



Smart Ticketing Alliance

Glossary

Glossary of Terms and Abbreviations used in the Public Transport Ticketing Industry

Version 1.0.9

2021, March 17



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Version Control

Version	Comments	Date	Editor
V1.0.0	Initial Publication.	November 2019	Mike Eastham
V1.0.1	Added comments for further discussion.	January 2020	Wilk Hoffmann
V1.0.2	Changes in focus, approach and content	February 15, 2020	Jaap de Bie
V1.0.3	Review and editorial changes	April 14, 2020	Wilk Hoffmann
V1.0.4	Review and editorial changes	April 30, 2020	Jaap de Bie, Wilk Hoffmann
V1.0.5	Editorial changes, use colours for non-standard contributions	May 15, 2020	Wilk Hoffmann
V1.0.6	Editorial changes, definitions added	May 22, 2020	Jaap de Bie, Wilk Hoffmann
V1.0.7	Review and (ITSO) additions	August 8, 2020	Steve Wakeland
V1.0.8	Adapt und extend document after reconciliation in the review workshop	September 9, 2020	Wilk Hoffmann
V1.0.9	Review and Calypso additions, added index of terms	March 17, 2021	Philippe Guillaumin, Wilk Hoffmann



1 Introduction

Smart Ticketing Alliance

Smart Ticketing Alliance (STA) has a mission: to drive a coordinated effort towards ticketing interoperability for the public transport sector in Europe and beyond.

The STA's website can be found at the following URL: <https://www.smart-ticketing.org>

Goal of this Glossary and Target Group

This glossary contributes to the mission of STA: In an attempt to demystify some of the jargon used in the Public Transport Ticketing Industry, particularly relating to Smart Ticketing, the Smart Ticketing Alliance (STA) has developed this STA Glossary document.

The Glossary has been produced so that

- persons who have experience in the Public Transport Ticketing Industry use terms with the same meaning and avoid different interpretation of terms and misunderstanding
- persons who are new to the Public Transport Ticketing Industry have ready access to a document that explains, with the source of the term where appropriate, the meaning used generally within the industry.

The target group of this glossary is diverse and comprises, among others, employees in governmental departments, public transport organisations and system suppliers with smart ticketing tasks.

Contents of this Glossary

The document is laid out in table form with columns depicting the term, a note of any abbreviations or acronyms, its source and the definition itself plus any additional commentary necessary to explain the terminology used, especially when the term is standards derived. Where possible, this document uses the terms of relevant existing standards. For national contributions, the column *Contributor* indicates, who has added the term. Additionally, these items are marked with different colours.

In addition to the section with terms and the definition thereof, there is a section on abbreviations and acronyms used in the Public Transport area.

There is also a separate section containing a list of abbreviations used by standards bodies in their work to design standards. This list can also be found in the STA's Reference Documentation document.

This glossary avoids common terms which are already defined in other contexts, such as "API" or "Account". It will not redefine terms with a common meaning in a similar way. Only terms with a direct relation to public transport are defined.

Selected terms and abbreviations in this Glossary

There are quite many standards as well as documents with guidelines and good practices with regard to Smart Ticketing in Public Transport. For this glossary, a selection of terms and abbreviations was made with two key criteria as a basis:

- Widely used relevant standards and guideline documents
- High frequency of use of key terms and abbreviations



Status of this glossary and expected further work

This glossary is a draft document that is being further developed. In addition, it is expected that this glossary will be a living document that changes from time to time. There are two key reasons for this:

- Developments in smart ticketing – for example, account-based ticketing and mobile ticketing – are taking place at a rapid pace
- Public transport is seen more and more as a (very crucial and environmental-friendly) component in a chain of mobility. As a consequence, mobility integration with other forms of transport (like car sharing, bike sharing, etc.) and developments in serving this integration like MaaS (Mobility as a Service) are a major goal of many stakeholders in the door-to-door mobility chain of travellers.

Therefore, users of this glossary should always make sure to use the latest version of this document.

The actual version of the glossary can be obtained from STA's website:

<https://www.smart-ticketing.org>



2 Glossary of Terms and Definitions

Quite a number of terms and definitions here are taken from two key standardisation documents for smart ticketing:

- ISO standard 24014-1 and
- CEN Technical Specification 16794 part 1 and 2.

Note with regard to ISO 24014-1: ISO 24014 is a standard series consisting of several parts. ISO 24014-1 is the crucial standard part with regard to the Interoperable Fare Management System (IFMS), the other parts are state-of-the art technical specifications with regard to related subjects.

Note with regard to CEN TS 16794 part 1 and 2: This technical specification is formally published now on the European level. However, this standard will not be developed further in Europe and will, according to the planning, in the first half of 2020 be published in an improved version on worldwide level as ISO 24192 part 1 and 2. Improvements in these parts of the ISO standard will consist mainly of quite a number of technical clarifications to avoid misunderstanding of technical descriptions and technical requirements.

See also Section 3 detailing commonly used abbreviations and acronyms (jargon).

For “local” contributions, different colours are used (Standard terms are colourless):

Organisation	Colour
ITSO	Yellow
Calypso	Light Green
VDV ETS	Light Pink
Standard	



Term	Abbreviation or Acronym	Source of Definition	Definition	Additional Commentary	Definition/Commentary Contributor
Account-Based Ticketing	ABT	ISO 24014-1 (2020)	Architectural approach that stores products in the IFM system's back office (i.e. the customer's personal account or a temporary account) and not in the customer medium. The customer medium carries authentication credentials and an application that contains references to the account-based products in the back office.	<p>Method of ticketing whereby a real-world object (this might be a device, an ID card, a reference code, etc.) is used as a token to link to an account where journeys are paid for at the end of an accounting period. Enables best journey pricing to be applied after the event.</p> <p>The proof of entitlement to travel and any records of travel are held in a back-office (i.e. servers) and not necessarily on any physical media held by the passenger.</p> <p>ABT differs from traditional card-based schemes because the business rules and fare calculation are managed in the back-office. This means that the fare-media used to tap in and out of the system is nothing more than a unique identifier for the customer linked to their account.</p> <p>For payment and billing three different approaches exist:</p> <ol style="list-style-type: none"> 1. Cash substitution (pay with card and get fare) 2. The fare is calculated and billed after the trip is complete using a fare engine. 3. Pre-pay ticket in the cloud or back-office system for the user to guarantee their own ticket selection. 	<p>Definition: Standard Commentary: VDV ETS Added by: Mike Eastham</p>



Term	Abbreviation or Acronym	Source of Definition	Definition	Additional Commentary	Definition/ Commentary Contributor
Action List		ISO 24014-1 (2020)	List of items related to IFM applications or products downloaded to medium access devices (MADs) processed by the MAD if and when a specific IFM application or product referenced in the list is encountered by that MAD.	This is the description of the action process to download a ticket or addition of value (say to an e-purse) from the IFM system's back office to the customer's device, which may be a smart-card, mobile phone or similar.	Definition: Standard Commentary: Mike Eastham Added by: Mike Eastham
Actor		ISO 24014-1 (2020)	A person, an organization, or another (sub-) system playing a coherent set of functions when interacting with the IFM system within a particular use case.	Definitions of actor roles can be found in ISO 24014-1 (2020).	Definition: Standard Added by: Mike Eastham



Term	Abbreviation or Acronym	Source of Definition	Definition	Additional Commentary	Definition/ Commentary Contributor
Aggregator			<p>In <i>IFM</i>, this role is covered by the combined processes of product retailing and loading product(s) to an application issued by an application retailer on a secure element.</p> <p>An aggregator is a person or entity that acts as an agent for product retailers to provide a service to clients offering a “one-stop shop” for ticketing and travel.</p> <p>Depending on the commercial arrangements, an aggregator may be acting as a product retailer.</p>	<p>From a customer perspective, using a journey planner on their mobile phone, the customer will select a journey that may include products owned by a number of different product owners (probably multiple different modes of transport).</p> <p>The aggregator is no more than a product retailer in an IFM, but to the customer, it is someone who retails on behalf of all the individual products the customer wishes to buy. Furthermore, the aggregator can provide a product fulfilment service to generate the tickets and send them to a digital wallet service.</p> <p>The aggregator itself could be a product owner and additionally sell further products on behalf of other product owners or product retailers, but it is more likely to be a separate actor who does not own any products but is acting on behalf of the customer (as a travel agent would) to buy from product retailers and sell to customers.</p>	<p>Definition: Mike Eastham Commentary: Mike Eastham Added by: Mike Eastham Complemented by: Steve Wakeland</p>



Aggregator		VDV-ETS (presentation at Transport conference, CB, 2019)		Roles of Aggregator: <ul style="list-style-type: none"> ✓ Be transparent, neutral, discrimination free, fair ✓ Take the Traveller as the center of all thoughts, cf. „seamless travel“ ✓ Be responsible for (EU-wide) scheme harmonisation ✓ Ensure cross border/cross scheme mobility ✓ Publishes MaaS-Relevant normative References ✓ Have a clear overview of all Stakeholders in the MaaS-Field ✓ Act as single point of contact between MaaS-Stakeholders and the EU ✓ Play a coordinative role between all stakeholders ✓ Ensure Interoperability and Multimodality ✓ Acts as central certification instance for granting access to MaaS-platform(s) ✓ Ticketing, Payment, Settlement & Security&Privacy are key processes to focus on 	Added by: VDV ETS
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Term	Abbreviation or Acronym	Source of Definition	Definition	Additional Commentary	Definition/Commentary Contributor
Anti-Passback		ITSO Dictionary	Anti-Passback is the concept used to prevent a Customer Medium being used more than once within the “passback period”, a period of time during which a product may not be presented more than once, and is designed to prevent the deliberate multiple use of a non-transferable travel permit by multiple users simultaneously. See also Passback.	Especially for Check-In Check-Out respective to open gates with a Customer Medium.	Added by Steve Wakeland, ITSO
Anti-Tear		ITSO Dictionary	Measures taken to avoid the corruption of data if the CM is removed from the Media Target Area whilst data is being written to the CM.		Added by Steve Wakeland, ITSO
Anti-Tear Protection		ITSO Dictionary	There are three forms of anti-tear protection: software anti-tear; hardware anti-tear; tear Prevention.		Added by Steve Wakeland, ITSO



Term	Abbreviation or Acronym	Source of Definition	Definition	Additional Commentary	Definition/Commentary Contributor
Application		ISO 24014-1 (2020)	<p>Implemented and initialised application template</p> <p>Note: A file structure, directory entries and security scheme loaded onto a Customer Medium to perform a particular function. See also Application Specification and Application Template</p>	<p>Notes according to the standard with regard to the definition given:</p> <p>Note 1: The application may host one or more products and may support functions which identify and protect the access to these products. For ABT- and ID-based architectures, the application may reside partly in the customer medium (identification and access control function) and partly in the IFM-back office (products).</p> <p>Note 2: The application is identified by a unique identifier.</p> <p>Note 3: The application may house products and other optional customer information (customer details, customer preferences).</p> <p>Note 4: The application can be fully installed on a customer medium or distributed on the customer medium and the IFM back offices.</p>	<p>Definition: Standard</p> <p>Commentary: Standard Added by: Mike Eastham</p>



Term	Abbreviation or Acronym	Source of Definition	Definition	Additional Commentary	Definition/Commentary Contributor
Application				<p>The term Application in this context is used within the meaning of a smart chipcard which contains</p> <ul style="list-style-type: none"> • An Operating System (OS) that manages the behaviour of the card when receiving commands (APDU) from a reader. • One or several file structures with associated identifying Tags <p>On the chipcard there is no application within the meaning of the OSI model. The chipcard is just a secure container, it does not manage the data model and has no idea of the meaning of the data it contains. This is done by the validator, the vending machine and/or the central system.</p> <p>The use of “Container” instead of “Application” as defined in ISI/IEC 7816-4 could prevent misunderstanding but is actually not used.</p>	Added by: Philippe Guillaumin, Calypso
Application Issuing		ITSO Dictionary	The loading of Applications onto Customer Media (CM) held by Customers or issuing to Customers, CM on which an Application has been loaded.		Added by Steve Wakeland, ITSO



Term	Abbreviation or Acronym	Source of Definition	Definition	Additional Commentary	Definition/Commentary Contributor
Application Rules		ISO 24014-1 (2020)	Application owner requirements	A set of rules to be followed, set by the application owner in the use of his application, implemented by the application specification.	Definition: Standard Commentary: Mike Eastham Added by: Mike Eastham
Application Specification		ISO 24014-1 (2020)	Specification of functions, data elements, and security scheme according to the application rules		Definition: Standard Added by: Mike Eastham
Application Template		ISO 24014-1 (2020)	Executable technical pattern of the application specification		Definition: Standard Added by: Mike Eastham
Apportionment		ITSO Dictionary	The process of sharing revenue between companies accepting an interoperable ticketing product (as distinct from reimbursement of concessionary 'top-up' payments).		Added by Steve Wakeland, ITSO
Asset Management System		ITSO Dictionary	A sub-system of a Back Office System that records and manages the disposition status and configuration of Secure Application Modules (SAM) and some aspects of Terminal configuration.		Added by Steve Wakeland, ITSO



Term	Abbreviation or Acronym	Source of Definition	Definition	Additional Commentary	Definition/ Commentary Contributor
Attribute		NFC Forum MIT ID mobility service use cases (2020)	Characteristic or property of an entity that can be used to describe its state, appearance, or other aspects (e.g. entity type, address information, telephone number)		Added by: VDV ETS
Automated Fare Collection	AFC		Automated ticketing system of a public transportation network	Performs tariff value determination of the public transport service (pricing) and the debiting of the value according to the stored billing methods (payment time).	Added by: Philippe Guillaumin, Calypso
Back Office System	BO System		Computer system to manage the IFM, usually at the head office or other main office of the public transport operator or authority that manages the IFM.		Definition: Mike Eastham Added by: Mike Eastham
Be-in/Be-out	BiBo	UITP report ticketing Ed. V17	Validation system whereby the physical validation infrastructure within transport vehicle automatically detects the appearance and disappearance of a specific electronic token carried by passengers, without them needing to take any specific action. It enables a truly “hands free” travelling experience.		Definition: VDV ETS Added by: VDV ETS
Card-centric		IEEE 2005	System where all data related to the rights of a user are stored in a portable object of the user, and are managed by terminals, allowing transactions and fare calculation without real time communication with a remote system.		Added by: Philippe Guillaumin, Calypso



Term	Abbreviation or Acronym	Source of Definition	Definition	Additional Commentary	Definition/Commentary Contributor
Certification Body			Entity in charge of the certification process	Confirms and provides a certificate if the item that was tested has shown to be compliant.	Definition: Mike Eastham Commentary: Mike Eastham Added by: Mike Eastham
Certification Body		STA Certification Overview (2016)	Third-party entity, member of the STA or sponsored by an STA member, in charge of the certification process as described in ISO 17065: 2012	(Right term would be here: STA Certification Body)	Added by: VDV ETS
Certification Client		ISO 17065 (2012)	Organisation or person responsible to a certification body for ensuring that certification requirements, including product requirements, are fulfilled	(Term used in standard: Client)	Added by: VDV ETS
Certification Product Requirement		ISO 17065 (2012)	Requirement that relates directly to a product, specified in standards or in other normative documents identified by the certification scheme	(Term used in standard: Product requirement)	Added by: VDV ETS
Certification Requirement		ISO 17065 (2012)	Specified requirement, including product requirements, that is fulfilled by the client as a condition of establishing or maintaining certification.		Added by: VDV ETS
Certification Scheme		ISO 17065 (2012)	Certification system related to specified products, to which the same specified requirements, specific rules and procedures apply		Added by: VDV ETS



Term	Abbreviation or Acronym	Source of Definition	Definition	Additional Commentary	Definition/Commentary Contributor
Check-in/Be-out	CiBo	UITP report ticketing Ed. V17	An alternative scheme to consider before a full roll-out of a BiBo is Check-in/Be-out (aka Assisted BiBo). Instead of fully automatic check-in, the CiBo scheme requires passenger to confirm within the smartphone or chip card application that they have started their journey. Check-out is recorded automatically. Such scheme allows operators to gather and compare automatically recorded proximity recognition data with passenger confirmation data in order to assess accuracy of future BiBo scheme and adjust parameters if necessary.		Added by: VDV ETS
Check-in/Check-out	CiCo	UITP report ticketing Ed. V17	Also called Tap-in/Tap-out or Touch-in/Touch-out, customers present their fare media/token to a specific Media Acceptance Device (MAD) / validator that uses a short-distance reader to check the passenger in to the transport vehicle/network.	Alternative definition: Relating to open or closed smart-card (or other) transport systems where the users are required to identify themselves (usually by swiping a magnetic ticket or tapping at a smart-card Terminal) on entry to and exit from the system.	Commentary: VDV ETS Added by: VDV ETS
Closed Loop		UITP report ticketing Ed. V19	A payment instruments that are used solely for transit purposes. That means, that such payment instrument can be used only for services provided by the transit Authority or Operator and not for generic payments outside transit. The transit Authority or Operator has the governance of the system		Commentary: VDV ETS Added by: VDV ETS



Term	Abbreviation or Acronym	Source of Definition	Definition	Additional Commentary	Definition/Commentary Contributor
Commercial Rules		ISO 24014-1 (2020)	Rules defining the settlement and commission within the IFMS		Definition: Standard Added by: Mike Eastham



Term	Abbreviation or Acronym	Source of Definition	Definition	Additional Commentary	Definition/Commentary Contributor
Common Criteria	CC	https://www.commoncriteriaportal.org	<p>The Common Criteria for Information Technology Security Evaluation (CC), and the companion Common Methodology for Information Technology Security Evaluation (CEM) are the technical basis for an international agreement, the Common Criteria Recognition Arrangement (CCRA), which ensures that:</p> <ul style="list-style-type: none"> • <u>Products</u> can be evaluated by competent and independent <u>licensed laboratories</u> so as to determine the fulfilment of particular security properties, to a certain extent or assurance; • <u>Supporting documents</u>, are used within the Common Criteria certification process to define how the criteria and evaluation methods are applied when certifying specific technologies; • The certification of the security properties of an evaluated product can be issued by a number of <u>Certificate Authorizing Schemes</u>, with this certification being based on the result of their evaluation; • <u>These certificates</u> are recognized by all the signatories of the <u>CCRA</u>. 		Added by: VDV ETS



Term	Abbreviation or Acronym	Source of Definition	Definition	Additional Commentary	Definition/ Commentary Contributor
Common Reader		CEN TS/16794-1 (2019)	PT reader used in interoperable fare management system terminals with reduced performance requirements	<p>Note in a paragraph of the Technical Specification:</p> <p>The second category, the “Common reader“, is defined for scenarios that impose requirements on the contactless interface such as minimization of cost or maximization of battery life of the PT reader. These requirements have been derived from use cases from the following parts of the PT Operator’s system implementation which are described in the STA document “Documentation of Use Cases for NFC Mobile Devices in Public Transport”:</p> <ul style="list-style-type: none"> a) sales infrastructure; b) customer’s home infrastructure; c) mobile inspection terminals. <p>Some requirements given in this specification are adapted for Common readers.</p>	Definition: Technical Specification Commentary: Technical Specification Added by: Mike Eastham
Component		ISO 24014-1 (2020)	Any piece of hardware and/or software that performs one or more functions in the IFMS		Definition: Standard Added by: Mike Eastham
Component Provider		ISO 24014-1 (2020)	Anyone who wants to bring a component to the IFMS		Definition: Standard Added by: Mike Eastham



Term	Abbreviation or Acronym	Source of Definition	Definition	Additional Commentary	Definition/ Commentary Contributor
Contactless Smartcard	CSC	UITP report ticketing Ed. V17	A smart-card is a device, generally bank card size (standardized format), made of an embedded integrated circuit encapsulated in a plastic body. The contactless smart-card communicates with and is powered by the reader through radio-frequency (RF) induction technology, within a few centimetres distance. It is a miniaturized computer with its own computing power, applications and storage.	Alternative definition: Smart-card that does not need to be inserted into a slot.	Commentary: VDV ETS Added by: VDV ETS
Customer Account		ISO 24014-1 (2020)	Data space hosted by the IFMS (typically the product retailer) that contains all information which is relevant for the business relationship between the Customer and the IFMS .	Notes according to the standard with regard to the definition given: Note 1: Accounts are maintained and managed by the responsible stakeholder in the IFMS . Note 2: Accounts which are accessible online could be established and managed by the customer as well.	Definition: Standard Commentary: Standard Added by: Mike Eastham
Customer Medium	CM	ISO 24014-1 (2020)	Medium initialised with an application through an application contract.	Used to generically describe all types of devices used to store products (tickets, entitlements etc.).	Definition: Standard Commentary: Mike Eastham Added by: Mike Eastham
Derived eID		NFC Forum MIT ID mobility service use cases (2020)	ID attributes which are derived from governmental or other external eID by using a unidirectional algorithm. They represent these external eID for the purposes of the identity provider's service		Added by: VDV ETS



Term	Abbreviation or Acronym	Source of Definition	Definition	Additional Commentary	Definition/ Commentary Contributor
Derived Identifier (Derived ID)		ISO 24014-1 (2020)	<p>Electronic identifier that was generated based on another ID (primary ID).</p> <p>Note: Editor of ISO 24014-1 needs to change the term "derived identity" into "derived identifier"</p>	<p>Note according to the standard with regard to the definition given:</p> <p>Typically, the derived ID is generated by an Identity Provider in a way that the authenticity of the derived ID can be proven but there is no way to conclude from the derived ID back to the primary ID. The concept of derived ID is typically used when primary ID with high security demand (like driver licence or governmental eID) shall not be exposed to an environment that doesn't support high assurance levels.</p>	<p>Definition: Standard Commentary: Standard Added by: Mike Eastham</p>
eID		NFC Forum MIT ID mobility service use cases (2020)	<p>Electronic identity card or application. Typically issued by governments or their representatives. Typically provides a defined level of trust</p>		<p>Added by: VDV ETS</p>
Embedded Secure Element	eSE		<p>The eSE (embedded Secure Element) is a tamper-proof chip available in different sizes and designs, embedded in any mobile device. It ensures the data is stored in a safe place and information is given to only authorized applications and people</p>		<p>Definition: VDV ETS Added by: VDV ETS</p>
Entity		NFC Forum MIT ID mobility service use cases (2020)	<p>Item (person, organisation, device etc.) that has recognisably distinct existence and may be identified</p>		<p>Added by: VDV ETS</p>



Term	Abbreviation or Acronym	Source of Definition	Definition	Additional Commentary	Definition/Commentary Contributor
Evaluation		STA Certification Overview (2016)	Process defining compliance of the product or functional system, based on the Laboratory test, audit or analysis report, laboratory advice and certification requirements conformity		Added by: VDV ETS
External		ISO 24014-1 (2020)	The adjective “external” indicates that the named object does not follow the rules of the IFMS and that special activities are necessary to implement interoperability and security with the IFMS.		Definition: Standard Added by: Mike Eastham
General Data Protection Regulation	GDPR	UITP report ticketing Ed. V17	Regulation (EU) 2016/679 (GDPR) is a regulation in EU law on data protection and privacy in the European Union (EU) and the European Economic Area (EEA). It also addresses the transfer of personal data outside the EU and EEA areas. The GDPR aims primarily to give control to individuals over their personal data and to simplify the regulatory environment for international business by unifying the regulation within the EU.		Added by: VDV ETS
Hardware Security Module	HSM	ITSO Dictionary	A hardware security module (HSM) is a physical computing device that safeguards and manages digital keys, performs encryption and decryption functions for digital signatures, strong authentication, and other cryptographic functions.		Added by Steve Wakeland, ITSO



Term	Abbreviation or Acronym	Source of Definition	Definition	Additional Commentary	Definition/Commentary Contributor
Host Card Emulation	HCE		A mobile phone API that allows a direct access to the NFC interface so that a phone can be used as a contactless card, without requiring a dedicated application hosted and operated in a secure element, such as its SIM or an eSE (embedded Secure Element)		Added by: Philippe Guillaumin, Calypso
Hotlisting		ITSO Dictionary	Hot Listing ensures that, just like a credit or debit card, when a CM is cancelled that all the ITSO equipment that the card could be presented to know that the card has been cancelled and not to accept it.	The active process of card prevention. If a "Stop Listed" CM is then used, an electronic transaction is generated which, when checked against the database generates a Hotlist entry to be sent to "smart" readers. When a card is then used subsequently the reader will invalidate the card "marking" it so it cannot be used again.	Added by Steve Wakeland, ITSO
IDc		NFC Forum MIT ID mobility service use cases (2020)	Customer identity. Defined and issued by the Identity provider. May be derived from a governmental eID document or identity information obtained from an external trust service		Added by: VDV ETS
IDc Attributes		NFC Forum MIT ID mobility service use cases (2020)	Attributes which are related to the IDc		Added by: VDV ETS



Term	Abbreviation or Acronym	Source of Definition	Definition	Additional Commentary	Definition/ Commentary Contributor
Identifier		ISO 24014-1 (2020)	Unique identity information that unambiguously distinguishes one entity from another.	<p>Note according to the standard with regard to the definition given:</p> <p>Note 1: A person can, for instance, be described by the attributes name, birth date, sex, address, etc. Unambiguous identification of a person typically needs in addition a unique identifier which is issued by the identity provider. An object, e.g. a ticketing machine, can be described by owner, type, and software version. A unique serial number could serve as identifier.</p>	<p>Definition: Standard</p> <p>Commentary: Standard, Added by: Mike Eastham</p>
Identifier		NFC Forum MIT ID mobility service use cases (2020)	Identity information that unambiguously distinguishes one entity from another		Added by: VDV ETS
Identity	ID	ISO 24014-1 (2020)	Information that describes a specific person or object in a unique and unambiguous way		<p>Definition: Standard</p> <p>Added by: Mike Eastham</p>
Identity		NFC Forum MIT ID mobility service use cases (2020)	Set of attributes related to an entity		Added by: VDV ETS
Identity Information		NFC Forum MIT ID mobility service use cases (2020)	Set of values of attributes optionally with any associated metadata in an identity. Note: In an IT system an identity is present as identity information		Added by: VDV ETS



Term	Abbreviation or Acronym	Source of Definition	Definition	Additional Commentary	Definition/Commentary Contributor
Identity Provider		ISO 24014-1 (2020)	<p>The Identity Provider is an IFM-Role which</p> <ul style="list-style-type: none"> • establishes a trustworthy scheme for creating, managing and providing customer and media ID and related attributes • ensures consistency of customer ID across the IFMS according to the set of rules • is responsible for the enrolment of customer data and the creation of derived customer ID (which may be used for customer media or applications) according to an assurance level as specified by the specific set of identity rules • provides authentication or identification mechanisms for use in the mobility platform and the IFMS according to the required assurance level. • – may use external ID services as sources of trustworthy customer identities or authentication or identification mechanisms 		Definition: Standard Added by: VDV ETS



Term	Abbreviation or Acronym	Source of Definition	Definition	Additional Commentary	Definition/Commentary Contributor
IFM Functional Model		ISO 24014-1 (2020)	Model to define functions of IFM-roles and how they interact		Definition: Standard Added by: Mike Eastham
IFM Message		ISO 24014-1 (2020)	Set of data elements transferred between two IFM-roles	Note: Messages are exchanged between instances of IFM-roles (typically between systems). IFM roles are an abstraction level, in which only interactions are considered.	Definition: Standard Commentary: VDV ETS Added by: VDV ETS
IFM Policies		ISO 24014-1 (2020)	Commercial, technical, security, and privacy objectives of IFM	Note: The editor of ISO 24014-1 should add legal (compliance) objectives in the definition	Definition: Standard Commentary: VDV ETS Added by: Mike Eastham
IFM Reader		CEN TS/16794-1 (2019)	PT reader used in interoperable fare management system terminals		Definition: Technical Specification Added by: Mike Eastham
IFM Role		ISO 24014-1 (2020)	Abstract object performing a set of functions in an IFM functional model.	Cf. Role	Definition: Standard Added by: Mike Eastham



Term	Abbreviation or Acronym	Source of Definition	Definition	Additional Commentary	Definition/Commentary Contributor
Implementation Conformance Statement	ICS	STA Contactless Interface Certification for Public Transport Products – Certification Procedure (2019)	Document used for detailed identification of a product or system Used in certification by the manufacturer to give a statement on conformance about the product to be tested.		Added by: VDV ETS
Intermodal		https://en.wikipedia.org/wiki/Intermodal_passenger_transport	Working definition: Intermodal passenger transport, also called mixed-mode commuting, involves using two or more modes of transportation in a journey.		Definition: VDV ETS Added by: VDV ETS
Interoperable Fare Management	IFM	ISO 24014-1 (2020)	All the functions involved in the fare management process such as management of application, products security and certification, registration, and identification to enable Customers to travel with participating Service Operators using a single portable electronic medium.	Non-standard definition, more informal: The management of (automated) fare systems using standard methodologies allowing systems to interoperate with each other with the minimum of additional work.	Definition: Standard Commentary: VDV ETS Added by: Mike Eastham
Interoperable Fare Management System	IFMS	ISO 24014-1 (2020)	All technical, commercial, security, and legal elements which enable interoperable fare management	Note: The standard 24014-1 mentions legal elements here (cf. definition of IFM policies) but the editor should add privacy-related elements in the definition of IFMS.	Definition: Standard Commentary: VDV ETS Added by: Mike Eastham



Term	Abbreviation or Acronym	Source of Definition	Definition	Additional Commentary	Definition/Commentary Contributor
Intramodal			Working definition: Intramodal passenger transport, involves using at least one interchange of a traveller while using the same mode of transportation in a journey.		Definition: VDV ETS Added by: VDV ETS
Level of Assurance		ISO 24014-1 (2020)	Level of resilience of IFMS components and processes against a defined attack potential. Typically defined by the Security Manager for all components of the IFMS and specified in the set of rules for security certification.		Definition: Standard Added by: Mike Eastham
Media-Based Ticketing	MBT	UITP report ticketing Ed. V17	System whereby a card (or other medium) is used as the travel entitlement, as opposed to a physical ticket.		Added by: VDV ETS
Media Target Area		ITSO Dictionary	The active area of the reader in the Terminal within which the Customer Medium functions.	The RFI field into which the medium has to be placed to be activated and processed.	Added by Steve Wakeland, ITSO
Medium		ISO 24014-1 (2020)	Physical carrier of applications	Cf. Customer Medium	Definition: Standard Added by: Mike Eastham
Medium Access Device	MAD	ISO 24014-1 (2020)	Device with the necessary facilities (hardware and software) to communicate with a Customer Medium	Also: Media Access Device (since most devices can read more than one medium). To differentiate MAD from Terminal : Each Terminal is an MAD, but not each MAD is a Terminal. An MAD can be a simple card reader or an NFC port.	Definition: Standard Commentary: VDV ETS Added by: Mike Eastham



Term	Abbreviation or Acronym	Source of Definition	Definition	Additional Commentary	Definition/Commentary Contributor
Mobile Ticketing		UITP report ticketing Ed. V17	Process whereby customers use or validate tickets using mobile phones instead of a physical ticket		Added by. VDV ETS
Mobility as a Service	MaaS	UITP report ticketing Ed. V17	The integration of, and access to, different transport services (such as public transport, ride-sharing, car-sharing, bike-sharing, scooter-sharing, taxi, car rental, ride-hailing and so on) in one single digital mobility offer with active mobility and an efficient public transport system as its basis. This tailor-made service suggests the most suitable solutions based on the user's travel needs. MaaS is available anytime and offers integrated planning, booking and payment as well as route information to provide easy mobility and enable life without having to own a car.	Alternative definition: Mobility as a Service (MaaS) is the integration of, and access to, different transport services (such as public transport, ride-sharing, car-sharing, bike-sharing, scooter-sharing, taxi, car rental, ride-hailing and so on) in one single digital mobility offer, with active mobility (only uses the physical activity of a human being for locomotion) and an efficient public transport system as its basis. This tailor-made service suggests the most suitable solutions based on the user's travel needs. A MaaS offer can also provide the authority to travel and can deal with disruption alternatives on the journey.	Definition: Mike Eastham Commentary: VDV ETS
Mobility as a Service	MaaS	MaaS Alliance website: https://maas-alliance.eu/	Mobility as a Service (MaaS) is the integration of various forms of transport services into a single mobility service accessible on demand		Added by: VDV ETS



Term	Abbreviation or Acronym	Source of Definition	Definition	Additional Commentary	Definition/ Commentary Contributor
Multimodal			Working definition: Intermodal passenger transport, also called mixed-mode commuting, involves using two or more modes of transportation in a journey.	Note: In a number of sources, the terms “intermodal” and “multimodal” have the same definition	Definition: VDV ETS Commentary: VDV ETS Added by: VDV ETS
Near Field Communication	NFC	UITP report ticketing Ed. V17	A set of communication protocols that enable two electronic devices to establish communication by bringing them within 4cm of each other.		Added by: VDV ETS
Near Field Communication	NFC	NFC Forum website: https://nfc-forum.org/what-is-nfc/	Near Field Communication (NFC) is a standards-based short-range wireless connectivity technology that makes life easier and more convenient for consumers around the world by making it simpler to make transactions, exchange digital content, and connect electronic devices with a touch. NFC is compatible with hundreds of millions of contactless cards and readers already deployed worldwide.	NFC v2 is synonymous with the version of ISO 14443 that we use for transport terminals	Added by: VDV ETS
NFC Mobile Device		CEN TS/16794-1 (2019)	Mobile device capable of near field communication that is offered in the consumer market and is used by PT customers as a contactless object or a contactless reader		Definition: Technical Specification Added by: Mike Eastham



Term	Abbreviation or Acronym	Source of Definition	Definition	Additional Commentary	Definition/Commentary Contributor
NFC Mobile Device in card emulation mode		CEN TS/16794-1 (2019)	[NFC] mobile device used as a PT object		Definition: Technical Specification Added by: Mike Eastham
NFC Mobile Device in reader/writer mode		CEN TS/16794-1 (2019)	[NFC] mobile device used as a PT reader		Definition: Technical Specification Added by: Mike Eastham
Open Loop		UITP report ticketing Ed. V19	In transit, an open-loop payments generally refer to the use of bank-issued contactless credit or debit cards (or other payment instruments), which can be used for generic payments also outside of transit. The finance sector has the governance of the system.		Added by: VDV ETS



Term	Abbreviation or Acronym	Source of Definition	Definition	Additional Commentary	Definition/ Commentary Contributor
Open Payment			<p>Open Payment in ticketing is a specific case of ABT where the media that are used are contactless bank cards.</p> <p>Also known as open-loop payment, it refers to schemes where acquirers and issuers differ.</p> <p>Open-loop payments networks operate via a system that connects issuers on the one hand with acquirers on the other hand. Well known open-loop payment schemes include the likes of Visa and Mastercard which do not issue cards directly but brand cards issued by banks.</p>		Added by: Philippe Guillaumin, Calypso
Organisation		ISO 24014-1 (2019)	Legal entity covering the functions and implied responsibilities of one or more of the following operational IFM-roles: Application Owner, Application Retailer, Product Owner, Product Retailer, Service Operator, Collection and Forwarding etc.	<p>Organisations are such entities as bus or train companies, local authorities and public transport operators.</p> <p>Note: Should be changed from organization to organisation.</p>	<p>Definition: Standard</p> <p>Commentary: Mike Eastham, VDV ETS</p> <p>Added by: Mike Eastham</p>
Over the Air	OTA	https://www.gsmarena.com/glossary.php3?term=ota	<p>Over-the-air is any method of making data transfers or transactions wirelessly using the cellular network instead of a cable or other local connection.</p> <p>Most commonly, this term refers to downloading or uploading content or software (such as downloading ringtones, uploading images, etc.).</p>	In the public transport sector, the term can also apply to the transfer of ticket/product details to a mobile device.	<p>Definition: VDV ETS</p> <p>Added by: VDV ETS</p>



Term	Abbreviation or Acronym	Source of Definition	Definition	Additional Commentary	Definition/ Commentary Contributor
Pay as You Go	PAYG	UITP report ticketing Ed. V17	Payment using a smart-card whereby the passenger taps the card on the card reader at the time of entry or at the time of entry and exit and full fare is deducted for each ride from the cardholder's bank account.	<p>Alternative definition:</p> <p>PAYG means that passengers can travel without buying a ticket, and pay the most appropriate fare for the journeys they make without having select a ticket in advance. To travel using PAYG you would need to simply touch in at the start of your journey and touch out at the end of your journey provided you meet the requirements of the service offering (e.g., having a dedicated customer medium).</p> <p>PAYG can be either pre-paid or post-paid and can also accommodate fare-capping, based on business rules determined by the operator.</p>	<p>Commentary:</p> <p>VDV ETS</p> <p>Added by: VDV ETS</p>
Passback		ITSO Dictionary	<p>The Passback period is that time period defined which prevents a second or subsequent usage of a ticket or pass.</p> <p>It is designed to prevent the unauthorised use of a ticket or pass by more than one user. The term derives from the practice of using a pass or ticket to board a bus and then "passing back" the pass or ticket to another user in the queue (usually through the window), so it can be used by multiple users simultaneously.</p>		<p>Added by Steve Wakeland, ITSO</p>
Personal Identifiable Information	PII	UITP report ticketing Ed. V17	Also known as personal data, any information relating to an identifiable person		<p>Added by: VDV ETS</p>



Term	Abbreviation or Acronym	Source of Definition	Definition	Additional Commentary	Definition/Commentary Contributor
Personal Record		ITSO	The record of the current value and (truncated) transaction history of a product or data structure held on the 'back office' system of the Product Owner or 'wallet' owner.	Working definition instead of common term "Account". Concept of a Customer Management System (CMS)	ITSO Dictionary Added by Steve Wakeland
Pricing Rules		ISO 24014-1 (2020)	Rules defining the price and payment/billing relationships to the customer		Definition: Standard Added by: Mike Eastham
Product		ISO 24014-1 (2020)	Instance of a product template stored in an application	Notes according to the standard with regard to the definition given: Note 1: A product defines a commercial offer to the customer. By purchasing a product, the customer is entitled to obtain specific services which are defined by the product owner. Note 2: It is identified by a unique identifier and enables the customer to benefit from a service provided by one or several service operators.	Definition: Standard Commentary: Standard Added by: Mike Eastham
Product Rules		ISO 24014-1 (2020)	Set of usage, pricing, and commercial rules defined by the product owner		Definition: Standard Added by: Mike Eastham
Product Specification		ISO 24014-1 (2020)	Complete specification of functions, data elements, and security scheme according to the product rules		Definition: Standard Added by: Mike Eastham



Term	Abbreviation or Acronym	Source of Definition	Definition	Additional Commentary	Definition/ Commentary Contributor
Product Template		ISO 24014-1 (2020)	Technical pattern of the product specification	Note according to the standard with regard to the definition given: Note 1: The product template is identified by a unique identifier	Definition: Standard Commentary: Standard Added by: Mike Eastham
Protection Profile			Used when checking the security of a device. The protection profile contains the requirements for ensuring that the device meets the claimed security criteria.		Definition: VDV ETS Added by: VDV ETS
Proximity Coupling Device	PCD		A transmitter that can read tags based on ISO14443 (PICC). The reader emits an electromagnetic field that powers a tag/transmitter by induction. Communicates with PICC using load modulation.		Definition: VDV ETS Added by: VDV ETS
Proximity Inductive Coupling Card	PICC		A transponder that can be read or written by a proximity reader. These tags are based on the ISO14443 standard. Such tags do not have a power supply like a battery, but are powered by the electromagnetic field of the reader (PCD)		Definition: VDV ETS Added by: VDV ETS
PT Device		CEN TS/16794-1 (2019) (also: CEN TS/16794-2 (2019))	PT Reader or PT Object		Definition: Technical Specification Added by: Mike Eastham



Term	Abbreviation or Acronym	Source of Definition	Definition	Additional Commentary	Definition/ Commentary Contributor
PT Object		CEN TS/16794-1 (2019) (also: CEN TS/16794-2 (2019))	ISO/IEC 14443 PICC specifically designed for the use in PT systems		Definition: Technical Specification Added by: Mike Eastham
PT Reader		CEN TS/16794-1 (2019) (also: CEN TS/16794-2 (2019))	ISO/IEC 14443 PCD (cf. Abbreviations) specifically designed for the use in PT systems		Definition: Technical Specification Added by: Mike Eastham
Reference PICC		CEN TS/16794-1 (2019) (also: CEN TS/16794-2 (2019))	Reference PICC (cf. Abbreviations) (test card) as defined in test method ISO/IEC 10373-6		Definition: Technical Specification Added by: Mike Eastham
Reference Sample		STA Certification Overview (2016)	Sample of a Product under test to be delivered to an Applicant Laboratory. The same Reference Sample shall be sent to each laboratory in order to ensure the consistency of results.		Added by: VDV ETS
Reference Test Results		STA Certification Overview (2016)	Measurements established after a first round-robin test of Reference Samples by chosen laboratories. These measurements will be considered as reference measurements for future Applicant Laboratories		Added by: VDV ETS



Term	Abbreviation or Acronym	Source of Definition	Definition	Additional Commentary	Definition/Commentary Contributor
Role		ISO 24014-1 (2020)	Abstract object performing a set of functions	<p>The reason behind the abstract approach here with regard to roles in an IFMS is explained in the scope of the standard:</p> <p>This part of ISO 24014 covers the definition of a conceptual framework which is independent of organizational and physical implementation. Any reference within this part of ISO 24014 to organizational or physical implementation is purely informative.</p>	Definition: Standard Commentary: VDV ETS Added by: Mike Eastham
Scope of Certification		ISO 17065 (2012)	Identification of <ul style="list-style-type: none"> • the product(s), process(es) or service(s) for which the certification is granted, • the applicable certification scheme, and the standard(s) and other normative document(s) including their date of publication, to which it is judged that the product(s), process(es) or services comply		Added by: VDV ETS
Secure Application Module	SAM	ITSO Dictionary, ISO/IEC 7816	Secure processor card, the size of a mobile phone SIM, present in every Terminal and Back-Office System. It stores security keys and provides cryptographic processing, checking permissions, authentication, validation and data storage.	A smart card complying with ISO/IEC 7816. It is a small and low power device, and can manage only one transaction at a time. A SAM is mainly used embedded in terminals, allowing the terminals to store secret keys and operate off-line. It may be used remotely, when the transaction throughput is limited.	Added by Steve Wakeland, ITSO, Philippe Guillaumin, Calypso



Term	Abbreviation or Acronym	Source of Definition	Definition	Additional Commentary	Definition/Commentary Contributor
Secure Element Specification		ISO 24014-3 (2013)	Set of specifications designed to install, select, process and delete Applications in the SE (cf. Abbreviations).		Definition: Standard Added by: Mike Eastham
Secure Channel		ISO 24014-3 (2013)	Communication mechanism from any source to an SE (cf. Abbreviations) that provides the required level of assurance		Definition: Standard Added by: Mike Eastham
Security Domain	SD	ISO 24014-3 (2013)	Software unit providing support for the control, security, and communication requirements of a Role, e.g. the Application Retailer		Definition: Standard Added by: Mike Eastham
Secure Element	SE		A secure element is a microprocessor chip which can store sensitive data and run secure apps such as payment. It acts as a vault, protecting what's inside the SE (applications and data) from malware attacks that are typical in the host (i.e. the device operating system).		Definition: VDV ETS Added by: VDV ETS
Security Policy		ISO 24014-1 (2020)	Objectives of the IFM to secure the public interests and the assets within the IFM.		Definition: Standard



Security Sub System	SSS		Part of an IFMS .	<p>Note: The abbreviation is mentioned in the standard ISO 24014-1 but is not elaborated further specifically. This is a point for improvement for the editor of the standard.</p> <p>System for that ensures security can be managed consistently to the satisfaction of all users regardless of role. This is an “End-to-End” architecture which embraces the Medium, the Terminals and Back Office.</p> <p>To implement the desired security architecture, the SSS must be trusted by all scheme members and have the following characteristics:</p> <p>Be able to hold keys in secret:</p> <ul style="list-style-type: none"> • to create and verify Products; • to seal transactions; • to access media; • perform secure messaging with other entities. <p>Be able to holds sequence counters that cannot be modified by the Terminal for:</p> <ul style="list-style-type: none"> • Transaction Records; • updates to value records in Tickets; • Security monitoring. <p>Be able to hold configuration and limit data to ensure interoperability of:</p> <ul style="list-style-type: none"> • Transaction batch processing; • Off-line Product creation and value adding; • Basic POST functionality. <p>These requirements can only be met by housing the SSS in a tamper resistant device, the SAM.</p>	Definition: Standard Commentary: VDV ETS Added by: Mike Eastham
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Term	Abbreviation or Acronym	Source of Definition	Definition	Additional Commentary	Definition/ Commentary Contributor
Server-centric			System where all data related to the rights of the user are stored only in a remote system, the user portable object containing only data identifying the rights of the user (as stored in the remote system). Also, the fare calculation software and logic are located in the remote system and not in terminals (validators, sale machines, inspection readers, etc.). Often used as a synonym for ABT, “cloud-based”, “server-based” or “security in system”.		Added by: Philippe Guillaumin, Calypso
Set of Rules		ISO 24014-1 (2020)	Regulations for achieving IFM policies expressed as technical, commercial, security, and legal requirements and standards relevant only to the IFMS .	Note: The standard 24014-1 mentions legal elements here (cf. definition of IFM policies above) but the editor should add privacy-related elements in the definition of IFMS.	Definition: Standard Commentary: VDV ETS Added by: Mike Eastham
Smart Ticketing Wallet			A shorthand expression for a Product(s) loaded into an application on an SE (cf. Abbreviations), (or accessed – it could be cloud based on a remote server) held on a smartphone or other smart device owned by the customer.	Note: A customer medium capable of storing entitlements can also be considered as a smart ticketing wallet.	Definition: Mike Eastham Commentary: VDV ETS Added by: Mike Eastham
Subscriber Identity Module	SIM		A [contact] smart-card inside a device (usually a mobile phone), carrying an identification number unique to the owner, storing personal data, and preventing operation of the device if removed.		Definition: VDV ETS Added by: VDV ETS



Term	Abbreviation or Acronym	Source of Definition	Definition	Additional Commentary	Definition/Commentary Contributor
Target of Evaluation	TOE	https://csrc.nist.gov/glossary/term/target-of-evaluation	In accordance with Common Criteria , an information system, part of a system or product, and all associated documentation, that is the subject of a security evaluation.		Definition: VDV ETS Added by: VDV ETS
Terminal		VDV ETS Glossary Version 3.	<p>See also MAD.</p> <p>Devices with the necessary facilities (hardware and software) to communicate with a customer medium (ISO 24014).</p> <p>These are:</p> <ul style="list-style-type: none"> • Devices for issuing tickets (on chip and/or paper) • Devices for creating and/or completing tickets • Devices for reading information and printing of tickets und documents/receipts • Devices for loading PT value units • Mobile devices for inspection and/or validation of tickets • Devices for activating, creating the identity link and personalizing the application. • Devices used for the collection of use of services in vehicles and stops 		Definition: VDV ETS Added by: VDV ETS
Test Laboratory	Test Lab	STA Certification Overview (2016)	Entity performing the Evaluation of a Product		Added by: VDV ETS



Term	Abbreviation or Acronym	Source of Definition	Definition	Additional Commentary	Definition/Commentary Contributor
Test PCD Assembly		CEN TS/16794-1 (2019)	Test PCD assembly (test reader) as defined in test method ISO/IEC 10373-6.		Definition: Standard Added by: Mike Eastham
Token			In ABT systems, a token is usually defined a piece of information in the portable object which allows identifying a remote account, different from the actual account identifier, and being frequently renewed to mitigate risks of fraudulent usage.		Added by: Philippe Guillaumin, Calypso
Trigger		ISO 24014-1 (2020)	Event that causes the execution of a use case.		Definition: Standard Added by: Mike Eastham
Trusted Service Manager	TSM		An abbreviation specific to the smartphone industry relating to the management of OTA services to mobile handsets.	A trusted service manager (TSM) is a role in a near field communication ecosystem. It acts as a neutral broker that sets up business agreements and technical connections with mobile network operators, phone manufacturers or other entities controlling the secure element on mobile phones.	Definition: VDV ETS Added by: VDV ETS Complemented by: Steve Wakeland
Unique Identifier	UID	UITP report ticketing Ed. V17	An identifier which is guaranteed to be unique among all identifiers used for the same purpose.		Added by: VDV ETS
Usage Rules		ISO 24014-1 (2020)	Rules defining the usage time, the usage area, the personal status, and the type of service		Definition: Standard Added by: Mike Eastham



Term	Abbreviation or Acronym	Source of Definition	Definition	Additional Commentary	Definition/ Commentary Contributor
Use Case		ISO 24014-1 (2020)	Description of a process by defining a sequence of actions performed by one or more actors and / or by the system itself.	<p>ISO 24014-1 adds more information about use cases in chapter 7, Use case description for the IFMS functional model:</p> <p>This clause describes use cases for the operation of an IFMS. The set of use cases described herein provides a toolbox for the implementation of an IFMS. Where processes described within a use case are implemented within an IFM, the use case is mandatory.</p> <p>However, use cases may be adapted with modification depending on ways of management of applications and products. An application or a product can be managed either in a media centric or back-office centric way. Any variation or combination between these two approaches may be possible.</p>	<p>Definition: Standard Commentary: VDV ETS Added by: Mike Eastham</p>



3 List of abbreviations used in Public Transport Ticketing

Abbreviation	Unabridged Term	Explanation or Source (where appropriate)
ABT	Account-Based Ticketing	
APDU	Application Protocol Data Unit	
BiBo	Be-in/Be-out	
BO system	Back Office System	
CiBo	Check-in/Be-out	
CiCo	Check-in/Check-out	
CSC	Contactless Smartcard	
CC	Common Criteria	
EMV	Europay Mastercard Visa	
EMVCo	Europay Mastercard Visa Company	
eSE	Embedded Secure Element	
ETM	Electronic Ticket Machine	Also TVM (Ticket vending Machine)
GDPR	General Data Protection Regulation	
GSM	Global System for Mobile [communications]	https://en.wikipedia.org/wiki/GSM
GSMA	GSM Association	https://www.gsma.com/
ICS	Implementation Conformance Statement	
ID	Identifier	Note: ISO 24014-1 (2020) shows this abbreviation incorrectly for "Identity". The editor of the standard will have to correct this in the new version of the standard that will be drafted.
IFM	Interoperable Fare Management	
IFMS	Interoperable Fare Management System	



Abbreviation	Unabridged Term	Explanation or Source (where appropriate)
IIN	Issuer Identifier Number	A number used to identify the issuer of a card (e.g. an EMV debit card) and is part of a card account number.
LoA	Level of Assurance	ISO/IEC 29115
MAD	Medium Access Device	
MaaS	Mobility as a Service	
MBT	Media-Based Ticketing	
MNO	Mobile Network Operator	
NFC	Near Field Communication	
NFCF	Near Field Communication Forum	A membership body whose main objective is to promote the use of NFC. [see www.nfc-forum.org]
NDEF	NFC Data Exchange Format	
OTA	Over the Air	
PAYG	Pay as You Go	
PCD	Proximity Coupling Device	
PICC	Proximity Inductive Coupling Card	
PP	Protection Profile	
PT	Public Transport	
PTA	Public Transport Authority	According to EN1545 also the Product Owner (PO)
PTO	Public Transport Operator	According to EN1545 also the Service Operator (SO)
SD	Security Domain	
SE	Secure Element	
SIM	Subscriber Identity Module	
SSS	Security Sub System	
TOC	Train Operating Company	
TOE	Target of Evaluation	
TSM	Trusted Service Manager	
TVM	Ticket Vending Machine	Also ETM (Electronic Ticket Machine)



Abbreviation	Unabridged Term	Explanation or Source (where appropriate)
UICC	Universal Integrated Circuit Card	The Universal Integrated Circuit Card (UICC) is a type of SIM card, a smart-card used for mobile terminals/phones utilizing GSM or UMTS networks. The UICC is used to ensure the security and integrity of all kinds of personal data as well as hold information that identifies the user to the wireless operator in order for the latter to know the plans and services associated with the card. It can store contacts and enable reliable and secure voice and data connections as well as be used for data roaming and remotely adding new applications and services. It is best used as a universal application delivery platform to any 3G or 4G device.



4 List of further important abbreviations

This list contains some abbreviations, which do not involve public transport directly, but contain some terms which are important to know and are related to public transport topics also.

Abbreviation	Unabridged Term	Explanation or Source (where appropriate)
APDU	Application Protocol Data Unit	ISO 7816 Part 4 defines a standard APDU. An extended APDU is larger than the standard size as is defined in ISO 7816 Part 4
API	Application Programming Interface	
BS	British Standard	
BSI [1]	British Standards Institute	
BSI [2]	Bundesamt für Sicherheit in der Informationstechnik	
CEN	Centre for European Norms (Standards)	
CLF	Contactless Front-end	Defined by ETSI, see https://www.etsi.org/
EN	European Norm (Standard)	
ETSI	European Telecommunications Standards Institute	https://www.etsi.org
GCF	Global Certification Forum	Independent certification scheme for mobile phones and wireless devices that are based on 3GPP standards. https://www.globalcertificationforum.org/
GP	GlobalPlatform	Standard for secure digital services and devices, https://globalplatform.org/
HCI	Host Controller Interface	Represents the interface between the over the air interface and the Bluetooth protocol stack
IC	Integrated circuit	A (silicon) chip.
IEC	International Electrotechnical Commission	



Abbreviation	Unabridged Term	Explanation or Source (where appropriate)
ISO	International Standards Organization (International Organization for Standardization)	https://www.iso.org
ITS	Intelligent Transport Systems	https://en.wikipedia.org/wiki/Intelligent_transportation_system
LLCP	Logical Link Control Protocol	OSI protocol developed by the IEEE 802 working group
MAC [1]	Message Authentication Code, when used in relation to cryptographic processes and ISO/IEC 14443 Message Authentication	
MAC [2]	Media Access Control, when used in relation to networks and device management	
PKI	Public Key Infrastructure	
SCP	Secure Channel Protocol	Protocol based on AES keys defined by GlobalPlatform
SGP	SIM Group.	SGP is used as a reference for the GSMA SIM Group's documents, to distinguish from SG, which is used by the Security Group of GSMA
SP	Service Provider	
TEE	Trusted Execution Environment	https://en.wikipedia.org/wiki/Trusted_execution_environment
UID	Unique Identifier	