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2013-03-15	4.1.1	AUTOSAR Administration	• Update of requirement numbering and layout of table according to the new template
2011-12-22	4.0.3	AUTOSAR Administration	• Extracted Project Objectives (UID 599) from Main Requirements (UID 054). • Major rework and update of all Project Objectives to (a) reflect current results and (b) the future focus of the project.

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Contents

1 Scope of the Document

Each AUTOSAR Partner has committed to the top level project objectives (PO) of AUTOSAR.

The project objectives are the top level requirements of the AUTOSAR standard and get further refined in order to get broken down into the specific technical requirements. For this purpose, the AUTOSAR Project Objectives are established as a fundamental base to derive these specific requirements.

The term AUTOSAR is used as a synonym of the development partnership and the technical product AUTomotive Open System ARchitecture.

2 How to read this document

Each project objective has its unique identifier starting with the prefix "RS_PO_" (for "Requirements of Project Objectives"). For any review annotations, remarks or questions, please refer to this unique ID rather than chapter or page numbers.

2.1 Conventions used

In requirements, the following specific semantics are used (taken from Request for Comment RFC 2119 [1] from the Internet Engineering Task Force IETF).

The representation of requirements in AUTOSAR documents follows the table specified in [TPS_STDT_00078], [2].

The key words "MUST", "MUST NOT", "REQUIRED", "SHALL", "SHALL NOT", "SHOULD", "SHOULD NOT", "RECOMMENDED", "MAY", and "OPTIONAL" in this document are to be interpreted as follows.

Note that the requirement level of the document in which they are used modifies the force of these words.

- MUST: This word, or the adjective "LEGALLY REQUIRED", means that the definition is an absolute requirement of the specification due to legal issues.

- MUST NOT: This phrase, or the phrase "MUST NOT", means that the definition is an absolute prohibition of the specification due to legal issues.

- SHALL: This phrase, or the adjective "REQUIRED", means that the definition is an absolute requirement of the specification.

- SHALL NOT: This phrase means that the definition is an absolute prohibition of the specification.

- SHOULD: This word, or the adjective "RECOMMENDED", means that there may exist valid reasons in particular circumstances to ignore a particular item, but the full implications must be understood and carefully weighed before choosing a different course.

- SHOULD NOT: This phrase, or the phrase "NOT RECOMMENDED", means that there may exist valid reasons in particular circumstances when the particular behavior is acceptable or even useful, but the full implications should be understood and the case carefully weighed before implementing any behavior described with this label.

- MAY: This word, or the adjective "OPTIONAL", means that an item is truly optional. One vendor may choose to include the item because a particular marketplace requires it or because the vendor feels that it enhances the product while another vendor may omit the same item.

An implementation, which does not include a particular option, SHALL be prepared to interoperate with another implementation, which does include the option, though perhaps with reduced functionality. In the same vein an implementation, which does include a particular option, SHALL be prepared to interoperate with another implementation, which does not include the option (except, of course, for the feature the option provides.)

3 The AUTOSAR project objectives

This chapter describes the project objectives of AUTOSAR. They are used as the basis for further refinement into the AUTOSAR Main Requirements which drive the specific technical requirements to build the AUTOSAR standard. Besides these technical requirements, there are non-technical requirements, such as new business model etc., which are not considered in the project objectives.

3.1 [RS_PO_00001] AUTOSAR shall support the portability of software.

[RS_PO_00001] AUTOSAR shall support the portability of software. ⌈

Description:	AUTOSAR shall enable OEMs and suppliers to deploy software across the vehicle network and to reuse software.
Rationale:	Deployment and reuse of software across the vehicle network allows overall system scaling and optimization.
	Redevelopment of software is expensive and error prone.
Use Case:	Application software is reusable across different product lines and OEMs.
	Scaling and optimizing of vehicle networks by transferring application software.
	Basic software is reusable across different ECUs and domains.
Dependencies:	[RS_PO_00003], [RS_PO_00004], [RS_PO_00007]
Supporting Material:	–

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3.2 [RS_PO_00002] AUTOSAR shall support the scalability to different architectures and hardware variants.

[RS_PO_00002] AUTOSAR shall support the scalability to different architectures and hardware variants. ⌈

Description:	AUTOSAR shall provide mechanisms to develop systems, which can be adapted to different vehicles, platforms and ECU hardware capabilities.
Rationale:	Software functions can be used in ECUs with different hardware characteristics.
Use Case:	Integration of an application on a different or updated hardware platform
	Development of an application which can be configured to be integrated on different vehicles.
Dependencies:	–

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Supporting Material:	–

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3.3 [RS_PO_00003] AUTOSAR shall be domain agnostic.

[RS_PO_00003] AUTOSAR shall be domain agnostic. ⌈

Description:	AUTOSAR shall be functional domain agnostic
Rationale:	A common architecture across the functional domains allows the relocation of software components across domains.
Use Case:	Applying the same software systems to multiple areas
Dependencies:	[RS_PO_00001]
Supporting Material:	–

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3.4 [RS_PO_00010] AUTOSAR shall support data exchange with non AUTOSAR systems.

[RS_PO_00010] AUTOSAR shall support data exchange with non AUTOSAR systems. ⌈

Description:	AUTOSAR shall support data exchange with non AUTOSAR systems.
Rationale:	It increases the degree of freedom at generating the E/E system.
Use Case:	Communication of AUTOSAR ECUs with infotainment ECUs.
Dependencies:	[RS_PO_00001]
Supporting Material:	–

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3.5 [RS_PO_00004] AUTOSAR shall define an open architecture for automotive software.

[RS_PO_00004] AUTOSAR shall define an open architecture for automotive software. ⌈

Description:	AUTOSAR shall define an open architecture for automotive software which can be maintained, adapted and extended.
Rationale:	Findings from the application of AUTOSAR require maintaining AUTOSAR. Future requirements will increase the necessity to further evolve AUTOSAR. Only common functionality will be standardized by AUTOSAR. Therefore the architecture shall be extendable without comprising fundamental principles of the architecture.
Use Case:	Adaption to new technologies e.g. from silicon industry and software industry, Integration of drivers for specific hardware.
Dependencies:	[RS_PO_00001], [RS_PO_00005]
Supporting Material:	–

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3.6 [RS_PO_00005] AUTOSAR shall support the development of dependable systems.

[RS_PO_00005] AUTOSAR shall support the development of dependable systems. ⌈

Description:	Dependable systems are characterized by the following attributes: • Availability: readiness for correct service • Reliability: continuity of correct service • Safety: absence of unreasonable risk • Integrity: mechanisms to inhibit improper system alteration • Maintainability: ability to undergo modifications and repairs • Security: protecting automotive software systems from unauthorized access, use, disclosure, disruption, modification, perusal, inspection, recording or destruction which shall be supported by AUTOSAR.
Rationale:	Numerous functions in the automotive domain have requirements on functional safety and/or availability. Automotive systems are characterized by long product life cycles and short reaction times when the need for updates and upgrades comes up.

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Use Case:	Software updates and upgrades.
	Exchange of hardware platforms.
Dependencies:	[RS_PO_00004]
Supporting Material:	ISO 26262 [3],
	SOTIF ISO-PAS 21448 [4],
	SAE J3061,
	ISO/SAE 21434 [5]
	UN/ECE/TRANS/WP-29

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3.7 [RS_PO_00007] AUTOSAR shall enable the collaboration between partners.

[RS_PO_00007] AUTOSAR shall enable the collaboration between partners. ⌈

Description:	AUTOSAR shall enable the collaboration between partners by standardized data exchange formats and support the integration of basic software and application software from various partners on a single ECU via a middleware and across the vehicle network.
Rationale:	The automotive domain is characterized by collaborations between various partners.
	Coordination of e.g. interface and parameter definitions is an ongoing challenge in distributed development projects.
	In many ECUs software from different suppliers has to be integrated.
Use Case:	Collaborations between partners (e.g. OEMs, System, Software, Hardware and Tool Suppliers).
Dependencies:	[RS_PO_00001]
Supporting Material:	–

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3.8 [RS_PO_00009] AUTOSAR shall support applicable international automotive standards and state-of-the-art technologies.

[RS_PO_00009] **AUTOSAR shall support applicable international automotive standards and state-of-the-art technologies.** ⌈

Description:	AUTOSAR results shall be compliant to existing and applicable international automotive standards and state-of-the-art technologies.
Rationale:	Enable AUTOSAR to be used in todays and future systems. Support is required to ensure interoperability with existing standards. AUTOSAR results should be compliant to relevant standards and applicable state-of-the-art-technologies.
Use Case:	Support of existing and future bus systems (CAN, FlexRay, etc.). Support of relevant ISO/SAE/IEC Standards and UN-ECE.
Dependencies:	–
Supporting Material:	–

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4 References

[1] Key words for use in RFCs to Indicate Requirement Levels
http://www.ietf.org/rfc/rfc2119.txt

[2] Standardization Template
AUTOSAR_FO_TPS_StandardizationTemplate

[3] ISO 26262 (all parts) – Road vehicles – Functional Safety
https://www.iso.org

[4] ISO/PAS 21448:2019 – Road vehicles – Safety of the intended functionality
https://www.iso.org

[5] ISO 21434:2021 – Road vehicles – Cybersecurity engineering
https://www.iso.org

5 Change History

Please note that the lists in this chapter also include requirement items that have been removed from the specification in a later version. These requirement items do not appear as hyperlinks in the document.

5.1 Change History of this document according to AUTOSAR Release R23-11

5.1.1 Added Requirements in R23-11

Number	Heading
[RS_PO_00001]	AUTOSAR shall support the portability of software.
[RS_PO_00002]	AUTOSAR shall support the scalability to different architectures and hardware variants.
[RS_PO_00003]	AUTOSAR shall be domain agnostic.
[RS_PO_00004]	AUTOSAR shall define an open architecture for automotive software.
[RS_PO_00005]	AUTOSAR shall support the development of dependable systems.
[RS_PO_00007]	AUTOSAR shall enable the collaboration between partners.
[RS_PO_00009]	AUTOSAR shall support applicable international automotive standards and state-of-the-art technologies.
[RS_PO_00010]	AUTOSAR shall support data exchange with non AUTOSAR systems.

Table 5.1: Added Requirements in R23-11

5.1.2 Changed Requirements in R23-11

5.1.3 Deleted Requirements in R23-11