INTERNATIONAL STANDARD

ISO 18542-2

First edition
2014-05-01

Road vehicles — Standardized repair and maintenance information (RMI) terminology —

Part 2: Standardized process implementation requirements, Registration Authority

Véhicules routiers — Terminologie normalisée pour l'information sur la réparation et la maintenance (RMI) —

Partie 2: Exigences de mise en oeuvre des procédés normalisés, autorité d'enregistrement

Reference number
ISO 18542-2:2014(E)

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Published in Switzerland

Contents

Page

Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular the different approval criteria needed for the different types of ISO documents should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see www.iso.org/directives).

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Any trade name used in this document is information given for the convenience of users and does not constitute an endorsement.

For an explanation on the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the WTO principles in the Technical Barriers to Trade (TBT) see the following URL: Foreword - Supplementary information

ISO 18542-2 was prepared by the European Committee for Standardization (CEN) in collaboration with ISO Technical Committee ISO/TC 22, *Road vehicles*, Subcommittee SC 3, *Electrical and electronic equipment* in accordance with the Agreement on technical cooperation between ISO and CEN (Vienna Agreement).

ISO 18542 consists of the following parts, under the general title *Road vehicles — Standardized repair and maintenance information (RMI) terminology*:

— *Part 1: General information and use case definition*

— *Part 2: Standardized process implementation requirements, Registration Authority*

Introduction

The ISO 18542 series includes the requirements to be fulfilled by Repair and Maintenance Information (RMI) systems as applied by the:

EUROPEAN COMMISSION - ENTERPRISE AND INDUSTRY DIRECTORATE-GENERAL, Consumer goods - Automotive industry EC mandate M/421[1] "MANDATE TO THE EUROPEAN STANDARDIZATION ORGANISATIONS FOR STANDARDIZATION IN THE FIELD OF VEHICLE OBD, REPAIR AND MAINTENANCE INFORMATION" dated Brussels, 21 January 2008.

This mandate relates to the EC type-approval system for vehicles falling into the scopes of Directives 2002/24/EC,[2] 2003/37/EC[3] and 70/156/EEC (replaced by 2007/46/EC),[4] and, in particular, to requirements for access to vehicle repair and maintenance information by independent operators.

This part of ISO 18542 addresses terminology for access to automotive repair and maintenance information for light passenger and commercial vehicles[1)] and heavy duty vehicles[2)] based on Directive 70/156/EEC (replaced by 2007/46/EC).

The purpose of the EC Mandate M/421 is to develop a standard or set of standards which specify the requirements to provide "standardized access to automotive repair and maintenance information (RMI)" for independent operators.

The information included in this part of ISO 18542 derives from the legislative requirements on a European level in the field of repair and maintenance information and related security requirements and can be referenced by legislation in other countries.

It is intended to be read in conjunction with:

— ISO 18542-1: General information and use case definition, that defines a framework and a process for agreeing terms for a standardized automotive terminology process;

— ISO 18541-1: General information and use case definition, that describes the requirements for the vehicle manufacturers RMI systems;

— ISO 18541-2: Technical requirements;

— ISO 18541-3: Functional user interface requirements, and;

— ISO 18541-4: Conformance test.

This part of ISO 18542-2 is predicated by some key decisions and concepts that need to be understood in order to fully appreciate its intent.

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1) REGULATION (EC) No 715/2007 [5] OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 20 June 2007 on type approval of motor vehicles with respect to emissions from light passenger and commercial vehicles (Euro 5 and Euro 6) and on access to vehicle repair and maintenance information and COMMISSION REGULATION (EC) No 692/2008 of 18 July 2008 [6] implementing and amending Regulation (EC) No 715/2007 of the European Parliament and of the Council on type-approval of motor vehicles with respect to emissions from light passenger and commercial vehicles (Euro 5 and Euro 6) and on access to vehicle repair and maintenance information and amending COMMISSION REGULATION (EU) No 566/2011 of 8 June 2011 [7] amending Regulation (EC) No 715/2007 of the European Parliament and of the Council and Commission Regulation (EC) No 692/2008 as regards access to vehicle repair and maintenance information.

2) REGULATION (EC) No 595/2009 [8] OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 18 June 2009 on type approval of motor vehicles with respect to emissions from heavy duty vehicles (Euro VI) and on access to vehicle repair and maintenance information, COMMISSION REGULATION (EU) No 582/2011 of 25 May 2011 [9] implementing and amending Regulation (EC) No 595/2009 of the European Parliament and of the Council with respect to emissions from heavy duty vehicles (Euro VI), and COMMISSION REGULATION (EU) No 64/2012 of 23 January 2012 [10] amending Regulation (EU) No 582/2011 2011 implementing and amending Regulation (EC) No 595/2009 of the European Parliament and of the Council with respect to emissions from heavy duty vehicles (Euro VI).

From the outset it was determined that a set of 'Agreed Terms' would be used by an IO to search a VM's RMI. The phrase 'Agreed Terms' is used rather than 'Standardized Terms' because the terms should not be 'standardized' in the established sense. The standardization process is lengthy and the need to have terms available for searching in a short timescale means such an approach is inappropriate. The process by which a panel of expert terminologists agrees and reviews terms is systemized and central to ISO 18542-1.

The provision of the agreed Automotive RMI Terminology itself is outside the remit of this part of ISO 18542 and therefore outside the scope of this part of ISO 18542. Rather, it is foreseen that the agreed Automotive RMI Terminology will follow a lifecycle beyond the timeframe of this part of ISO 18542 and be dependent upon the work of a Registration Authority, a Terminology Review Group for its creation and management, and of a Digital Annex for its publication. For the development of the Digital Annex existing standards will be reviewed and elements included where appropriate and practical.

— In order to effectively maintain the 'Agreed Terminology', it has been determined that a Commercial-Off-The-Shelf (COTS) Terminology Management System (TMS) is required. The COTS TMS functions as a 'back-end' database repository with a workflow element that will ensure 'Agreed Terms' are created, and managed in line with the standardized process outlined in ISO 18542-1.

— It is anticipated that there will be a maintenance agency which will be responsible for overseeing the procurement and hosting of the COTS TMS.

— A Registration Authority (RA) controls the IP for the Digital Annex (DA) and is responsible for managing and publishing the content of that DA.

— The maintenance agency for the Commercial-Off-The-Shelf Terminology Management System (COTS TMS) and the Registration Authority (RA) for the Digital Annex (DA) may be a single organization.

Road vehicles — Standardized repair and maintenance information (RMI) terminology —

Part 2: Standardized process implementation requirements, Registration Authority

1 Scope

The ISO 18542 series is structured into two parts:

— Part 1: General information and use case definition: defines a framework and a process for agreeing terms

— Part 2: Standardized process implementation requirements, Registration Authority: defines the process implementation requirements for a Terminology Management System and for a Registration Authority with a Digital Annex.

The purpose of the ISO 18542 series is to facilitate searching by Independent Operators (IOs) of Vehicle Manufacturer (VM) Repair and Maintenance Information (RMI) websites.

This part of ISO 18542 specifies:

— the technical requirements that must be met by the Terminology Management System (TMS) that will be used to manage and store the 'Agreed RMI Terminology';

— the requirements for the Registration Authority (RA) (i.e. the agency responsible for maintaining and publishing the 'Agreed RMI Terminology').

The framework and process for creating 'Agreed Terminology' is the subject of ISO 18542-1.

The target audience for this part of ISO 18542-2 is a technical one, and focused on those responsible for the implementation of mandate M/421.

2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO 18542-1, *Road vehicles — Standardized repair and maintenance information (RMI) terminology — Part 1: General information and use case definition*

ISO 18541-1[3], *Road vehicles — Standardized access to automotive repair and maintenance information (RMI) — Part 1: General information and use case definition*

ISO 18541-2[4], *Road vehicles — Standardized access to automotive repair and maintenance information (RMI) — Part 2: Technical requirements*

3) To be published.

4) To be published.

ISO 18541-3[5], *Road vehicles — Standardized access to automotive repair and maintenance information (RMI) — Part 3: Functional user interface requirements*

ISO 18541-4[6], *Road vehicles — Standardized access to automotive repair and maintenance information (RMI) — Part 4: Conformance test*

3 Terms and definitions, symbols and abbreviated terms

3.1 Terms and definitions

For the purposes of this document the following terms and definitions apply.

3.1.1
access levels
one of the levels of access to RMI including the rights and permissions assigned to a category of users

EXAMPLE One may consider an access to RMI relevant to security and another one to RMI not relevant to security. They represent two different access levels.

3.1.2
commercial-off-the-shelf application
COTS application
software that is 'ready-made' and available for use by way of a license to the general public requiring no or minimal customization

3.1.3
digital annex
DA
digital library in which terms related to Automotive RMI Terminology are stored and made available in digital formats in the defined target languages

3.1.4
end user
Independent Operator or Vehicle Manufacturer user

3.1.5
entity
object, concept or notion in the automotive domain designated by a term

Note 1 to entry: An entity only exists for this process if there is a term in US-English designating it. The entity is the common meaning of the US-English term and all its translated terms in the defined target languages.

3.1.6
independent operator
IO
undertakings other than authorized dealers and repairers which are directly or indirectly involved in the repair and maintenance of motor vehicles

EXAMPLE Repairers, manufacturers or distributors of repair equipment, tools or spare parts, publishers of technical information, automobile clubs, roadside assistance operators, operators offering inspection and testing services, operators offering training for installers, manufacturers and repairers of equipment for alternative fuel vehicles.

5) To be published.

6) To be published.

3.1.7
process user
terminology experts appointed by the Registration Authority (RA), Vehicle Manufacturers (VMs) and Independent Operators (IOs) to manage the agreed terminology using the Terminology Management System (TMS)

Note 1 to entry: Process users are assigned to different roles as described in ISO 18542-1.

3.1.8
Registration Authority
RA
institution that is responsible for managing the Automotive RMI Terminology process, the Terminology Management System (TMS) and publishing the content of the Digital Annex (DA)

3.1.9
repair and maintenance information system
RMI system
vehicle manufacturer repair and maintenance information system
VM RMI system
information system by which the Vehicle Manufacturer (VM) provides access to Repair and Maintenance Information (RMI) through a website

3.1.10
service level agreement
SLA
contract between a service provider and a customer that details, usually in measurable terms, the nature, quality, and scope of the service to be provided in the form of deliverables or metrics

Note 1 to entry: It may also be called a service level contract.

3.1.11
source term
term in US-English that starts the terminology process as a proposed term subject to the review process of acceptance, rejection or evaluation

3.1.12
term[s]
word or standalone expression for an entity that has linguistic, semantic and grammatical integrity

3.1.13
terminology management system
TMS
RMI terminology management system
system that is used to track the creation of, and manage, the agreed terms

Note 1 to entry: It has been agreed that it shall be web-based.

3.1.14
vehicle manufacturer
VM
person or body responsible to the approval authority for all aspects of the type approval or authorization process and for ensuring conformity of production of a vehicle

Note 1 to entry: It is not essential that the person or body be directly involved in all stages of the construction of the vehicle, system, component or separate technical unit which is the subject of the approval process.

Note 2 to entry: Adopted from Directive 2007/46/EC.[3]

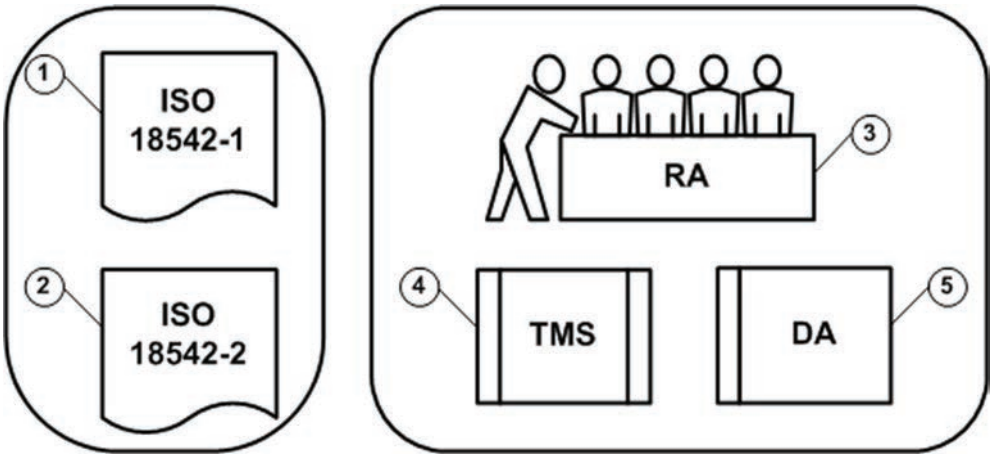
3.2 Abbreviated terms

COTS	commercial-off-the-shelf system
DA	digital annex
DBMS	database management system
GUI	graphical user interface
IO	independent operator
OS	operating system
RA	registration authority
RMI	repair and maintenance information
SLA	service level agreement
TMS	terminology management system
UC	use case
VM	vehicle manufacturer

4 Standard and implementation

4.1 Overview of Standard ISO 18542

An overview describing the framework of ISO 18542 and its constituent Parts 1 and 2 is shown in Figure 1.



Key

1 ISO 18542-1: process specification to develop and maintain an agreed Automotive RMI Terminology

2 ISO 18542-2: standardized process implementation specification including requirements, and Registration Authority

3 Registration Authority – Terminology review group

4 Terminology Management System

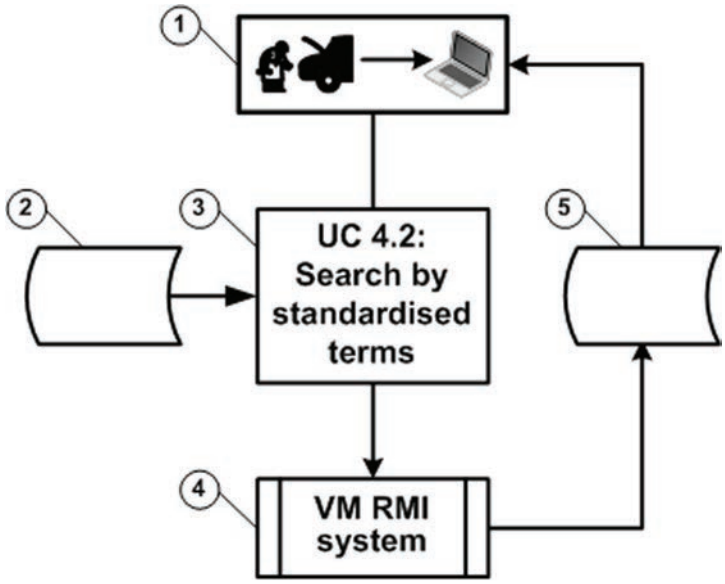
5 Digital Annex: agreed Automotive RMI Terminology

NOTE As illustrated in Figure 1, a distinction is made between ISO 18542-1 and ISO 18542-2, and the Digital Annex as an artefact resulting from the standardized process. The Digital Annex will be published for the end user.

Figure 1 — Overview of the elements of the standard

4.2 Overview of the usage of the Digital Annex within the context of ISO 18541

An overview of the usage of the Digital Annex in a standardized RMI request by an IO is shown in Figure 2.



Key

1 Independent operator: end user searching for information on any VM Euro 5 or later vehicle

2 A term in the Digital Annex

3 ISO 18541-1: Request under UC 4.2: UC 5.1 – Workshop Procedures, UC 5.2 – Wiring Diagrams, UC 5.3 – Technical Service Bulletins

4 VM RMI system

5 Response from VM RMI system

Figure 2 — Independent Operator request showing the usage of the Digital Annex

5 Structure of the COTS TMS Requirements

5.1 Main technical requirements clusters

The COTS TMS, previously referred to as 'the system', has specific technical requirements that are divided into three primary clusters. Each individual requirement belongs to one of these three primary clusters (first level). For ease of reading, successive sub-clusters (second level) and sub-sub-clusters (third level) will be referred to by their own immediate title and the primary cluster to which they belong. The list of primary clusters is provided in Table 1.

Table 1 — Main TMS technical requirements clusters

#	Main title of requirements cluster	Brief description
1	Overall architecture	The requirements belonging to this cluster describe: — Conceptual architecture — Model
2 to 5	System specification	The requirements belonging to this cluster describe: — IT system / Infrastructure — User interface — Data management — Application and workflow
6	Operations [a]	The requirements belonging to this cluster describe: — In-service operations
[a] The requirements for the day-to-day running of the system will be mutually agreed between the organization holding the contract and the service implementation provider of the system and referenced appropriately in a service level agreement.		

The main TMS technical requirements clusters / sub-clusters are shown in Figure 3.

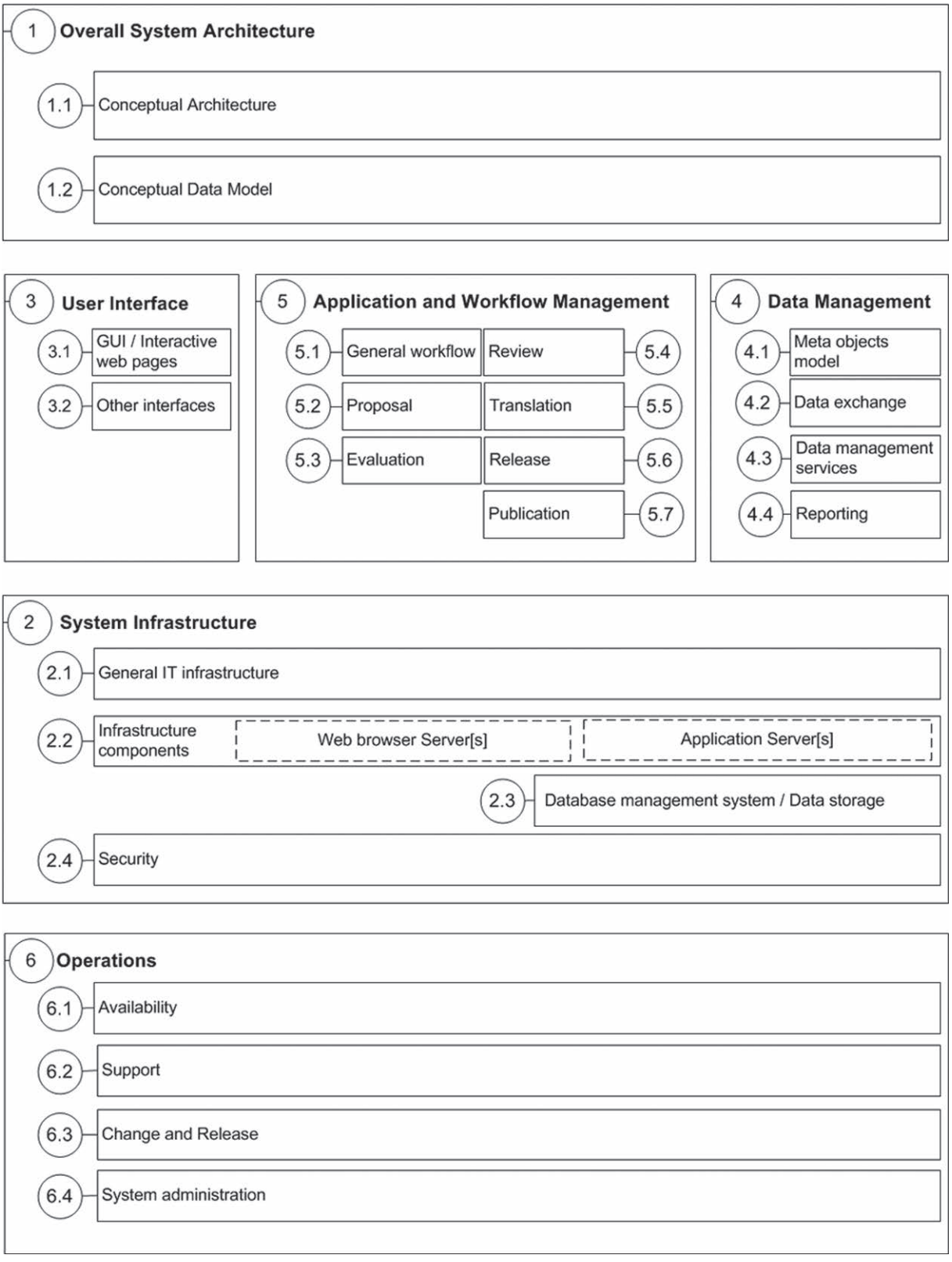


Figure 3 — Main TMS technical requirements clusters / sub-clusters

6 [1]: Overall system architecture

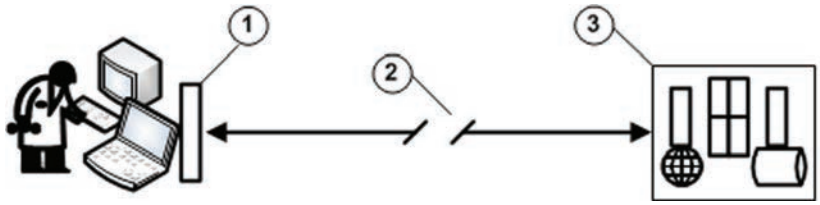
6.1 [1.1] Conceptual architecture

Tables 2 and 3 specify the requirements for the Conceptual Architecture.

Table 2 — 1.1: Conceptual Architecture — Architecture Type

Requirement #1	Architecture type
Requirement Definition	The system architecture is a web-based multi-tier architecture consisting of a web front-end, web and application servers, and a database. The functionality layers shall support all use cases, data and term status defined in ISO 18542-1.
Brief description	The conceptual architecture is illustrated in Figure 4. All functionality shall be implemented server side. There will be a thin client which is a publicly available web browser. A suitable physical IT server infrastructure shall be implemented in accordance with the policies of the hosting organization of the system.

Figure 4 illustrates the conceptual architecture.



Key

1 Thin Client web browser front end

2 User Instructions → / ← Server responses [Thin Client / Fat Server]

3 Server-based processing using web and application servers, and a database

Figure 4 — Conceptual Architecture — Architecture Type

Table 3 — 1.1: Conceptual Architecture — Functionality

Requirement #2	Functionality
Requirement Definition	The functionality layers shall support process requirements outlined in ISO 18542-1.
Brief description	See ISO 18542-1.

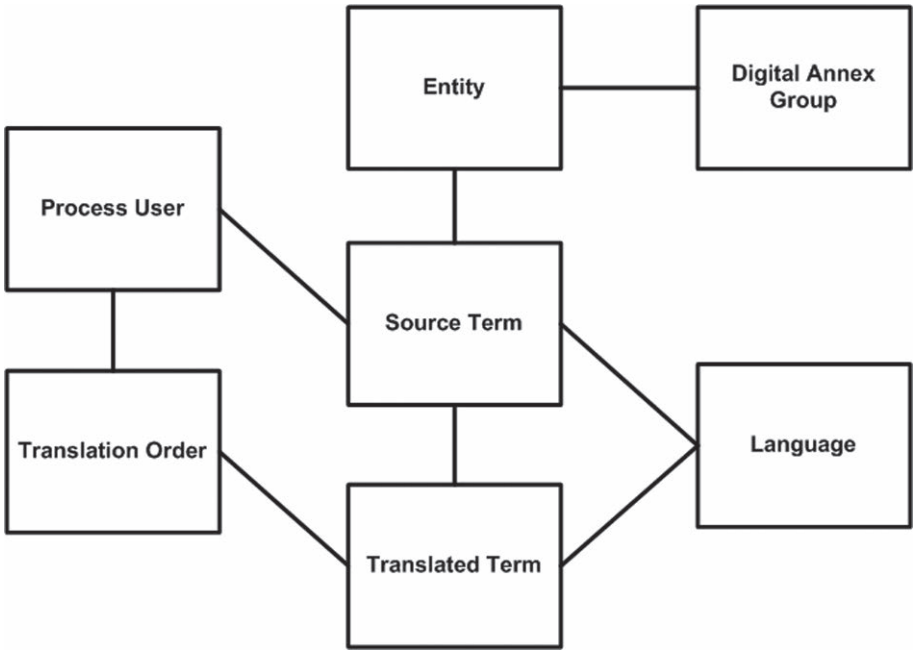
6.2 [1.2] Conceptual data and role models

Table 4 defines the technical requirements for the conceptual data and role models.

Table 4 — 1.2: Conceptual data and roles models

Requirement #3	Conceptual data and roles models
Requirement definition	The data management layer shall be able to support the meta-objects model in accordance with the roles model.
Brief description	The meta-objects model is illustrated in Figure 5. The associated roles model is illustrated in Figure 7.

Figure 5 illustrates the meta-objects model.



NOTE The above shows the meta-objects involved in the terminology process; these are defined in the relevant sections of ISO 18542-1 and ISO 18542-2.

Figure 5 — 1.2: Meta-objects

Figure 6 summarizes the technical requirements for the terminology meta-objects details.

Object name	Field name	Field contents *contents of entity characteristics*	System generated	Admini-stration	Proposal process	Translation process	Output process	Publication process
Entity	**Entity ID**	Alphanumeric unique ID	x		x	x		
	Entity Classification	DA classification (Chassis, ...), Semantic picklist			x	x		
	Entity Auxiliary Information	e.g. graphics, etc.			x	x		
	Entity Status	- (In progress) - Released - Communicated - Published	x		x	x	x	x
	Entity Status History	Status changes and date of each status change	x					
	Entity Category	Semantic picklist (e.g. component, tool, function)			x	x		
DA group	**DA Classification**	Structured Text (Chassis,...)		x				
Language	**Language**	US-En (ENU); tbd: ISO-Coding ...						
Source Term	**Source Term ID**	Alphanumeric unique ID	x		x	x		
	Source Term Language	US-English						
	Source Term Denomination	Text			x	x		
	Source Term Cardinality	- Singular - Plural Note: Singular where it exists should be the default. However, some terms only exist as plural [see system requirements data model examples].			x	x		
	Source Term Gender	- Feminine - Masculine - Neutrum/Neuter Note: No gender where it exists should be the default. However, some terms only exist as gender specific [see system requirements data model examples].			x	x		
	Source Term Definition	Explanation of the meaning			x	x		
	Source Term Context Example	Context example TBE			x	x		
	Entity ID	Alphanumeric unique ID	x		x			
	Proposal Creator	User ID of the creator	x		x			
	Proposal Creator Comment	Text			x			
	Terminology Manager Evaluation Comment	If rejection, comment is for proposer If accepted, comment for review process			x			
	Terminology Reviewer ID	Alphanumeric unique ID	x		x			
	Terminology Reviewer Vote	Semantic picklist			x			
	Terminology Reviewer Comment	Text			x			
	Source Term Status	- Proposed - Accepted - Rejected - Evaluated - Agreed - Released	x		x	x		
	Source Term Status history	Status changes and date of each status change	x		x	x		
Translated Term	**Translated Term ID**	Alphanumeric unique ID	x		x	x		
	Translated Term Language	Not US-English						
	Translated Term Denomination	Text			x	x		
	Translated Term Cardinality	- Singular - Plural			x	x		
	Translated Term Gender	- Feminine - Masculine - Neutrum/Neuter Note: No gender where it exists should be the default. However, some terms only exist as gender specific [see system requirements data model examples].			x	x		
	Trasnslated Term Definition	Explanation of the meaning			x	x		
	Translated Term Context Example	Context example TBE			x	x		
	Entity ID	Alphanumeric unique ID	x					
	Translated Term Status	- To translate - Translated - Released	x			x		
	Translated Term Status History	Status changes and date of each status change	x		x	x		
	Translator Comment	Information on special characteristics				x		x
Translation order	**Translation Order ID**	Alphanumeric unique ID	x					
	Translation Order Date	Issue date of order				x		
	Terms to be translated	List of terms (ID) released for translation				x		x
User	**User ID**	Alphanumeric unique ID	x					
	User Name	Text		x				
	User Organisation	Text		x				
	User Email Address	Mail address		x				
	User Role	- Administrator - Terminology manager - VM nominated person - Terminology Reviewer - Translator - Registration Authority		x				

Figure 6 — 1.2: Terminology meta-objects details

Figure 7 illustrates the roles model. The roles model shows explicitly the different roles that a Process User may have.

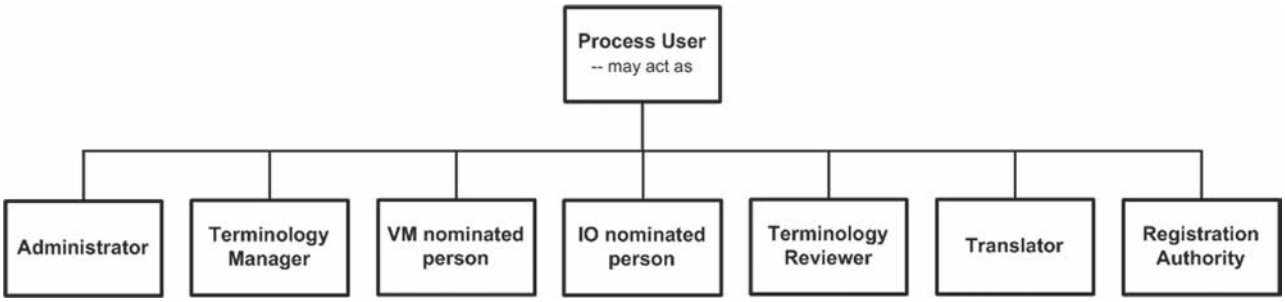


Figure 7 — 1.2: Roles Model

7 [2]: System infrastructure

7.1 [2.1] General IT infrastructure

Tables 6 and 7 define the requirements for the general IT infrastructure.

Table 6 — 2.1: General IT infrastructure — Multi-user capability

Requirement #4	Multi-user capability
Requirement Definition	The system shall allow multi-user access and concurrent sessions.
Brief description	The system shall allow for multiple logons and shall process up to 50 concurrent sessions without performance degradation. Internet connection and speed are not part of these requirements.
Brief description classification	Essential

Table 7 — 2.1: General IT infrastructure — Accessibility

Requirements #5	Accessibility
Requirement Definition	The system shall be accessible via the internet.
Brief description	The system shall provide facilities to allow all activities (including all administration tasks) to be satisfactorily performed via internet access (https:).
Brief description classification	Essential

7.2 [2.2] Infrastructure components

Tables 8 and 9 define the requirements for Infrastructure components.

Table 8 — 2.2: Infrastructure components — Web browser requirements

Requirement #6	Web browser requirements
Requirement Definition	The VM RMI system shall support at least one web browser in at least the minimum version capable to run on the operating systems specified in ISO 18541-2, Annex A with a major usage level in the market place.
Brief description	The system shall support web browsers with a major usage level in the European market place. A major usage level is considered sufficient when the browser has a yearly average market share of more than 15 % according to the acknowledged publisher of statistical usage data, e.g. “StatCounter GlobalStats”, “W3Counter” The supported web browser version must be freely available and downloadable from the web browser supplier site.
Brief description classification	Essential

Table 9 — 2.2: Infrastructure components — Server requirements

Requirement #7	Server requirements
Requirement Definition	The server shall support the TMS and all necessary operations.
Brief description	The server shall host the TMS software and data content and support parallel sessions and multi-threading. The choice of an OS and middleware shall be made by the provider of the TMS in accordance with the policies of the hosting organization but must necessarily include security middleware (firewall, anti-virus, activity logging, etc.).
Brief description classification	Essential

7.3 [2.3] Database management system and data storage

Tables 10 to 14 define the requirements for the database management system and data storage.

Table 10 — 2.3: Database management system and data storage — Language Support

Requirement #8	Language support
Requirement Definition	All languages supported by UTF-8 or UTF-16 shall be available.
Brief description	The internal data storage encoding shall be UTF-8 or UTF-16 in order to allow for terms and additional information in all languages.
Brief description classification	Essential

Table 11 — 2.3: Database management system and data storage — Locking records

Requirement #9	Locking of records
Requirement Definition	The system shall offer record locking functionality.
Brief description	It must be possible for the system administrator to impose a data locking function should this be required. The data locking functionality must be configurable in accordance with a data locking policy and this could be either very restrictive or less restrictive depending on what is deemed necessary operationally. At the current state of planning, locking of records is not considered necessary as simultaneous access of a single term is minimized due to the very restrictive rights for the different roles.
Brief description classification	Essential although alternative solutions are acceptable.

Table 12 — 2.3: Database management system and data storage — Data life cycle support

Requirement #10	Data life cycle support
Requirement Definition	The system shall support the full life cycle of proposals and terms and provide history, auditing and archiving functionality for the terminology workflow steps.
Brief description	The terms and proposals must always be available in the system regardless of their agreement status. The system should provide history and auditing of all the workflow steps in the life cycle of a term. The audit trail, emails and history (workflow steps etc.) as they relate to a term will be available for 5 years after which time they should be archived (either manually or automatically) by the system. It must be possible to restore this archive to the online system upon request.
Brief description classification	Essential although alternative solutions are acceptable.

Table 13 — 2.3: Database management system and data storage — Data integrity protection

Requirement #11	Data integrity protection
Requirement Definition	The system shall support the transaction concept to avoid undefined data configuration in the case of a 'not completed' action on the data content.
Brief description	The data content state prior to a 'not completed' operation / transaction must be restored by the system.
Brief description classification	Essential.

Table 14 — 2.3: Database management system and data storage — Recovery support

Requirement #12	Recovery support
Requirement Definition	The system must provide a backup / restore solution in the event of loss / corruption of data.
Brief description	It must be possible to rollback the system to a previous state and to restore a consistent data state. During any operation, the system must keep images of data before and after the operation. Mirror databases should be kept, according to an SLA with the hosting organization.
Brief description classification	Essential.

7.4 [2.4]: Security

Tables 15 to 21 define the requirements for the database management system and data storage.

Table 15 — 2.4: Security — Identity management

Requirement #13	Identity management
Requirement Definition	The system shall be used only by registered users.
Brief description	Any registered user will be assigned a user id for identification by the system. The user id and the related user data will be stored and protected against unauthorized access or tampering.
Brief description classification	Essential.

Table 16 — 2.4: Security — System login

Requirement #14	System login
Requirement Definition	A login will be required to access the system and to perform any operation.
Brief description	A login is mandatory to protect the TMS against unauthorized access or tampering. Users shall be automatically logged out after one hour idle time (warning message to user before logout), after browser closure, or in case of any functional interruption of the system.
Brief description classification	Essential.

Table 17 — 2.4: Security — Authentication

Requirement #15	Authentication
Requirement Definition	Authentication of users shall be by a secure password to be entered at the login into the system.
Brief description	Any registered user will be requested to choose a password and to change it regularly. A safe mechanism shall be offered to support users when the user ID and / or password has / have been forgotten or abused / tampered with.
Brief description classification	Essential.

Table 18 — 2.4: Security — Authorization

Requirement #16	Authorization
Requirement Definition	The system shall support a permissions model based on defined user roles.
Brief description	All users will be assigned roles. Roles or a combination of roles will be provided with appropriate permissions to perform actions or to access and update the various content of the system.
Brief description classification	Essential.

Table 19 — 2.4: Security — Roles and rights

Requirement #17	Roles and rights
Requirement Definition	The system has to support roles and access rights in all workflow-steps in line with the term status model.
Brief description	All roles have read-access rights in all process steps. Roles are granted restricted write-access rights to perform the workflow steps as specified by the use cases defined in ISO 18542-1.
Brief description classification	Essential.

Table 20 — 2.4: Security — System protection

Requirement #18	System protection
Requirement Definition	The system shall be secure and prevent unauthorized access.
Brief description	The system and its components shall be protected against tampering and security threats: virus attacks, unauthorized access attempts, etc.
Brief description classification	Essential.

Table 21 — 2.4: Security — Event logging

Requirement #19	Event logging
Requirement Definition	The system shall log and report any security-related activity.
Brief description	Security relevant events shall be logged and reported to the system administrator.
Brief description classification	Essential.

8 [3]: User Interface

8.1 [3.1] Graphical User Interface / Interactive web pages

Tables 22 to 29 define the requirements for the Graphical User Interface / Interactive web pages.

Table 22 — 3.1: Graphical User Interface / Interactive web pages

Requirement #20	Graphical User Interface [GUI] functionality
Requirement Definition	The user interface shall provide access and support for all ISO 18542-1 use cases, especially the system administrator functionality.
Brief description	The GUI should be simple and functional in order to support efficient user actions and the overall process efficiency.
Brief description classification	Essential.

Table 23 — 3.1: GUI / Interactive web pages — User interface language

Requirement #21	User interface language
Requirement Definition	The user interface shall be in US-English.
Brief description	The user interface, the corresponding documentation and also the online help should be in US-English. The GUI should be intuitive and functional in order to guarantee fast response times.
Brief description classification	Essential.

Table 24 — 3.1: GUI / Interactive web pages — Data model presentation

Requirement #22	Data model presentation
Requirement Definition	The system shall be able to represent the meta-objects and conceptual role model to the user in a way that is clear, unambiguous and easily understood.
Brief description	Graphical and table-based descriptions of the terminology meta-objects and conceptual role models, including the process data model must be available to the user.
Brief description classification	Essential.

Table 25 — 3.1: GUI / Interactive web pages — GUI field structure

Requirement #23	GUI field structure
Requirement Definition	The user interface offers fields with structured content with pick list selection and free editable fields.
Brief description	Fields in forms shall be defined as mandatory (e.g. Term Cardinality is mandatory) or optional. Field values shall be selected from a pick list and / or written in free text.
Brief description classification	Essential.

Table 26 — 3.1: GUI / Interactive web pages — Use of names according to the standard

Requirement #24	Use of names according to the standard
Requirement Definition	The names specified in the data and role model and in the ISO 18542-1 use cases shall be used for the GUI fields.
Brief description	The system shall support the customization of field and role names in the GUI to allow the system administrator to adjust the name displaying according to the standards in ISO 18542-1.
Brief description classification	Essential.

Table 27 — 3.1: GUI / Interactive web pages — Modification of pick lists

Requirement #25	Modification of pick lists
Requirement Definition	The GUI shall offer the functionality to add new items to existing pick lists.
Brief description	The contents of the pick lists should be customizable by the system administrator (initially also the creation of pick lists; after start of operations, only the addition of new items to a pick list). Process users shall have the option to request the addition of new items by the system administrator.
Brief description classification	Essential.

Table 28 — 3.1: GUI / Interactive web pages — Display role names and current users

Requirement #26	Display role names and current users
Requirement Definition	The defined role names and current users shall be displayed in all workflow steps (e.g. working environments).
Brief description	The role names and current users are displayed in the workflow steps.
Brief description classification	Essential.

Table 29 — 3.1: GUI / Interactive web pages — User-friendly error messages

Requirement #27	User-friendly error messages
Requirement Definition	User-friendly error messages shall be displayed in US-English.
Brief description	The system shall provide user-friendly error messages in US-English in all cases where an error is flagged and displayed to the end user.
Brief description classification	Essential.

8.2 [3.2] Other interfaces

Tables 30 to 32 define the requirements for other interfaces.

Table 30 — 3.2: Other interfaces — Email notification in general

Requirement #28	Email notification in general
Requirement Definition	The system shall notify the appropriate process users about changes in the term status and tasks to be performed.
Brief description	Notification via email containing addressed role, term and link to the system (not to the term).
Brief description classification	Essential although alternative solutions are acceptable.

Table 31 — 3.2: Other interfaces — Email notification at status “communicated”

Requirement #29	Email notification at status “communicated” (UC5 of ISO 18542-1)
Requirement Definition	All registered VM nominated persons shall be informed when new released terms are available for download.
Brief description	The email notifies all registered VM nominated persons that released new Entities are available. With the sending of the email, the new Entities receive the status “Communicated”.
Brief description classification	Essential.

Table 32 — 3.2: Other interfaces — Email notification to an applicant for a TMS account

Requirement #30	Email notification to an applicant for a TMS account
Requirement Definition	To send a notification email as a response to a registration application request.
Brief description	The Administrator approves / denies the applicant as a User and communicates this to the applicant. If approved the administrator determines the appropriate access level and communicates this to the User along with the access URL. The registry request procedure may be outside of the TMS.
Brief description classification	Essential although alternative solutions are acceptable.

9 [4]: Data Management

9.1 [4.1] Meta objects model

Tables 33 and 34 define the requirements for the meta-objects model.

Table 33 — 4.1: Meta objects model — Support of roles and status

Requirement #31	Support of roles and status
Requirement Definition	The system shall offer the functionality to create and edit role and status names.
Brief description	It must be possible for the system administrator to create roles and status (e.g. as variations to available roles) as described in the ISO 18542-1 use cases and assign them an appropriate name.
Brief description classification	Essential.

Table 34 — 4.1: Meta objects model — Addition of a new language

Requirement #32	Addition of a new language
Requirement Definition	The system shall support the inclusion of additional languages at any time.
Brief description	All language specific processes (e.g. translation, download, publication) shall be adapted if a new language is added.
Brief description classification	Essential.

9.2 [4.2] Data exchange

Tables 35 to 37 define the requirements for data exchange.

Table 35 — 4.2: Data exchange — Export functionality

Requirement #33	Export functionality
Requirement Definition	The system shall support the export of terminology content to external systems in many different formats.
Brief description	The system shall support the export of terminology content to external systems in standard formats such as MARTIF or TBX, CSV and other customizable UTF-8 or UTF-16-based XML-formats. The system shall also support the creation, maintenance and management of user defined scripts for specific export operations. The scripts may define export operations based on criteria like format, one or more languages, scope, filter selection, etc.
Brief description classification	Essential although alternative solutions are acceptable.

Table 36 — 4.2: Data exchange — Import functionality

Requirement #34	Import functionality
Requirement Definition	The system shall support the import of terminology content from external systems.
Brief description	The system shall support the import of terminology content from external systems in standard formats such as MARTIF or TBX, CSV and other customizable UTF-8 or UTF-16-based XML-formats. The system shall also support the creation, maintenance and management of user defined scripts for further processing of specific imported content. The use of the import functionality may be restricted to selected roles.
Brief description classification	Essential although alternative solutions are acceptable.

Table 37 — 4.2: Data exchange — Download functionality

Requirement #35	Download functionality
Requirement Definition	The system shall support partial or full downloads of terms and data to the user clients.
Brief description	The user shall be able to define and configure downloads regarding content and scheduling. User defined download configurations shall be saved and shall be available for re-use. The system shall process the download requests sequentially according to schedules and load. A complete download of the terminology should be possible at any time subject to load. At the administrator's discretion the download queue and scheduling can be interrupted, cancelled or restarted. The system must communicate appropriate messages regarding such changes to the end user. The user shall be able to download all modified items since last download. To this end, the system shall memorize the last download of a user and create the appropriate data for download. The download functionality may be restricted to specific roles. Other users than the Terminology Manager and the System Administrator shall only be allowed to request the download of communicated terms and related information.
Brief description classification	Essential although alternative solutions are acceptable.

9.3 [4.3] Data management services

Tables 38 to 40 define the requirements for data management services.

Table 38 — 4.3: Data management services — View functionality

Requirement #36	View functionality
Requirement Definition	The user shall be able to view the terminology content.
Brief description	The system must provide all functions in order to support the use cases for interrogating the terminology content (UC 2) of ISO 18542-1: — Browsing — Hierarchy navigation
Brief description classification	Essential.

Table 39 — 4.3: Data management services — Search functionality

Requirement #37	Search functionality
Requirement Definition	The user shall be able to search for a specific term in the terminology content.
Brief description	The system shall support the selection of source language for search and accept searches for single terms, searches for term with wildcards, with filter expressions or attributes etc. If a user enters a search term that is a rejected term (in US-English), the user should be told that this term is rejected. A user should be able to view all contextual / note information associated with the entered search term.
Brief description classification	Essential.

Table 40 — 4.3: Data management services — Display proposals

Requirement #38	Display proposals
Requirement Definition	The system shall support the display of proposals and modified proposals including all associated metadata.
Brief description	All proposals are to be listed in an environment, where sorting and filtering according to status, date, user and other metadata are possible. Details of an entry are displayed upon opening the entry. If the original proposal is modified during the evaluation, the modified term is displayed as well as the proposed term, while the original proposal is displayed as a former proposal. Original and modified proposals are visible in the further process steps.
Brief description classification	Essential although alternative solutions are acceptable.

9.4 [4.4] Reporting

Tables 41 and 42 define the requirements for reporting.

Table 41 — 4.4: Reporting — Report creation

Requirement #39	Report creation
Requirement Definition	The system must provide sufficient functionality to create reports.
Brief description	The system must provide sufficient functionality to create reports concerning the term process, term contents and user activities. The reports will be based on the existing data fields, e.g. number of status changes, change history of a term, number of translations in a period, number of searches performed in a period.
Brief description classification	Essential although alternative solutions are acceptable.

Table 42 — 4.4: Reporting — Download facility for reports

Requirement #40	Download facility for reports
Requirement Definition	Reports shall be downloadable in CSV format.
Brief description	Reports shall be downloadable in CSV format such that they can be further processed using common desktop tools such as Microsoft Excel.
Brief description classification	Essential although alternative solutions are acceptable.

10 [5]: Application and workflow management

10.1 [5.1] General workflow

Table 43 defines the requirements for general workflow.

Table 43 — 5.1: General workflow — Terminology process support

Requirement #41	Terminology process support
Requirement Definition	Support of term proposal and term translation process.
Brief description	The system shall support the following use cases (UC3 and 4) of ISO 18542-1. — Term Proposal — Term Evaluation — Term Review — Term Release — Order for Translation — Term Translation — Translated Term Released
Brief description classification	Essential.

10.2 [5.2] Proposal

Table 44 defines the requirements for a proposal.

Table 44 — 5.1: Proposal

Requirement #42	Propose a term
Requirement Definition	The system shall provide all functions in order to support all use cases for the Term Proposal Process (UC 3) of ISO 18542-1.
Brief description	Provide a form in order to allow the Term proposer to enter a proposal in a structured way and ensuring all necessary information / metadata to be entered. When a proposal is submitted, the proposer is no longer able to modify or edit the proposal. A check for duplicates of the term denomination is necessary to avoid entering a proposal which has been previously approved / rejected or is currently under evaluation.
Brief description classification	Essential although alternative solutions are acceptable.

10.3 [5.3] Evaluation

Table 45 defines the requirements for evaluation.

Table 45 — 5.1: Evaluation

Requirement #43	Evaluate a term
Requirement Definition	The system shall support all use cases for the evaluation of a term (UC 3.2) of ISO 18542-1.
Brief description	To support the steps for evaluating a term and to allow the Terminology Manager to confirm that the Term follows acceptable criteria, e.g. it is a new term, it corresponds to the guidelines, it complements the main object term structure, it is complete and correct, or allows the Terminology Manager to reject the term inserting a reason for rejection. The confirmation is supported by a ticked / checked box of actions to be filled by the Terminology Manager, i.e. Term is new, 'tick' / check, Term corresponds to guidelines, 'tick / check', Term is complete and correct, 'tick / check'.
Brief description classification	Essential although alternative solutions are acceptable.

10.4 [5.4] Review

Tables 46 and 47 define the requirements for review.

Table 46 — 5.4: Review — Accept or reject a proposal

Requirement #44	Accept or reject a proposal
Requirement Definition	The system shall support the acceptance or rejection of a proposal.
Brief description	All authorized process users participating in the review process may accept or reject a proposal and enter a comment.
Brief description classification	Essential.

Table 47 — 5.4: Review — Review a term

Requirement #45	Review a term
Requirement Definition	The system shall support all use cases for the review of a term (UC 3.3) of ISO 18542-1.
Brief description	All authorized process users participating in the review process may accept or reject a proposal and enter a comment. The system shall support the steps for reviewing a term, allowing reviewers to accept or reject but not change the proposed term. If rejected the reviewer must include the reason for rejection. All voting and comments are visible for all authorized users.
Brief description classification	Essential.

10.5 [5.5] Translation

Tables 48 and 49 define the requirements for translation.

Table 48 — 5.5: Translation — Translation process

Requirement #46	Translation process
Requirement Definition	The system shall provide all functions in order to support all use cases for the Term translation process (UC 4 of ISO 18542-1).
Brief description	The system shall support export and import functions to an external translation system or allow for translation within the Terminology Management System, into all required target languages.
Brief description classification	Essential although alternative solutions are acceptable.

Table 49 — 5.5: Translation — Correction possibility

Requirement #47	Correction possibility
Requirement Definition	The system shall allow correction of a translated term.
Brief description	The system shall support a process for the correction of a translated term via a correction order. History of translation and correction has to be stored in data entry.
Brief description classification	Essential although alternative solutions are acceptable.

10.6 [5.6] Release

Table 50 defines the requirements for release.

Table 50 — 5.6: Release — Release a term

Requirement #48	Release a term
Requirement Definition	The system shall support the release of a term in US-English and all required target languages.
Brief description	The system shall support the status change of an agreed term in US-English and all required target languages from “agreed” into “released” according to UC 3.4 of ISO 18542-1.
Brief description classification	Essential.

10.7 Download for VM

Refer to section 9.2 [4.2] for details.

10.8 [5.7] Publication

Table 51 defines the requirements for DA publication.

Table 51 — 5.6: DA Publication

Requirement #49	DA publication
Requirement Definition	The system shall allow the authorized user to activate the publication of the DA.
Brief description	The user with the appropriate role will activate the publication of the DA. The system must only select the Published Terms to be part of the DA output.
Brief description classification	Essential.

11 [6]: Operation

The operation of the agreed Automotive RMI Terminology process is outside the remit of this standard and therefore outside the scope of this document. It is included to acknowledge that the operation of the agreed Automotive RMI Terminology will follow a lifecycle beyond the timeframe of the standard and to provide definitions and descriptions of how Operations will be required to function. It will be dependent upon the work of a Registration Authority, a Terminology Review Group for its creation and management, and of a Digital Annex for its publication.

11.1 [6.1] Availability

Tables 52 to 54 define the requirements for availability.

Table 52 — 6.1: Availability

Requirement #50	Availability
Requirement Definition	Availability of the URL.
Brief description	Availability of the URL has to be guaranteed except in the case of emergency or pre-scheduled and notified maintenance.

Table 53 — 6.1: Availability — Scalability and Performance

Requirement #51	Scalability and Performance
Requirement Definition	System scalability and system performance.
Brief description	The system must be able to support up to 50 concurrent users without performance loss. A response time ≤ 500 ms (directly on the server, without considering Internet connection speed) for operations without data search is required.

Table 54 — 6.1: Availability — System administration

Requirement #52	System administration
Requirement Definition	A management environment for system administration has to be provided (to be developed if on separate file server or only PC).
Brief description	See Requirement Definition.

11.2 [6.2] Support

Tables 55 and Table 56 define the requirements for support.

Table 55 — 6.2: Support — System documentation

Requirement #53	System documentation
Requirement Definition	The provision of user documentation.
Brief description	Sufficient and suitable User and Administrator documentation in US-English shall be available.

Table 56 — 6.2: Support — Support model

Requirement #54	Support model
Requirement Definition	The system shall be supported by standardized processes.
Brief description	A service level agreement should encompass response and solution times, support availability etc.

11.3 [6.3] Change and release

Table 57 defines the requirements for change and release.

Table 57 — 6.3: Change and release — Changes to the system

Requirement #55	Changes to the system
Requirement Definition	The system shall be flexible enough to allow changes to be made.
Brief description	System changes shall be allowed when prompted for:- — System development – e.g. service packs, version upgrades etc — Change requests from the process user community – e.g. changes of field contents, languages, etc

11.4 [6.4] System administration

Tables 58 to 61 define the requirements for system administration.

Table 58 — 6.4: System administration

Requirement #56	System administration
Requirement Definition	The system shall provide all functions in order to support the use cases for user administration and system maintenance (UC 1) of ISO 18542-1.
Brief description	The administration process shall support acceptance or rejection of an applicant, assignment of roles and rights and usernames and passwords.

Table 59 — 6.4: System administration — User data administration

Requirement #57	User data administration
Requirement Definition	The TMS shall provide the means to manage all user relevant data.
Brief description	The TMS must have administration facilities for all user relevant data, e.g. users, passwords, roles, rights. The TMS provides the means to assign User ID and an initial password, to upgrade / downgrade permissions and access levels or to delete users.

Table 60 — 6.4: System administration — Register for use of the TMS

Requirement #58	Register for use of the TMS
Requirement Definition	A registration process for the TMS is necessary, but the registry request procedure may be outside of the TMS.
Brief description	The Requester formally agrees to the Terms and Conditions for use of the TMS. Prerequisites for registration shall be defined, agreed and used by all approved Users. The registry process might be implemented outside of the TMS but has to be implemented with the Registration Authority.

Table 61 — 6.4: System administration — TMS operation continuity and maintenance

Requirement #59	TMS operation continuity and maintenance
Requirement Definition	The Terminology Management System shall support operation continuity according to Best Practice.
Brief description	Regular back-ups (to be developed if on a separate file server). A management environment has to be provided (to be developed if on separate file server or only a PC).

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ICS 01.040.43;43.040.15;43.180

Price based on 28 pages