Technical Specification

ISO/TS 20077-3

Road vehicles — Extended vehicle (ExVe) methodology —

Part 3:
Upstream process to develop services

Véhicules routiers — Méthodologie du véhicule étendu (ExVe) —

Partie 3: Processus amont pour le développement de services

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Foreword

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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 document 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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This document was prepared by Technical Committee ISO/TC 22, *Road vehicles*, Subcommittee SC 31, *Data communication*.

A list of all parts in the ISO 20077 series can be found on the ISO website.

Any feedback or questions on this document should be directed to the user's national standards body. A complete listing of these bodies can be found at www.iso.org/members.html.

Introduction

There is a need to facilitate starting a process of requesting data and functions from the various interfaces of the extended vehicle as defined in ISO 20077-1.

It is indeed useful to help any requesting party to quickly find the right way to express their needs towards the right place or the right resource provider without wasting time due to the multiplicity of providers.

This document is intended to facilitate the communication process between independent stakeholders and vehicle manufacturers (VMs), whereby service providers (SPs) seek to acquire data for the purpose of developing services.

The proposed process and template aim at helping to initiate a request by independent stakeholders and/or SPs for data and functions made available by the VMs or their offering parties.

Road vehicles — Extended vehicle (ExVe) methodology —

Part 3:
Upstream process to develop services

1   Scope

This document describes the process to initiate and facilitate the communication between independent stakeholders and vehicle manufacturers (VMs), whereby service providers (SPs) express the intention to obtain data and functions access from the ExVe interfaces for the purpose of developing services. Data and functions of the vehicle are basic information that are key for the development of services for the vehicle owner, driver, and user. Vehicle data and functions, in this context, comprises onboard, offboard or a combination of the two.

This document, in conjunction with ISO 20077-1 and ISO 20077-2, describes the full process for the provision of data and functions access from the ExVe interfaces between the SP and the VM.

All the situations where requested data and functions are dedicated to internal development and design or product quality improvements from the VMs' and suppliers' side, when they are not acting as service providers, are excluded from this document. Also, commercial aspects are out of the scope of this document.

2   Normative references

There are no normative references in this document.

3   Terms and definitions

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

ISO and IEC maintain terminology databases for use in standardization at the following addresses:

— ISO Online browsing platform: available at https://www.iso.org/obp

— IEC Electropedia: available at https://www.electropedia.org/

3.1
extended vehicle
entity, still in accordance with the specifications of the *vehicle manufacturer (VM)* (3.5), that extends beyond the physical boundaries of the road vehicle and consists of the road vehicle, off-board systems, external interfaces, and the data communication between the road-vehicle and the off-board systems

Note 1 to entry: Road vehicles without off-board systems and road vehicles equipped with telematics units are extended vehicles.

Note 2 to entry: When referring to VM in this document, VM is not acting as a *service provider* (3.4) designer.

[SOURCE: ISO 20077-1:2017, 3.5, modified — Note 2 to entry added.]

3.2
supplier
entity that provides parts, products, materials, and services

3.3
resource
data, aggregated information, or functionalities of the connected vehicle

[SOURCE: ISO 20078-1:2021, 3.2.1, modified — Note 1 to entry has been deleted.]

3.4
service provider
entity that develops and/or provides services

Note 1 to entry: This can also be a *vehicle manufacturer (VM)* (3.5) when acting in this role.

Note 2 to entry: In this context it is the entity requesting data and *functions* (3.7).

3.5
vehicle manufacturer
person or body who is 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: When referring to VM in this document, the vehicle manufacturer is not acting as a *service provider* (3.4).

[SOURCE: Reference [6], article 3.27, modified — Note 2 to entry added.]

3.6
offering party
entity that provides access to *resources* (3.3)

Note 1 to entry: Each role could be implemented by the *vehicle manufacturer (VM)* (3.5) or other parties (e.g. IT web developers, contractor agencies, or third-party software developers).

[SOURCE: ISO 20078-1:2021, 3.1.3, modified — The phrase "web services access" has been replaced by "access" and the Note 1 to entry has been added.]

3.7
function
task, action, or activity that should be achieved to satisfy a functional requirement

EXAMPLE   KEY ON, ENGINE OFF.

Note 1 to entry: The same function may be used in several different use cases.

[SOURCE: ISO 20077-1:2017, 3.7]

3.8
availability
data and *functions* (3.7) are considered available when already produced by any ECU fitted in the vehicle and that at least one of the ExVe interfaces is capable to support and transmit

Note 1 to entry: This excludes data and functions dedicated to internal development and design or product quality improvements from *vehicle manufacturer (VM)* (3.5) and *supplier's* (3.2) side.

4   Abbreviated terms

B2B   business to business

ECU   electronic control unit

ExVe   extended vehicle

SP   service provider

SLA   service level agreement

VM   vehicle manufacturer

5   Initiating a request for data and functions

5.1   Introduction and motivation

SPs, for example providing mobility services, making requests to VM for access to vehicle data and functions, may provide the information as detailed in 5.6 to facilitate a fast and efficient response to such a request from the VM.

Requests that are accompanied by as much information as possible, more than is detailed in 5.6, would ensure the VM has sufficient information to deal with the request more expeditiously.

5.2   Easy finding of the right entry point to submit requests

VMs providing access to ExVe data and functions should ensure that appropriate contact and process information be displayed on the appropriate website and be readily findable by interested SPs.

To help finding the right web address thanks to any web search engine, it is recommended that VM uses at a minimum one of the key words contained in the list proposed in Annex B.

5.3   Identification form

The first step of this protocol consists of filling a form, available on the website of the VM (e.g. the RMI website). The form provides minimum information about the SP to allow the VM to identify immediately the profile of the company asking for access to data and functions (see Annex A).

A list of key words to retrieve the relevant contact via a search function is listed in Annex B.

5.4   Confidentiality

It is recommended that a mutual confidentiality agreement or a memorandum of understanding about mutual confidentiality is proposed by the VM to the SP to establish the conditions to protect Intellectual Property Rights by any official and regulatory procedure depending on the rules and the belonging countries of the parties (i.e. NDA if applicable).

5.5   Already available data and functions API catalogue

Due to the process of development of connected services, it may happen that more and more supplementary vehicle functions and data will be available without any additional need to follow the complete requesting process. In this case, easy access to a specific web area or site would expedite the data and functions provision.

5.6 Basic need expression

At this stage, using the template for technical request as defined in ISO 20077-2:2018, Annex A, the requesting party would be required to give minimum information that describes the use case(s) behind the request for data and functions in where this concerns safety and security functions.

5.7 Basic request analysis by the VM

Any request, in accordance with this document, shall be acknowledged by the VM within 15 working days from receipt of the initial request. The VM shall provide a subsequent and conclusive answer to the initial request within a reasonable time frame.

An update communication to the requestor should be sent with any details of progress. This update continues until the basic need analysis is completed and the process starts.

If for any reason the request for service cannot be carried out this should be communicated to the requestor, any refusal must be correctly and clearly justified. Likewise, should the requestor no longer wish to pursue the application, the VM should be notified accordingly.

5.8 Possibility to provide SP with data and functions

If it is not possible, for various technical, legal, or any other reasons, to provide these data and functions, then the VM shall justify it in a clear, timely and reasonable manner to the SP (see Figure 1, "NO" number 1).

— For instance, in case the data and functions are currently not available, the VM can provide an action plan to the SP by when the data and functions could be available.

If it is possible to provide the requested data and functions, then the VM and SP will engage in an iterative process of "co-design" ending when both parties reach the threshold of acceptability of compromises (see Figure 1, "YES" of the end iterative process).

This process consists of exchanging, among other things, on:

— the additional needs necessary to meet the requirements of the SP;

— the limits for considering the expressed needs;

— the VM and SP limits of acceptability for the offered services.

5.9 Service deployability

At the end of the iterative process, the two parties jointly examine the possibility of deploying the service.

a) If one of the two parties considers that the implementation of this service is not viable, it informs the other party, justifying its position (see Figure 1 "NO" number 2).

b) If the parties decide to deploy the service, then they potentially enter a contractual phase (see YES, bottom of Figure 1).

When the deployment is agreed b) then the VM will provide a technical solution in accordance with the ExVe principles (as described in ISO 20077-2).

NOTE   This document does not deal with the content of the potential contract, nor the conditions of a possible contract.

5.10 Need to amend the request

Based on the VM information, the output of the iterative co-conception process and the service viability:

a) the SP decides to re submit its self-reviewed need to the VM;

b) the SP decides to not re submit. Both parties initiate necessary actions to stop the process.

5.11 Reminder SLA (service level agreement)

It is recommended to apply the service level agreement (SLA) as specified in ISO/IEC 20000-1. This SLA will be the written document that explains the relationship, service targets and responsibilities of both sides:

— availability;

— quality of service (QoS), API for health checks;

— performance (e.g. maximum response times) -> metrics: MTTR, ASA (average speed to answer), etc.;

— security/privacy of the data (e.g. encrypting all stored and transmitted data);

— disaster recovery expectations (e.g., worse case recovery commitment);

— location of the data (e.g. consistent with local legislation) -> data security GDPR;

— access to the data (e.g. data retrievable from provider in readable format);

— process to identify problems and resolution expectations (e.g. call centre) -> service levels 1/2/3;

— change management process (e.g. changes – updates or new services);

— dispute mediation process (e.g. escalation process, consequences);

— reference ISO/IEC 20000-1.
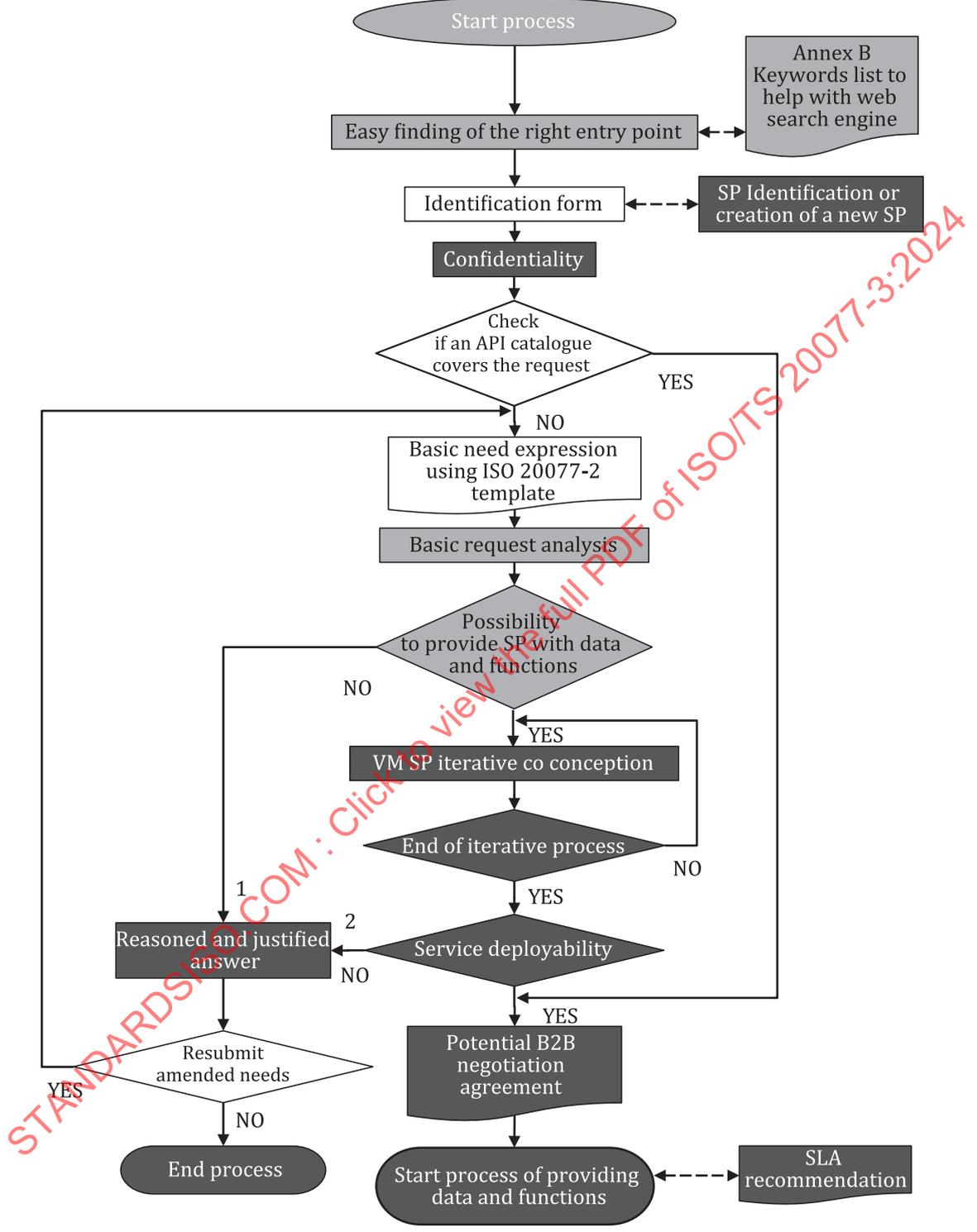
5.12 Start implementation of the service

If all details and specifications are drafted and agreed by VM and SP, the implementation can start.

5.13 Upstream process chart

Figure 1 describes the complete upstream process.

Initiating a request for ExVe data and functions

Figure 1 — Upstream process