSE
Legal capacity, business competency and the age of majority	✓	✓
Good repute	✓	✓
An effective and stable establishment in Finland	✓	✓
Designated transport manager	✓	✓
Ability to fulfil financial obligations	✓	
Transport licence has not been withdrawn in the last year	✓	
Solidity		✓
Responsibility in financial matters		✓

Annex: Data Rules in the Act on Transport Services

1. Essential data concerning mobility services

Regardless of the mode of transport, a provider of passenger mobility services shall ensure that essential, up-to-date data on its services is freely available from an information system (open interface) in a standard, easy to edit, and computer-readable format. At minimum, this essential data shall include information on routes, stops, timetables, prices, availability and accessibility.

The Finnish Transport Safety Agency shall be notified of the web addresses of an interface referred to in subsection 1 above and web addresses of any additional information needed to use the interface as well as any address updates before operation is initiated or, with regard to updates, as soon as a new address is known.

The Finnish Transport Agency shall offer a technical service through which the data referred to in subsection 1 may alternatively be provided.

More detailed provisions on essential data referred to in subsection 1 and the requirements for keeping this information up to date, as well as on technical interoperability may be laid down by a government decree. *Section 154 § Act on Transport Services.*

2. Interoperability of ticket and payment systems

Providers of road and rail passenger transport services, providers of brokering and dispatch services, or actors managing a ticket or payment system on behalf of these shall give mobility service providers and providers of integrated mobility services access to the sales interface of their ticket and payment systems, through which it is possible to:

- 1) purchase a ticket product at a basic price that, at minimum, entitles the passenger to a single trip; the travel right based on this ticket shall be easily verifiable using generally applied technology; or
- 2) reserve a single trip or a transportation, the exact price of which is unknown when the service begins or which for some other reason will be paid by mutual agreement after the service has been provided.

A service provider who only provides passenger transport services other than those procured by the competent authority referred to in Part IV, chapter 1, sections 4 and 5 of this Act, the Act on Public Procurement and Concession Contracts (1397/2016), hereinafter referred to as the Public Procurement Act, or the Act on public contracts and concessions of entities operating in the water, energy, transport and postal services

sectors (1398/2016), may deviate from the requirement in subsection 1 if requirement is not technically feasible or reasonable due to the company's small size or operating area.

A service provider obligated to open a ticket and payment system interface pursuant to subsection 1 and a mobility and integrated mobility services provider that utilises the interface shall work in co-operation to facilitate the necessary practical arrangements. *Section 155 § Act on Transport Services.*

3. Authorisation to act on behalf of another party

Mobility or integrated mobility service providers or actors managing a ticket or payment system on behalf of these shall give mobility or integrated mobility service providers access to the sales interface of their ticket and payment systems, or, if necessary, provide access to the systems via another electronic transaction channel and allow the mobility or integrated mobility service providers with the right of access to purchase ticket products at the service user's request on his or her behalf or other products entitling them to use the mobility services using the identification and user information of the service user's existing user account.

The issuer of a ticket which includes a discount, reimbursement or a special condition related to the mobility service shall give the mobility or integrated mobility service providers access to the system via an interface or another electronic transaction channel and thereby allow the mobility or integrated mobility service providers with the right of access to purchase, at the service user's request on his or her behalf, ticket products entitling them to use the discount, reimbursement or other special condition or other products entitling them to use the service using the identification and user information of the service user's existing user account.

If the controller of a register related to the criteria for a discount, reimbursement or special condition is a party other than the ticket issuer, the controller and the ticket issuer shall together ensure that the information related to the criteria are available to the extent required for carrying out a transaction on behalf of another party.

Personal data may be processed in connection with the transaction on behalf of another party referred to in subsections 1 and 2 above only to the extent that is necessary for verifying the identity and performing the transaction on behalf of another party. In addition to what is provided elsewhere in the law, identity must be verifiable in a particularly reliable manner when the relationship for acting on behalf of another party is established or substantially changed. Identity must also be verifiable in connection with a transaction on behalf of another party.

The access to an interface or system referred to in subsections 1 and 2 above must be provided without any conditions restricting the use. The mobility or integrated mobility service provider referred to in subsection 1 above and the actor managing a ticket and payment system on behalf of these as well as the issuer of a ticket which includes a discount, reimbursement or special condition related to the mobility service as referred to in subsection 2 has, nevertheless, the right to evaluate the reliability of the mobility or integrated mobility service provider with the right of access according to pre-determined evaluation criteria and conditions.

Access to information may not be denied if the operator applying for access has a licence, approval, authorisation or certification issued by an authority or by a third party authorised by an authority for a corresponding purpose or its operations have otherwise been demonstrated to correspond to generally applied standards or generally accepted conditions in the sector. If access is denied, the applicant must be presented appropriately justified reasons for denial.

The mobility or integrated mobility service provider referred to in subsection 1 above and the actor managing a ticket and payment system on behalf of these as well as the issuer of a ticket which includes a discount, reimbursement or special condition related to the mobility service as referred to in subsection 2, providing only passenger transport services other than those acquired by the competent authority referred to in part IV, chapter 1, sections 3 and 4 pursuant to this Act and the Act on Public Procurement or acquired by entities operating in the water, energy, transport and postal services sectors pursuant to the said Act, may deviate from the requirement of subsection 1 or 2 if its implementation is not technically appropriate and reasonable due to the small size or sphere of operations of the undertaking.

The service provider obligated to open an interface pursuant to subsections 1 and 2 and the mobility or integrated mobility service provider that uses the interface shall cooperate to facilitate the necessary practical arrangements. The scope of access must be adequately extensive so that mobility and integrated mobility service providers can provide their services efficiently without restrictions. *Section 156 § Act on Transport Services.*

4. Promoting interoperability in public procurements

When procuring mobility services or ticket or payments systems associated with them pursuant to this Act, the Public Procurement Act, or the Act on public contracts and concessions of entities operating in the water, energy, transport and postal services sectors, a competent authority referred to in Part IV, chapter 1, section 4 and 5 of this Act shall see to it that the invitation to tender, the contract notice and the contract contain the following requirements:

1) the service provider has described how they have fulfilled their obligations outlined in section 1;

2) verifying the travel rights based on the service provider's ticket products shall be made possible by contacting a back office system through a telecommunication network shall be possible, and generally applied technologies shall be used for the verification; and

3) where the travel right is verified by contacting the back office system of another service provider, communication between the back office systems shall be possible through an interface.

A competent authority shall approve all such systems used by service providers that meet the requirements listed in subsection 1, paragraph 2. Additionally, a competent authority shall ensure that its activities promote interoperability of the ticket and payment systems also in other respects.

Section 157 § Act on Transport Services.

5. General requirements for opening interfaces

Access to information and information systems offered through the open interfaces referred to in sections 1, 2 and 2a above and any support services, terms and conditions of use, software, licences and other services that may be required to access them shall be offered on fair, reasonable and non-discriminatory terms.

The service providers required to open interfaces referred to in sections 1, 2 and 2a above shall ensure that they can be opened without compromising the service's information security and privacy. The mobility or integrated mobility service providers with the right of access as referred to in section 2a above shall ensure the level of information security and data protection in connection with their own services so that transactions on behalf of another party may be performed without compromising these. *Section 158 § Act on Transport Services.*

6. Interoperability of services that link services and interfaces

Service providers who provide technical links between the open interfaces on which provisions are laid down in this chapter and the actors responsible for maintaining back office systems associated with verifying travel rights shall, when developing their services and systems, ensure that they are interoperable with other similar services. The service providers referred to above shall also in other respects work together in order to deliver the technical interoperability required to form travel chains.

Providers of integrated mobility services shall open the interfaces needed to verify travel rights and ensure that the travel rights may be verified using generally applied technologies.

More detailed provisions on ensuring the interoperability referred to in subsection 1 and 2 may be laid down by a government decree. *Section 159 § Act on Transport Services.*