
**Road vehicles — Standardized access
to automotive repair and maintenance
information (RMI) —**

**Part 3:
Functional user interface
requirements**

*Véhicules routiers — Normalisation de l'accès aux informations
relatives à la réparation et à la maintenance pour l'automobile
(RMI) —*

Partie 3: Exigences d'interface fonctionnelles pour l'utilisateur



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Contents

	Page
Foreword	iv
Introduction	v
1 Scope	1
2 Normative references	1
3 Terms, definitions, symbols and abbreviated terms	1
3.1 Terms and definitions	1
3.2 Abbreviated terms	1
4 Conventions	2
5 Requirements overview and principles	2
5.1 Basic principles for requirements definition	2
5.2 Navigational pathway from standardized use cases to VM-specific navigation position	2
5.3 VM RMI system standardized navigation	3
5.4 Requirements clusters	5
6 Requirements cluster 1 — Standardized access mode	7
6.1 [FREQ-1] RMI access mode	7
6.2 [FREQ-2] Registration and login support	7
7 Requirements cluster 2 — Use cases map	7
7.1 [FREQ-3] VM RMI system implemented use cases map	7
7.2 [FREQ-4] Download area	10
8 Requirements cluster 3 — Navigational pathway	10
8.1 [FREQ-5] Navigational pathway	10
Bibliography	12

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).

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).

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 18541-3:2013 was prepared by the European Committee for Standardization (CEN) Technical Committee CEN/TC 301, *Road vehicles*, 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 18541 consists of the following parts, under the general title *Road vehicles — Standardized access to automotive repair and maintenance information (RMI)*:

- *Part 1: General information and use case definition*
- *Part 2: Technical requirements*
- *Part 3: Functional user interface requirements*
- *Part 4: Conformance test*

Introduction

This set of standards 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[8] dated Brussels, 21 January 2008.

This mandate relates to the EC type-approval system for vehicles falling into the scopes of Directives 70/156/EEC (replaced by 2007/46/EC[11]), 2002/24/EC[9] and 2003/37/EC[10] and, in particular, to requirements for access to vehicle repair and maintenance information by independent operators.

This International Standard only covers access to automotive repair and maintenance information for light passenger, commercial vehicles (see NOTE 1) and heavy duty vehicles (see NOTE 2) based on Directive 70/156/EEC (replaced by 2007/46/EC[11]).

The purpose of the EC Mandate M/421[8] 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.

NOTE 1 Regulation (EC) No 715/2007 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 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 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.

NOTE 2 Regulation (EC) No 595/2009 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 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 amending Regulation (EU) No 582/2011 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).

The information included in this part of ISO 18541 derives from the legislative requirements on European level in the field of repair and maintenance information and related security requirements and can be referenced by legislation in other countries.

The vehicle manufacturer (VM) RMI website is accessible for independent operators (IOs) complying with the European CEN and ISO standards for accessing RMI. These standards have been defined in co-operation between VMs and IOs within the automotive industry.

This means practically that the user will be guided to the information he is searching for by, for example, entering the Vehicle Identification Number (VIN) of the vehicle and the type of information required.

The navigation has been constructed in such a way that users will find the information in a simplified way.

After logging in (requires registration) the user will be presented with options for accessing the RMI. The standardized access will be presented in the form of types of information which will guide the user to the information; at certain stages the user is requested to enter further data in order for the RMI system to correctly identify the information the user is searching for.

Users need to follow the guidance precisely in order to guarantee that the user will find the correct information that they require.

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Road vehicles — Standardized access to automotive repair and maintenance information (RMI) —

Part 3: Functional user interface requirements

1 Scope

This part of ISO 18541 includes functional user interface requirements related to automotive repair and maintenance information (RMI) systems in order to standardize access to RMI for independent operators.

This part of ISO 18541 specifies all functional user interface requirements related to a vehicle manufacturer's RMI system. These requirements will reflect the deriving needs from the use cases as specified in ISO 18541-1.

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

3 Terms, definitions, symbols and abbreviated terms

3.1 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO 18541-1 and the following apply.

3.1.1

artefact

one of many kinds of tangible by-products produced during the development of software

3.2 Abbreviated terms

AR	authorized repairer
FREQ-	functional user interface requirement
IO	independent operator
RMI	repair and maintenance information
VCI	vehicle communication interface
VM	vehicle manufacturer

4 Conventions

This part of ISO 18541 is based on the conventions discussed in the OSI Service Conventions (ISO/IEC 10731).

5 Requirements overview and principles

5.1 Basic principles for requirements definition

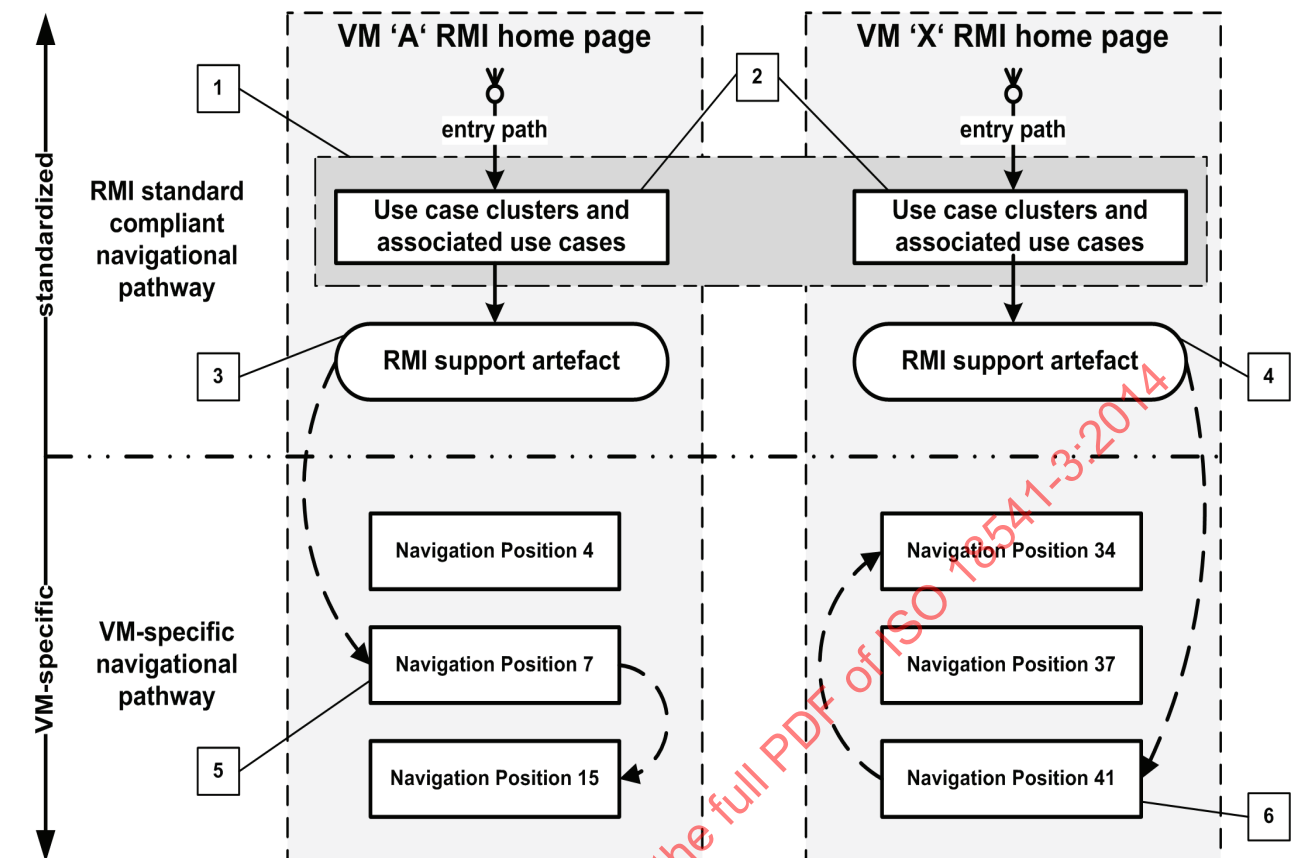
Basic principles have been established as a guideline to define the requirements.

- The requirements stated in this part of ISO 18541 shall not specify any implementation details.
- Requirements shall be expressed in terms of performance rather than design or descriptive characteristics. This approach leaves maximum freedom to technical development.
- The requirements shall allow for flexible navigational pathways for practical and state-of-the-art access to RMI in the VM websites.
- The requirements shall allow for concepts to be able to implement navigational principles to minimize the impact to the existing VM RMI systems.

5.2 Navigational pathway from standardized use cases to VM-specific navigation position

[Figure 1](#) illustrates the navigational pathway from use cases to VM-specific navigation position. Each VM RMI system starts with the RMI home page. If the user selects the “standardized navigation” the RMI system navigates to the VM-specific use cases implementation (see [Figure 1](#) key 2) as defined in ISO 18541-1. [Figure 1](#) keys 3 and 4 illustrate the VM-specific RMI support artefact.

The navigational pathway will not only lead the user to a navigated position but help the user to follow the implementation of the use case to obtain the output. The standardized use cases are logical use cases and shall not necessarily be implemented as a one-step transaction from input to output. A sequence of technical transactions may be needed to obtain the output. The complete input may not be required in the first transaction, but could be a step by step transaction sequence.



Key

- 1 common part for all VM RMI systems
- 2 VM-specific implementation of use cases as defined in ISO 18541
- 3 VM 'A' specific implementation of RMI support artefact guiding the IO from the standardized use cases map to the VM-specific entry points
- 4 VM 'X' specific implementation of RMI support artefact guiding the IO from the standardized use cases map to the VM-specific entry points
- 5 VM 'A' specific implementation to navigation position 7 (see key 5)
- 6 VM 'X' specific implementation to navigation position 41 (see key 6)

Figure 1 — Navigational pathway from standardized use cases to VM-specific navigation position

5.3 VM RMI system standardized navigation

This subclause explains the key numbers in Figure 2.

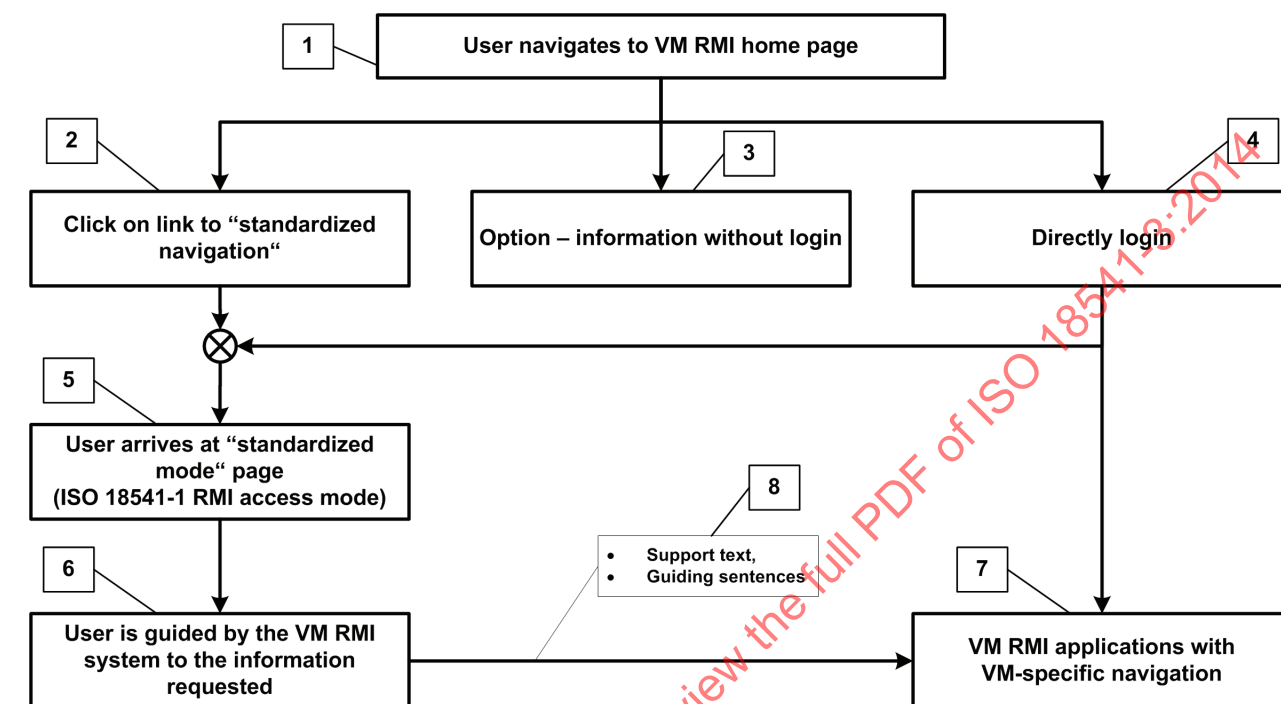
[Figure 2](#) depicts the different entry points for RMI offered to a user in the VM RMI home page (**key 1**).

In addition to a direct login (**key 4**) for frequent and experienced users of the specific VM RMI website an entry point (**key 2**) for navigation based on part 1 of this standard ISO 18541. Whereas the direct login leads the user directly to the applications, features and components of the specific VM RMI system and to the VM specific navigation there-in (**key 7**), the entry point / link for standard base navigation leads the user to a page (**key 5**) displaying the use cases of the standard part 1, the so called “use cases map” see No. 7.

Usually the user will be requested to login, before the “use cases map” is displayed. The VM may alternatively not require a login for displaying the use cases map but require the login once a use case in the map is selected. The VM may optionally offer some information parts without login (**key 3**).

The selection of a use case in the “use cases map” activates the RMI support artefact (**key 6**) for this specific RMI website, which provides guiding information (**key 8**) – support text and guiding instructions – to the applications, features and components of the specific VM RMI system and to the VM specific navigation there-in (**key 7**).

NOTE Regardless of the entry point chosen by the user the finally accessed RMI content and applications set is always the same.



Key

1-8 see explanations in 5.3

Figure 2 — VM RMI home page system entry point navigation

[Figure 3](#) illustrates the entry points the VM system shall offer in the VM RMI home page, a select box for login and a select box, link or button for the entry into the standard based navigation.

NOTE [Figure 3](#) is an illustration of the required content. Look-and-feel, position and other design attributes will follow the style guides of the specific VM RMI website.

VM RMI system

User Login

Username

Password

☐ Remember me

Login

Register here | Forgot Password

VM RMI system

Standardized Navigation

**Start
Standardized Navigation**

Figure 3 — VM RMI system with login and standardized navigation

5.4 Requirements clusters

Figure 4 illustrates the functional user interface requirements clusters. The figure shall provide an overview about all functional user interface requirements clusters and the specific functional user interface requirements. Each functional user interface requirement is identified by the mnemonic "FREQ-" and an alpha-numeric number. The name of the functional user interface requirement is descriptive for the area the requirement is related to.

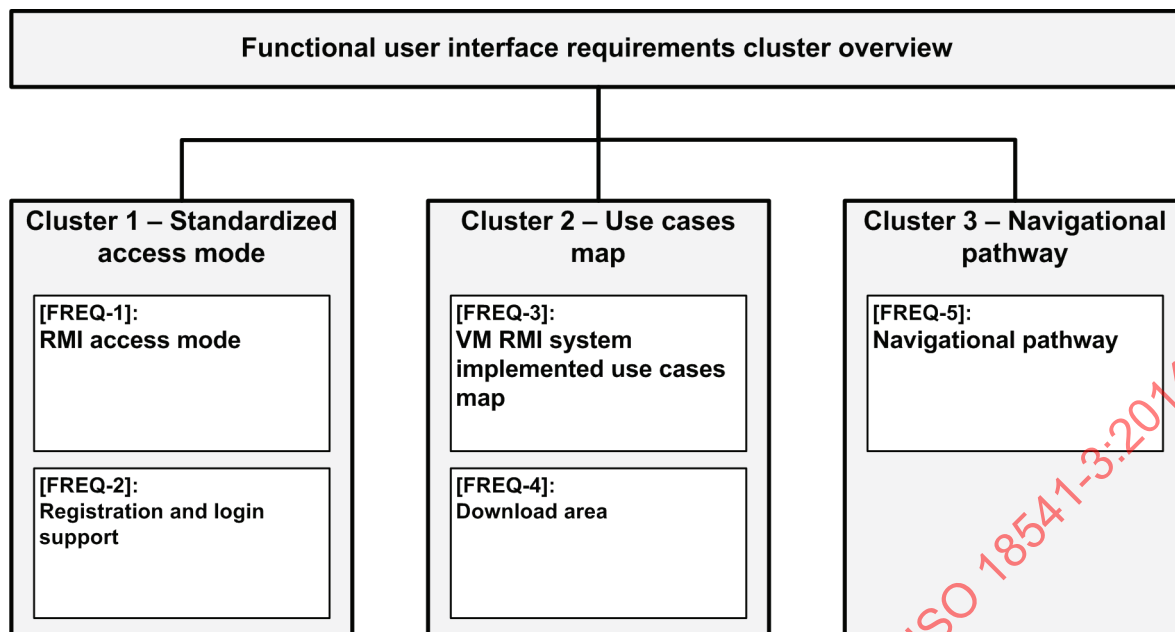


Figure 4 — Overview about functional user interface requirements clusters

Table 1 provides an overview of the main categories of standardized access to automotive RMI requirements. A requirement category shall have at least one requirement.

Table 1 — Main requirements clusters

# - Main title of cluster	Brief description	Functional user interface requirements [FREQ] reference
1 – Standardized access mode	This requirements cluster describes the functional user entry point for standard access to automotive RMI and registration and login support. Requirements related to cluster standardized access mode are — requirements for the ISO 18541-1 RMI access mode, — requirements for the registration and login support.	[FREQ-1] RMI access mode [FREQ-2] Registration and login support
2 – Use cases map	This requirements cluster describes which use cases have been implemented within the VM RMI system and the requirements for the download area according to ISO 18541-3. Requirements related to cluster use cases map are — requirements for the VM RMI system implemented use cases — requirements for the download area.	[FREQ-3] VM RMI system implemented use cases map [FREQ-4] Download area
3 – Navigational pathway	This requirements cluster describes how the user is able to navigate to the implemented use cases including the desired information. Requirements related to cluster navigational pathway are — requirements for the use case-based interactive navigation pathway.	[FREQ-5] Navigational pathway

6 Requirements cluster 1 — Standardized access mode

6.1 [FREQ-1] RMI access mode

[Table 2](#) defines the requirements for the ISO 18541-3 RMI access mode.

Table 2 — [FREQ-1] RMI access mode

REQ #	FREQ-1
Main title	Requirements for the ISO 18541-3 RMI access mode
Requirement definition	VM RMI systems home page shall contain a link or button to ISO 18541-3 RMI access mode called “Standardized Navigation”.
Brief description	Since IOs could have less knowledge than ARs about a VM RMI system structure, a link will be provided to help them to navigate in a standardized mode, common to all VMs. This standardized access mode will be in addition to the regular access mode of that specific VM RMI system, if different, so that expert users can use both ways, as they choose their preferred method.
Classification	Mandatory.

6.2 [FREQ-2] Registration and login support

[Table 3](#) defines the requirements for the registration and login support.

Table 3 — [FREQ-2] Registration and login support

REQ #	FREQ-2
Main title	Requirements for the registration and login support
Requirement definition	The VM RMI system shall support the user to register and to login to the system
Brief description	After first registration the VM RMI system allows the user to choose a username and assigns a first password to login to the system according to UC 1.1 (see ISO 18541-1). If the username is already in use the user needs to select an alternative. The username and password need to meet a minimum of requirements (e.g. minimum number of digits, one capital letter, one number). The user shall be allowed to change the password(s) to his choice. For security reasons it is allowed to have an expiry mechanism on the password. If the VM RMI system consists of applications that require a separate registration, the VM RMI system shall inform the user of the subsequent registration(s) for the specific application(s) required in a compact way. The registration requirements are as defined in use case 1.1 – use case input (see ISO 18541-1).
Classification	Mandatory.

7 Requirements cluster 2 — Use cases map

7.1 [FREQ-3] VM RMI system implemented use cases map

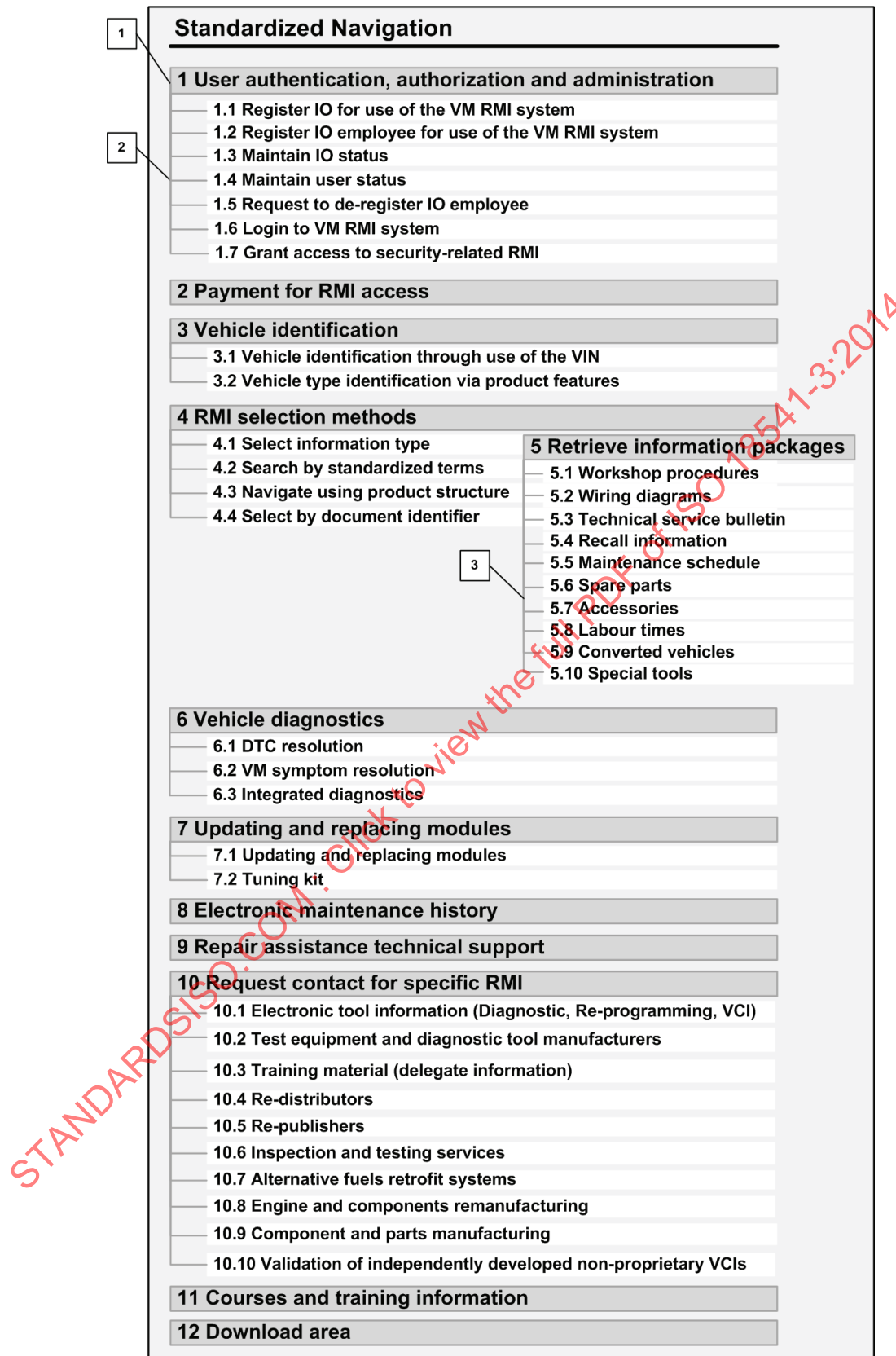
[Figure 5](#) illustrates the “use cases map”. The use cases map displays the relevant use cases defined in ISO 18541-1. In case some optional use cases are not supported in the specific VM RMI system, the VM shall indicate this in the map. The map will reflect the structure of the use cases as defined in ISO 18541-1. The map can be offered at once containing all use cases in a single page or offered following the use case structure in different pages for ease-of-use purposes.

The use case numbering shall be according to the use case identification in ISO 18541-1 (see key 1 and 2).

The use case titles in cluster 5 are exactly the content and result of use case “4.1 Select information type”; this means an entry “5 Retrieve information packages” might not be displayed explicitly in the list. The use cases in cluster 5 might be attached to use case 4.1 (see key 3).

NOTE [Figure 5](#) is an illustration of the required content. Look-and-feel, position and other design attributes will follow the style guides of the specific VM RMI website.

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**Key**

1-3 see figure description

Figure 5 — VM RMI system implemented use cases map

[Table 4](#) defines the requirements for the VM RMI system implemented use cases.

Table 4 — [FREQ-3] VM RMI system implemented use cases map

REQ #	FREQ-3
Main title	Requirements for the VM RMI system implemented use cases
Requirement definition	The standardized RMI access mode shall access to a page containing all use cases as defined in ISO 18541-1.
Brief description	In order to harmonize the navigational pathway of all VM RMI systems, the standardized RMI access mode will provide a link or context related navigation instructions to a use cases map. All relevant use cases, as defined in ISO 18541-1 shall be shown, with active link or context related navigation instructions to corresponding pages/applications within the VM RMI system. In case some optional use case is not implemented, according to ISO 18541-1, the map will reflect this information and no link will be present.
Classification	Mandatory.

7.2 [FREQ-4] Download area

[Table 5](#) defines the requirements for the download area.

Table 5 — [FREQ-4] Download area

REQ #	FREQ-4
Main title	Requirements for the download area
Requirement definition	The VM shall facilitate the download of applications to the IO client required for the usage of the RMI system
Brief description	The VM RMI system shall provide a “download” visual widget as part of the “Standardized Navigation Mode”. The visual widget shall enable and support the user to download to the IO client all the applications required for the usage of the system. The visual widget shall be in a visible position in the appropriate pages.
Classification	Mandatory only if manual download and installation of applications to the IO client are required for the particular VM system.

8 Requirements cluster 3 — Navigational pathway

8.1 [FREQ-5] Navigational pathway

[Table 6](#) defines the requirements for the VM RMI navigational pathway.