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**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*



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## 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](http://www.iso.org/directives)).

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights. Details of any patent rights identified during the development of the document will be in the Introduction and/or on the ISO list of patent declarations received (see [www.iso.org/patents](http://www.iso.org/patents)).

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<sup>[1]</sup> “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,<sup>[2]</sup> 2003/37/EC<sup>[3]</sup> and 70/156/EEC (replaced by 2007/46/EC),<sup>[4]</sup> 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<sup>1)</sup> and heavy duty vehicles<sup>2)</sup> 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.

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.

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# 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<sup>3)</sup>, *Road vehicles — Standardized access to automotive repair and maintenance information (RMI) — Part 1: General information and use case definition*

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

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3) To be published.

4) To be published.

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

ISO 18541-4<sup>6)</sup>, *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.

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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.<sup>[3]</sup>

### 3.2 Abbreviated terms

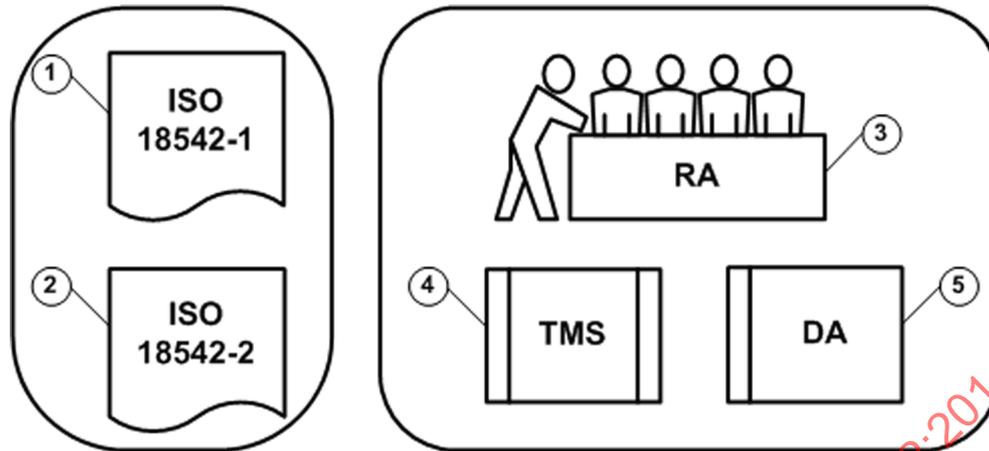
COTS	commercial-off-the-shelf system
DA	digital annex
DBMS	database management system
GUI	graphical user interface
IO	independent operator
OS	operating system
RA	registration authority
RMI	repair and maintenance information
SLA	service level agreement
TMS	terminology management system
UC	use case
VM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

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**Key**

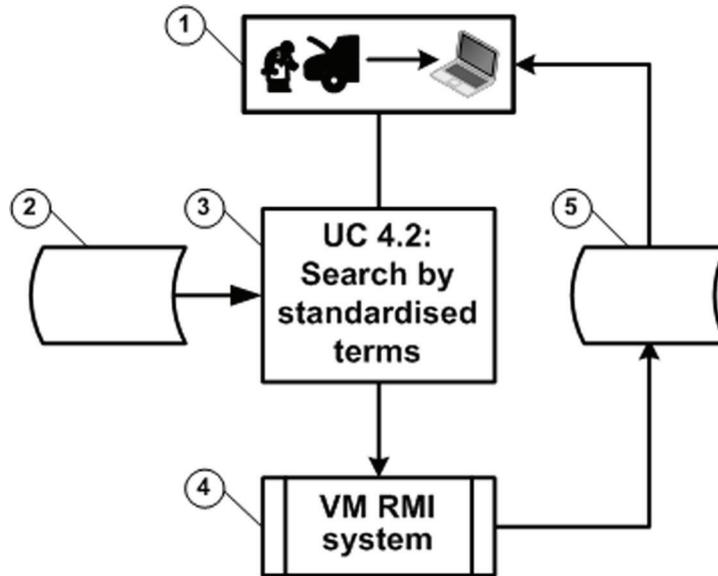
- 1 ISO 18542-1: process specification to develop and maintain an agreed Automotive RMI Terminology
- 2 ISO 18542-2: standardized process implementation specification including requirements, and Registration Authority
- 3 Registration Authority – Terminology review group
- 4 Terminology Management System
- 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: <ul style="list-style-type: none"> <li>— Conceptual architecture</li> <li>— Model</li> </ul>
2 to 5	System specification	The requirements belonging to this cluster describe: <ul style="list-style-type: none"> <li>— IT system / Infrastructure</li> <li>— User interface</li> <li>— Data management</li> <li>— Application and workflow</li> </ul>
6	Operations <sup>a</sup>	The requirements belonging to this cluster describe: <ul style="list-style-type: none"> <li>— In-service operations</li> </ul>
<sup>a</sup> 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](#).

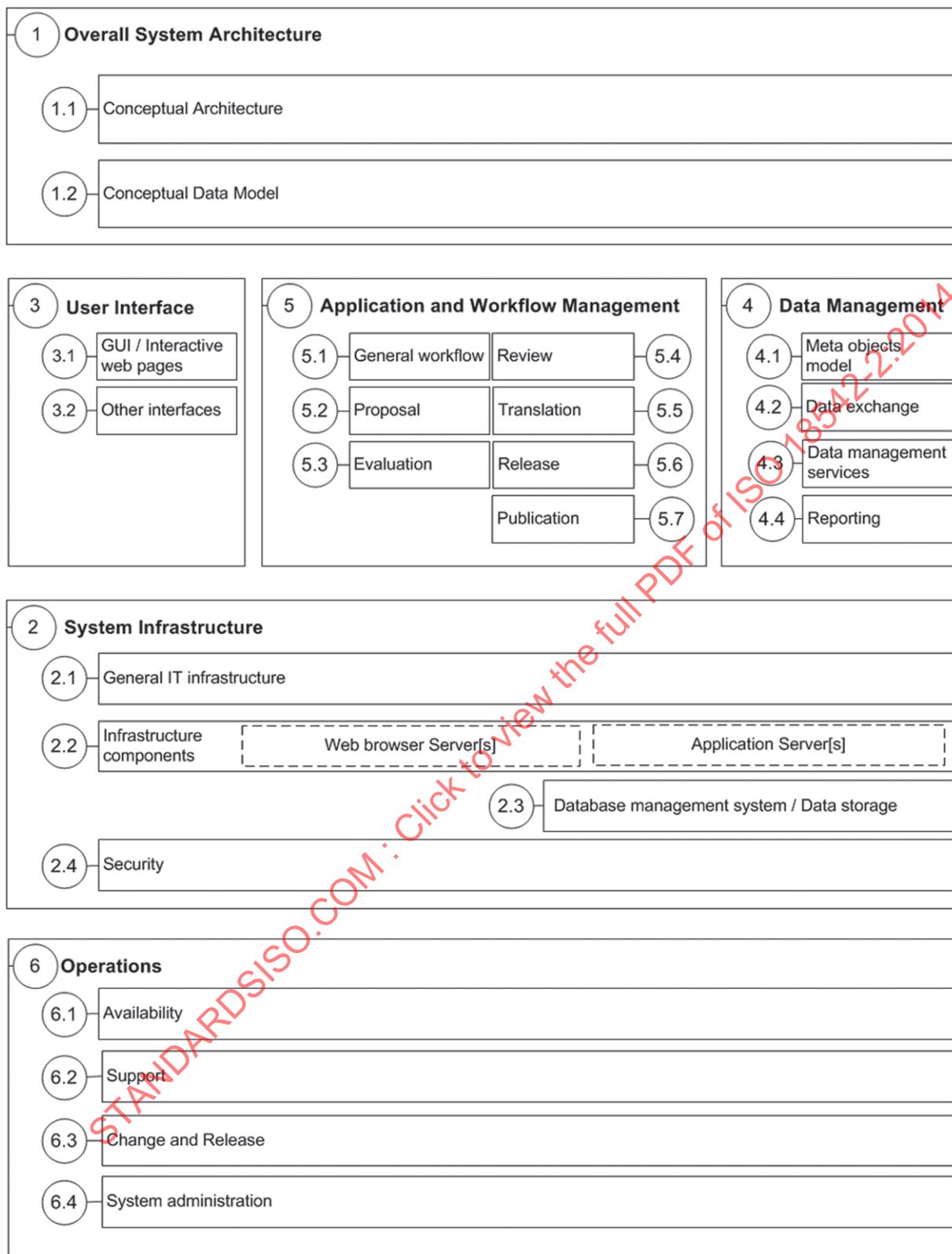


Figure 3 — Main TMS technical requirements clusters / sub-clusters

## 6 [1]: Overall system architecture

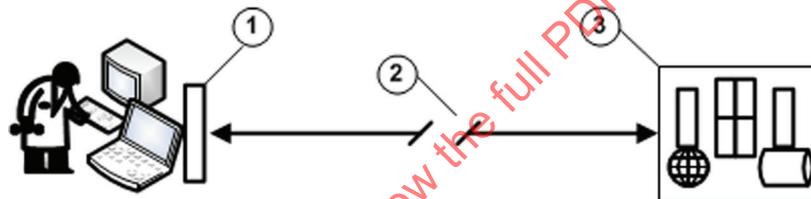
### 6.1 [1.1] Conceptual architecture

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

**Table 2 — 1.1: Conceptual Architecture — Architecture Type**

<b>Requirement #1</b>	Architecture type
<b>Requirement Definition</b>	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.
<b>Brief description</b>	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**

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

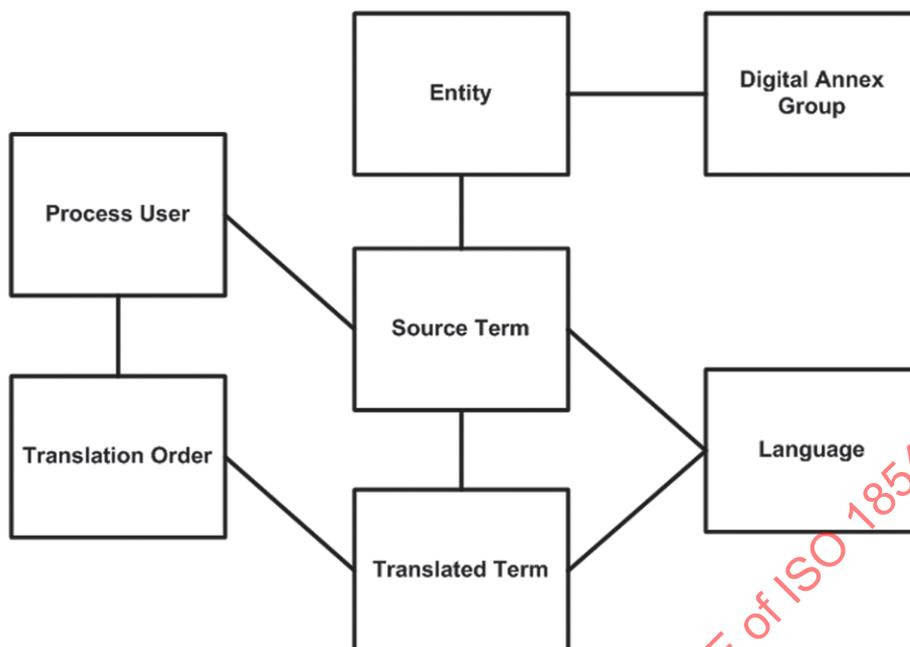
### 6.2 [1.2] Conceptual data and role models

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

**Table 4 — 1.2: Conceptual data and roles models**

<b>Requirement #3</b>	Conceptual data and roles models
<b>Requirement definition</b>	The data management layer shall be able to support the meta-objects model in accordance with the roles model.
<b>Brief description</b>	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 <i>contents of entity characteristics</i>	System generated	Administration	Proposal process	Translation process	Output process	Publication process
<b>Entity</b>	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		
<b>DA group</b>	DA Classification	Structured Text (Chassis,...)		X				
<b>Language</b>	Language	US-En (ENU); tbd: ISO-Coding ...						
<b>Source Term</b>	Source Term ID	Alphanumeric unique ID	X		X	X		
	Source Term Language	US-English			X	X		
	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			
<b>Translated Term</b>	Translated Term ID	Alphanumeric unique ID	X		X	X		
	Translated Term Language	Not US-English			X	X		
	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		
	Translated 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	
<b>Translation order</b>	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
<b>User</b>	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.

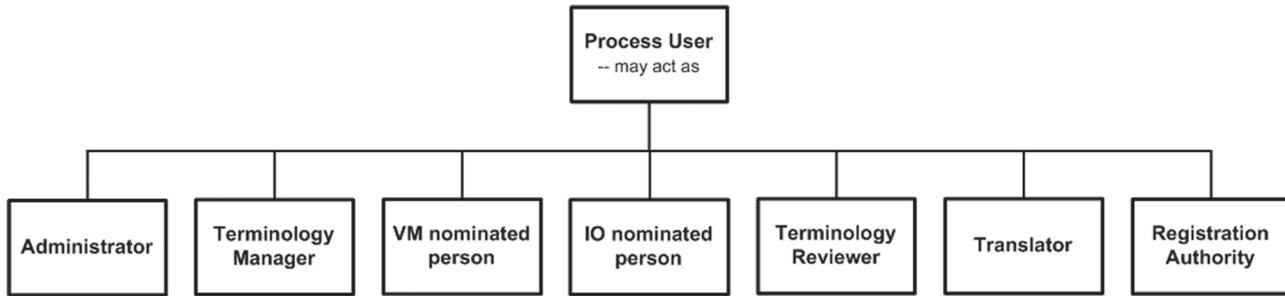


Figure 7 — 1.2: Roles Model

## 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

<b>Requirement #4</b>	Multi-user capability
<b>Requirement Definition</b>	The system shall allow multi-user access and concurrent sessions.
<b>Brief description</b>	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.
<b>Brief description classification</b>	Essential

Table 7 — 2.1: General IT infrastructure — Accessibility

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

<b>Requirement #6</b>	Web browser requirements
<b>Requirement Definition</b>	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.
<b>Brief description</b>	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.
<b>Brief description classification</b>	Essential

**Table 9 — 2.2: Infrastructure components — Server requirements**

<b>Requirement #7</b>	Server requirements
<b>Requirement Definition</b>	The server shall support the TMS and all necessary operations.
<b>Brief description</b>	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.).
<b>Brief description classification</b>	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**

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

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

<b>Requirement #9</b>	Locking of records
<b>Requirement Definition</b>	The system shall offer record locking functionality.
<b>Brief description</b>	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.
<b>Brief description classification</b>	Essential although alternative solutions are acceptable.

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

<b>Requirement #10</b>	Data life cycle support
<b>Requirement Definition</b>	The system shall support the full life cycle of proposals and terms and provide history, auditing and archiving functionality for the terminology workflow steps.
<b>Brief description</b>	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.
<b>Brief description classification</b>	Essential although alternative solutions are acceptable.

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

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

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

<b>Requirement #12</b>	Recovery support
<b>Requirement Definition</b>	The system must provide a backup / restore solution in the event of loss / corruption of data.
<b>Brief description</b>	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.
<b>Brief description classification</b>	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**

<b>Requirement #13</b>	Identity management
<b>Requirement Definition</b>	The system shall be used only by registered users.
<b>Brief description</b>	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.
<b>Brief description classification</b>	Essential.

**Table 16 — 2.4: Security — System login**

<b>Requirement #14</b>	System login
<b>Requirement Definition</b>	A login will be required to access the system and to perform any operation.
<b>Brief description</b>	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.
<b>Brief description classification</b>	Essential.

**Table 17 — 2.4: Security — Authentication**

<b>Requirement #15</b>	Authentication
<b>Requirement Definition</b>	Authentication of users shall be by a secure password to be entered at the login into the system.
<b>Brief description</b>	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.
<b>Brief description classification</b>	Essential.

**Table 18 — 2.4: Security — Authorization**

<b>Requirement #16</b>	Authorization
<b>Requirement Definition</b>	The system shall support a permissions model based on defined user roles.
<b>Brief description</b>	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.
<b>Brief description classification</b>	Essential.

**Table 19 — 2.4: Security — Roles and rights**

<b>Requirement #17</b>	Roles and rights
<b>Requirement Definition</b>	The system has to support roles and access rights in all workflow-steps in line with the term status model.
<b>Brief description</b>	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.
<b>Brief description classification</b>	Essential.

**Table 20 — 2.4: Security — System protection**

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

**Table 21 — 2.4: Security — Event logging**

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

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

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

<b>Requirement #21</b>	User interface language
<b>Requirement Definition</b>	The user interface shall be in US-English.
<b>Brief description</b>	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.
<b>Brief description classification</b>	Essential.

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

<b>Requirement #22</b>	Data model presentation
<b>Requirement Definition</b>	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.
<b>Brief description</b>	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.
<b>Brief description classification</b>	Essential.

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

<b>Requirement #23</b>	GUI field structure
<b>Requirement Definition</b>	The user interface offers fields with structured content with pick list selection and free editable fields.
<b>Brief description</b>	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.
<b>Brief description classification</b>	Essential.

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

<b>Requirement #24</b>	Use of names according to the standard
<b>Requirement Definition</b>	The names specified in the data and role model and in the ISO 18542-1 use cases shall be used for the GUI fields.
<b>Brief description</b>	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.
<b>Brief description classification</b>	Essential.

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

<b>Requirement #25</b>	Modification of pick lists
<b>Requirement Definition</b>	The GUI shall offer the functionality to add new items to existing pick lists.
<b>Brief description</b>	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.
<b>Brief description classification</b>	Essential.

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

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

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

<b>Requirement #27</b>	User-friendly error messages
<b>Requirement Definition</b>	User-friendly error messages shall be displayed in US-English.
<b>Brief description</b>	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.
<b>Brief description classification</b>	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**

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

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

<b>Requirement #29</b>	Email notification at status “communicated” (UC5 of ISO 18542-1)
<b>Requirement Definition</b>	All registered VM nominated persons shall be informed when new released terms are available for download.
<b>Brief description</b>	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”.
<b>Brief description classification</b>	Essential.

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

<b>Requirement #30</b>	Email notification to an applicant for a TMS account
<b>Requirement Definition</b>	To send a notification email as a response to a registration application request.
<b>Brief description</b>	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.
<b>Brief description classification</b>	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**

<b>Requirement #31</b>	Support of roles and status
<b>Requirement Definition</b>	The system shall offer the functionality to create and edit role and status names.
<b>Brief description</b>	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.
<b>Brief description classification</b>	Essential.

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

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

<b>Requirement #33</b>	Export functionality
<b>Requirement Definition</b>	The system shall support the export of terminology content to external systems in many different formats.
<b>Brief description</b>	<p>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.</p> <p>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.</p>
<b>Brief description classification</b>	Essential although alternative solutions are acceptable.

**Table 36 — 4.2: Data exchange — Import functionality**

<b>Requirement #34</b>	Import functionality
<b>Requirement Definition</b>	The system shall support the import of terminology content from external systems.
<b>Brief description</b>	<p>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.</p> <p>The system shall also support the creation, maintenance and management of user defined scripts for further processing of specific imported content.</p> <p>The use of the import functionality may be restricted to selected roles.</p>
<b>Brief description classification</b>	Essential although alternative solutions are acceptable.

**Table 37 — 4.2: Data exchange — Download functionality**

<b>Requirement #35</b>	Download functionality
<b>Requirement Definition</b>	The system shall support partial or full downloads of terms and data to the user clients.
<b>Brief description</b>	<p>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.</p> <p>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.</p> <p>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.</p> <p>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.</p>
<b>Brief description classification</b>	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**

<b>Requirement #36</b>	View functionality
<b>Requirement Definition</b>	The user shall be able to view the terminology content.
<b>Brief description</b>	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
<b>Brief description classification</b>	Essential.

**Table 39 — 4.3: Data management services — Search functionality**

<b>Requirement #37</b>	Search functionality
<b>Requirement Definition</b>	The user shall be able to search for a specific term in the terminology content.
<b>Brief description</b>	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.
<b>Brief description classification</b>	Essential.

**Table 40 — 4.3: Data management services — Display proposals**

<b>Requirement #38</b>	Display proposals
<b>Requirement Definition</b>	The system shall support the display of proposals and modified proposals including all associated metadata.
<b>Brief description</b>	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.
<b>Brief description classification</b>	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**

<b>Requirement #39</b>	Report creation
<b>Requirement Definition</b>	The system must provide sufficient functionality to create reports.
<b>Brief description</b>	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.
<b>Brief description classification</b>	Essential although alternative solutions are acceptable.

**Table 42 — 4.4: Reporting — Download facility for reports**

<b>Requirement #40</b>	Download facility for reports
<b>Requirement Definition</b>	Reports shall be downloadable in CSV format.
<b>Brief description</b>	Reports shall be downloadable in CSV format such that they can be further processed using common desktop tools such as Microsoft Excel.
<b>Brief description classification</b>	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**

<b>Requirement #41</b>	Terminology process support
<b>Requirement Definition</b>	Support of term proposal and term translation process.
<b>Brief description</b>	The system shall support the following use cases (UC3 and 4) of ISO 18542-1. <ul style="list-style-type: none"> <li>— Term Proposal</li> <li>— Term Evaluation</li> <li>— Term Review</li> <li>— Term Release</li> <li>— Order for Translation</li> <li>— Term Translation</li> <li>— Translated Term Released</li> </ul>
<b>Brief description classification</b>	Essential.

### 10.2 [5.2] Proposal

[Table 44](#) defines the requirements for a proposal.