

VDA QMC

Verband der Automobilindustrie
Qualitäts-Management-Center

6 Part 8

Quality Management in the Automotive Industry

Supply Chain Process Audit

1st edition, May 2024
Online download document

Quality Management
in the Automotive Industry

Supply Chain Process Audit

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Verband der Automobilindustrie e. V. (VDA)

ISSN 0943-9412

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Verband der Automobilindustrie e. V. (VDA)
Qualitäts Management Center (QMC)
10117 Berlin, Behrenstr. 35

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Translations

This publication will also be issued in other languages. The current status must be requested from VDA QMC.

Preface

VDA Volume 6.8 is an international quality standard for minimizing risks in the overall supply chain. Its purpose is the standardization, stabilization, optimization and safeguarding of logistical processes.

This volume was written while taking into account the requirements of the OEMs, suppliers and logistical service providers.

VDA 6.8 fills in the gap left by the omission of the service questions (chapter 8) in VDA 6.3. It covers current topics such as information security and ESG requirements.

The requirements of the Global MMOG/LE are also covered, making VDA 6.8 and the Global MMOG/LE similar in content.

This volume seamlessly fits into the VDA-6.x family and presents a focus on the supply chain.

The key features of VDA 6.8 are:

- a clear focus on supply chain processes
- use of the turtle system for the entire questionnaire
- structured procedure for the analysis of the processes
- use of the established evaluation system
- designation of a critical path, incl. clear downgrading rules
- identification of special risks in the supply chain
- (questions marked with *, i.e. an asterisk)
- a clear presentation of the results of the process evaluation (A, B or C)
- worldwide comparability of the results for supply chain processes
- potential analysis for evaluating the suitability of new suppliers/service providers prior to contract award
- provision of a self-assessment for internal evaluation and for exchanges with customers

The VDA 6.8 process audit is integrated into a company's QM system and can help fulfil the requirements of VDA 6.2.

The VDA 6.8 process audit is part of the VDA 6.x family:

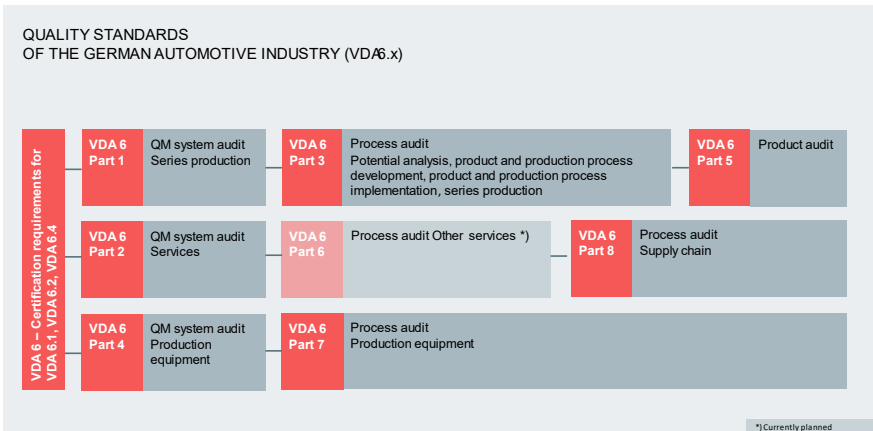


Figure 0-1: Overview of volumes in the VDA-6.x family

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1 Introduction

VDA 6.8 is an initial document version. This was made necessary by the revision of VDA 6.3:2023 and the omission of the service questions (chapter 8).

Delineation between VDA 6.8 and VDA 6.3:

- no application for processes for the manufacture and development of goods
- clear focus on processes along the supply chain
- extension of the risk-based approach to auditing
- structuring of the questionnaire for all elements according to the turtle system
- separate evaluation of the *-questions
- inclusion of a self-assessment
- no application of downgrading rules for sub-elements

What has remained the same?

- The classification system (A, B, C) for the overall assessment
- The structure of the questionnaire
- The evaluation model for the individual questions (10-8-6-4-0)
- The applicability of process elements
- The turtle model in general

Through the application of VDA 6.8, the various company-specific requirements can be omitted, and comparable results can be achieved in the evaluation of supply chain processes.

The requirements of the Global MMOG/LE are covered, making the contents comparable. Results (A/B/C evaluation) of a Global MMOG/LE audit are comparable in content and are mutually recognized.

Due to the new edition and adjustment of the evaluation system, audit results of the VDA-6.3-D-Part are not comparable.

2 Instructions for use

2.1 Scope of the volume

The VDA-6.8 audit standard describes a method for impartial analysis and evaluation of the supply chain. It covers processes for planning, realization and effective implementation. Auditing according to the VDA 6.8 standard complies with ISO 19011.

The VDA 6.8 process audit can be applied both internally and externally in the entire supply chain and complies with the requirements of VDA 6.2 and ISO 9001. The 6.8 process audit is suitable for small or medium-sized companies as well as large corporations.

The term “supply chain” refers to the entire process of handling and delivering goods or services from the initial phase of procuring or producing raw materials to final consumption by the final consumer. The supply chain comprises a network of various organizations, activities, resources, information and technologies which are all involved in the production and distribution of goods or services.

Logistics does play a key role within the supply chain but is more specific and operative and focuses on sub-areas. It deals specifically with the physical movement and coordination of goods within the wider supply chain framework.

In general, this volume can be used throughout the entire supply chain. In this regard, a distinction is made between potential analysis and process audit.

When conducting the 6.8 supply chain audit, the selection of process elements and the implementation period may vary.

During series production, the process audit serves to ensure regular monitoring of the supply chain processes (sustainable supply) and can also be used on an event-oriented basis.

The aim of the supply chain audit is to determine whether the process/process steps fulfill process requirements and specifications within the supply chain. Any discrepancies detected are evaluated in accordance with a points system with regard to the process/product risk and are documented as audit findings. The objective is to determine to what extent non-compliant

supply chain processes are to be expected based on the audit findings and to identify the associated risks.

If any (asterisk) questions are added or deleted, or if any changes are made to the evaluation method, an audit cannot be considered a VDA 6.8 audit any more, as the evaluation systems are not comparable any more.

Specific evaluation questions relating to ESG requirements, compliance with social standards, occupational safety, etc. are not included in the questionnaire. There are special audit standards as well as statutory, regulatory and normative specifications for this.

However, should the auditor identify obvious aspects which are not in compliance with the requirements of this supply chain audit standard and/or which have a lasting negative effect on the quantities and/or product characteristics, this should be documented and taken into account in the evaluation.

A selection of audit standards is listed in the following table:

Table 2-1: Differentiation between audit standards

System audit standards	Process audit and assessment standards	Audit standards not related to quality
IATF 16949	VDA 6.3	Occupational safety
ISO 9001	VDA 6.7	Fire protection
VDA 6.1	VDA 6.8	Data security
VDA 6.2	VDA Field Failure	Energy management
VDA 6.4	Analysis & Audit	Supply Chain Act
	Standard	Logistics
	-----	Human rights
	VDA Automotive	Sustainability
	SPICE® Guidelines	Social standards
	VDA Automotive	Animal welfare
	SPICE® for	Environmental protection
	Cybersecurity	
	VDA Automotive	
	SPICE® Potential	
	Analysis	

2.2 Integration into the supply chain

The VDA 6.8 audit standard can be applied to logistical processes along the entire supply chain, from project management, project planning and implementation (L1 and L2) to the selection of suppliers and service providers (L3), the procurement of materials (L4), operative logistics (L5 transport logistics and L6 in-house logistics) and all the way to customer management (L7). Thanks to the modular structure of the volume, individual process elements can also be audited depending on the scope to be considered.

Figure 2-1 presents an overview of the individual process elements as per VDA 6.8:

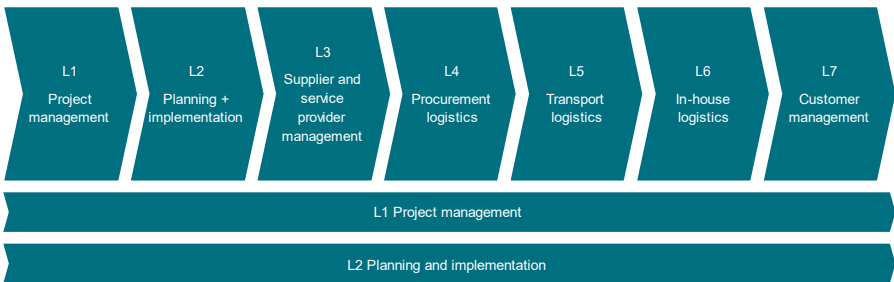


Figure 2-1: Overview of the individual process elements as per VDA 6.8

Project management (L1) describes the planning, organization and management of a project in order to achieve a previously determined target or result. Among other things, it includes:

- Project definition
- Project planning
- Change management

Project planning and implementation (L2) is based on comprehensive project management in which all planning-related dimensions and deadlines are observed and directed in a targeted manner.

Supplier and service provider management (L3) is a process for assessing, selecting and (further) developing suppliers/service providers of a company. Among other things, it includes supplier/service provider:

- assessment

- selection
- complaints
- development

Process elements L1 to L3 can be used both for new processes (“Greenfield”) and existing processes (“Brownfield”).

Process elements L1 to L3 can be audited either together or separately in the early stages of a project, e.g. in Greenfield projects. Process elements L4 to L7 can be applied to the auditing of pre-series-production and series production processes.

Procurement logistics (L4) includes the planning, monitoring and control of physical and information-oriented services – from the supplier/service provider to provision. The objective is to ensure material supply in accordance with quantity, time and quality requirements.

Transport logistics (L5) deals with the transport of goods to the recipient and seeks to utilize the cargo space optimally, sustainably and in compliance with quality standards while minimizing costs. Another goal of transport logistics is the timely delivery of the goods to the recipient.

In-house logistics (L6) is the part of production logistics which deals with in-house transport from the warehouse to the production floor. The main tasks include the planning, monitoring and control of physical and information-oriented services within production. For warehouse logistics, processes are defined in the storage and transport operations for the planning, control and monitoring of company and third-party goods. The objective is to ensure quality-compliant storage and handling of all goods from receipt to dispatch.

Customer management (L7) refers to the systematic maintenance and development of customer relations by a company. Among other things, it includes customer:

- communication
- satisfaction
- support

Process elements L4 to L7 focus primarily on existing processes (e.g. “Brownfield”) but can also be used in line with a potential analysis.

A VDA 6.8 process audit can be triggered by, among others:

- Supplier/service provider/location without audit classification as per VDA 6.8
- Repeat audits
- Preventively in line with continuous process improvement
- As needed, in case of process performance issues, especially in conjunction with customer-specific requirements

In principle, each user/organization has the right to adapt the use of the process elements so as to meet their needs.

2.3 Identification of supply chain process risks (risk analysis)

In the process audit, the effect on the process result is decisive. The assessment is done from the risk perspective. Potential process risks must therefore already be identified during the preparation for the audit (e.g. operational, financial, legal, strategic risks) in order to assess them adequately in the process audit itself.

A risk analysis can be performed based on the turtle model:

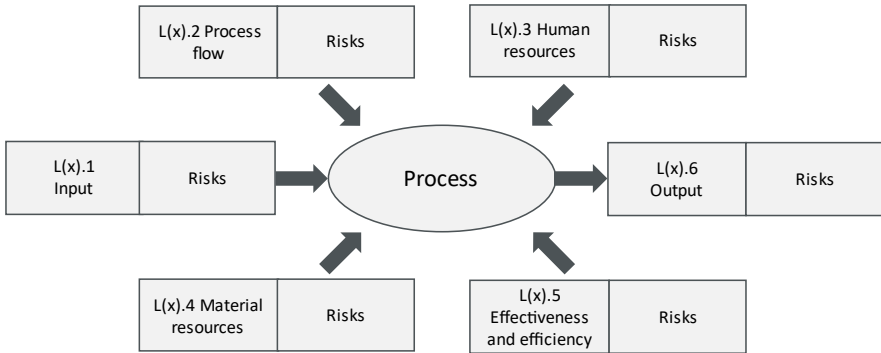


Figure2-2: turtle model

The elements of the turtle model are based on the following questions:

- L(x).1 Input: What goes into the process?
- L(x).2 Process flow: How does the process work?
- L(x).3 Human resources: What departments, roles, persons support the process?
- L(x).4 Material resources: What resources are used to implement the process?
- L(x).5 Effectiveness and efficiency: How effectively is the process being carried out?
- L(x).6 Output: What is the process result?

The first step is to describe what “input” is converted into an “output” by the process.

In the second step, the potential risks in relation to the contents of the turtle elements are identified. The auditor as well as the audit team should make use of their process know-how to identify potential product and process risks that could affect process quality. These potential risks must then be analyzed and evaluated in the audit. This ensures a reasonable degree of risk minimization. Based on the turtle model, it is possible to set priorities in a targeted manner.

3 Requirements for process auditors

3.1 Auditor qualification

Auditor qualification is of vital importance when it comes to achieving the audit objectives. The quality and comparability of audit results are greatly influenced by the qualification of the auditors. In addition to the qualification criteria of each organization, the following minimum requirements, the requirements according to ISO 19011 as well as customer-specific and further external requirements should be taken into account. The organization determines and documents the procedure for auditor evaluation including the approval, maintenance and improvement of auditor qualifications (e.g. observation during audits/approval and witness audits).

3.1.1 Internal process auditors

Specialized knowledge

- Advanced knowledge of logistical processes, concepts and the associated risks (e.g. FMEA, turtle)
- Proficiency in the application logistical IT solutions (software, hardware and hosting)
- Knowledge of quality tools and methods (e.g. 8D, 5W, Ishikawa, PDCA)
- Auditor qualification knowledge based on ISO 19011 (e.g. negotiation, conflict management, audit procedure, audit documents)
- Knowledge of the relevant management system requirements (e.g. ISO 9001, VDA 6.2)
- Knowledge of the relevant customer-specific requirements

Certificates/records

- Knowledge of problem-solving techniques or corresponding practical experience
- Successful participation in a VDA 6.8 training course

Professional experience

At least 3 years of professional experience (in-house training and continuing education times and/or degree with emphasis on logistics/supply chain can be considered), of which at least 1 year should be in logistics-related activities (preferably same as process elements L1-L7).

3.1.2 Supplier auditors

Specialized knowledge

- Advanced knowledge of logistical processes, concepts and the associated risks (e.g. FMEA, turtle)
- Proficiency in the application logistical IT solutions (software, hardware and hosting)
- Knowledge of Global MMOG/LE and VDA 6.3
- Good command of quality tools and methods (e.g. 8D, 5W, Ishikawa, PDCA)
- Auditor qualifications (negotiation, conflict management, audit procedure, audit documents)
- Knowledge of the relevant management system requirements (e.g. ISO 9001, VDA 6.2)
- Knowledge of the relevant customer-specific requirements

Certificates/records

- Auditor qualification based on ISO 19011 (at least three days)
- Knowledge of problem-solving techniques or corresponding practical experience
- Successful participation in a VDA 6.8 training course
- Evidence of ability to apply the theoretical knowledge in practice in all relevant logistical process steps (e.g. audit report)

Professional experience

At least five years of professional experience in an industrial company, of which at least two years should be in logistics-related areas of activity (see chapter 3.2, preferably same as process elements L1-L7).

3.1.3 Certified process auditors

Certified process auditors receive an official VDA certificate after passing the oral and written VDA 6.8 exam. They are able to perform audits as contracted service providers for an independent, third-party organization.

Specialized knowledge

- Advanced knowledge of logistical processes, concepts and the associated risks (e.g. FMEA, turtle)

- Proficiency in the application logistical IT solutions (software, hardware and hosting)
- Knowledge of Global MMOG/LE and VDA 6.8
- Good command of quality tools and methods (e.g. 8D, 5W, Ishikawa, PDCA)
- Auditor qualifications (negotiation, conflict management, audit procedure, audit documents)
- Knowledge of the relevant management system requirements (e.g. ISO 9001, VDA 6.2)
- Knowledge of the relevant customer-specific requirements

Certificates/records

- Auditor qualification based on ISO 19011 (at least three days)
- Knowledge of problem-solving techniques or corresponding practical experience
- Successful participation in a VDA 6.8 training course and successfully passed exam
- Evidence of ability to apply the theoretical knowledge in practice in all relevant logistical process steps (e.g. audit report)

Professional experience

At least five years of professional experience in an industrial company, of which at least two years should be in logistics-related areas of activity (see chapter 3.2, preferably same as process elements L1-L7). In-company training periods in conjunction with a completed dual education, e.g. as a warehouse logistics specialist and/or advanced education, e.g. Bachelor of Professional Logistic Management are credited at 50%. A degree in Logistics/Supply Chain is credited at 25%.

3.2 Process-related knowledge of the auditors

The quality of an audit is determined to a large extent by the process-related knowledge of the auditors. There are various ways to gain this knowledge and to use it during an audit. This can for example be done by:

- Getting experts involved when evaluating product/process-specific aspects, if the process auditor does not have the necessary expertise

- Auditors doing their own research prior to the audit, e.g. by consulting specialist literature, online forums and industry standards as well as knowledge databases
- Coordination with internal and external experts
- Drawing conclusions from previous comparable audits, e.g. Global MMOG/LE

In addition to general process expertise, knowledge of supply chain processes is very important. This knowledge can be derived from the following:

- Documented auditing of logistical processes
- Leading or controlling activities within the supply chain (procurement, production, transport, stock keeping, customer management)
- Creation of supply chain concepts
- Approval or control of logistical service providers/suppliers
- Degree or training/continued education with a focus on logistics/supply chain
- Network and community building among auditors, e.g. through professional associations or conferences

To record and expand process expertise or knowledge in the area of logistics/supply chain, it is recommended to set up a knowledge database. The sources of such knowledge can for example be typical errors that have occurred or internal lessons learned. It must be ensured that information (from the customer, from the supplier, or from within the organization) remains confidential.

In addition, it should be noted that questions resulting from the knowledge database do not lead to any additional requirements beyond those contractually agreed. Knowledge databases can for example be made available in the form of Wikis or process-related lists.

3.3 Code of conduct for auditors

- Process auditors must use their professional skills and judgment while respecting the law and upholding the principles of honesty and integrity.
- Process auditors must continually develop their expertise. They maintain their knowledge and skills with respect to audit procedures, QM systems, goods and processes as well as specialized methods, procedures and relevant standards. They must be familiar

with the quality requirements, the specific risks in relation to the processes they audit, and the possible impact on the respective manufactured goods.

- Process auditors must always behave in a way that does not endanger the image and reputation of their own organization.
- Process auditors should only accept assignments that would not result in any conflict of interests for them.
- Process auditors must only accept assignments that they can carry out properly based on their expertise.
- Process auditors are bound to secrecy regarding confidential information that they have acquired through their professional activities.

4 Notes on conducting remote audits

Process audits according to the present VDA 6.8 audit standard are generally conducted on site. Taking risks factors/influencing factors for auditors, auditees as well as processes into account, remote and/or hybrid audits can in individual cases be carried out. The organization conducting the audit bears overall responsibility for planning the scope/the elements of the audit and selecting the audit method, provided that the customer has not stipulated otherwise. It is advisable to define a company-specific procedure for internal and external audits.

4.1 Definition of a remote audit

Remote audits are defined in ISO 19011 under the term “remote audits” and can be conducted internally as well as externally, like on-site audits.

4.2 Definition of a hybrid audit

Hybrid audits are a combination of a remote audit and an on-site audit.

4.3 Instructions for use

Generally, remote audits cannot constitute a full process audit (L1-L7) in accordance with VDA 6.8. This is due to a lack of transparency during the audit process and due to technical, legal and data protection issues. The same goes for the performance of potential analyses which can only under certain conditions be conducted without an on-site visit to the supplier/service provider. However, provided that risk factors/influencing factors are taken into account, hybrid audits can be considered full audits. The “2/3 rule” regarding the number of evaluation questions is still applied. The privacy and confidentiality requirements remain the same, regardless of whether the audit being planned and conducted is remote/hybrid or on-site. In particular, taking pictures or making videos/audio recordings is not allowed unless both parties have given their express consent.

4.4 Classification of the audit methods based on existing risk factors / influencing factors

An audit should not potentially endanger the life and limb (health) of the auditors/auditees due to on-site conditions which were known in advance. When selecting a suitable audit method (on-site audit, remote audit, hybrid

audit), the criticality of the project phase and the position in the supply chain, the previous performance and aspects related to the location are particularly important. The following table provides an overview of the audit methods, including a classification of the risk factors/influencing factors.

Table 4-1: Overview of audit methods, including a classification of the risk factors/influencing factors

Type 1 High process risk	Type 2 Medium process risk	Type 3 Low process risk
High supply criticality	Medium supply criticality	Low supply criticality
e.g. new supplier, Complexity of product handling, product innovation, design version diversity, conveyor stopping part, lack of automotive experience	e.g. critical in the past, split capacity, complexity of the supply chain, parallel flows, Subcontracting of logistical service providers	e.g. Multiple supplier strategy, standard parts
High process quality risks	Medium process quality risks	Low process quality risks
e.g. unknown processes, new products, high level of innovation	e.g. unknown location	e.g. products and processes are familiar, processes have already been audited
Performance	Performance	Performance
e.g. permanently negative KPIs	e.g. temporarily negative KPIs	e.g. acceptable KPIs
On-site audit	Hybrid audit Part 1: Remote audit* Part 2: On-site audit	Remote audit*

* Remote-Audits are possible as an alternative to an on-site audit

Note: The most negative evaluation is the deciding factor when choosing the audit method.

4.5 Suitability of individual process elements/questions for conducting remote audits within the scope of the potential analysis

Table 4-2: Overview of suitable/conditionally suitable elements for a remote potential analysis

VDA 6.8	Suitable	Conditionally suitable
L1-L4, L7	X	
L5.3	X	
L5.5	X	
L6.3	X	
L6.5	X	
L5.1, L5.2, L5.4, L5.6		(X)
L6.1, L6.2, L6.4, L6.6		(X)

(x) = suitable/conditionally suitable, depending on process risks.

5 Potential analysis

5.1 Definition

A VDA 6.8 process audit is used to evaluate existing processes. The potential analysis, however, means using a shorter questionnaire to evaluate both potential suppliers/service providers and new processes/concepts before implementation and to verify their suitability in regular operation within the supply chain.

The analysis is used to gauge the potential to meet the requirements for the requested goods and associated processes.

The analysis takes into account the supplier's/service provider's experience and skills regarding the development and production of the scope of services requested, as well as their ability to fulfill customer-specific requirements for planning and process implementation.

The assessment is based on existing processes for comparable services and is only valid for the given location.

A potential analysis can be used:

- As an approval element in line with the nomination of new suppliers/service providers prior to contract award
- To predict the quality capability of the assessed supplier/service location for planning and process implementation
- To minimize risk during the project and implementation stage of new processes (e.g. new location, location expansion, new logistical concepts, etc.)

In case of a change of supplier/service provider (not project-specific) or a site relocation

5.2 Prerequisites

Given that no contractual relationship exists between the customer and the potential new suppliers/service providers during the inquiry and quotation stages, an agreement should at least be made regarding confidentiality, photo permission and access permission. Occupational safety aspects must be taken into account.

5.3 Preparation

Obtaining information in preparation for the potential analysis is of particular importance. In order to obtain information, it is essential to ask the prospective supplier to provide a self-assessment as well as for the customer to do their own research.

To prepare, a self-assessment from MMOG/LE or from this VDA 6.8 volume can be used.

5.4 The process of conducting a potential analysis

The following diagram illustrates the process of conducting a potential analysis. The evaluation questions in a potential analysis are asterisk questions from elements L1 to L7.

The asterisk questions of process elements L1 to L3 can be used both for new processes (“Greenfield”) and existing processes (“Brownfield”).

The asterisk questions of process elements L1 to L3 can be audited either together or separately in the early stages of a project, e.g. in Greenfield projects. The asterisk questions of process elements L4 to L7 can be applied to the auditing of pre-series-production and series production processes.

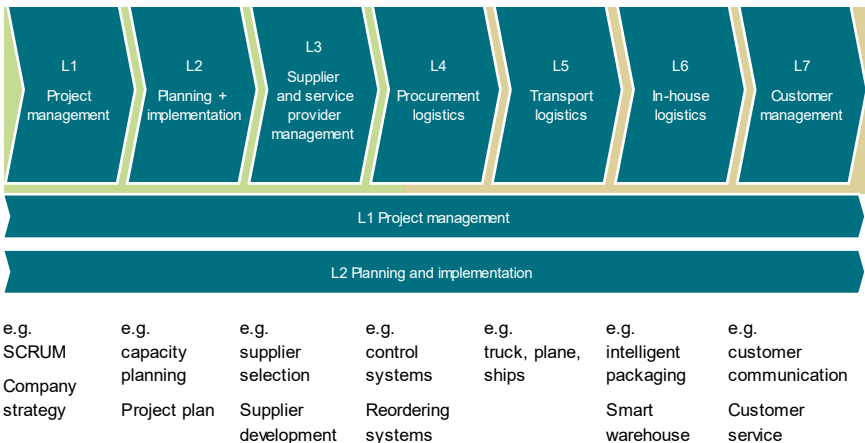


Figure 5-1: The process of conducting a potential analysis

5.5 The evaluation of a potential analysis

A separate evaluation is required for the potential analysis because the objective here is less to arrive at a classification in percentage-terms and more to decide on “suitable” or “not suitable”.

The evaluation the potential analysis is based on the evaluation of the asterisk questions.

Each question is evaluated in terms of fulfillment of the respective requirement and the risk involved.

If a question is not evaluated (shown as n.e.), the reason for this must be stated. A maximum of 3 questions may be marked n.e.; this only applies to questions without an asterisk. Otherwise, the results may no longer be comparable.

The result of the evaluation is based on the traffic light system (“red”, “yellow” or “green”).

Points	Evaluation of compliance with individual requirements
10	Requirements met in full; without deviations
8	Requirements predominantly met ⁺⁺ ; minor deviations
6	Requirements partially met; medium to major deviations
4	Requirements insufficiently met; severe deviations
0	Requirements not met

⁺⁺) The term “predominantly” means that there are only individual cases in which fulfillment of the requirements could not be proven, and there are no special risks.

If a question is marked “8, 6, 4 or 0”, the findings and the relevant evidence must be documented.

The overall assessment result of the potential analysis is calculated from the number of questions rated as red/yellow/green:

The overall assessment result of the potential analysis is calculated from the total compliance level of the asterisk questions of the relevant process elements.

$$E_{Pot} [\%] = \frac{\text{Total points awarded for all evaluated asterisk questions}}{\text{Total possible points for these asterisk questions}}$$

Classification	Level of compliance E_{Pot} or $E_{Pot(Pn)}$ [%]	Designation of the classification
green	E_{Pot} or $E_{Pot(Pn)} \geq 90$	Approved supplier/service provider
yellow	$80 \leq E_{Pot}$ or $E_{Pot(Pn)} < 90$	Controlled supplier/service provider
red	E_{Pot} or $E_{Pot(Pn)} < 80$	Blocked supplier/service provider

A positive potential analysis result (“green”, “yellow”) does not necessarily lead to a contract being awarded.

A negative potential analysis result (“red”) excludes a contract award.

Interpretation of results

Green = Fully approved supplier/service provider

The supplier/service provider has the potential to meet the customer’s requirements to the extent required and may be considered for awarding a contract.

The customer can award a contract for the project without restriction.

Yellow = Controlled supplier/service provider

With regard to the scope of products requested, a contract can only be awarded under certain conditions. In some cases, the supplier/service provider needs support from the customer in order to meet the requirements of the project.

Note: Conditions must be specified between the relevant quality and procurement departments.

Red = Blocked supplier/service provider

It is not possible to award a contract covering the project in question.

Note: In individual cases (e.g. if there is no alternative supplier/service provider), the management board can make the decision to award a contract. In this case, qualification measures must be taken, and safeguarding measures must be initiated, implemented and documented.

5.6 Activities after contract award

The results of the potential analysis can be used as input for a total audit of the relevant process elements L1 to L7.

The potential analysis can optionally be used as input for a Global MMOG/LE audit.

5.7 Self-assessment

The self-assessment is conducted in the same way as the potential analysis. It likewise involves using the asterisk questions of the relevant process elements.

The self-assessment can be conducted internally before the potential analysis or total audit.

The result of the self-assessment can be exchanged with potential customers or used in the optimization of processes.

6 Evaluation of supply chain process audit

6.1 Evaluation of individual questions

Each question is evaluated in terms of fulfillment of the respective requirements and the risk involved. For each question, 0, 4, 6, 8 or 10 points can be awarded. The number of points awarded is based on proven fulfillment of the requirements as well as the risk assessment for the processes in the supply chain.

Number of points	Evaluation of compliance with individual requirements
10	Requirements met in full; without deviations/risks
8	Requirements predominantly met ⁺⁺ ; minor deviations/risks
6	Requirements partially met; medium to major deviations/risks
4	Requirements insufficiently met; severe deviations/risks
0	Requirements not met

⁺⁺) The term "predominantly" means that there are only individual cases in which fulfillment of the requirements could not be proven, and there are no special risks.

The following table serves as a guideline for the appropriate allocation of points when evaluating the questions:

Risk perspective			Probability of occurrence	
Process	Product	Customer	Not systematic	systematic
Requirements and specifications for the process are fulfilled	No product defects, the product meets the standards	Customer requirements met in full	10	10
Minor deviations in the process which have no effect on the subsequent process	Product complaints but without risk to function, use and further processing	Customer requirements met to a limited degree only	8	6
The process does not always meet the defined requirements, and this has an impact on the supply chain	Product complaints with effect on function, use and further processing as well as risk of increased costs within the supply chain	Customer requirements partially met	6	4
The process does not meet the defined requirements, and this has a significant impact on the customer or on the supply chain	Product complaints with significant effect on function, use and further processing as well as increased costs within the supply chain	Customer requirements insufficiently met; customer is dissatisfied	4	0
Process is not suitable for ensuring compliance with the defined requirements	Product complaints; products cannot be used; downstream process is not possible	Customer requirements not met; not acceptable from the customer's point of view	0	0

If there are several findings for the evaluation of a single question, the individual finding which is associated with the highest risk is decisive for the evaluation of the respective question.

Systematic errors are defined as recurring errors with the same deviation, in accordance with the process risk.

The auditor may require immediate actions depending on the risk associated with the findings.

If a question is not evaluated (n. e.), the reason for this must be stated. At least 2/3 of the questions for each audited process element (L1 – L7) or process step (in L6) must be evaluated.

If corrective actions from previous audits are not implemented, this can also be regarded as a case of non-conformity, e.g. in the “cause analysis”, “implementation of measures”, “meeting customer requirements” questions.

Questions pertaining to a special risk for the supply chain (* questions)

In the process elements, questions associated with special risks product and process risks are marked with an asterisk (*-question). These special risks are already taken into account in the downgrading rules (see section 6.3). The evaluation is carried out in the same manner as for the remaining questions. Consequently, *-questions are not evaluated more harshly than other questions.

The questions make up the critical path (E_{Kn}) and are indicated in a total result and for each process element.

6.2 Detailed evaluation

Evaluation of the process elements and the individual process steps in L6.

Process element

The compliance E_{Ln} of a process element (L1, L2, ..., L7) is calculated as:

$$E_{Ln}[\%] = \frac{\text{Total of *awarded points* for the relevant questions}}{\text{Total of all *points possible* for the relevant questions}}$$

Individual process step

The questions from L6 are used for the evaluation of the individual process steps. All questions from L6 can be answered for each process step. The compliance level E_n of each process step can be calculated as follows:

$$E_n = \frac{\text{Total points awarded for the L6 questions for the process step}}{\text{Total points possible for the L6 questions for the process step}}$$

Critical path

The compliance E_{Kn} of a critical path in the process elements (L1, L2, ..., L7) is calculated from the evaluation of the * questions:

$$E_{Kn} = \frac{\text{Total of **awarded points** for * -questions}}{\text{Total of all **points possible** for * -questions}}$$

Overview of results

Result	Designation	Description
Evaluation of a process element L1 – L7	E_{L1-L7}	Individual result
Evaluation of a critical path	E_{Kn}	Risk assessment
Overall assessment	E_G	Result of all audited elements

The overall assessment only applies to the audited scope and cannot be applied to the entirety of the supplier's/service provider's operations.

6.3 Evaluation and downgrading rules

Compliance level of the process elements

Process elements	Level of compliance
Project management and strategy (L1)	E_{L1}
Planning and implementation of logistical processes (L2)	E_{L2}
Supplier and service provider management (L3)	E_{L3}
Procurement logistics (L4)	E_{L4}
Transport logistics (L5)	E_{L5}
In-house-logistics (L6)	E_{L6}
Customer management (L7)	E_{L7}

Overall level of compliance

The overall compliance E_G for the process audit is calculated as follows:

$$E_G = \frac{\text{Total of **points awarded** for all evaluated questions}}{\text{Total of **points possible** for these questions}}$$

Each process element can be evaluated separately and independently of the other elements. In the overall assessment of multiple process elements and, if applicable, process steps in L6, the total of all points awarded is divided by the total of all points possible and constitutes the overall compliance level.

The process elements are not weighted. The elements are applied as shown in chapter 2.

If during a specific audit, individual process elements from the overall questionnaire are evaluated, the result is calculated only on the basis of the evaluated process elements.

It must be specified in the audit report which process elements have been used in the evaluation.

Example L5/L6/L7

If process elements L5, L6 and L7 are evaluated (e.g. auditing of a series production process after project award), the result is calculated as follows:

$$E_{G(L5,L6,L7)}[\%] = \frac{\text{Total points awarded for all evaluated questions from L5, L6 and L7}}{\text{Total possible points for these questions}}$$

The label $E_{G(L5,L6,L7)}$ is selected to designate the evaluated process elements.

Overall result

The overall result is rounded to the nearest percentage point.

Classification	Level of compliance E_G or $E_{G(Ln)}$ [%]	Designation of the Classification
A	E_G or $E_{G(Ln)} \geq 90$	able to meet quality requirements
B	$80 \leq E_G$ or $E_{G(Ln)} < 90$	able to meet quality requirements to some extent
C	E_G or $E_{G(Ln)} < 80$	not able to meet quality requirements

Level of compliance for partial audits

To classify the level of compliance in a partial audit, the percentages for the partial audit (e.g. $E_{G(L5,L6,L7)}$) are compared to the benchmarks as given above (at least 80% for a “B”, able to meet quality requirements to some extent; or at least 90% for “A”, able to meet quality requirements).

Downgrading rules

Results from the process elements and sub-elements of L6 or process steps are factored in as follows in the downgrading rules and documented in the audit report.

Reasons for downgrading from A to B despite compliance level

E_G or $E_{G(Ln)} \geq 90\%$

- At least one process element (L1 to L7) is evaluated as having a compliance level of $E_L < 80\%$
- At least one process step (E1 to En) is evaluated as having a compliance level of $E_n < 80\%$
- The overall assessment of the questions pertaining to a special risk for the supply chain (* question) is $< 80\%$
- 4 points are awarded for at least one *-question
- 0 points are awarded for at least one question in the process audit

Reasons for downgrading to C despite compliance level

E_G or $E_{G(Ln)} \geq 90\%$

- At least one process element (L1 to L7) is evaluated as having a compliance level of $E_p < 70\%$
- At least one process step (E1 to En) is evaluated as having a compliance level of $E_n < 70\%$
- The overall assessment of the questions pertaining to a special risk for the supply chain (* question) is $< 70\%$
- 0 points are awarded for at least one *-question

When applying the downgrading rules (process element or process steps), the individually calculated results EL_n and E_n are rounded to the nearest percentage point.

6.4 Using the questionnaire (process elements L1 to L7)

The questionnaire forms the basis of the auditor's work. The auditor selects the relevant process elements for the audit depending on the phase of the product life cycle (see chapter 2.2). Additional specific requirements can be added to the questions depending on the supply chain risks identified.

Structure of the questionnaire

The questions for the process elements are structured as follows:

- Questions

- Minimum requirements relevant for evaluation
- Examples for implementation
- Why explanatory note

The “examples for implementation” provide a selection of potential applications. The evaluation is carried out based on the “Minimum requirements relevant for evaluation”.

For the auditor, the audit consists of two mutually independent activities (see Figure 6-1):

1. The auditor asks the auditee open questions to assess compliance with the requirements. The risks identified in the preparations for and during the audit are taken into account.
2. Based on the audit findings, the auditor uses closed questions to assess compliance with the requirements.

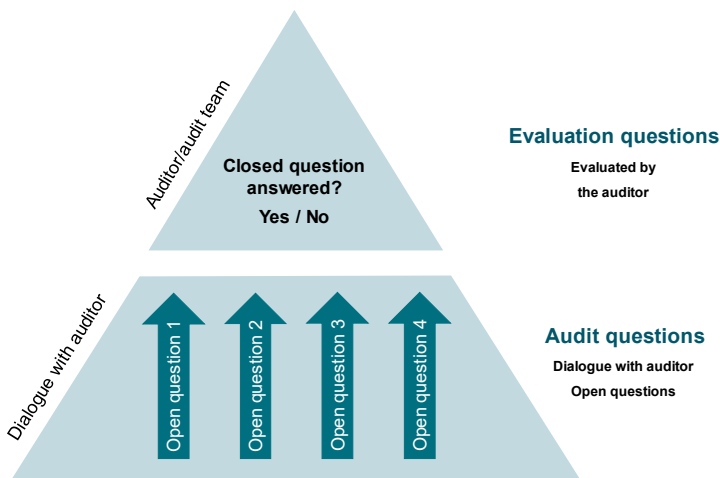


Figure 6-1: Audit pyramid

Each process element can be evaluated separately and independently of the other elements.

If process element L6 (in-house logistics) requires a breakdown into process steps, each step must be specified and evaluated separately.

In addition to the VDA 6.8 questions listed in this volume, it is recommended that a knowledge database be created to store information about the risks

associated with individual products and processes. The experience stored in the knowledge databases can be used in addition to the requirements relevant for the evaluation.

Based on the risk analysis described in chapter 2.4, identified risks must be checked against the questionnaire and integrated into the applicable questions.

6.5 Rules on conducting an audit

An audit can be stopped at the auditor's discretion, for example in the following cases:

- Refusal to disclose necessary information during the audit
- Obvious violations of the law
- The auditee interfering with or endangering the auditor
- Refusal to grant access to areas that are relevant for the audit, despite prior agreement
- Insufficient preparation of the audit on the part of the auditee
- Providing evidently false statements

The reason for stopping the audit must be stated. Audit findings obtained up to the point the audit was interrupted must be documented.

The organization conducting the audit decides whether a new audit should be carried out.

It is recommended to use digital tools for audit implementation and audit evaluation.

6.6 Repeat audit

It must be specified in which cases a repeat audit is necessary. Reasons for conducting a repeat audit can include, for example:

- A specified level of compliance is not reached
- Critical process that is associated with risks
- The requirements according to one or more *-questions are not met (0 points)
- Red-evaluation of a potential analysis

The repeat audit must be carried out within a specified time frame. Within this period of time, the audited organization must initiate measures to effectively rectify the shortcomings.

The scope of the repeat audit must be the same as for the previous audit. Reducing the scope of the audit to a mere test of the effectiveness of the implemented measures is not permissible.

7 Questionnaire

7.1 Overview of questionnaire

L1	Project management and strategy
L1.1	Input
1.1.1*	Are requirements integrated into project management and continuously taken into account?
1.1.2	Is project-specific data and/or information available to the logistical project?
1.1.3	Has the project objective been checked for technical and economic feasibility?
1.1.4	Can logistical targets be derived from a superordinate company strategy?
L1.2	Process flow
1.2.1	Have criteria and processes for the classification of logistical projects been established?
1.2.2	Are the SC functions integrated in the commodity creation process?
1.2.3*	Has a project management strategy (including a project organization) been established?
1.2.4	Has an escalation process, including coordinated communication, been established, and is it effectively implemented?
1.2.5*	Are methods of risk analysis established at the start of the project phase, and are they implemented?

L1.3	Human resources
1.3.1	Have requirement profiles been defined for all required tasks in the project structure?
1.3.2	Is there a concept for utilizing and implementing specialized knowledge outside one's own organization?
1.3.3	Do the employees know their responsibilities and authorizations within the project structure?
1.3.4*	Are the necessary human resources available?
L1.4	Material resources
1.4.1	Is there a suitable IT emergency solution strategy, incl. regular data backup?
1.4.2*	Is there a suitable pervasive IT infrastructure?
1.4.3	Are the workstations set up in accordance with ergonomic and safety principles?
L1.5	Effectiveness and efficiency
1.5.1*	Have suitable parameters been defined for project management, including target values, and are they applied?
1.5.2	Is analyzable process data collected and communicated?
1.5.3	In case of process and target deviations, are causes analyzed and corrective measures checked for effectiveness?

1.5.4	Are methods of continuous process improvement implemented?
L1.6	Output
1.6.1	Are all processes from the process flow effectively/efficiently implemented, reviewed and communicated and available as results?
1.6.2	Is the lessons-learned method regularly used in order to implement the resulting findings and potential improvements?
1.6.3*	Has a handover to the downstream process taken place?
L2	Planning and implementation of logistical processes
L2.1	Input
2.1.1	Is the output of the upstream process integrated into planning and implementation?
2.1.2	Are requirements integrated into supply chain planning and continuously taken into account?
L2.2	Process flow
2.2.1*	Are methods of risk analysis established during the implementation of logistical processes, and are they used?
2.2.2	Are deviations from / changes to the planning status documented and communicated?
2.2.3*	Is material master and material flow data defined in the planning process and continuously monitored?

2.2.4	Has an emergency concept been described for the defined logistical processes and is it tested?
2.2.5	Are the processes for in-house logistics, including packaging and container management, defined in planning, and are they continuously adjusted?
2.2.6*	Is there a transport concept for ensuring customized supply?
2.2.7	Are the processes for procurement and supplier management defined in planning, and are they continuously monitored?
L2.3	Human resources
2.3.1	Have requirement profiles been defined for all activities, and do they correspond to the activities to be performed?
2.3.2	Is the qualification concept suitable for qualifying the employees in accordance with the task descriptions?
2.3.3	Do the employees know their responsibility and authorizations regarding the monitoring of SC processes?
2.3.4*	Are the necessary human resources available?
L2.4	Material resources
2.4.1	Is there a suitable IT emergency solution strategy, incl. regular data backup?
2.4.2*	Is there a suitable pervasive IT infrastructure?

2.4.3	Are the workstations set up in accordance with ergonomic and safety principles?
2.4.4	Are the material resources for the supply chain infrastructure planned and fit to represent the entire value stream?
L2.5	Effectiveness and efficiency
2.5.1*	Is progress, including project contents, tracked using milestone plans and communicated?
2.5.2	In case of process and target deviations, are causes analyzed and corrective measures checked for effectiveness?
2.5.3	Are methods of continuous process improvement implemented?
2.5.4	Are sustainability aspects factored into the planning and implementation of logistical processes?
L2.6	Output
2.6.1*	Are all processes from the process flow effectively/efficiently implemented, reviewed and communicated and available as results?
2.6.2	Is the lessons-learned method regularly used in order to implement the resulting findings and potential improvements?
2.6.3	Is the feasibility of the planned logistical processes checked, and is the approval documented?
L3	Supplier and service provider management
L3.1	Input

3.1.1	Is the output of upstream processes integrated into supplier and service provider management?
L3.2	Process flow
3.2.1*	Has a process been defined which ensures that only approved and quality-capable suppliers and service providers are used?
3.2.2*	Is there a service contract, and are compliance obligations analyzed, taken into account and observed?
3.2.3	Has an emergency management plan been agreed with the logistical service providers, and is it effectively implemented?
3.2.4	Is there a complaint process which has been coordinated with the logistical service provider?
3.2.5*	Have the risk transfers and process owners of the process steps been identified, documented and communicated?
3.2.6	Has standardized communication been established between the organization and the service provider?
3.2.7	Is outsourcing to an external service provider planned and controlled?
L3.3	Human resources
3.3.1	Have requirement profiles been defined for all activities, and do they correspond to the activities to be performed?
3.3.2	Is the qualification concept suitable for ensuring training in accordance with the task descriptions?
3.3.3	Do the employees know their responsibilities and authorizations in supplier and service provider management?

3.3.4*	Are the necessary human resources available?
L3.4	Material resources
3.4.1	Is there a suitable IT emergency solution strategy, incl. regular data backup?
3.4.2*	Is there a suitable pervasive IT infrastructure?
3.4.3	Are the workstations set up in accordance with ergonomic and safety principles?
L3.5	Effectiveness and efficiency
3.5.1*	Are suitable parameters available in the supplier and service provider management, incl. realistic target values?
3.5.2	Is analyzable supplier-specific data collected and communicated?
3.5.3*	In case of deviations, are causes analyzed and corrective measures checked for effectiveness?
3.5.4	Are methods of continuous process improvement implemented?
3.5.5	Are the supplier and service management processes checked in case of changes?
L3.6	Output

3.6.1*	Are all processes from the process flow effectively/efficiently implemented, reviewed and communicated and available as results?
3.6.2	Is the lessons-learned method regularly used in order to implement the resulting findings and potential improvements?
L4	Procurement logistics
L4.1	Input
4.1.1*	Are the logistical plans implemented in procurement logistics?
4.1.2	Is the supplier evaluation and control data integrated into procurement logistics?
4.1.3	Are requirements integrated into procurement logistics and continuously taken into account?
4.1.4	Is the planned production volume integrated into material requirements planning?
L4.2	Process flow
4.2.1*	Have processes been established for ensuring that materials are supplied in accordance with demand?
4.2.2	Has a container management system been established in accordance with demand and capacity?
4.2.3*	Have processes and concepts (inventory types) been defined for systematic inventory audits and analyses?
4.2.4	Has an escalation process, including coordinated communication, been established, and is it effectively implemented?

4.2.5*	Does production planning and control take place?
L4.3	Human resources
4.3.1	Have requirement profiles been defined for all activities, and do they correspond to the activities to be performed?
4.3.2	Is the qualification concept suitable for ensuring training in accordance with the task descriptions?
4.3.3	Do the employees know their responsibilities and authorizations in procurement logistics?
4.3.4*	Are the necessary human resources available?
L4.4	Material resources
4.4.1	Is there a suitable IT emergency solution strategy, incl. regular data backup?
4.4.2*	Is there a suitable pervasive IT infrastructure?
4.4.3	Are the workstations set up in accordance with ergonomic and safety principles?
4.4.4	Is the availability and corresponding use of the delivery schedule ensured with an EDI standard?
L4.5	Effectiveness and efficiency
4.5.1*	Are suitable parameters available in procurement logistics, incl. realistic target values?

4.5.2	Is analyzable process data collected and communicated?
4.5.3*	In case of deviations, are causes analyzed and corrective measures checked for effectiveness?
4.5.4	Are methods of continuous process improvement implemented?
4.5.5	Are the procurement logistics processes checked in case of changes?
L4.6	Output
4.6.1*	Are all processes from the process flow effectively/efficiently implemented, reviewed and communicated and available as results?
4.6.2	Is the lessons-learned method regularly used in order to implement the resulting findings and potential improvements?
L5	Transport logistics
L5.1	Input
5.1.1	Is the output of the upstream process integrated into transport logistics?
5.1.2*	Are compliance obligations integrated into transport logistics and continuously taken into account?
L5.2	Process flow
5.2.1*	Is the cargo handled according to the requirements for transport?

5.2.2	Are the load securing specifications implemented and checked, and are deviations documented?
5.2.3	Are the transport-related special characteristics accounted for?
5.2.4*	Are all relevant specifications for carrying out transports fully recorded and included in instructions?
5.2.5	Are incorrectly performed transport services identified and analyzed, and are appropriate measures taken?
5.2.6	Is there a suitable comprehensive emergency solution and crisis management strategy?
L5.3	Human resources
5.3.1	Have requirement profiles been defined for all activities, and do they correspond to the activities to be performed?
5.3.2	Is the qualification concept suitable for ensuring training in accordance with the task descriptions?
5.3.3	Do the employees know their responsibilities and authorizations regarding the monitoring of product and process quality?
5.3.4*	Are the necessary human resources available?
L5.4	Material resources
5.4.1*	Is there a suitable IT emergency solution strategy, incl. regular data backup?
5.4.2	Is there a suitable pervasive IT infrastructure?

5.4.3*	Are suitable means of transport available in order to ensure continuous and quality-compliant material flow?
5.4.4	Is the availability of transportation ensured systematically?
L5.5	Effectiveness and efficiency
5.5.1*	Are suitable parameters available in transport logistics, incl. realistic target values?
5.5.2	Is analyzable process data collected and communicated?
5.5.3*	In case of process and target deviations, are causes analyzed and corrective measures checked for effectiveness?
5.5.4	Are methods of continuous process improvement implemented?
5.5.5	Are the transport logistics processes checked regularly and in case of changes?
5.5.6	Are ESG aspects factored into the selection of transport types and routes?
L5.6	Output
5.6.1*	Are all processes from the process flow effectively/efficiently implemented, reviewed and communicated and available as results?
5.6.2	Is the lessons-learned method regularly used in order to implement the resulting findings and potential improvements?

L6	In-house logistics
L6.1	Input
6.1.1	Is the output of upstream processes integrated into in-house logistics?
6.1.2*	Are compliance obligations integrated into in-house logistics and continuously taken into account?
6.1.3*	Is the right order data prepared and processed in in-house logistics?
L6.2	Process flow
6.2.1*	Are all relevant specifications for providing logistical services recorded and included in instructions?
6.2.2	Are the load securing specifications implemented and checked, and are deviations documented?
6.2.3*	Do the defined instructions contain the necessary checks?
6.2.4*	Are potentially faulty and/or faulty goods or logistical processes identified and measures taken?
6.2.5	Is the flow of materials and parts secured against mixing/wrong items, and are the special characteristics accounted for?
6.2.6*	Have processes been established for controlling and monitoring the material flow?
6.2.7	Have processes been established for controlling and monitoring the transport equipment?

6.2.8	Has a process been defined for continuous warehouse optimization, and are suitable optimization measures implemented?
6.2.9*	Are the materials stored/handled appropriately in order to preserve the product characteristics?
6.2.10*	Are the capacities and flexibilities planned and defined in accordance with customer requirements?
L6.3	Human resources
6.3.1	Have requirement profiles been defined for all activities, and do they correspond to the activities to be performed?
6.3.2	Is the qualification concept suitable for ensuring training in accordance with the task descriptions?
6.3.3*	Do the employees know their responsibilities and authorizations regarding the monitoring of product and process quality?
6.3.4*	Are the necessary human resources available?
L6.4	Material resources
6.4.1*	Is there a suitable IT emergency solution strategy, incl. regular data backup?
6.4.2*	Is there a suitable pervasive IT infrastructure?
6.4.3	Are the workstations set up in accordance with ergonomic, product-specific and safety principles?
6.4.4*	Is the logistical infrastructure capable of meeting the product and process-specific requirements?

6.4.5	Is the equipment available at the right location and in the right time, quantity and quality?
6.4.6	Is the availability of infrastructure and equipment ensured?
6.4.7	Are containers/load carriers and packaging materials available at the right location and in the right time, quantity and quality?
L6.5	Effectiveness and efficiency
6.5.1*	Have suitable parameters been defined in in-house logistics, including target values, and are they applied?
6.5.2	Is analyzable process data collected and communicated?
6.5.3*	In case of process and target deviations, are causes analyzed and corrective measures checked for effectiveness?
6.5.4	Are methods of continuous process improvement implemented?
6.5.5	Are the in-house logistics processes checked regularly and in case of changes?
6.5.6	Are ESG aspects taken into account in in-house-logistics?
L6.6	Output
6.6.1*	Are all processes from the process flow effectively/efficiently implemented, reviewed and communicated and available as results?

6.6.2	Is the lessons-learned method regularly used in order to implement the resulting findings and potential improvements?
L7	Customer management
L7.1	Input
7.1.1	Is the output of upstream processes integrated into customer management?
7.1.2*	Are compliance obligations integrated into customer management and continuously taken into account?
7.1.3	Is the right data available for measuring customer satisfaction?
L7.2	Process flow
7.2.1*	Are all relevant specifications for customer management recorded and included in instructions?
7.2.2*	Does proactive communication take place on all levels, and does this communication include any relevant changes?
7.2.3	Is outsourcing to an external service provider planned and controlled?
L7.3	Human resources
7.3.1	Have requirement profiles been defined for all activities, and do they correspond to the activities to be performed?
7.3.2	Is the qualification concept suitable for qualifying the employees in accordance with the task descriptions?

7.3.3	Do the employees know their responsibility and authorizations with regard to customer management control?
7.3.4*	Are the necessary human resources available?
L7.4	Material resources
7.4.1	Is there a suitable IT emergency solution strategy, incl. regular data backup?
7.4.2	Is there a suitable pervasive IT infrastructure?
7.4.3	Are the workstations set up in accordance with ergonomic and safety principles?
L7.5	Effectiveness and efficiency
7.5.1*	Have suitable parameters been defined for customer management, including target values, and are they applied?
7.5.2	Is process data consolidated, evaluated and communicated in customer management?
7.5.3*	In case of process and target deviations, are causes analyzed and corrective measures checked for effectiveness?
7.5.4	Are methods of continuous process improvement implemented?
7.5.5	Are the customer management processes checked regularly and in case of changes?
L7.6	Output

7.6.1*	Are all processes from the process flow effectively/efficiently implemented, reviewed and communicated and available as results?
7.6.2	Is the lessons-learned method regularly used in order to implement the resulting findings and potential improvements?

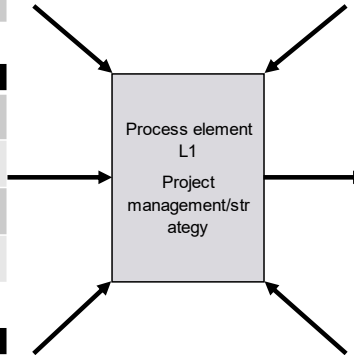
7.2 Project management/strategy (L1)

Why: As part of the superordinate company strategy, logistical project management and the supply chain strategy help in the planning, organization and optimization of complex processes. Project management makes it possible to conduct supply chain processes, stock-keeping and transport efficiently and to minimize risks. A good strategy helps with setting long-term goals and identifying risks and boosts logistical capability along the supply chain.

1.4	Material resources
1.4.1	Is there a suitable IT emergency solution strategy, incl. regular data backup?
1.4.2*	Is there a suitable pervasive IT infrastructure?
1.4.3	Are the workstations set up in accordance with ergonomic and safety principles?

1.1	Input
1.1.1*	Are requirements integrated into project management and continuously taken into account?
1.1.2	Is project-specific data and/or information available to the logistical project?
1.1.3	Has the project objective been checked for technical and economic feasibility?
1.1.4	Can logistical targets be derived from a superordinate company strategy?

1.2	Process flow
1.2.1	Have criteria and processes for the classification of logistical projects been established?
1.2.2	Are the SC functions integrated in the commodity creation process?
1.2.3*	Has a project management strategy (including a project organization) been established?
1.2.4	Has an escalation process, including coordinated communication, been established, and is it effectively implemented?
1.2.5*	Are methods of risk analysis established at the start of the project phase, and are they implemented?



1.3	Human resources
1.3.1	Have requirement profiles been defined for all required tasks in the project structure?
1.3.2	Is there a concept for utilizing and implementing specialized knowledge outside one's own organization?
1.3.3	Do the employees know their responsibilities and authorizations within the project structure?
1.3.4*	Are the necessary human resources available?

1.6	Output
1.6.1	Are all processes from the process flow effectively/efficiently implemented, reviewed and communicated and available as results?
1.6.2	Is the lessons-learned method regularly used in order to implement the resulting findings and potential improvements?
1.6.3*	Has a handover to the downstream process taken place?

1.5	Effectiveness and efficiency
1.5.1*	Have suitable parameters been defined for project management, including target values, and are they applied?
1.5.2	Is analyzable process data collected and communicated?
1.5.3	In case of process and target deviations, are causes analyzed and corrective measures checked for effectiveness?
1.5.4	Are methods of continuous process improvement implemented?

Figure 7-1: Turtle model for L1 project management/strategy

Process element L1: Project management/strategy	
L1.1 What goes into the process? Process input	
L1.1.1* Are requirements integrated into project management and continuously taken into account?	
Minimum requirements relevant for assessment	Examples for implementation
<p>1. The following requirements must be taken into account:</p> <ul style="list-style-type: none"> • Customer requirements • Internal requirements • ESG requirements <p>2. There must be processes for identifying, evaluating and implementing compliance obligations.</p>	<ul style="list-style-type: none"> • Requirement specification with customer requirements • Overview of relevant customer requirements • Process description for identifying compliance obligations • Laws
L1.1.2 Is project-specific data and/or information available to the logistical project?	
Minimum requirements relevant for assessment	Examples for implementation
<p>The following data/information is available:</p> <ul style="list-style-type: none"> • Approvals and modifications • Budget • SCM specifications • Contracts • Project order 	<ul style="list-style-type: none"> • Project documentation • Project structure plan • Budget plan • Order documents • Approved release documents

L1.1.3 Has the project objective been checked for technical and economic feasibility?	
Minimum requirements relevant for evaluation	Examples for implementation
<p>1. Feasibility is defined based on clear-cut criteria.</p> <p>2. There is a positive result, and it is documented.</p>	<ul style="list-style-type: none"> • Feasibility analysis, incl. the results
L1.1.4 Can logistical targets be derived from a superordinate company strategy?	
Minimum requirements relevant for evaluation	Examples for implementation
<p>1. The company strategy includes aspects of supply security.</p> <p>2. The company strategy includes aspects of information security.</p> <p>3. The company strategy includes ESG aspects.</p>	<ul style="list-style-type: none"> • Company strategy • Strategy development process
L1.2 Process flow: How does the process work?	
L1.2.1 Have criteria and processes been established for the classification of logistical projects?	
Minimum requirements relevant for evaluation	Examples for implementation

<ol style="list-style-type: none"> 1. Criteria have been established for the classification of logistical projects and describe what constitutes a project. 2. The defined criteria are used to identify logistical projects. 3. A process has been defined for change management in SC processes. 4. Strategic goals are taken into account. 	<ul style="list-style-type: none"> • Catalogue of criteria • Documented/approved changes
L1.2.2 Are the SC functions integrated in the commodity creation process?	
Minimum requirements relevant for evaluation	Examples for implementation
<ol style="list-style-type: none"> 1. Work contents for the SC functions are defined as part of the project. 2. Relevant supply chain workers are involved in the commodity creation process. 3. Logistical milestones are observed during the commodity creation process. 4. Strategic goals are taken into account. 	<ul style="list-style-type: none"> • Project plan • Milestone plan • Company strategy
L1.2.3* Has a project management strategy (including a project organization) been established?	
Minimum requirements relevant for evaluation	Examples for implementation
<ol style="list-style-type: none"> 1. There is a project management process, and it is implemented. 2. A change management process has been established. 	<ul style="list-style-type: none"> • Project organization chart, incl. allocation of roles

<p>3. An interdisciplinary project organization is specified.</p> <p>4. The customer and the supplier have been informed who the relevant contact persons are.</p> <p>5. Strategic goals are taken into account</p>	<ul style="list-style-type: none"> • Composition of the project team • Project interfaces • RACI chart
<p>L1.2.4 Has an escalation process, including coordinated communication, been established, and is it effectively implemented?</p>	
<p>Minimum requirements relevant for evaluation</p>	<p>Examples for implementation</p>
<p>1. The project organization and the associated escalation management meet the customer requirements. The criteria for escalation are specified, and measures are derived in case of non-compliance with the specifications.</p> <p>2. Defined measures are sustainably implemented, and the status is regularly monitored and communicated.</p> <p>3. Strategic goals are taken into account.</p>	<ul style="list-style-type: none"> • Internal and external escalation matrix • Action plan • Communication plan
<p>L1.2.5* Are methods of risk analysis established at the start of the project phase, and are they implemented?</p>	
<p>Minimum requirements relevant for evaluation</p>	<p>Examples for implementation</p>
<p>1. Project risks have been identified, assessed, and have been mitigated by means of appropriate measures.</p>	<ul style="list-style-type: none"> • FMEA • Emergency strategy • SWOT analysis

<p>2. Experiences (especially lessons learned) from ongoing or previous comparable projects are taken into account.</p> <p>3. There is a disaster recover strategy.</p> <p>4. Strategic goals are taken into account.</p> <p>5. Operative environment risks are accounted for.</p>	<ul style="list-style-type: none"> • PESTEL analysis
<p>L1.3 Human resources: What departments, roles, persons support the process?</p>	
<p>L1.3.1 Have requirement profiles been defined for all required tasks in the project structure?</p>	
<p>Minimum requirements relevant for evaluation</p>	<p>Examples for implementation</p>
<p>1. There is a staff deployment schedule which indicates which position must be filled on the project team at which times.</p> <p>2. The requirement profile for the job forms the basis for the recruiting process and the comparison with the employee profile of potential new hires.</p> <p>3. Activity descriptions</p> <p>4. The required expertise has been described and covers all processes.</p> <p>5. The project members have project experience and bring lessons-learned experience to the table.</p>	<ul style="list-style-type: none"> • Project organization chart • Qualification matrix • Evidence of qualifications • Occupational safety • Activity description • Requirement profile • Proof of training/qualifications (e.g. SCRUM) • Initial training plan • Suitable evidence of qualification (e.g. vision test, hearing test, touch test)

<p>6. The customer and the supplier have been informed who the relevant contact persons are.</p> <p>7. Strategic goals are taken into account.</p>	<ul style="list-style-type: none"> • Job description acknowledged by the employee
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L1.3.2 Is there a concept for utilizing and implementing specialized knowledge outside one's own organization?

Minimum requirements relevant for evaluation	Examples for implementation
<ol style="list-style-type: none"> 1. The project team has the necessary network contacts to be able to bring in technical expertise. 2. The availability of the network contacts is ensured. 3. An appropriate budget is available for external project tasks. 4. Strategic goals are taken into account. 	<ul style="list-style-type: none"> • Overview of persons with specialized knowledge • Stakeholder analysis • Training plan • Training concept • Patent concept • Quality and time • Qualification matrix • First-day briefing • Initial training plan with references • Briefings (e.g. occupational safety, ESG requirements, data protection)

L.1.3.3 Do the employees know their responsibilities and authorizations within the project structure?

Minimum requirements relevant for evaluation	Examples for implementation
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<ol style="list-style-type: none"> 1. The staff have complete knowledge of their tasks. 2. Escalation paths are planned. 3. The staff are regularly updated on the project status. 4. The response to improperly performed work and/or errors in the process is defined. 5. The staff identify disruptions in the project progress and are able to initialize appropriate actions. 6. Process changes are communicated. 	<ul style="list-style-type: none"> • Function description • Escalation matrix • Communication plan • Response plan to faulty work • Action plan in case of problems • Identification of process disturbances • Safe work conduct/practices • Work/inspection instructions • Service agreement (e.g. service-level agreement, target/actual KPIs) • Order and cleanliness • Training on relevant statutory/regulatory requirements • IT permissions • Functions and requirements
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L1.3.4* Are the necessary human resources available?

Minimum requirements relevant for evaluation	Examples for implementation
<ol style="list-style-type: none"> 1. There is a concept for preventing fluctuations. 2. There is a staff schedule for specialists. 	<ul style="list-style-type: none"> • Staff schedule • Parameter for fluctuation • Interface matrix

<p>3. A set of absence management rules is in place for all activities.</p> <p>4. All activities and roles are mapped in an organization chart or team structure.</p> <p>5. Internal and external interfaces are known.</p> <p>6. A crisis management plan is defined.</p>	<ul style="list-style-type: none"> • Emergency strategy • Resource planning, incl. budget • Documented substitution rules • Absence planning • Organization chart • Q-matrix <p style="padding-left: 40px;">Evidence of qualifications</p>
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L1.4 Material resources: What resources are used to implement the process?

L1.4.1 Is there a suitable IT emergency solution strategy, incl. regular data backup?

Minimum requirements relevant for evaluation	Examples for implementation
<p>1. Project Management must, by means of a disaster recovery strategy, define the maximum tolerable downtime for necessary production-related IT elements (e.g. hardware, applications, hosting).</p> <p>2. In case of a failure of IT elements, Project Management must ensure a recovery time without affecting the customer's required arrival dates.</p> <p>3. An archive is available and protected.</p> <p>4. Data must be backed up on redundant and reliable storage media.</p> <p>5. Regular function tests must be conducted for data backup.</p>	<ul style="list-style-type: none"> • Emergency strategy • Backup plan, incl. escalation levels • Archiving requirements • Backup concept • Emergency information plan • Function test according to VDA 1 • Customer-specific response times • TISAX ®

L1.4.2* Is there a suitable pervasive IT infrastructure?

Minimum requirements relevant for evaluation	Examples for implementation
<ol style="list-style-type: none"> 1. Internal and external requirements are observed. 2. Availability is consistently ensured. 3. Relevant interfaces are functional. 4. The IT infrastructure is capable of representing the relevant processes. 	<ul style="list-style-type: none"> • Network structure plan • Hardware and software • Overview of access permissions • Interface matrix • Parameters and system availability • Data protection policies

L1.4.3 Are the workstations set up in accordance with ergonomic and safety principles?

Minimum requirements relevant for evaluation	Examples for implementation
<ol style="list-style-type: none"> 1. Availability is ensured as of the start of work. 2. Individual needs and physical requirements are taken into account. 3. Escape and rescue routes are visible and kept clear. 	<ul style="list-style-type: none"> • Appropriate lighting • Concepts for noise protection • Specifications regarding ambient temperature • Workplace analysis • Hazard assessments • Office/space concepts • Order and cleanliness • Escape and rescue routes

	<ul style="list-style-type: none"> • Ergonomic aspects
L1.5 Effectiveness and efficiency: How effectively is the process being carried out?	
L1.5.1* Have suitable parameters been defined for project management, including target values, and are they applied?	
Minimum requirements relevant for evaluation	Examples for implementation
<ol style="list-style-type: none"> 1. Process-specific parameters are defined, monitored according to risk and communicated. 2. Targets are agreed, specific, measurable, attainable, realistic and scheduled. 3. A risk-based target/actual comparison is conducted. 4. The timeliness of the targets is ensured. 5. Targets are communicated to all relevant positions in the company. 	<ul style="list-style-type: none"> • Project progress • Milestones • Action plan • Communication plan • Risk estimation • Resource utilization
L1.5.2 Is analyzable process data collected and communicated?	
Minimum requirements relevant for evaluation	Examples for implementation
<ol style="list-style-type: none"> 1. The necessary process parameters (target values) are defined and documented. The actual data is recorded, evaluated and communicated. 2. The recorded data can be allocated to processes, the data is available, legible, accessible and archived as specified. Traceability requirements are met. 	<ul style="list-style-type: none"> • Parameter systems • Archiving concept • Traceability specifications • Parameter definition

<p>3. The data sources for parameter determination are plausible and reasonable. Analyzability must be ensured over a defined time period.</p>	
<p>L1.5.3 In case of process and target deviations, are causes analyzed and corrective measures checked for effectiveness?</p>	
<p>Minimum requirements relevant for evaluation</p>	<p>Examples for implementation</p>
<p>1. If process requirements are not met, immediate actions are taken to fulfill the requirements, until it has been proven that the corrective actions have been effective. The employees are familiar with the immediate actions.</p> <p>2. Suitable methods are implemented to analyze the causes, and customer requirements are taken into account.</p> <p>3. Repeat errors are recorded. A more detailed analysis of the causes must be carried out accordingly.</p> <p>4. Corrective actions are derived, their implementation is monitored and the effectiveness verified.</p> <p>5. Special incidents are documented.</p> <p>6. Deviations from the target value and their causes are documented.</p>	<ul style="list-style-type: none"> • 8D report • 5 whys method • Ishikawa diagram • Action plan • Audit
<p>L1.5.4 Are methods of continuous process improvement implemented?</p>	

Minimum requirements relevant for evaluation	Examples for implementation
<ol style="list-style-type: none"> 1. The potential for improvement is continuously determined based on findings relating to quality, costs, and services. 2. A process for continuous improvement of performance capability is applied throughout the company and with all supply chain partners. 3. Risk analyses are regularly updated. 4. Employees are motivated to submit suggestions for continuous improvement. 	<ul style="list-style-type: none"> • Audit • Lean management • Kaizen • 5S • FMEA • Idea management • PDCA cycle
L1.6 What is the process result? Process output	
L1.6.1 Are all processes from the process flow effectively/efficiently implemented, reviewed and communicated and available as results?	
Minimum requirements relevant for evaluation	Examples for implementation
<ol style="list-style-type: none"> 1. The minimum requirements from the process flow must be implemented. 2. There is a project plan. 3. A project organization is defined. 4. There is a milestone plan. 5. A resource plan, including budget, is in place. 6. There is a disaster recover strategy. 7. Documentation has been performed. 	<ul style="list-style-type: none"> • Project plan • Strategy • Milestone plan • Budget plan • Catalogue of criteria

8. All process results are archived according to defined criteria.	
L1.6.2 Is the lessons-learned method regularly used in order to implement the resulting findings and potential improvements?	
Minimum requirements relevant for evaluation	Examples for implementation
<ol style="list-style-type: none"> 1. The lessons-learned method regularly updates structures/process contents/tools/targets and strategy. 2. Findings from interfaces are taken into account. 3. Deviations are documented and used for improvement measures. 4. The implementation is risk-based. 	<ul style="list-style-type: none"> • Lessons-learned database • Non-conformity management • Improvement program
L1.6.3* Has a handover to the downstream process taken place?	
Minimum requirements relevant for evaluation	Examples for implementation
1. Documented acceptance and handover procedures have been completed.	<ul style="list-style-type: none"> • Handover report • Maturity level

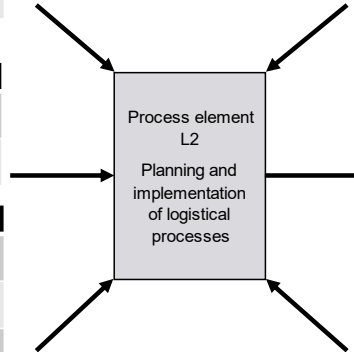
7.3 Planning and implementation of logistical processes (L2)

Why: The objective of planning is to design efficient and effective processes and minimize risks. In the implementation phase, the requirements from the planning phase are implemented. The planning and implementation of logistical processes increases customer satisfaction and reduces costs while maintaining compliance with ESG requirements.

2.4	Material resources
2.4.1	Is there a suitable IT emergency solution strategy, incl. regular data backup?
2.4.2*	Is there a suitable pervasive IT infrastructure?
2.4.3	Are the workstations set up in accordance with ergonomic and safety principles?
2.4.4	Are the material resources for the supply chain infrastructure planned and fit to represent the entire value stream?

2.1	Input
2.1.1	Is the output of the upstream process integrated into planning and implementation?
2.1.2	Are requirements integrated into supply chain planning and continuously taken into account?

2.2	Process flow
2.2.1*	Are methods of risk analysis established during the implementation of logistical processes, and are they used?
2.2.2	Are deviations from / changes to the planning status documented and communicated?
2.2.3*	Is material master and material flow data defined in the planning process and continuously monitored?
2.2.4	Has an emergency concept been described for the defined logistical processes and is it tested?
2.2.5	Are the processes for in-house logistics, including packaging and container management, defined in planning, and are they continuously adjusted?
2.2.6*	Is there a transport concept for ensuring customized supply?
2.2.7	Are the processes for procurement and supplier management defined in planning, and are they continuously monitored?



2.3	Human resources
2.3.1	Have requirement profiles been defined for all activities, and do they correspond to the activities to be performed?
2.3.2	Is the qualification concept suitable for qualifying the employees in accordance with the task descriptions?
2.3.3	Do the employees know their responsibility and authorizations regarding the monitoring of SC processes?
2.3.4*	Are the necessary human resources available?

2.6	Output
2.6.1*	Are all processes from the process flow effectively/efficiently implemented, reviewed and communicated and available as results?
2.6.2	Is the lessons-learned method regularly used in order to implement the resulting findings and potential improvements?
2.6.3	Is the feasibility of the planned logistical processes checked, and is the approval documented?

2.5	Effectiveness and efficiency
2.5.1*	Is progress, including project contents, tracked using milestone plans and communicated?
2.5.2	In case of process and target deviations, are causes analyzed and corrective measures checked for effectiveness?
2.5.3	Are methods of continuous process improvement implemented?
2.5.4	Are sustainability aspects factored into the planning and implementation of logistical processes?

Figure 7-2: Turtle model for L2

Process element L2: Planning and implementation of logistical processes

**L2.1 What goes into the process?
Process input**

L2.1.1 Is the output of the upstream processes integrated into the planning and implementation?

Minimum requirements relevant for evaluation	Examples for implementation
<p>1. The following approved items from 1.6.1 are carried over:</p> <ul style="list-style-type: none"> - Project plan - Project organization - Milestone plan - Resource planning, incl. budget - Disaster recovery strategy <p>2. A clearly defined work order is available before the start of the process.</p> <p>3. Results from change management are integrated.</p> <p>4. Results from CIP are integrated.</p> <p>5. The customer's requirements regarding the documentation and release of Free and Open Source Software (FOSS) are taken into account.</p>	<ul style="list-style-type: none"> • Project plan • Strategy • Milestone plan • Resource planning • Budget plan • Catalogue of criteria

L2.1.2 Are requirements integrated into supply chain planning and continuously taken into account?	
Minimum requirements relevant for evaluation	Examples for implementation
<p>1. The following requirements must be taken into account:</p> <ul style="list-style-type: none"> - customer requirements - internal requirements - ESG requirements <p>2. There must be processes for identifying, evaluating and implementing compliance obligations.</p> <p>3. Data and/or information is available for the planning and implementation of logistical processes.</p>	<ul style="list-style-type: none"> • Lessons-learned database • Non-conformity management • Improvement program • Handover report • Maturity level • Customer-specific requirements
L2.2 Process flow: How does the process work?	
L2.2.1* Are methods of risk analysis established during the implementation of logistical processes, and are they used?	
Minimum requirements relevant for evaluation	Examples for implementation
<p>1. Risks have been identified, assessed, and have been mitigated by means of appropriate measures during planning and implementation.</p>	<ul style="list-style-type: none"> • FMEA • Potential analysis • SWOT analysis • Turtle diagram

<p>2. Experiences (especially lessons learned) from ongoing or previous comparable projects are taken into account.</p> <p>3. Identified risks are integrated into instructions/specifications.</p>	
<p>L2.2.2 Are deviations/changes from the planning status documented and communicated?</p>	
<p>Minimum requirements relevant for evaluation</p>	<p>Examples for implementation</p>
<p>1. A process has been defined for the change management of planning processes.</p>	<ul style="list-style-type: none"> • Process descriptions • Escalation processes • Change management • Communication plan
<p>L2.2.3* Is material master and material flow data defined in the planning process and continuously monitored?</p>	
<p>Minimum requirements relevant for evaluation</p>	<p>Examples for implementation</p>
<p>1. Material master data is available and accessible.</p> <p>2. Roles are defined for master data management.</p> <p>3. A process is established which describes how changes to material master data are continuously recorded and communicated to the affected departments.</p>	<ul style="list-style-type: none"> • Function description • Change management • Access permissions • ERP systems

L2.2.4 Has an emergency concept been described for the defined logistical processes and is it tested?	
Minimum requirements relevant for evaluation	Examples for implementation
<p>1. Emergency strategies for resource shortages must be in place.</p> <p>2. Actions are defined in order to ensure customer supply in case of software and/or hardware failure.</p>	<ul style="list-style-type: none"> • Emergency strategies • Escalation matrix • Replacement systems
L2.2.5 Are the processes for in-house logistics, including packaging and container management, defined in planning, and are they continuously adjusted?	
Minimum requirements relevant for evaluation	Examples for implementation
<p>1. Packaging and container development is subject to an approval process and accounts for customer-specific and ESG requirements.</p> <p>2. The various packaging levels are defined.</p> <p>3. A process is established for compliant labelling of packaging.</p> <p>4. A supply chain concept is in place for production and warehouse logistics.</p> <p>5. The process descriptions, work instructions and other relevant documents are clearly described with an adequate degree of detail.</p>	<ul style="list-style-type: none"> • Packaging and container concept • Overview of packaging levels • Alternative packaging • Supply chain concept • Labelling overview • Recyclable or recycled packaging materials
L2.2.6* Is there a transport concept for ensuring customized supply?	

Minimum requirements relevant for evaluation	Examples for implementation
<p>1. It has been determined which type of transport should be used for which scopes/routes.</p> <p>2. A process is established for the transport of bottleneck parts and special situations.</p> <p>3. Time window management</p> <p>4. The process descriptions, work instructions and other relevant documents are clearly described with an adequate degree of detail.</p>	<ul style="list-style-type: none"> • Transport concept • Route concept • Time management • Bottleneck management
<p>L2.2.7 Are the processes for procurement and supplier management defined in planning, and are they continuously adjusted?</p>	
Minimum requirements relevant for evaluation	Examples for implementation
<p>1. A process for supplier selection is defined.</p> <p>2. Evaluation criteria are defined for suppliers.</p> <p>3. The process descriptions, work instructions and other relevant documents are clearly described with an adequate degree of detail.</p>	<ul style="list-style-type: none"> • List of approved suppliers • Supplier management process • Audit reports
<p>L2.3 Human resources: What departments, roles, persons support the process?</p>	
<p>L2.3.1 Have requirement profiles been defined for all activities, and do they correspond to the activities to be performed?</p>	

Minimum requirements relevant for evaluation	Examples for implementation
<ol style="list-style-type: none"> 1. The requirement profile for the job forms the basis for the recruiting process and the associated comparison with the employee profile of potential new hires. 2. Activity descriptions are available for every position. 3. A differentiation is made between professional and mental requirements. 4. Schooling, prior knowledge, career and higher education are taken into account. 5. The necessary permissions are defined. 6. Relevant orders are defined. 7. Checks are performed regularly. 8. Workplace-related qualifications are defined. 	<ul style="list-style-type: none"> • Project organization chart • Requirements profiles for project members • Qualification matrix • Evidence of qualifications • Occupational safety • Activity description • Requirement profile • Proof of training/qualifications (e.g. SCRUM) • Initial training plan • Briefings (e.g. occupational safety, ESG requirements) • Suitable evidence of qualification (e.g. vision test, hearing test, touch test) • Job description acknowledged by the employee
L2.3.2 Is the qualification concept suitable for qualifying the employees in accordance with the task descriptions?	
Minimum requirements relevant for evaluation	Examples for implementation

<ol style="list-style-type: none"> 1. For each position, there is a training schedule based on the work description. 2. A qualification matrix is used. 3. The type and the scope of the “initial training” are defined. 4. The type and the scope of statutory, internal and recurring training are defined. 5. The effectiveness of the qualification measures is ensured in terms of quality and time. 6. Training is conducted by qualified staff/trainers. 7. Training know-how must be demonstrable. 8. Qualifications for compliance with special characteristics of in-house logistics must be ensured. 9. Workplace-related qualifications are ensured. 10. A training concept, including appropriate training documents, is in place. 	<ul style="list-style-type: none"> • Overview of persons with specialized knowledge • Stakeholder analysis • Training plan • Training concept • Patent concept • Qualification matrix • First-day briefing • Initial training plan with references • Briefings (e.g. occupational safety, ESG requirements, data protection) • Confirmation of effectiveness
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L2.3.3 Do the employees know their responsibility and authorizations regarding the monitoring of SC processes?

Minimum requirements relevant for evaluation	Examples for implementation
<ol style="list-style-type: none"> 1. The staff know their work and inspection instructions 2. The staff know their activity description. 3. The staff know the consequences of incorrect execution of work. 	<ul style="list-style-type: none"> • Function description • Escalation matrix • Communication plan

<p>4. The response to improperly performed work and/or errors in the process is defined.</p> <p>5. Employees receive regular information on the current standard of quality achieved and are informed about customer complaints.</p> <p>6. Instructions, trainings and inductions provided to the staff as well as proofs of qualification are documented.</p> <p>7. In case of changes to processes, trainings/instructions are provided and documented.</p>	<ul style="list-style-type: none"> • Response plan to faulty work • Action plan in case of problems • Identification of process disturbances • Safe work conduct/practices • Work/inspection instructions • Service agreement (e.g. service-level agreement, target/actual KPIs) • Order and cleanliness • Training on relevant statutory/regulatory requirements • IT permissions • Functions and requirements
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L2.3.4* Are the necessary human resources available?

Minimum requirements relevant for evaluation	Examples for implementation
<p>1. There is a staff schedule for all shifts. The staff schedule takes into account the required number of qualified employees.</p> <p>2. Variations in the production volume are taken into account.</p>	<ul style="list-style-type: none"> • Staff schedule • Parameter for fluctuation • Interface matrix

<p>3. A set of absence management rules is in place for all activities.</p> <p>4. All activities and roles are mapped in an organization chart or team structure.</p> <p>5. A crisis management plan is defined.</p>	<ul style="list-style-type: none"> • Emergency strategy • Resource planning, incl. budget • Documented substitution rules • Absence planning • Organization chart • Q-matrix • Evidence of qualifications
<p>L2.4 Material resources: What resources are used to implement the process?</p>	
<p>L2.4.1 Is there a suitable IT emergency solution strategy, incl. regular data backup?</p>	
<p>Minimum requirements relevant for evaluation</p>	<p>Examples for implementation</p>
<p>1. The company must, by means of a disaster recovery strategy, define the maximum tolerable downtime for necessary production-related IT elements (e.g. hardware, applications, hosting).</p> <p>2. In case of a failure of IT elements, the company must ensure a recovery time without affecting the customer's required arrival dates.</p> <p>3. Archive is available and protected.</p> <p>4. Data must be backed up on redundant and reliable storage media.</p> <p>5. Regular function tests must be conducted for data backup.</p>	<ul style="list-style-type: none"> • Emergency strategy • Backup plan, incl. escalation levels • Archiving requirements • Backup concept • Emergency information plan • Function test according to VDA 1

	<ul style="list-style-type: none"> • Customer-specific response times • TISAX ®
L2.4.2* Is there a suitable pervasive IT infrastructure?	
Minimum requirements relevant for evaluation	Examples for implementation
<ol style="list-style-type: none"> 1. Internal and external requirements are observed. 2. Availability is consistently ensured. 3. Relevant interfaces are functional. 4. The IT infrastructure is capable of representing the relevant processes. 	<ul style="list-style-type: none"> • Network structure plan • Hardware and software • Overview of access permissions • Interface matrix • Parameters and system availability • Data protection policies
L2.4.3 Are the workstations set up in accordance with ergonomic, product-specific and safety principles?	
Minimum requirements relevant for evaluation	Examples for implementation
<ol style="list-style-type: none"> 1. Availability is ensured as of the start of work. 2. Individual needs and physical requirements are taken into account. 3. Escape and rescue routes are defined and clearly indicated. 	<ul style="list-style-type: none"> • Appropriate lighting • Concepts for noise protection • Specifications regarding ambient temperature • Workplace analysis • Hazard assessments

	<ul style="list-style-type: none"> • Office/space concepts • Order and cleanliness • Escape and rescue routes • Ergonomic aspects
L2.4.4 Are the material resources for the supply chain infrastructure planned and fit to represent the entire value stream?	
Minimum requirements relevant for evaluation	Examples for implementation
<ol style="list-style-type: none"> 1. A quantity structure is provided. 2. The labelling of the individual warehouse functional areas and routes is ensured. 3. Stock receipt areas have adequate protection from the elements. 4. The unloading zone has adequate capacity for unloading. 5. Adequate storage spaces are available. 6. Containers: labelling, visualization / internal container label (operating materials) 	<ul style="list-style-type: none"> • Order and cleanliness • Labelling concept • Definition of functional areas • Layout • Definition of storage systems (e.g. shelf, high rack, paternoster rack, etc.) • Internal transport equipment • Test certificates of work equipment
L2.5 Effectiveness and efficiency: How effectively is the process being carried out?	
L2.5.1* Is progress, including project contents, tracked using milestone plans and communicated?	

Minimum requirements relevant for evaluation	Examples for implementation
<p>1. The level of compliance is documented according to the project plan.</p>	<ul style="list-style-type: none"> • Milestone plan • Maturity level status • Project plan • Level of compliance • SCRUM

L2.5.2 In case of process and target deviations, are causes analyzed and corrective measures checked for effectiveness?

Minimum requirements relevant for evaluation	Examples for implementation
<p>1. If process requirements are not met, immediate actions are taken to fulfill the requirements, until it has been proven that the corrective actions have been effective. The employees are familiar with the immediate actions.</p> <p>2. Suitable methods are implemented to analyze the causes, and customer requirements are taken into account.</p> <p>3. Repeat errors are recorded. A more detailed analysis of the causes must be carried out accordingly.</p> <p>4. Corrective actions are derived, their implementation is monitored and the effectiveness verified.</p> <p>5. Special incidents are documented.</p>	<ul style="list-style-type: none"> • Action plan • 8D report • Parameter matrix • Escalation matrix • Evidence of effectiveness • Backlog • Clean Up

<p>6. Deviations from the target value and their causes are documented.</p>	
<p>L2.5.3 Are methods of continuous process improvement implemented?</p>	
<p>Minimum requirements relevant for evaluation</p>	<p>Examples for implementation</p>
<p>1. The potential for improvement is continuously determined based on findings relating to quality, costs, and services.</p> <p>2. A process for continuous improvement of performance capability is applied throughout the company and with all supply chain partners.</p> <p>3. Risk analyses are regularly updated.</p> <p>4. Employees are motivated to submit suggestions for continuous improvement.</p>	<ul style="list-style-type: none"> • 5S • Audits • CIP • KAIZEN • Six Sigma • Idea management
<p>L2.5.4 Are sustainability aspects factored into the planning and implementation of logistical processes?</p>	
<p>Minimum requirements relevant for evaluation</p>	<p>Examples for implementation</p>
<p>1. Internal and external requirements are considered.</p> <p>2. Packaging and container development accounts for customer-specific and ESG requirements and is monitored.</p>	<ul style="list-style-type: none"> • Requirement specification • Customer guidelines • Packaging standards • Contract

L2.6 What is the process result? Process output	
L2.6.1* Are all processes from the process flow effectively/efficiently implemented, reviewed and communicated and available as results?	
Minimum requirements relevant for evaluation	Examples for implementation
<p>1. All (internal/external) activities from planning are implemented and approved according to the milestone plan.</p> <p>2. The following processes must be completed:</p> <ul style="list-style-type: none"> - infrastructure plan - work instruction - material master data - control plan - performance test based on customer requirements - qualification of the staff is implemented according to planning <p>3. All process results are archived according to defined criteria.</p>	<ul style="list-style-type: none"> • Milestone plan • Handover reports • Resource planning, incl. budget • Results from performance tests • Qualification matrix • ERP system • Maturity level
L2.6.2 Is the lessons-learned method regularly used in order to implement the resulting findings and potential improvements?	
Minimum requirements relevant for evaluation	Examples for implementation

<ol style="list-style-type: none"> 1. The lessons-learned method regularly updates structures/process contents/tools/targets and strategy. 2. Findings from interfaces are taken into account. 3. Deviations are documented and used for improvement measures. 4. The implementation is risk-based. 	<ul style="list-style-type: none"> • Lessons-learned database • Action list • FMEA/Turtle • Improvement program • Non-conformity management • Qualification matrix
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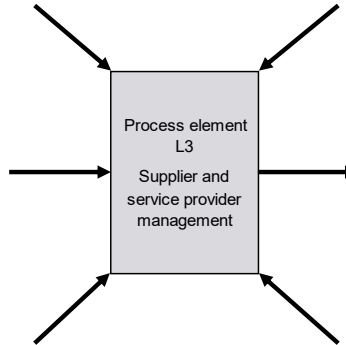
L2.6.3 Is the feasibility of the planned logistical processes checked, and is the approval documented?

Minimum requirements relevant for evaluation	Examples for implementation
<ol style="list-style-type: none"> 1. It is verified that all relevant requirements have been met during the planning and implementation of logistical processes. 2. All the tasks/requirements defined in project management (L1) are taken into account in the planning and implementation of logistical processes. 	<ul style="list-style-type: none"> • Results from feasibility analysis • POT analysis • Audit (e.g. VDA6.3, MMOGLE) • Handover report • Supply chain concept • Self-assessment • Deming Cycle • Daily Scrum • Sprint Review

7.4 Supplier and service provider management (L3)

Why: Efficient supplier and service provider management allows for reliable material supply and helps to minimize risks with regard to quality and compliance.

3.4	Material resources
3.4.1	Is there a suitable IT emergency solution strategy, incl. regular data backup?
3.4.2*	Is there a suitable pervasive IT infrastructure?
3.4.3	Are the workstations set up in accordance with ergonomic and safety principles?
3.1	Input
3.1.1	Is the output of upstream processes integrated into supplier and service provider management?
3.2	Process flow
3.2.1*	Has a process been defined which ensures that only approved and quality -capable suppliers and service providers are used?
3.2.2*	Is there a service contract, and are compliance obligations analyzed, taken into account and observed?
3.2.3	Has an emergency management plan been agreed with the logistical service providers, and is it effectively implemented?
3.2.4	Is there a complaint process which has been coordinated with the logistical service provider?
3.2.5*	Have the risk transfers and process owners of the process steps been identified, documented and communicated?
3.2.6	Has standardized communication been established between the organization and the service provider?
3.2.7	Is outsourcing to an external service provider planned and controlled?



3.3	Human resources
3.3.1	Have requirement profiles been defined for all activities, and do they correspond to the activities to be performed?
3.3.2	Is the qualification concept suitable for ensuring training in accordance with the task descriptions?
3.3.3	Do the employees know their responsibilities and authorizations in supplier and service provider management?
3.3.4*	Are the necessary human resources available?
3.6	Output
3.6.1*	Are all processes from the process flow effectively/efficiently implemented, reviewed and communicated and available as results?
3.6.2	Is the lessons-learned method regularly used in order to implement the resulting findings and potential improvements?
3.5	Effectiveness and efficiency
3.5.1*	Are suitable parameters available in the supplier and service provider management, incl. realistic target values?
3.5.2	Is analyzable supplier -specific data collected and communicated?
3.5.3*	In case of deviations, are causes analyzed and corrective measures checked for effectiveness?
3.5.4	Are methods of continuous process improvement implemented?
3.5.5	Are the supplier and service management processes checked in case of changes?

Figure 7-3: Turtle model for L3 supplier and service provider management

Process element L3: Supplier and service provider management	
L3.1 What goes into the process? Process input	
L.3.1.1 Is the output of upstream processes integrated into supplier and service provider management?	
Minimum requirements relevant for evaluation	Examples for implementation
<p>1. The following results/documents are provided:</p> <ul style="list-style-type: none"> - Feasibility analysis - Lessons learned - Results from project management and logistical planning <p>2. A work order is provided.</p>	<ul style="list-style-type: none"> • Master plan • Lessons learned • Negative examples • Project structure plan • Reports
L3.2 Process flow: How does the process work?	
L3.2.1* Has a process been defined which ensures that only approved and quality-capable suppliers and service providers are used?	
Minimum requirements relevant for evaluation	Examples for implementation
<p>1. The process descriptions, work instructions and other relevant documents are clearly described with an adequate degree of detail.</p>	<ul style="list-style-type: none"> • Process plans • Audit results • List of approved suppliers/service providers

<p>2. Only quality-capable logistical service providers are selected, in accordance with established criteria (e.g. Q-capability, Q-performance):</p> <p>3. Only logistical service providers who have received a positive rating in accordance with VDA 6.8 or GMMOG/LE are nominated.</p> <p>4. Risks in the supply chain (internal/external) are identified, evaluated and mitigated using suitable measures.</p> <p>5. In supplier development, defined measures are monitored.</p> <p>6. Interfaces are defined and documented.</p> <p>7. Supply Chain participates in relevant procurement panels for selecting logistical service providers.</p>	<ul style="list-style-type: none"> • Certificates (QM systems) • Quality performance overview of suppliers • Defined criteria for the selection of suppliers • Quality capability evaluation based on KPIs • Escalation level • Audit results of the suppliers
<p>L3.2.2* Is there a service contract, and are compliance obligations analyzed, taken into account and observed?</p>	
<p>Minimum requirements relevant for evaluation</p>	<p>Examples for implementation</p>
<p>1. For the performance of logistical processes by service providers, the scope of services is contractually agreed and monitored.</p>	<ul style="list-style-type: none"> • Contracts • Agreed parameters • Proofs of performance

<p>2. Logistical quality targets are part of this agreement.</p> <p>3. Consequences are defined for non-compliance with agreements.</p> <p>4. The analysis of relevant compliance obligations and their fulfillment is monitored.</p>	<ul style="list-style-type: none"> • Certificates (QM systems) • Feasibility analysis
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L3.2.3 Has an emergency management plan been agreed with the logistical service providers, and is it effectively implemented?

Minimum requirements relevant for evaluation	Examples for implementation
<p>1. A documented emergency management plan, including responsibilities and escalation levels, is agreed with logistical service providers.</p> <p>2. The emergency concept is based on defined risks.</p>	<ul style="list-style-type: none"> • Emergency concepts • Supply bottleneck • Force majeure • Shortage of material resources • Shortage of human resources

L3.2.4 Is there a complaint process which has been coordinated with the logistical service provider?

Minimum requirements relevant for evaluation	Examples for implementation
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<p>1. Specifications are defined for the tracking and documentation of logistical complaints.</p> <p>2. A process is defined for processing complaints, including relevant customer specifications.</p> <p>3. A fault correction process is defined, including suitable methods.</p> <p>4. Supply is ensured by means of immediate actions.</p> <p>5. Processes are defined for compensation (e.g. recovery) of additional costs.</p>	<ul style="list-style-type: none"> • Escalation process • Complaint guidelines • Work instructions • List of contact persons
<p>L3.2.5* Have the risk transfers and process owners of the process steps been identified, documented and communicated?</p>	
<p>Minimum requirements relevant for evaluation</p>	<p>Examples for implementation</p>
<p>1. Risk transfers are contractually regulated and known to all relevant parties.</p>	<ul style="list-style-type: none"> • Contracts • Process flow diagrams • RACI chart • INCOTERMS • Provisions of individual contracts

L3.2.6 Has standardized communication been established between the organization and the service provider?	
Minimum requirements relevant for evaluation	Examples for implementation
<p>1. Changes pertaining to logistical services are communicated in a timely and complete manner.</p> <p>2. Interfaces and contact persons are defined for the organization and the service provider.</p> <p>3. There is a regular exchange on process performance and target achievement. In case of target deviations, corrective measures are defined and implemented.</p> <p>4. The use and application of an Electronic Data Interface (EDI) are defined.</p> <p>5. Access to the relevant customer platforms is provided.</p>	<ul style="list-style-type: none"> • Shopfloor management, incl. service provider • Regular communication • List of contact persons, incl. emergency contact • IT requirements • Access permissions • Customer feedback
L3.2.7 Is outsourcing to an external service provider planned and controlled?	
Minimum requirements relevant for evaluation	Examples for implementation
<p>1. Scopes of performance which are assigned to external service providers are defined.</p>	<ul style="list-style-type: none"> • Inventory transparency at all stages of production • Dispatch note EDI

<p>2. Responsibility for the control of external service providers is regulated and integrated into the supply chain.</p> <p>3. Rules for communication with external service providers are defined, and are known to all participants.</p> <p>4. The dispatch control for direct supply by the external service provider to the customer is defined.</p>	<ul style="list-style-type: none"> • Schedule tracking • Shipping documents • Transport frequency
<p>L3.3 Human resources: What departments, roles, persons support the process?</p>	
<p>L3.3.1 Have requirement profiles been defined for all activities, and do they correspond to the activities to be performed?</p>	
<p>Minimum requirements relevant for evaluation</p>	<p>Examples for implementation</p>
<p>1. The requirement profile for the job forms the basis for the recruiting process and the associated comparison with the employee profile of potential new hires.</p> <p>2. Activity descriptions are available for every position.</p> <p>3. A differentiation is made between professional and mental requirements.</p> <p>4. Schooling, prior knowledge, career and higher education are taken into account.</p>	<ul style="list-style-type: none"> • Activity description • Requirement profile • Proof of training/qualifications • Customer-specific requirements • Q-matrix • Initial training plan • Briefings (e.g. occupational safety, ESG requirements) • Suitable evidence of qualification (e.g. vision test, hearing test, touch test)

	<ul style="list-style-type: none"> • Supplier evaluation methods (e.g. audit, target compliance, statistics) • Quality procedures (e.g. 8D, 5W) • Qualification of supplier auditor • Knowledge of foreign languages • Job description acknowledged by the employee
<p>L3.3.2 Is the qualification concept suitable for ensuring training in accordance with the task descriptions?</p>	
<p>Minimum requirements relevant for evaluation</p>	<p>Examples for implementation</p>
<ol style="list-style-type: none"> 1. For each position, there is a training schedule based on the work description. 2. A qualification matrix is used. 3. The scope of the “first-day briefing” is defined. 4. The effectiveness of the qualification measures is ensured. 5. Training is conducted by qualified trainers. 	<ul style="list-style-type: none"> • Initial training plans • Patent concept • Training on the job • Training concept • Occupational safety • Training plan • Qualification matrix • First-day briefing • Initial training plan with references • Handling of goods (e.g. use of handling icons)

	<ul style="list-style-type: none"> • Briefings (e.g. occupational safety, ESG requirements, data protection)
<p>L3.3.3 Do the employees know their responsibilities and authorizations in supplier and service provider management?</p>	
<p>Minimum requirements relevant for evaluation</p>	<p>Examples for implementation</p>
<ol style="list-style-type: none"> 1. The staff know their work and process instructions. 2. The staff know their activity description. 3. The staff know the consequences of incorrect execution of work. 4. The staff have access to the supplier selection and assessment status. 5. Instructions, trainings and inductions provided to the staff as well as proofs of qualification are documented. 6. In case of changes to processes, trainings/instructions are provided and documented. 	<ul style="list-style-type: none"> • Emergency plans/responsibility matrix • Areas of expertise • Interface delimitations • Change logs, • Activity description • Identification of process disturbances • Safe work conduct/practices • Work/inspection instructions • Blocking/unblocking authorizations • Service agreement (e.g. service-level agreement, target/actual KPIs)

	<ul style="list-style-type: none"> • Order and cleanliness • Training on relevant statutory/regulatory requirements • IT permissions <p>Functions and requirements</p>
L3.3.4* Are the necessary human resources available?	
Minimum requirements relevant for evaluation	Examples for implementation
<p>1. There is a staff schedule which takes into account the required number of qualified employees (qualification matrix).</p> <p>2. A set of absence management rules is in place for all activities.</p> <p>3. All activities and roles are mapped in an organization chart or team structure.</p>	<ul style="list-style-type: none"> • Staff schedule • Minimum staffing • Staff requirement • Documented substitution rules, • Absence planning • Organization chart • Q-matrix • Evidence of qualifications
L3.4 Material resources: What resources are used to implement the process?	
L3.4.1 Is there a suitable IT emergency solution strategy, incl. regular data backup?	
Minimum requirements relevant for evaluation	Examples for implementation

<ol style="list-style-type: none"> 1. An IT emergency solution is defined. 2. An archive is available and protected. 3. Data must be backed up on redundant and reliable storage media. 4. Regular function tests must be conducted for data backup. 	<ul style="list-style-type: none"> • Customer-specific response times • Emergency strategy • Backup plan, incl. escalation levels • Archiving requirements • Backup concept • Emergency information plan • Function test according to VDA 1
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L3.4.2* Is there a suitable pervasive IT infrastructure?

Minimum requirements relevant for evaluation	Examples for implementation
<ol style="list-style-type: none"> 1. Internal and external requirements are observed. 2. Availability is consistently ensured. 3. Relevant interfaces are functional. 4. The IT infrastructure is capable of representing the relevant processes. 	<ul style="list-style-type: none"> • Network structure plan • Hardware and software • Overview of access permissions • Interface matrix • Parameters and system availability • Data protection policies

L3.4.3 Are the workstations set up in accordance with ergonomic and safety principles?

Minimum requirements relevant for evaluation	Examples for implementation
<ol style="list-style-type: none"> 1. Availability is ensured as of the start of work. 2. Individual needs and physical requirements are taken into account. 3. Escape and rescue routes are defined and clearly indicated. 	<ul style="list-style-type: none"> • Appropriate lighting • Concepts for noise protection • Specifications regarding ambient temperature • Workplace analysis • Hazard assessments • Office/space concepts • Order and cleanliness • Escape and rescue routes • Ergonomic aspects
<p>L3.5 Effectiveness and efficiency: How effectively is the process being carried out?</p>	
<p>L3.5.1* Are suitable parameters available in the supplier and service provider management, incl. realistic target values?</p>	
Minimum requirements relevant for evaluation	Examples for implementation
<ol style="list-style-type: none"> 1. Process-specific targets are defined, monitored and communicated. 2. Targets are agreed, specific, measurable, attainable, realistic and scheduled. 	<ul style="list-style-type: none"> • Delivery reliability • Rate of error in delivery • Supplier controlling

<p>3. A risk-based target/actual comparison is conducted.</p> <p>4. The timeliness of the targets is ensured.</p> <p>5. Targets are communicated to all relevant positions in the company.</p>	<ul style="list-style-type: none"> • Early indicators of target compliance • Supplier assessment • Delivery quality
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L3.5.2 Is analyzable supplier-specific data collected and communicated?

Minimum requirements relevant for evaluation	Examples for implementation
<p>1. The necessary process parameters (target values) are defined and documented. The actual data is recorded, evaluated and communicated.</p> <p>2. The recorded supplier-specific data can be allocated to processes, the data is available, legible, accessible and archived as specified. Traceability requirements are met.</p> <p>3. The data sources for parameter determination are plausible and reasonable. Analyzability must be ensured over a defined time period.</p>	<ul style="list-style-type: none"> • Master data maintenance • Change management • Supplier portal • Audit results • Complaint management

L3.5.3* In case of deviations, are causes analyzed and corrective measures checked for effectiveness?

Minimum requirements relevant for evaluation	Examples for implementation
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<p>1. If process requirements are not met, immediate actions are taken to fulfill the requirements, until it has been proven that the corrective actions have been effective. The employees are familiar with the immediate actions.</p> <p>2. Suitable methods are implemented to analyze the causes, and customer requirements are taken into account.</p> <p>3. Repeat errors are recorded. A more detailed analysis of the causes must be carried out accordingly.</p> <p>4. Corrective actions are derived, their implementation is monitored and the effectiveness verified.</p> <p>5. Special incidents are documented.</p> <p>6. Deviations from the target value and their causes are documented.</p>	<ul style="list-style-type: none"> • 5W • PDCA cycle • Ishikawa diagram • Value stream analysis • 8D report • Portal result processing • Process FMEA • Deviation permission • Waivers
L3.5.4 Are methods of continuous process improvement implemented?	
<p>Minimum requirements relevant for evaluation</p>	<p>Examples for implementation</p>
<p>1. The potential for improvement is continuously determined based on findings relating to quality, costs, and services.</p> <p>2. A process for continuous improvement of performance capability is applied within supplier management and with all supply chain partners.</p>	<ul style="list-style-type: none"> • CIP documentation • Suggestion scheme • Evidence for implemented lessons learned

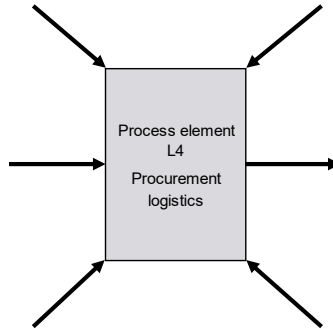
<p>3. Risk analyses are regularly updated.</p> <p>4. Employees are motivated to submit suggestions for continuous improvement.</p>	
<p>L3.5.5 Are the supplier and service management processes checked in case of changes?</p>	
<p>Minimum requirements relevant for evaluation</p>	<p>Examples for implementation</p>
<p>1. Customer requirements are factored in.</p> <p>2. There are action lists with effectiveness predictions in case of deviations.</p> <p>3. Changes are documented.</p>	<ul style="list-style-type: none"> • Supplier feasibility analysis • Process change documentation with approval process • Timely communication of changes • Change history
<p>L3.6 What is the process result? Process output</p>	
<p>L3.6.1* Are all processes from the process flow effectively/efficiently implemented, reviewed and communicated and available as results?</p>	
<p>Minimum requirements relevant for evaluation</p>	<p>Examples for implementation</p>
<p>1. The following processes must be completed:</p> <ul style="list-style-type: none"> - The use of approved suppliers/service providers is defined. - Evaluation results (evaluated suppliers) are available. - Supplier performance is documented. 	<ul style="list-style-type: none"> • Coordinated response plans • Coordinated compensation processing • Performance test results • Strategic supplier development plan

<p>- A supplier development program is in place.</p> <p>2. All process results are archived according to defined criteria.</p>	<ul style="list-style-type: none"> • Central database • Supplier assessment • Supplier list
<p>L3.6.2 Is the lessons-learned method regularly used in order to implement the resulting findings and potential improvements?</p>	
<p>Minimum requirements relevant for evaluation</p>	<p>Examples for implementation</p>
<p>1. Relevant supplier approvals/evaluations are taken into account</p> <p>2. Findings from interfaces are taken into account.</p> <p>3. Deviations are documented and used for improvement measures.</p> <p>4. The implementation is risk-based.</p>	<ul style="list-style-type: none"> • 8D report • 5W • Follow-up audits • PDCA cycle • Ishikawa diagram • Communication plan • Deming Cycle • Daily Scrum • Sprint Review

7.5 Procurement logistics

Why: Procurement logistics ensures material supply in accordance with demand and is situated between the conflicting priorities of stock-keeping costs and supply security. Comprehensive inventory transparency plays a key role. Interventions in the normal procedure take place according to a defined escalation process.

4.4	Material resources
4.4.1*	Is there a suitable IT emergency solution strategy, incl. regular data backup?
4.4.2*	Is there a suitable pervasive IT infrastructure?
4.4.3	Are the workstations set up in accordance with ergonomic and safety principles?
4.4.4	Is the availability and corresponding use of the delivery schedule ensured with an EDI standard?
4.1	Input
4.1.1*	Are the logistical plans implemented in procurement logistics?
4.1.2	Is the supplier evaluation and control data integrated into procurement logistics?
4.1.3	Are requirements integrated into procurement logistics and continuously taken into account?
4.1.4	Is the planned production volume integrated into material requirements planning?
4.2	Process flow
4.2.1*	Have processes been established for ensuring that materials are supplied in accordance with demand?
4.2.2	Has a container management system been established in accordance with demand and capacity?
4.2.3*	Have processes and concepts (inventory types) been defined for systematic inventory audits and analyses?
4.2.4	Has an escalation process, including coordinated communication, been established, and is it effectively implemented?
4.2.5*	Does production planning and control take place?



4.3	Human resources
4.3.1	Have requirement profiles been defined for all activities, and do they correspond to the activities to be performed?
4.3.2	Is the qualification concept suitable for ensuring training in accordance with the task descriptions?
4.3.3	Do the employees know their responsibilities and authorizations in procurement logistics?
4.3.4*	Are the necessary human resources available?
4.6	Output
4.6.1*	Are all processes from the process flow effectively/efficiently implemented, reviewed and communicated and available as results?
4.6.2	Is the lessons-learned method regularly used in order to implement the resulting findings and potential improvements?
4.5	Effectiveness and efficiency
4.5.1*	Are suitable parameters available in procurement logistics, incl. realistic target values?
4.5.2	Is analyzable process data collected and communicated?
4.5.3*	In case of deviations, are causes analyzed and corrective measures checked for effectiveness?
4.5.4	Are methods of continuous process improvement implemented?
4.5.5	Are the procurement logistics processes checked in case of changes?

Figure 7-4: Turtle model for L4 procurement logistics

Process element L4: Procurement logistics

**L4.1 What goes into the process?
Process input**

L4.1.1* Are the logistical plans implemented in the procurement logistics?

Minimum requirements relevant for evaluation

1. Strategic goals and concepts are taken into account.

Examples for implementation

- Ensuring the availability of material
- Quality assurance
- Reduction of delivery times
- Cost optimization
- Sustainability and compliance in the supply chain

L4.1.2 Is the supplier evaluation and control data integrated into the procurement logistics?

Minimum requirements relevant for evaluation

1. Supplier evaluation and performance are taken into account.
2. Supplier approvals are taken into account.

Examples for implementation

- Supplier error rate
- Supplier quality
- Supplier reliability
- Approved suppliers
- Supplier scorecard

L4.1.3 Are requirements integrated into the procurement logistics and continuously taken into account?

Minimum requirements relevant for evaluation	Examples for implementation
<p>1. The following requirements must be taken into account:</p> <ul style="list-style-type: none"> - customer requirements - internal requirements - ESG requirements <p>2. There must be processes for identifying, evaluating and implementing compliance obligations.</p> <p>3. Data and/or information is available for the procurement logistics processes.</p>	<ul style="list-style-type: none"> • ESG requirements • Risk management • Customer requirements • Contracts • Guidelines • QM system

L4.1.4 Is the planned production volume integrated into material requirements planning?

Minimum requirements relevant for evaluation	Examples for implementation
<p>1. There is a plan for the production volume, and this plan influences material requirements planning.</p> <p>2. Active change management is implemented.</p>	<ul style="list-style-type: none"> • Production plan • Change requests • Analysis of production demand • Bills of materials and work plans • Inventory monitoring • Continuous monitoring

L4.2 Process flow: How does the process work?	
L4.2.1* Have processes been established for ensuring that materials are supplied in accordance with demand?	
Minimum requirements relevant for evaluation	Examples for implementation
<p>1. The process descriptions, work instructions and other relevant documents are clearly described with an adequate degree of detail.</p> <p>2. Process specifications must be defined and taken into account for at least the following processes:</p> <ul style="list-style-type: none"> - Processing of purchase requisitions - Triggering of manual orders - Bottleneck management - Time window control <p>3. Purchase requisitions are processed in good time.</p> <p>4. Unprocessed purchase requisitions are monitored, and processing is ensured.</p> <p>5. It is ensured that unusual order quantities (outliers) are checked for plausibility.</p> <p>6. System parameter changes are adjusted, documented and communicated based on defined criteria and special factors.</p>	<ul style="list-style-type: none"> • Process descriptions • Work instructions • Purchase requisitions • General stock management • ERP systems • Communication plan

<p>7. Safety stocks, minimum order quantities and shelf lives are regularly checked.</p> <p>8. Goods in and goods out control is ensured in accordance with specified criteria.</p> <p>9. Containers and batch sizes are taken into account.</p>	
<p>L4.2.2 Has a container management system been established in accordance with demand and capacity?</p>	
<p>Minimum requirements relevant for evaluation</p>	<p>Examples for implementation</p>
<p>1. Needs-based container management, including consideration of feedback from suppliers.</p> <p>2. The use and the type of alternative packaging are defined.</p> <p>3. Separate and special load carriers are available in sufficient quantity.</p> <p>4. A return flow concept, including return criteria, is described.</p> <p>5. Inventories are presented transparently.</p>	<ul style="list-style-type: none"> • Load carrier stock management • Load carrier cycle • Special load carriers • Alternative packaging • Delivery frequencies
<p>L4.2.3* Have processes and concepts (inventory types) been defined for systematic inventory audits and analyses?</p>	
<p>Minimum requirements relevant for evaluation</p>	<p>Examples for implementation</p>

<ol style="list-style-type: none"> 1. An inventory concept is in place. 2. A process for monitoring material demand is in place. 3. Inventory checks are conducted according to relevant and valid specifications. 4. A process is established for dealing with obsolete parts. 5. Causes of stock discrepancies in inventories (number of locations, part quantities and value of the parts) are researched, focussed analyses are conducted and, if necessary, improvement measures are initiated. 	<ul style="list-style-type: none"> • Stock records • Restocking intervals • Stock data • Identification of discrepancies • Action plan • Stock movements • Inventory concept
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L4.2.4 Has an escalation process, including coordinated communication, been established, and is it effectively implemented?

Minimum requirements relevant for evaluation	Examples for implementation
<ol style="list-style-type: none"> 1. A multi-stage escalation process is defined for overdue items, late delivery, inventory differences and stock deviations. 2. Escalation rules are known and are observed. 3. Overdue items are regularly checked and escalated to the suppliers. 4. A process is defined for bottleneck management (criteria for inclusion in bottleneck control, for allocation, for termination and bottleneck control). 	<ul style="list-style-type: none"> • Process for cross-supply • Cross-procurement • Inventories • Escalation process • Bottleneck control • Responsibilities matrix • Triggering criteria

Delivery date information for overdue items is made available to the customer.	
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L4.2.5* Does production planning and control take place?

Minimum requirements relevant for evaluation	Examples for implementation
<p>1. The production planning and control system must automatically factor in customer requirements in the generation of production plans.</p> <p>2. The time horizon for planning and production orders is defined and observed.</p> <p>3. Sequential production stages are inter-linked and coordinated.</p> <p>4. Production order feedback is provided at reasonable intervals in relation to the total turnaround</p> <p>5. The production status is signalled over the course of production.</p> <p>6. Production planning is informed early on in case of pre-material bottlenecks.</p> <p>7. Batch sizes and tooling times are taken into account and are defined in the individual production sections based on set criteria.</p> <p>8. The order sequence is based on set criteria.</p>	<ul style="list-style-type: none"> • Delivery call-offs • Material availability/approval • Bottlenecks are known • Variant creation (JIS/JIT) • Reject rates are known • WIP inventories • Transparent production schedules and overdue item tracking • Forecasts • ERP/MES systems • Action control • Supply chain planning

L4.3 Human resources: What departments, roles, persons support the process?

L4.3.1 Have requirement profiles been defined for all activities, and do they correspond to the activities to be performed?

Minimum requirements relevant for evaluation	Examples for implementation
<p>1. The requirement profile for the job forms the basis for the recruiting process and the associated comparison with the employee profile of potential new hires.</p> <p>2. Activity descriptions are available for every position.</p> <p>3. A differentiation is made between professional and mental requirements.</p> <p>4. Schooling, prior knowledge, career and higher education are taken into account.</p>	<ul style="list-style-type: none"> • Qualification matrix • Evidence of qualifications • Occupational safety • Activity description • Requirement profile • Proof of training/qualifications • Customer-specific requirements • Initial training plan • Briefings (e.g. occupational safety, ESG requirements) • Suitable evidence of qualification (e.g. vision test, hearing test, touch test) • Job description acknowledged by the employee • Knowledge of foreign languages

L4.3.2 Is the qualification concept suitable for ensuring training in accordance with the task descriptions?	
Minimum requirements relevant for evaluation	Examples for implementation
<ol style="list-style-type: none"> 1. For each position, there is a training schedule based on the work description. 2. A qualification matrix is used. 3. The scope of the “first-day briefing” is defined 4. The effectiveness of the qualification measures is ensured. 5. Training is conducted by qualified trainers. 	<ul style="list-style-type: none"> • Overview of persons with specialized knowledge • Stakeholder analysis • Training plan • Training concept • Patent concept • Quality and time • Qualification matrix • First-day briefing • Initial training plan with references • Briefings (e.g. occupational safety, ESG requirements, data protection)
L4.3.3 Do the staff know their responsibilities and authorizations in procurement logistics?	
Minimum requirements relevant for evaluation	Examples for implementation

<ol style="list-style-type: none"> 1. The staff know their work and inspection instructions. 2. The staff know their activity description. 3. The staff know the consequences of incorrect execution of work. 4. The staff are regularly informed of target compliance and customer complaints. 5. Instructions, trainings and inductions provided to the staff as well as proofs of qualification are documented. 6. In case of changes to processes, trainings/instructions are provided and documented. 	<ul style="list-style-type: none"> • Functions and requirements • Function description • Escalation matrix • Communication plan • Response plan to faulty work • Action plan in case of problems • Identification of process disturbances • Safe work conduct/practices • Work/inspection instructions • Service agreement (e.g. service-level agreement, target/actual KPIs) • Order and cleanliness • Training on relevant statutory/regulatory requirements • IT permissions
<p>L4.3.4* Are the necessary human resources available?</p>	
<p>Minimum requirements relevant for evaluation</p>	<p>Examples for implementation</p>

<p>1. There is a staff schedule for all shifts. The staff schedule takes into account the required number of qualified employees.</p> <p>2. Variations in the production volume are taken into account.</p> <p>3. A set of absence management rules is in place for all activities.</p> <p>4. All activities and roles are mapped in an organization chart or team structure.</p>	<ul style="list-style-type: none"> • Staff schedule • Parameter for fluctuation • Interface matrix • Emergency strategy • Resource planning, incl. budget • Documented substitution rules • Absence planning • Organization chart • Q-matrix • Evidence of qualifications
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L4.4 Material resources: What resources are used to implement the process?

L4.4.1* Is there a suitable IT emergency solution strategy in place, incl. regular data backup?

Minimum requirements relevant for evaluation	Examples for implementation
<p>1. The company must, by means of a disaster recovery strategy, define the maximum tolerable downtime for necessary production-related IT elements (e.g. hardware, applications, hosting).</p> <p>2. In case of a failure of IT elements, the company must ensure a recovery time</p>	<ul style="list-style-type: none"> • Emergency strategy • Backup plan, incl. escalation levels • Archiving requirements

<p>without affecting the customer's required arrival dates.</p> <p>3. Archive is available and protected.</p> <p>4. Data must be backed up on redundant and reliable storage media.</p> <p>5. Regular function tests must be conducted for data backup.</p>	<ul style="list-style-type: none"> • Backup concept • Emergency information plan • Function test according to VDA 1 • Customer-specific response times • TISAX ®
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L4.4.2* Is there a suitable pervasive IT infrastructure?

Minimum requirements relevant for evaluation	Examples for implementation
<p>1. Internal and external requirements are observed.</p> <p>2. Availability is consistently ensured.</p> <p>3. Relevant interfaces are functional.</p> <p>4. The IT infrastructure is capable of representing the relevant processes.</p>	<ul style="list-style-type: none"> • ERP (planning and supply chain) • Shopfloor Management System • MES (operation management) • SwimLane • Network structure plan • Hardware and software • Overview of access permissions • Interface matrix • Parameters and system availability

	<ul style="list-style-type: none"> • Data protection policies
L4.4.3 Are the workstations set up in accordance with ergonomic and safety principles?	
Minimum requirements relevant for evaluation	Examples for implementation
<ol style="list-style-type: none"> 1. Availability is ensured as of the start of work. 2. Individual needs and physical requirements are taken into account. 3. Escape and rescue routes are defined and clearly indicated. 	<ul style="list-style-type: none"> • Appropriate lighting • Concepts for noise protection • Specifications regarding ambient temperature • Workplace analysis • Hazard assessments • Office/space concepts • Order and cleanliness • Escape and rescue routes • Ergonomic aspects
L4.4.4 Is the availability and corresponding use of the delivery schedule ensured with an EDI standard?	
Minimum requirements relevant for evaluation	Examples for implementation

<ol style="list-style-type: none"> 1. Up-to-date and error-free EDIs are ensured. 2. EDIs are used for follow-up processes. 3. Suitable hardware is available. 4. The interfaces between the systems are secured. 	<ul style="list-style-type: none"> • Call-off system • Manual or automatic processing of EDIs • Time horizon for the processing of the EDIs • Conversion and communication of the EDIs • ERP systems
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L4.5 Effectiveness and efficiency: How effectively is the process being carried out?

L4.5.1* Are suitable parameters available in procurement logistics, incl. realistic target values?

Minimum requirements relevant for evaluation	Examples for implementation
<ol style="list-style-type: none"> 1. Process-specific targets are defined, monitored and communicated. 2. Targets are agreed, specific, measurable, attainable, realistic and scheduled. 3. A risk-based target/actual comparison is conducted. 4. The timeliness of the targets is ensured. 5. Targets are communicated to all relevant positions in the company. 	<ul style="list-style-type: none"> • Expiry date • Material without demand • Days inventory held • Supplier delivery time • Backorder • Stock level

L4.5.2 Is analyzable process data collected and communicated?

Minimum requirements relevant for evaluation	Examples for implementation
<p>1. The necessary process parameters (target values) are defined and documented. The actual data is recorded, evaluated and communicated.</p> <p>2. The recorded data can be allocated to processes, the data is available, legible, accessible and archived as specified. Traceability requirements are met.</p> <p>3. The data sources for parameter determination are plausible and reasonable. Analyzability must be ensured over a defined time period.</p>	<ul style="list-style-type: none"> • Replenishment lead time • Order accuracy • Supplier quality • Supplier reliability • Order quantity • Order cycle
L4.5.3* In case of deviations, are causes analyzed and corrective measures checked for effectiveness?	
Minimum requirements relevant for evaluation	Examples for implementation
<p>1. If process requirements are not met, immediate actions are taken to fulfill the requirements, until it has been proven that the corrective actions have been effective. The employees are familiar with the immediate actions.</p> <p>2. Suitable methods are implemented to analyze the causes, and customer requirements are taken into account.</p> <p>3. Repeat errors are recorded. A more detailed analysis of the causes must be carried out accordingly.</p>	<ul style="list-style-type: none"> • Supplier complaints • Supplier rates of error • Root cause Analysis (5W / Ishikawa) • Performance capability of the supply chain • 8D report • FMEA

<p>4. Corrective actions are derived, their implementation is monitored and the effectiveness verified.</p> <p>5. Special incidents are documented.</p> <p>6. Deviations from the target value and their causes are documented.</p>	<ul style="list-style-type: none"> • Action plan • Escalation plan • Communication plan
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L4.5.4 Are methods of continuous process improvement implemented?

Minimum requirements relevant for evaluation	Examples for implementation
<p>1. The potential for improvement is continuously determined based on findings relating to quality, costs, and services.</p> <p>2. A process for continuous improvement of performance capability is applied throughout the company and with all supply chain partners.</p> <p>3. Risk analyses are regularly updated.</p> <p>4. Employees are motivated to submit suggestions for continuous improvement.</p>	<ul style="list-style-type: none"> • Supplier assessment • CIP • Action plans • PDCA / Kaizen / FMEA • Lessons learned

L4.5.5 Are the procurement logistics processes checked in case of changes?

Minimum requirements relevant for evaluation	Examples for implementation
<p>1. Customer requirements are factored in.</p> <p>2. There are action lists with effectiveness predictions in case of deviations.</p> <p>3. Changes are documented.</p>	<ul style="list-style-type: none"> • Action plans • Lists of responsibilities • Change management tools

	<ul style="list-style-type: none"> • Process documentation • Change requests • Document revisions
L4.6 What is the process result? Process output	
L4.6.1 Are all processes from the process flow effectively/efficiently implemented, reviewed and communicated and available as results?	
Minimum requirements relevant for evaluation	Examples for implementation
<p>1. The following processes must be completed:</p> <ul style="list-style-type: none"> - Ensuring supply security - Intervention limits with corresponding follow-up measures - Minimum stock levels/safety stocks <p>2. Current and plausible EDIs are used for all follow-up processes.</p> <p>3. All process results are archived according to defined criteria.</p>	<ul style="list-style-type: none"> • Maturity compliance • Early warning systems • Production output • Warehouse management • Ordering and order processing • Archiving requirements
L4.6.2 Are all processes from the process flow effectively/efficiently implemented, reviewed and communicated and available as results?	
Minimum requirements relevant for evaluation	Examples for implementation

<ol style="list-style-type: none"> 1. Bottlenecks are analyzed to find their causes and serve as the basis for the lessons-learned method. 2. Findings from interfaces are taken into account. 3. Deviations are documented and used for improvement measures. 4. The implementation is risk-based 	<ul style="list-style-type: none"> • Continuous risk management • Action tracking • Root cause analysis • Retrospective • Best practice/ good practice • Deming Cycle • Daily Scrum • Sprint Review
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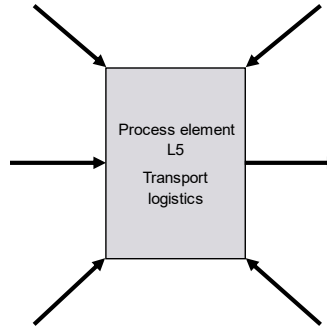
7.6 Transport logistics (L5)

Why: **Transport logistics is an independent area within the Supply Chain Department which focuses on the efficient, effective and quality-compliant movement of goods with appropriate equipment from one place to another. This includes not only the physical transport of goods but also a range of processes and activities necessary for planning, implementation and monitoring this flow of goods. These include, for example, route planning, cargo management, damage management and safety. ESG aspects must always be taken into account in transport logistics.**

5.4	Material resources
5.4.1*	Is there a suitable IT emergency solution strategy, incl. regular data backup?
5.4.2	Are the workstations set up in accordance with ergonomic and safety principles?
5.4.3*	Are suitable means of transport available in order to ensure continuous and quality -compliant material flow?
5.4.4	Is the availability of transportation ensured systematically?

5.1	Input
5.1.1	Is the output of the upstream process integrated into transport logistics?
5.1.2*	Are compliance obligations integrated into transport logistics and continuously taken into account?

5.2	Process flow
5.2.1*	Is the cargo handled according to the requirements for transport?
5.2.2	Are the load securing specifications implemented and checked, and are deviations documented?
5.2.3	Are the transport-related special characteristics accounted for?
5.2.4*	Are all relevant specifications for carrying out transports fully recorded and included in instructions?
5.2.5	Are incorrectly performed transport services identified and analyzed, and are appropriate measures taken?
5.2.6	Is there a suitable comprehensive emergency solution and crisis management strategy?



5.3	Human resources
5.3.1	Have requirement profiles been defined for all activities, and do they correspond to the activities to be performed?
5.3.2	Is the qualification concept suitable for qualifying the employees in accordance with the task descriptions?
5.3.3	Do the employees know their responsibilities and authorizations regarding the monitoring of product and process quality?
5.3.4*	Are the necessary human resources available?

5.6	Output
5.6.1*	Are all processes from the work contents implemented, reviewed and communicated effectively, efficiently and in accordance with quality standards, and are they available as results?
5.6.2	Is the lessons-learned method regularly used in order to implement the resulting findings and potential improvements?

5.5	Effectiveness and efficiency
5.5.1*	Are suitable parameters available in transport logistics, incl. realistic target values?
5.5.2	Is analyzable process data collected and communicated?
5.5.3*	In case of process and target deviations, are causes analyzed and corrective measures checked for effectiveness?
5.5.4	Are methods of continuous process improvement implemented?
5.5.5	Are the transport logistics processes checked regularly and in case of changes?
5.5.6	Are ESG aspects factored into the selection of transport types and routes?

Figure 7-5: Turtle model for L5 transport logistics

Process element L5: Transport logistics

L5.1 What goes into the process? Process input

L5.1.1 Is the output of the upstream process integrated into transport logistics?

Minimum requirements relevant for evaluation

1. A transport concept is in place.
2. Approved transport service providers are available.
3. Transport services are commissioned, including the following:
 - right quantity / agreed quality / right product / right recipient / labelling / shipping documents / agreed deadline
 - additional approvals are provided
4. Results from change management are integrated.
5. Results from CIP are integrated.

Examples for implementation

- Overview of approved service providers
- Transport planning (e.g. trips, product requirements)
- Escalation concept
- Communication concept
- Transport concept
- CIP
- Kaizen
- Idea management
- Improvement project

L5.1.2* Are compliance obligations integrated into transport logistics and continuously taken into account?

Minimum requirements relevant for evaluation	Examples for implementation
<p>1. The following requirements must be taken into account:</p> <ul style="list-style-type: none"> - customer requirements - internal requirements - ESG requirements <p>2. There must be processes for identifying, evaluating and implementing compliance obligations.</p> <p>3. Data and/or information is available for transport logistics.</p>	<ul style="list-style-type: none"> • Packaging requirements • Product requirements (e.g. hazardous goods) • ESG and safety regulations • Work instructions • Process description • QM system

L5.2 Process flow: How does the process work?

L5.2.1* Is the cargo handled according to the requirements for transport?

Minimum requirements relevant for evaluation	Examples for implementation
<p>1. Handling specifications for loading, unloading and transport are observed.</p> <p>2. A packaging concept is integrated and observed.</p> <p>3. A loading scheme is integrated and observed.</p>	<ul style="list-style-type: none"> • Instructions for JIS/JIT loading • Loading matrix • Packaging concept • Work instructions for handling specifications

L5.2.2 Are the load securing specifications implemented and checked, and are deviations documented?	
Minimum requirements relevant for evaluation	Examples for implementation
<p>1. Compliance with statutory regulations, incl. legal responsibilities as well as applicable norms and industry standards.</p> <p>2. Consideration of physical fundamentals, incl. the forces acting on the load.</p> <p>3. Consideration of load distribution when loading the vehicle/cargo carrier. The useful load, the permissible total weight as well as the axle loads must not be exceeded.</p>	<ul style="list-style-type: none"> • Instructions for loading • Overview of statutory and regulatory requirements • Documentation of loading control • Load distribution diagram • Load securing documentation
L5.2.3 Are the transport-related special characteristics accounted for?	
Minimum requirements relevant for evaluation	Examples for implementation
<p>1. Transport equipment and transported goods are labelled according to the relevant specifications.</p> <p>2. Required documentation is completed.</p> <p>3. The handling of environmentally impactful materials is described and observed.</p> <p>4. Specific properties of the transport equipment are taken into account.</p>	<ul style="list-style-type: none"> • Hazardous goods • Oversizes • Special transports • Shipping documents • Cargo labelling (visual inspection of cargo on-site)

L5.2.4* Are all relevant specifications for carrying out transports fully recorded and included in instructions?

Minimum requirements relevant for evaluation	Examples for implementation
<p>1. The process descriptions, work instructions and other relevant documents are clearly described with an adequate degree of detail.</p> <p>2. The following requirements are taken into account:</p> <ul style="list-style-type: none"> - customer requirements - internal requirements - ESG requirements <p>3. A concept for theft prevention is in place.</p> <p>4. The consequences of improper commerce are described.</p> <p>5. Necessary documents are issued and available in the right place.</p>	<ul style="list-style-type: none"> • GPS trackers • Surveillance cameras • Videos • Pictograms • Customs • Return process • Transport order • Work instruction(s) • Procedural instructions • Document management system • Contract • Incoterm

L5.2.5 Are incorrectly performed transport services identified and analyzed, and are appropriate measures taken?

Minimum requirements relevant for evaluation	Examples for implementation
<p>1. A transport damage management concept is in place.</p>	<ul style="list-style-type: none"> • Process overview • Procedural instructions • Work instruction(s)

<p>2. Criteria for faulty transport services are defined.</p> <p>3. Concepts for identifying and preventing transport risks are defined.</p> <p>4. The response in case of faulty transport services is described.</p> <p>5. The transported goods should be checked for damage at risk transfer points and interfaces.</p>	<ul style="list-style-type: none"> • Resources (e.g. Transport Damage Management Dept.) • 8D report • FMEA
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L5.2.6 Is there a suitable comprehensive emergency solution and crisis management strategy?

Minimum requirements relevant for evaluation	Examples for implementation
<p>1. In conjunction with process planning, emergency concepts for identified process issues should be devised which describe both the processes for performing the actual service processes during an emergency and the steps required in order to rectify the issue.</p> <p>2. The business impact analysis must be updated regularly.</p> <p>3. The implementation of the defined solutions is ensured and successfully tested.</p> <p>4. Required back-up solutions are determined, suitable, effective and are available when needed.</p> <p>5. Access to the emergency solution is ensured.</p>	<ul style="list-style-type: none"> • BCM (Business Continuity Management) • Risk analysis, FMEA, Turtle • BCP (Business Continuity Plan) • BIA (Business Impact Analysis) • Contingency plans • Crisis management • Test documents

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|---|--|
| <ul style="list-style-type: none">6. The IT emergency solutions are available based on planning.7. Escalation mechanisms are taken into account in the emergency solution.8. A crisis management plan is defined. | |
|---|--|

L5.3 Human resources: What departments, roles, persons support the process?

L5.3.1 Have requirement profiles been defined for all activities, and do they correspond to the activities to be performed?

Minimum requirements relevant for evaluation

Examples for implementation

1. The requirement profile for the job forms the basis for the recruiting process and the associated comparison with the employee profile of potential new hires.
2. Activity descriptions are available for every position.
3. A differentiation is made between professional, physical and mental requirements.
4. Schooling, prior knowledge, career and higher education are taken into account.
5. The necessary permissions are defined.
6. Relevant orders are defined.
7. Checks are performed regularly.
8. Workplace-related qualifications are defined.

- Assigned person (hazardous goods, load securing, etc.)
- Safety permits
- Activity description
- Requirement profile
- Internal auditor
- Proof of training/qualifications (e.g. forklift licence, crane operating licence)
- Q-matrix
- Initial training plan
- Handling of goods (e.g. reading handling icons)
- Briefings (e.g. occupational safety, ESG requirements)
- Suitable evidence of qualification (e.g. vision test, hearing test, touch test)
- Job description acknowledged by the employee
- Knowledge of foreign languages

L5.3.2 Is the qualification concept suitable for qualifying the employees in accordance with the task descriptions?

Minimum requirements relevant for evaluation	Examples for implementation
<ol style="list-style-type: none"> 1. For each position, there is a training schedule based on the work description. 2. A qualification matrix is used. 3. The type and the scope of the “initial training” are defined. 4. The type and the scope of statutory, internal and recurring training are defined. 5. The effectiveness of the qualification measures is ensured in terms of quality and time. 6. Training is conducted by qualified staff/trainers. 7. Training know-how must be demonstrable. 8. Qualifications for compliance with special characteristics of in-house logistics must be ensured. 9. Workplace-related qualifications are ensured. 10. A training concept, including appropriate training documents, is in place. 	<ul style="list-style-type: none"> • Specific training (air cargo, hazardous goods, stacking factor, ESD, etc.) • Training concept • Patent concept • Occupational safety • Quality and time • Training components • Training plan • Qualification matrix • First-day briefing • Initial training plan with references • Handling of goods (e.g. reading handling icons) • Briefings (e.g. occupational safety, ESG requirements, data protection)

L5.3.3 Do the staff know their responsibilities and authorizations regarding the monitoring of product and process quality?

Minimum requirements relevant for evaluation	Examples for implementation
<ol style="list-style-type: none"> 1. The staff know their work and process instructions. 2. The staff know their activity description. 3. The staff know the consequences of incorrect execution of work. 4. The response to improperly performed work and/or errors in the process is defined. 5. The staff have access to relevant work instructions. 6. Instructions, trainings and inductions provided to the staff as well as proofs of qualification are documented. 7. In case of changes to processes, trainings/instructions are provided and documented. 8. The completion of legally required recurring training is ensured. 	<ul style="list-style-type: none"> • Identification of process disturbances • Safe work conduct/practices • Work/inspection instructions • Task description • Blocking/unblocking permissions • Service agreement (e.g. service-level agreement, target/actual KPIs) • Order and cleanliness • Training on relevant statutory/regulatory requirements • IT permissions • Functions and requirements

L5.3.4* Are the necessary human resources available?

Minimum requirements relevant for evaluation

Examples for implementation

1. There is a staff schedule which takes into account the required number of qualified employees.
2. Substitutes are provided for all shifts.
3. All activities and roles are mapped in an organization chart or team structure.
4. Trained staff are available for securing loads.
5. Response and measures in case of under-staffing are defined.
6. A crisis management plan is defined.

- Qualification matrix
- Staff schedule
- Organization chart
- Evidence of training
- Substitution rules
- Contingency plan with roles and authorisations

L5.4 Material resources: What resources are used to implement the process?

L5.4.1* Is there a suitable comprehensive emergency solution and crisis management strategy?

Minimum requirements relevant for evaluation

Examples for implementation

1. In conjunction with process planning, emergency concepts for identified process issues should be devised which describe both the processes for performing the actual service processes during an emergency and the steps required in order to rectify the issue.
2. The business impact analysis (BIA) is updated regularly.
3. The implementation of the defined solutions is ensured and successfully tested.
4. Required back-up solutions are determined, suitable, effective and are available when needed.
5. Access to the emergency solution is ensured.
6. The IT emergency solutions are available based on planning.
7. Escalation mechanisms are taken into account in the emergency solution.
8. A crisis management plan is defined.

- Business Continuity Management (BCM)
- Alternative capacities (vehicles, storage, etc.)
- Risk analysis (e.g. FMEA)
- Crisis management (e.g. force majeure)
- Emergency strategy
- Backup plan, incl. escalation levels
- Archiving requirements
- Backup concept
- Emergency information plan
- Function test according to VDA 1
- Customer-specific response times
- TISAX (R)

L5.4.2 Are the workstations set up in accordance with ergonomic, product-specific and safety principles?

Minimum requirements relevant for evaluation	Examples for implementation
<ol style="list-style-type: none"> 1. Availability is ensured as of the start of work. 2. Individual needs and physical requirements are taken into account. 3. Appropriate lighting 4. Noise protection meets legal requirements. 5. An appropriate ambient temperature is ensured. 6. Inspection stations 7. Escape and rescue routes are defined and clearly indicated. 	<ul style="list-style-type: none"> • Hazard assessment • Occupational safety and accident prevention instructions • Personal protective equipment • Appropriate lighting • Concepts for noise protection • Specifications regarding ambient temperature • Workplace analysis • Workplace concepts • Order and cleanliness • Escape and rescue routes • Ergonomic aspects

L5.4.3 Are suitable means of transport available in order to ensure continuous and quality-compliant material flow?

Minimum requirements relevant for evaluation	Examples for implementation
<p>1. Proofs of conformity for transport equipment are up-to-date, valid and available.</p> <p>2. Sufficient means of transport are available for transports (incl. special transports).</p> <p>3. Requirements for transport and loading equipment are defined based on weight, type and size of load.</p> <p>4. Selection, quantity and proper use of load securing materials which are sufficient for the transported loads. Load securing materials checked for perfect condition.</p>	<ul style="list-style-type: none"> • Inspection lists/checklists • Vehicle inspection (e.g. main inspection as per § 29 StVZO) • Service inspection • Specification document • Work instruction • Transportable condition (e.g. no damage) • Container availability, container inspection sticker • Test certificates of work equipment

L5.4.4 Is the availability of appropriate transportation ensured systematically?

Minimum requirements relevant for evaluation	Examples for implementation
<ol style="list-style-type: none"> 1. Maintenance intervals are observed, and substitute procurements are initiated in good time. 2. Suitable tools are available for proper maintenance. 3. Maintenance areas are separated, marked and adequately available. 4. Labelling/identification 5. Preventive and/or predictive maintenance activities for the servicing, inspection and maintenance of transport equipment are defined and implemented based on the risk level. 	<ul style="list-style-type: none"> • TPM Total Productive Maintenance (Preventive Maintenance) • Maintenance contract • Checklists • Inspection and maintenance schedule • The availability of replacement parts for transport equipment • Documentation of completed maintenance work • Container depot

L5.5 Effectiveness and efficiency: How effectively is the process being carried out?

L5.5.1* Are suitable parameters available in transport logistics, incl. realistic target values?

Minimum requirements relevant for evaluation	Examples for implementation
<ol style="list-style-type: none"> 1. Process-specific parameters are defined, monitored according to risk and communicated. 2. Targets are agreed, specific, measurable, attainable, realistic and scheduled. 3. A risk-based target/actual comparison is conducted. 4. The timeliness of the targets is ensured. 5. Targets are communicated to all relevant positions in the company. 6. ESG-related parameters are recorded. 	<ul style="list-style-type: none"> • Specification document for parameters • Dashboard • Target/actual comparison • Communication matrix • Carbon footprint

L5.5.2 Is analyzable process data collected and communicated?

Minimum requirements relevant for evaluation	Examples for implementation
<p>1. The necessary process parameters (target values) are defined and documented. The actual data is recorded, evaluated and communicated.</p> <p>2. The recorded data can be allocated to processes, the data is available, legible, accessible and archived as specified. Traceability requirements are met.</p> <p>3. The data sources for parameter determination are plausible and reasonable. Analyzability must be ensured over a defined time period.</p>	<ul style="list-style-type: none">• Target/actual comparison• KPI tracking tool• Parameter analysis• Communication (e.g. posting, dashboard, meeting, etc.)

L5.5.3* In case of process and target deviations, are causes analyzed and corrective measures checked for effectiveness?

Minimum requirements relevant for evaluation	Examples for implementation
<p>1. If process requirements are not met, immediate actions are taken to fulfill the requirements, until it has been proven that the corrective actions have been effective. The employees are familiar with the immediate actions.</p> <p>2. Suitable methods are implemented to analyze the causes, and customer requirements are taken into account.</p> <p>3. Repeat errors are recorded. A more detailed analysis of the causes must be carried out accordingly.</p> <p>4. Corrective actions are derived, their implementation is monitored and the effectiveness verified.</p> <p>5. Special incidents are documented.</p> <p>6. Deviations from the target value and their causes are documented.</p>	<ul style="list-style-type: none"> • Service provider complaints • Service provider error rates • Root cause Analysis (5W / Ishikawa) • Performance capability of the supply chain • 8D report • FMEA • Action plan • Escalation plan • Communication plan

L5.5.4 Are methods of continuous process improvement implemented?

Minimum requirements relevant for evaluation	Examples for implementation
<ol style="list-style-type: none"> 1. The potential for improvement is continuously determined based on findings relating to quality, costs, and services. 2. A process for continuous improvement of performance capability is applied throughout the company and with all supply chain partners. 3. Risk analyses are regularly updated. 4. Employees are motivated to submit suggestions for continuous improvement. 	<ul style="list-style-type: none"> • Service provider evaluation • CIP • Action plans • PDCA / Kaizen / FMEA • Lessons learned

L5.5.5 Are the transport logistics processes checked regularly and in case of changes?

Minimum requirements relevant for evaluation

Examples for implementation

<ol style="list-style-type: none">1. The type and scope of audits are defined.2. Customer requirements are factored in.3. There are action lists with effectiveness predictions in case of deviations.4. Changes are documented.5. Checks are performed based on risk.	<ul style="list-style-type: none">• Audit plan/audit program• Process descriptions• Document management system (workflow)• Auditor qualification• Customer-specific requirements• VDA volumes• Internal checklists• Effectiveness check• Action list
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L5.5.6 Are ESG aspects factored into the selection of transport types and routes?

Minimum requirements relevant for evaluation	Examples for implementation
<ol style="list-style-type: none">1. ESG requirements (Environmental Social Governance) are implemented.2. Targets are known and communicated.3. The planned ESG activities are tracked.	<ul style="list-style-type: none">• ESG requirements• Company mission statement• Company strategy• Legal register

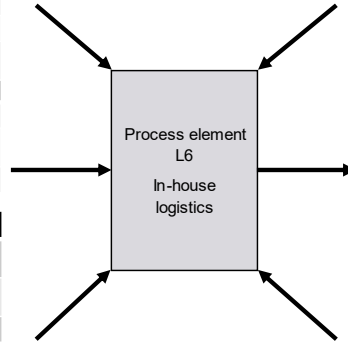
L5.6 What is the process result? Process output	
L5.6.1* Are all processes from the work contents implemented, reviewed and communicated effectively, efficiently and in accordance with quality standards, and are they available as results?	
Minimum requirements relevant for evaluation	Examples for implementation
<p>1. The Transport Logistics Dept. ensures the following:</p> <ul style="list-style-type: none"> - complete delivery - on time - to the correct location - in perfect condition - supply security <p>2. Shipping documents are issued in accordance with requirements.</p> <p>3. Customer-specific and legal requirements are considered in the archiving process.</p> <p>4. Proper performance of (inventory) postings is ensured.</p>	<ul style="list-style-type: none"> • Complaint overview • Parameter matrix • Shipping documents • Target/actual comparison • Archiving • Tracking systems • Service provider evaluation

L5.6 What is the process result? Process output	
L5.6.2 Is the lessons-learned method regularly used in order to implement the resulting findings and potential improvements?	
Minimum requirements relevant for evaluation	Examples for implementation
<p>1. Process deviations are analyzed to find their causes and serve as the basis for the lessons-learned method.</p> <p>2. Findings from interfaces are taken into account.</p> <p>3. Deviations are documented and used for improvement measures.</p> <p>4. The implementation is risk-based.</p>	<ul style="list-style-type: none"> • Continuous risk management • Action tracking • Root cause analysis • Retrospective • Best practice/good practice • Deming Cycle • Daily Scrum • Sprint Review

7.7 In-house-logistics (L6)

Why: In-house logistics ensure demand-based and quality-compliant supply of materials and goods both to Production as well as to internal and external customers. It makes up the in-house flow of materials and information from receipt to dispatch. This includes pre-series production logistics, container management and the control of faulty goods/services.

6.4	Material resources
6.4.1*	Is there a suitable comprehensive emergency solution strategy?
6.4.2*	Is there a suitable pervasive IT infrastructure?
6.4.3	Are the workstations set up in accordance with ergonomic, product-specific and safety principles?
6.4.4*	Is the logistical infrastructure capable of meeting the product and process-specific requirements?
6.4.5	Is the equipment available at the right location and in the right time, quantity and quality?
6.4.6	Is the availability of infrastructure and equipment ensured?
6.4.7	Are containers/load carriers and packaging materials available at the right location and in the right time, quantity and quality?
6.1	Input
6.1.1	Is the output of upstream processes integrated into inhouse logistics?
6.1.2*	Are compliance obligations integrated into in-house logistics and continuously taken into account?
6.1.3*	Is the right order data prepared and processed in inhouse logistics?
6.2	Process flow
6.2.1*	Are all relevant specifications for providing logistical services recorded and included in instructions?
6.2.2	Are the load securing specifications implemented and checked, and are deviations documented?
6.2.3*	Do the defined instructions contain the necessary checks?
6.2.4*	Are potentially faulty and/or faulty goods or logistical processes identified and measures taken?
6.2.5	Is the flow of materials and parts secured against mixing/wrong items, and are the special characteristics accounted for?
6.2.6*	Have processes been established for controlling and monitoring the material flow?
6.2.7	Have processes been established for controlling and monitoring the transport equipment?
6.2.8	Has a process been defined for continuous warehouse optimization, and are suitable optimization measures implemented?
6.2.9*	Are the materials stored/handled appropriately in order to preserve the product characteristics?
6.2.10*	Are the capacities and flexibilities planned and defined in accordance with customer requirements?



6.3	Human resources
6.3.1	Have requirement profiles been defined for all activities, and do they correspond to the activities to be performed?
6.3.2	Is the qualification concept suitable for qualifying the employees in accordance with the task descriptions?
6.3.3*	Do the employees know their responsibilities and authorizations regarding the monitoring of product and process quality?
6.3.4*	Are the necessary human resources available?
6.6	Output
6.6.1*	Are all processes from the process flow implemented, reviewed and communicated effectively, efficiently and in accordance with quality standards, and are they available as results?
6.6.2	Is the lessons-learned method regularly used in order to implement the resulting findings and potential improvements?
6.5	Effectiveness and efficiency
6.5.1*	Have suitable parameters been defined in in-house logistics, including target values, and are they applied?
6.5.2	Is analyzable process data collected and communicated?
6.5.3*	In case of process and target deviations, are causes analyzed and corrective measures checked for effectiveness?
6.5.4	Are methods of continuous process improvement implemented?
6.5.5	Are the in-house logistics processes checked regularly and in case of changes?
6.5.6	Are ESG aspects taken into account in in-house-logistics?

Figure 7-6: Turtle model for L6 in-house logistics

Process element L6: In-house logistics	
L6.1 What goes into the process? Process input	
L6.1.1 Is the output of upstream processes integrated into in-house logistics?	
Minimum requirements relevant for evaluation	Examples for implementation
<ol style="list-style-type: none"> 1. Approved results from planning have been carried over in full. 2. Approved suppliers are available. 3. Results from change management are integrated. 4. Results from CIP and lessons learned are integrated. 5. Handling specifications are available. 	<ul style="list-style-type: none"> • Transport concept • Supply chain concept • Packaging concept • Material flow concept standards (e.g. white paper) • Handover reports • Approval documentation • Process planning

L6.1 What goes into the process? Process input	
L6.1.2* Are compliance obligations integrated into in-house logistics and continuously taken into account?	
Minimum requirements relevant for evaluation	Examples for implementation
<p>1. The following requirements must be taken into account:</p> <ul style="list-style-type: none"> - customer requirements - internal requirements - external requirements - ESG requirements <p>2. There must be processes for identifying, evaluating and implementing compliance obligations.</p> <p>3. Data and/or information is available for in-house logistics.</p>	<ul style="list-style-type: none"> • Statutory/regulatory requirements, traceability • Contracts • Customer requirements • Integration into QM system

L6.1 What goes into the process? Process input	
L6.1.3* Is the right order data prepared and processed in in-house logistics?	
Minimum requirements relevant for evaluation	Examples for implementation
<ol style="list-style-type: none"> 1. Master data is available. 2. A quantity structure is provided. 3. Forecast planning, incl. capacity planning is in place. 4. Results from performance tests are taken into account. 	<ul style="list-style-type: none"> • Process times • Container movements • Replenishment lead times • Maximum capacity • Process control data • Material master data • Priorities
L6.2 Process flow: How does the process work?	

L6.2.1* Are all relevant specifications for providing logistical service recorded and included in instructions?

Minimum requirements relevant for evaluation	Examples for implementation
<p>1. The specifications relevant for the performance of logistical activities are described and documented in sufficient detail.</p> <p>2. The procedures for staff on site in case of errors or process disruptions is described.</p> <p>3. Access to work instructions and specifications is ensured at all times in the work environment.</p> <p>4. Interfaces and responsibilities are clearly defined.</p> <p>5. Process descriptions and work instructions are subject to an approval process, are controlled and are regularly checked to ensure they are up-to-date.</p> <p>6. Documents are created, controlled and filed in compliance with standards.</p>	<ul style="list-style-type: none"> • Change management • Work instructions • Process descriptions • Contingency plans • Control of documents • Applicable documents • Document archiving • Safety classification of documents • List of documents • Compliance specifications

L6.2.2 Are the load securing specifications implemented and checked, and are deviations documented?

Minimum requirements relevant for evaluation	Examples for implementation
<p>1. Compliance with statutory regulations, incl. legal responsibilities as well as applicable norms and industry standards.</p> <p>2. Consideration of physical fundamentals, incl. the forces acting on the load.</p> <p>3. Consideration of load distribution when loading the vehicle/cargo carrier. The useful load, the permissible total weight as well as the axle loads must not be exceeded.</p>	<ul style="list-style-type: none"> • Instructions for loading • Overview of statutory and regulatory requirements • Documentation of loading control • Load distribution diagram

L6.2.3* Do the defined instructions contain the necessary checks?

Minimum requirements relevant for evaluation

Examples for implementation

1. The type and scope of the quality monitoring in the process are defined and documented in an overview.
2. This definition includes at least the following control components:
control criteria, control specifications, documentation, response plan and persons responsible for execution.
3. A process for complaint processing is established, incl. defined criteria.

- Inspection plans
- Control plan
- Response plan
- Receiving inspections
- Return process
- Checklists
- Work instructions

L6.2.4* Are potentially faulty and/or faulty goods or logistical processes identified and measures taken?

Minimum requirements relevant for evaluation	Examples for implementation
<p>1. In case of problem parts and/or critical parts (top parts), a systematic receiving inspection is performed. The type and the scope are defined.</p> <p>2. Criteria for identifying faulty goods are defined.</p> <p>3. A process description for handling faulty/potentially faulty goods is available.</p> <p>Interfaces and risk transfers are taken into account. Separation and labelling is ensured.</p> <p>4. The quarantine store is inventory-managed. It is ensured that the available stock is updated in case of blocked goods.</p> <p>5. There are agreed communication procedures in case of faulty goods.</p> <p>6. Measures for securing supply have been initiated.</p> <p>7. Blocking and/or adjustments to the supply chain are ensured.</p>	<ul style="list-style-type: none"> • Error detection • Blocked goods • Blocking process • Quarantine area • Quarantine store • Quarantine card • Work instructions • Response plan • Communication plan • Clarification process and areas

L6.2.5 Is the flow of materials and parts secured against mixing/wrong items, and are the special characteristics accounted for?

Minimum requirements relevant for evaluation

Examples for implementation

<ol style="list-style-type: none">1. Product and process-specific requirements are observed.2. Labelling requirements are defined and observed. Labels must be loss-proof and legible.3. A concept for the prevention of mixing and wrong items is in place.4. The component must be protected in the labelling process.5. Out-of-date and invalid labels are removed.	<ul style="list-style-type: none">• ESD• BBD• Hardware and software• Poka-Yoke• Receipts• Labels• Hazardous substances• Top arrow• Effacement• Labelling of components• Containers• Packaging and storage areas• Visualisation• Ambient temperature• Layouts• Part identification markings
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L6.2.6* Have processes been established for controlling and monitoring the material flow?

Minimum requirements relevant for evaluation

Examples for implementation

<ol style="list-style-type: none"> 1. The material flow is structured transparently. Escalation and intervention limits are defined. 2. The processing status of the material (work-in-progress process step, material movement) must be made transparent with unique status identification or target indication. 3. Material movements are properly and directly posted. 4. The inventories in the system correspond to the actual inventories. 5. In case of inventory discrepancies, there is a response, and a correction is promptly made. 6. The expected scope of daily work is known in the executing departments. 7. There is a system for being able to introduce prioritized orders and/or order variations and ensure preferential processing. 8. A process is in place for bottleneck control. 9. Component-specific asset management methods are used throughout the process chain as a basic principle. 	<ul style="list-style-type: none"> • Order status • Layout • Dispatch notifications • Order volume • Asset management method (e.g. FiFo, LiFo, HiFo) • Material control station • Material postings • Bottleneck processing • Inventory discrepancy • Stock levels • Material stocks • Transport orders • Replenishment lead time • Min./max. regulation • Intervention limits • Process times (MTM method)
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L6.2.7 Have processes been established for controlling and monitoring the transport equipment?

Minimum requirements relevant for evaluation	Examples for implementation
<p>1. Transport equipment (containers) are procured and reordered as needed based on the product-specific characteristics.</p> <p>2. The inventory of transport equipment is transparent; the equipment is sorted and stored separately in defined storage areas. The acceptance of returned transport equipment is regulated and based on acceptance and return criteria.</p> <p>3. The labelling and separation of “NOK” transport equipment are defined. Criteria for repair and replacement are defined.</p> <p>4. Alternative transport equipment is defined.</p> <p>5. Criteria for identifying non-compliant transport equipment are defined.</p> <p>6. A process is in place for identifying and handling dirty (contamination and loss of labels) transport equipment.</p> <p>7. The appropriate use of transport equipment is ensured.</p> <p>8. The type and the scope of the repair concept are defined.</p>	<ul style="list-style-type: none"> • Empties management • Reusable packaging • Disposable packaging • Container limit sample catalog • Reusability and cleanliness • Special load carriers • Alternative packaging • Packaging specification • Approvals, system for transport equipment management • Repair concept • Identification system

L6.2.8 Has a process been defined for continuous warehouse optimization, and are suitable optimization measures implemented?

Minimum requirements relevant for evaluation	Examples for implementation
<p>1. A suitable storage strategy and a supporting warehouse management system are in place.</p> <p>2. Rules and procedures for location assignment are defined, and storage space optimization is implemented systematically.</p> <p>3. The storage spaces are appropriate for the type and size of the stored parts and loading carriers/containers</p> <p>.</p> <p>4. A process is defined for dealing with obsolete parts.</p>	<ul style="list-style-type: none"> • Storage strategy • Obsolete material • Layout • Storage utilization • Parameters • Throughput times • Action plan

L6.2.9* Are the materials stored/handled appropriately in order to preserve the product characteristics?

Minimum requirements relevant for evaluation

Examples for implementation

<ol style="list-style-type: none"> 1. The materials are protected from damage at all times during transfer, storage and transport. 2. Parts are packed according to the packaging specification. 3. The properties of the goods are preserved. 4. Handling icons on the packaging are observed. 5. The parts are protected against loss and damage in the load carrier. 6. The fill level of the containers is defined. 7. ESD-related components are identified, and specifications for component protection are implemented. 8. Specifications on technical cleanliness are defined and implemented. 9. The special and statutory specifications for the storage of hazardous substances and environmentally relevant substances are known and are observed. 	<ul style="list-style-type: none"> • Roofing • Preservation of the product characteristic • Weather-proof materials handling • Quality-preserving packing sequences and packing orders • Handling icons • 5S • Corrosion protection • Specifications for HV battery handling • Technical cleanliness • Climatic and mechanical influences • Storage specifications • ESD-specifications • Product-specific specifications • BBD
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L6.2.10* Are the capacities and flexibilities planned and defined in accordance with customer requirements?

Minimum requirements relevant for evaluation	Examples for implementation
<ol style="list-style-type: none"> 1. The production program is known and can be updated according to the customer requirements in case of changes. 2. The capacities and their influencing factors are known and taken into account. 3. The capacities are compared with the customer needs and communicated. 4. Capacity expansion measures are considered and planned as needed. 	<ul style="list-style-type: none"> • Reduction of throughput times • Prioritization of production orders • Legal requirements, e.g. special shifts • External production options • Capacity distribution • Possibility of site expansion • Contracts • Performance capability

L6.3 Human resources: What departments, roles, persons support the process?

6.3.1 Have requirement profiles been defined for all activities, and do they correspond to the activities to be performed?

Minimum requirements relevant for evaluation

Examples for implementation

1. The requirement profile for the job forms the basis for the recruiting process and the associated comparison with the employee profile of potential new hires.
2. Activity descriptions are available for every position.
3. A differentiation is made between professional, physical and mental requirements.
4. Schooling, prior knowledge, career and higher education are taken into account.
5. The necessary permissions are defined.
6. Relevant orders are defined.
7. Checks are performed regularly.
8. Workplace-related qualifications are defined.

- Activity description
- Requirement profile
- Internal auditor
- Proof of training/qualifications (e.g. forklift licence, crane operating licence)
- Q-matrix
- Initial training plan
- Handling of goods (e.g. reading handling icons)
- Briefings (e.g. occupational safety, ESG requirements)
- Suitable evidence of qualification (e.g. vision test, hearing test, touch test)
- Job description acknowledged by the employee
- Knowledge of foreign languages

L6.3.2 Is the qualification concept suitable for qualifying the employees in accordance with the task descriptions?

Minimum requirements relevant for evaluation	Examples for implementation
<ol style="list-style-type: none"> 1. For each position, there is a training schedule based on the work description. 2. A qualification matrix is used. 3. The type and the scope of the “initial training” and the statutory, internal and recurring training is defined and documented. 4. The effectiveness of the qualification measures is ensured in terms of quality and time. 5. Training is conducted by qualified staff/trainers. Training know-how must be demonstrable. 6. Qualifications for compliance with special characteristics of in-house logistics must be ensured. 7. Workplace-related qualifications are ensured. In case of changes to processes, trainings/instructions are provided and documented. 8. A training concept, including appropriate training documents, is in place. 	<ul style="list-style-type: none"> • Training concept • Patent concept • Quality and time • Training components • Training plan • Qualification matrix • First-day briefing • Initial training plan with references • Handling of goods (e.g. reading handling icons) • Briefings (e.g. occupational safety, ESG requirements, data protection)

L6.3.3* Do the staff know their responsibilities and authorizations regarding the monitoring of product and process quality?	
Minimum requirements relevant for evaluation	Examples for implementation
<ol style="list-style-type: none"> 1. The staff know their work and process instructions. 2. The staff know their activity description. 3. The staff know the consequences and effects of incorrect execution of work. 4. The response to improperly performed work and/or errors in the process is defined. 5. Any transfer of duties is documented. 	<ul style="list-style-type: none"> • Identification of process disturbances • Safe work conduct/practices • Work/inspection instructions • Task description • Blocking/unblocking permissions • Service agreement (e.g. service-level agreement, target/actual KPIs) • Order and cleanliness • Training on relevant statutory/regulatory requirements • IT permissions • Functions and requirements

L6.3.4* Are the necessary human resources available?	
Minimum requirements relevant for evaluation	Examples for implementation
<p>1. There is a staff schedule which takes into account the required number of qualified employees.</p> <p>2. Substitutes are provided for all shifts.</p> <p>3. All activities and roles are mapped in an organization chart or team structure.</p> <p>4. The positions defined in planning are staffed, taking variations in production volume into account.</p> <p>5. The qualification matrix is used to check staffing requirements daily.</p> <p>6. Response and measures in case of under-staffing are defined.</p> <p>7. A system of crisis management is defined.</p>	<ul style="list-style-type: none"> • Staff schedule • Minimum staffing • Staff requirement • Documented substitution rules • Absence planning • Organization chart • Q-matrix • Evidence of qualifications
L6.4 Material resources: What resources are used to implement the process?	
L6.4.1* Is there a suitable comprehensive emergency solution strategy?	
Minimum requirements relevant for evaluation	Examples for implementation

<p>1. In conjunction with process planning, emergency concepts for potential process issues should be devised which describe both the processes for performing the actual service processes during an emergency and the steps required in order to rectify the issue.</p> <p>2. The implementation of the defined solutions is ensured and successfully tested and/or simulated.</p> <p>3. Required back-up solutions are determined, suitable, effective and are available when needed.</p> <p>4. Access to the emergency solution is ensured.</p> <p>5. The IT emergency solutions are available based on planning.</p> <p>6. Escalation mechanisms are taken into account in the emergency solution.</p>	<ul style="list-style-type: none"> • Business Continuity Management (BCM) • Alternative capacities (vehicles, storage, etc.) • Risk analysis (e.g. FMEA) • Crisis management (e.g. force majeure) • Contingency strategy (e.g. alternative services, subcontractors, packaging, transport) • Backup plan, incl. escalation levels • Archiving requirements • Cyber security • Backup concept • Emergency information plan • Function test according to VDA 1 • Customer-specific response times
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	<ul style="list-style-type: none">• Alternative energy supply• Use of external capacity• TISAX (R)
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L6.4.2* Is there a suitable pervasive IT infrastructure?

Minimum requirements relevant for evaluation	Examples for implementation
<ol style="list-style-type: none"> 1. The IT infrastructure, including relevant EDP interfaces, is available in the right place and at the right time. 2. Access permissions are defined and in place. 3. The software and hardware updates are provided, approved and communicated. 4. Contact information is entered into the customer-specific systems. 5. Information security specifications are observed. 6. Instructions on the handling of software and hardware are documented, up-to-date and accessible. 7. The parameterization of the logistical IT systems is adapted to the infrastructure and the process objectives. 8. The functionality of the logistical IT systems is monitored; intervention limits for escalation are defined. 	<ul style="list-style-type: none"> • Network structure plan • Software (e.g. warehouse management system, production planning system, capacity system) • Hardware (e.g. scanner, RFID) • Overview of access permissions • Interface matrix • Parameters and system availability • Data protection policies • Big data • Blockchain • Truck/transport control

L6.4.3 Are the workstations set up in accordance with ergonomic, product-specific and safety principles?

Minimum requirements relevant for evaluation	Examples for implementation
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<ol style="list-style-type: none"> 1. Availability is ensured as of the start of work. 2. Individual needs and physical requirements are taken into account. 3. Statutory, regulatory and company specifications are implemented. 4. The workplace helps maintain the product-specific properties. 5. ESD requirements for workplaces are defined. 6. Technical aids are available and are used. 7. Personal protective equipment is available and is used. 	<ul style="list-style-type: none"> • Hazard assessment • Occupational safety and accident prevention instructions • Personal protective equipment • Appropriate lighting • Concepts for noise protection • Specifications regarding ambient temperature • Workplace analysis • Workplace concepts • Inspection stations • Order and cleanliness • Escape and rescue routes • Ergonomic aspects • ESD equipment
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	<ul style="list-style-type: none"> • HRC (Human-Robot Collaboration) • Robotics
<p>L6.4.4* Is the logistical infrastructure capable of meeting the product and process-specific customer requirements?</p>	
<p>Minimum requirements relevant for evaluation</p>	<p>Examples for implementation</p>

<ol style="list-style-type: none"> 1. The logistical infrastructure is in proper condition and is inspected regularly. 2. The planned logistical infrastructure is available, appropriately sized and approved. 3. The logistical infrastructure is able to meet product and process-specific requirements. 4. Marking of defined functional areas and infrastructure elements is ensured. 5. Adequate social areas are available. 6. ESG requirements are taken into account in the logistical infrastructure. 7. Access concepts for separate storage areas are regulated. 	<ul style="list-style-type: none"> • Order and cleanliness • Labelling concept • Definition of functional areas • Layout • customer-specific requirements for storage systems (e.g. shelf, high rack, paternoster rack, etc.), hazardous materials storage, parts vulnerable to theft, etc.) • Internal transport equipment • Infrastructure (e.g. buildings, racks, warehouses, flooring, lighting conditions, rack labeling, etc.) • ESD/ESG requirements • Technical cleanliness • Climatic requirements
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	<ul style="list-style-type: none"> • Access authorizations • DTS (Driverless Transport Systems) • Forklift control systems • Industrial tractor control system
<p>L6.4.5 Is the equipment available at the right location and in the right time, quantity and quality?</p>	
<p>Minimum requirements relevant for evaluation</p>	<p>Examples for implementation</p>

<ol style="list-style-type: none"> 1. Operating equipment must be available, functional and approved in accordance with planning. 2. The operating equipment stock is adapted on time to capacity/customer needs. 3. Operating equipment stocks must be replenished on time. 4. Inventories for operating equipment are performed regularly. 5. The addition and removal of operating equipment is defined. 6. When not in use, operating equipment is stored in a way which preserves its quality. 7. Product-specific requirements are taken into account. 	<ul style="list-style-type: none"> • Operating equipment list • Operating equipment monitoring • Cleaning schedules • Maintenance schedules • Suitability of operating equipment • Occupational safety • Labeling of operating equipment • Inspection sticker • Official calibration report • Calibration certificates • Order and cleanliness • Defined storage place when not in use • Damage and safe storage • MSA (measuring system analysis)
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	<ul style="list-style-type: none"> • Reordering systems • Intelligent packaging
L6.4.6 Is the equipment available at the right location and in the right time, quantity and quality?	
Minimum requirements relevant for evaluation	Examples for implementation

1. Maintenance intervals are observed, and substitute procurements are initiated in good time.
2. Suitable tools are available for proper maintenance.
3. Scheduled and unscheduled maintenance activities are performed and analyzed for potential improvement.
4. Faulty or potentially faulty infrastructure and operating equipment is identified, labeled, separated if necessary and reported to Maintenance.
5. Preventive and predictive maintenance activities are implemented systematically.
6. Resources are available for the performance of maintenance.

- TPM Total Productive Maintenance (preventive maintenance)
- Maintenance contract
- Checklists
- Inspection and maintenance schedule
- Availability of spare parts for operating equipment
- Documentation of completed maintenance work
- Repair
- Commissioning of external service providers for maintenance work
- Order and cleanliness
- Operational readiness of the operating equipment
- Replenishment lead times
- Resource planning
- Smart warehouse

L6.4.7 Are containers/load carriers and packaging materials available at the right location and in the right time, quantity and quality?

Minimum requirements relevant for evaluation	Examples for implementation
<p>1. Containers/load carriers, packaging materials must be available, functional and approved in accordance with planning.</p> <p>2. Unique identification label, visualization/internal container label are required.</p> <p>3. The stocks must be adapted on time to capacity/customer needs.</p> <p>4. Stocks must be procured/replenished on time.</p> <p>5. Inventories are performed regularly.</p> <p>6. When not in use, appropriate storage which protects quality is provided.</p> <p>7. Requirements pertaining to products and transport equipment are observed.</p> <p>8. Suitable depots and storage spaces must be defined and labeled.</p> <p>9. The condition of the containers/load carriers and packing materials meets the customer requirements.</p>	<ul style="list-style-type: none"> • Cleaning containers • Separating faulty containers out of the operative process • Container repair • Weather-proof storage • Functionality • Defined areas for empties • Container inventory • Order and cleanliness • Labeling of faulty containers • Layout • Intelligent packaging

L6.5 Effectiveness and efficiency: How effectively is the process being carried out?

L6.5.1* Have suitable parameters been defined in in-house logistics, including target values, and are they applied?

Minimum requirements relevant for evaluation	Examples for implementation
<ol style="list-style-type: none"> 1. Process-specific parameters are defined, monitored according to risk and communicated. 2. Targets are agreed, specific, measurable, attainable, realistic and scheduled. 3. A risk-based target/actual comparison is conducted. 4. The timeliness of the targets is ensured. 5. Targets are communicated to all relevant positions in the company. 	<ul style="list-style-type: none"> • Target definition • Shopfloor management • Process for pursuing and adjusting targets • Rates of complaints • Throughput times • Storage utilization • Productivity • Degree of space utilization • Process disruption • Degree of delivery readiness • Capacity monitoring

L6.5.2 Is analyzable process data collected and communicated?

Minimum requirements relevant for evaluation	Examples for implementation
<p>1. The necessary process parameters (target values) are defined and documented. The actual data is recorded, evaluated and communicated.</p> <p>2. The recorded data can be allocated to processes, the data is available, legible, accessible and archived as specified. Traceability requirements are met.</p> <p>3. The data sources for parameter determination are plausible and reasonable. Analyzability must be ensured over a defined time period.</p>	<ul style="list-style-type: none"> • Error logging • Risk assessment • Process monitoring • Communication plan • Action plan • Parameter matrix • Escalation matrix • Shopfloor management
<p>L6.5.3* In case of process and target deviations, are causes analyzed and corrective measures checked for effectiveness?</p>	
Minimum requirements relevant for evaluation	Examples for implementation

<p>1. If process and target requirements are not met, immediate actions are taken to fulfill the requirements, until it has been proven that the corrective actions have been effective. The employees are familiar with the immediate actions.</p> <p>2. Suitable methods are implemented to analyze the causes, and customer requirements are taken into account.</p> <p>3. Actions are taken to avoid recurring errors and are based on a root cause analysis.</p> <p>4. Corrective actions are derived, their implementation is monitored and the effectiveness verified.</p> <p>5. Deviations from the target value and their causes are documented.</p>	<ul style="list-style-type: none"> • Failure analysis methods • 8D report • Effectiveness check • Immediate actions • Complaint database • PDCA cycle • Backlog recovery plan • Action plan
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L6.5.4 Are methods of continuous process improvement implemented?

<p>Minimum requirements relevant for evaluation</p>	<p>Examples for implementation</p>
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<ol style="list-style-type: none"> 1. The potential for improvement is continuously determined based on findings relating to quality, costs, and services. 2. A process for continuous improvement of performance capability is applied throughout the company and with all supply chain partners. 3. Risk analyses are regularly updated. 4. Employees are motivated to submit suggestions for continuous improvement. 	<ul style="list-style-type: none"> • Service provider evaluation • CIP • Action plans • PDCA / Kaizen / FMEA • Lessons learned • Idea management • Measures for process stabilization
L6.5.5 Are the in-house logistics processes checked regularly and in case of changes?	
Minimum requirements relevant for evaluation	Examples for implementation

<ol style="list-style-type: none">1. The type and scope of audits are defined.2. Customer requirements are factored in.3. In case of deviations, action lists based on root cause analysis are created.4. Changes are documented.5. Checks are performed based on risk.	<ul style="list-style-type: none">• Change management• Reconciliation logs• Component changes• Audit program and plan• Improvement program• Internal ESD audits• Process descriptions• Document management system (workflow)• Auditor qualification• Customer-specific requirements• VDA volumes• Internal checklists• Effectiveness check• Action list• Changes from process improvements
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L6.5.6 Are ESG aspects taken into account in in-house-logistics?

Minimum requirements relevant for evaluation	Examples for implementation
<p>1. ESG requirements (Environmental Social Governance) are implemented.</p> <p>2. Targets are known and communicated.</p> <p>3. The planned ESG activities are tracked.</p>	<ul style="list-style-type: none">• Energy efficiency• Working conditions• Ergonomics• Carbon footprint• Hazard assessment• Health management

L6.6 What is the process result? Process output	
L6.6.1* Are all processes from the process flow implemented, reviewed and communicated effectively, efficiently and in accordance with quality standards, and are they available as results?	
Minimum requirements relevant for evaluation	Examples for implementation
<p>1. The in-house logistics department ensures that the right materials are available, as planned:</p> <ul style="list-style-type: none"> - in the right quality - on time - to the correct location - in the right quantity - with the right data - at the right cost - with the necessary documentation and labels/markings <p>2. The archiving specifications for documents are observed.</p>	<ul style="list-style-type: none"> • Archiving requirements • Component quality • Delivery reliability • Compliance • Replenishment lead time • Cost efficiency • Interface information • Communication plan • Escalation plan • Production and delivery plan
L6.6.2 Is the lessons-learned method regularly used in order to implement the resulting findings and potential improvements?	

Minimum requirements relevant for evaluation	Examples for implementation
<ol style="list-style-type: none"> 1. Process deviations are analyzed to find their causes and serve as the basis for the lessons-learned method. 2. Findings from interfaces are taken into account. 3. Deviations are documented and used for improvement measures. 4. The implementation is risk-based. 	<ul style="list-style-type: none"> • Continuous risk management • Action tracking • Root cause analysis • Retrospective • Best practice/ good practice • Deming Cycle • Daily Scrum • Sprint Review

7.8 Customer management (L7)

Why: Customer management allows companies to build long-term relationships with their customers, increase customer satisfaction and strengthen customer loyalty. A key element is targeted communication with customers.

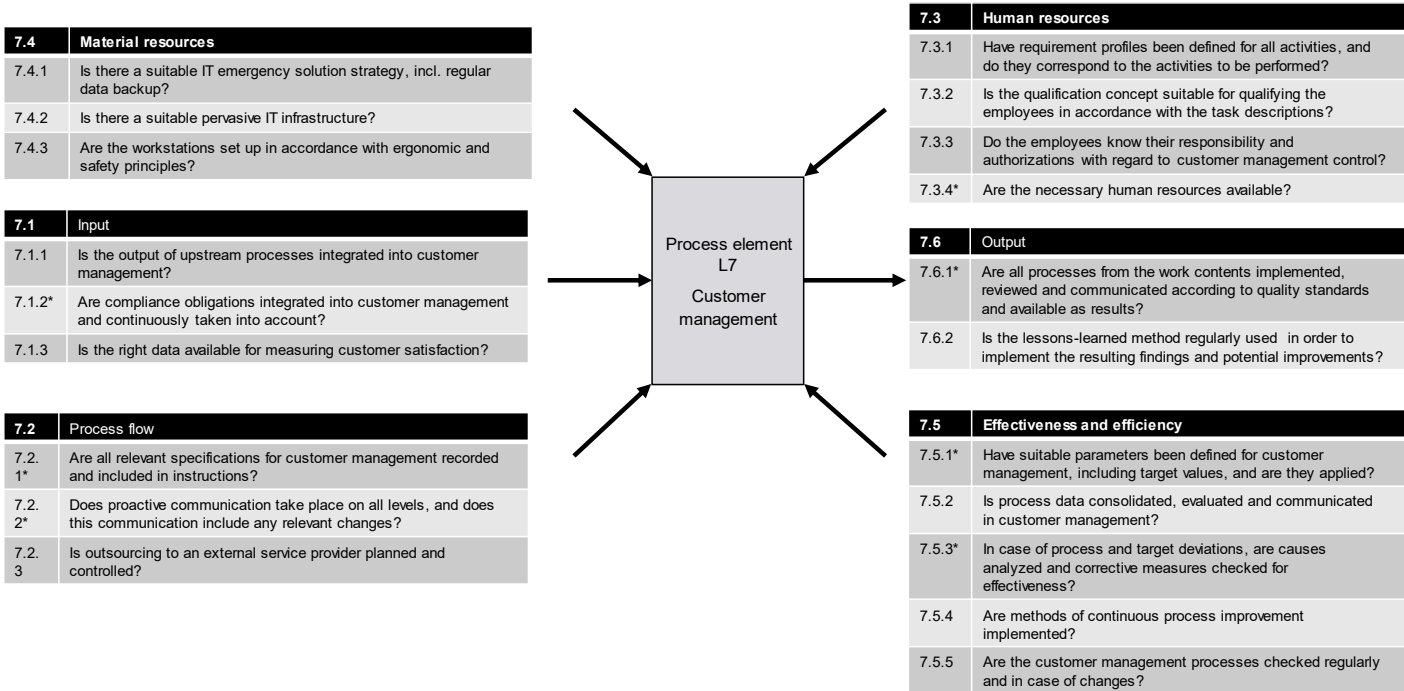


Figure 7-7: Turtle model for L7 customer management

Process element L7: Customer management	
L7.1 What goes into the process? Process input	
L7.1.1 Is the output of upstream processes integrated into customer management?	
Minimum requirements relevant for evaluation	Examples for implementation
<p>1. Approved results from planning have been carried over in full.</p> <p>2. Results from change management are integrated.</p> <p>3. Results from CIP and lessons learned are integrated.</p>	<ul style="list-style-type: none"> • Standards (e.g. white paper) • Process disruptions (e.g. due to reordering, operative logistics, token strike) • Actions (recall, campaign, information, etc.) • Customer feedback • Communication plan
L7.1.2* Are compliance obligations integrated into customer management and continuously taken into account?	
Minimum requirements relevant for evaluation	Examples for implementation

<p>1. The following requirements must be taken into account:</p> <ul style="list-style-type: none"> - customer requirements - internal requirements - ESG (Environmental Social Government) requirements <p>2. There must be processes for identifying, evaluating and implementing compliance obligations.</p>	<ul style="list-style-type: none"> • Obligation to preserve documents (CSD)/documentation obligation • Statutory/regulatory requirements (e.g.: GDPR,) traceability • Contracts • Integration into QM system
<p>L7.1.3 Is the right data available for measuring customer satisfaction?</p>	
<p>Minimum requirements relevant for evaluation</p>	<p>Examples for implementation</p>

1. Data on complaint management is available.
2. Data from customer satisfaction assessments is available.
3. Access to customer platforms is provided.

- Complaint analyses in multiple dimensions (reason for complaint, product group, storage area, shipping method, route, customer, etc.)
- Damage, complaints, customer feedback
- Market research/customer analyses
- Benchmark studies
- Service level/process times

L7.2

Process flow: How does the process work?

L7.2.1* Are all relevant specifications for customer management recorded and included in instructions?

Minimum requirements relevant for evaluation

Examples for implementation

1. The specifications relevant for the performance of customer-related activities are described and documented in sufficient detail.
2. The handling of customer complaints/feedback is described.
3. A process for using the customer portals is described and documented.
4. The defined instructions include the necessary inspections
5. The contents and current validity of the customer-specific documents are regularly checked in the customer portals.
6. Access to work instructions and specifications is ensured at all times in the work environment.
7. Interfaces and responsibilities are clearly defined.
8. Process descriptions and work instructions are subject to an approval process, are controlled and are regularly checked to ensure they are up-to-date.

- Work instructions
- Process descriptions
- Inspection instruction
- QM system
- Complaint handbooks
- World-wide customer service
- Interface matrix
- Communication plan
- Contact person
- Specifications on customer portals

L7.2.2* Does proactive communication take place on all levels, and does this communication include any relevant changes?

Minimum requirements relevant for evaluation	Examples for implementation
<p>1. A process with defined criteria is established which describes when and how the organization communicates with the customer:</p> <ul style="list-style-type: none"> - Contact availability must be ensured. - The customer's contact persons are known to the organization. - The processing status of inquiries and complaints is tracked, and replies are systematically provided. - Communication is done proactively. - Contact data is current and kept up-to-date. <p>2. Change management is implemented and documented, and results are archived.</p> <p>3. Communication includes escalation.</p>	<ul style="list-style-type: none"> • CRM (Customer Relationship Management) e.g. ticket system • Customer database • Newsletter • Hotline/call center • Customer conferences/meetings • Field service • Communication plan • Change management • Escalation plan • Customer portals • Access permissions
<p>L7.2.3 Is outsourcing to an external service provider planned and controlled?</p>	
Minimum requirements relevant for evaluation	Examples for implementation

1. Scopes of performance which are assigned to external service providers are defined.
2. Responsibility for the control of external service providers is regulated and integrated into the supply chain.
3. Rules for communication with external service providers are defined, and are known to all participants.
4. The dispatch control for direct supply by the external service provider to the customer is defined.

- Service contract
- Service agreement
- Communication matrix
- Resident overview
- Sub-supplier management
- Controlling suppliers
- First-level support

L7.3 Human resources: What departments, roles, persons support the process?

L7.3.1 Have requirement profiles been defined for all activities, and do they correspond to the activities to be performed?

Minimum requirements relevant for evaluation	Examples for implementation
<p>1. The requirement profile for the job forms the basis for the recruiting process and the associated comparison with the employee profile of potential new hires.</p> <p>2. Activity descriptions are available for every position.</p> <p>3. A differentiation is made between professional and mental requirements.</p> <p>4. Schooling, prior knowledge, career and higher education are taken into account.</p> <p>5. The necessary permissions are defined.</p> <p>6. Checks are performed regularly.</p> <p>7. Workplace-related qualifications are defined.</p>	<ul style="list-style-type: none"> • Qualification matrix • Evidence of qualifications • Occupational safety • Activity description • Requirement profile • Proof of training/qualifications • Customer-specific requirements • Initial training plan • Suitable evidence of qualification (e.g. vision test, hearing test, touch test) • Job description acknowledged by the employee • Knowledge of foreign languages

L7.3.2 Is the qualification concept suitable for qualifying the employees in accordance with the task descriptions?

Minimum requirements relevant for evaluation	Examples for implementation
<ol style="list-style-type: none"> 1. For each position, there is a training schedule based on the work description. 2. A qualification matrix is used. 3. The type and the scope of the “initial training” and the statutory, internal and recurring training is defined and documented. 4. The effectiveness of the qualification measures is ensured in terms of quality and time. 5. Training is conducted by qualified staff/trainers. Training know-how must be demonstrable. 6. Workplace-related qualifications are ensured. In case of changes to processes, trainings/instructions are provided and documented. 7. A training concept, including appropriate training documents, is in place. 	<ul style="list-style-type: none"> • Knowledge of foreign languages • Knowledge of product use and product problems • Overview of persons with specialized knowledge • Stakeholder analysis • Training plan • Training concept • Patent concept • Quality and time • Qualification matrix • First-day briefing • Initial training plan with references • Briefings (e.g. occupational safety, ESG requirements, data protection)

L7.3.3 Do the staff know their responsibility and authorizations with regard to customer management control?

Minimum requirements relevant for evaluation

Examples for implementation

1. The staff know their work and process instructions.
2. The staff know their activity description.
3. The staff know the consequences and effects of incorrect execution of work.
4. The response to improperly performed work and/or errors in the process is defined.
5. Any transfer of duties is documented.
6. Access to relevant areas of the customer is provided.

- Functions and requirements
- Function description
- Escalation matrix
- Communication plan
- Response plan to faulty work
- Action plan in case of problems
- Identification of process disturbances
- Safe work conduct/practices
- Work/inspection instructions
- Service agreements (e.g. service-level agreement, target/actual values of KPIs)
- Order and cleanliness
- Training on relevant statutory/regulatory requirements
- IT permissions
- Residents
- Key account

L7.3.4* Are the necessary human resources available?

Minimum requirements relevant for evaluation	Examples for implementation
<ol style="list-style-type: none"> 1. There is a staff schedule which takes into account the required number of qualified employees. 2. Substitutions are arranged. 3. All activities and roles are mapped in an organization chart or team structure. 4. The qualification matrix is used to check staffing requirements regularly. 5. A crisis management plan is defined. 6. For customers and customer groups of the organization, the contact person for inquiries and complaints is defined. 	<ul style="list-style-type: none"> • Staff schedule • Parameter for fluctuation • Interface matrix • Emergency strategy • Resource planning, incl. budget • Documented substitution rules • Absence planning • Organization chart • Q-matrix • Evidence of qualifications

L7.4 Material resources: What resources are used to implement the process?

L7.4.1 Is there a suitable IT emergency solution strategy, incl. regular data backup?

Minimum requirements relevant for evaluation	Examples for implementation
<ol style="list-style-type: none"> 1. The company must, by means of a disaster recovery strategy, define the maximum tolerable downtime for necessary production-related IT elements (e.g. hardware, applications, hosting). 2. In case of a failure of IT elements, the company must ensure a recovery time without affecting the customer's required arrival dates. 3. Archive is available and protected. 4. Data must be backed up on redundant and reliable storage media. 5. Regular function tests must be conducted for data backup. 	<ul style="list-style-type: none"> • Emergency strategy • Backup plan, incl. escalation levels • Archiving requirements • Backup concept • Emergency information plan • Function test according to VDA 1 • Customer-specific response times • TISAX (R)

L7.4.2 Is there a suitable pervasive IT infrastructure in place?

Minimum requirements relevant for evaluation	Examples for implementation
<ol style="list-style-type: none"> 1. Internal and external requirements are observed. 2. Availability is consistently ensured. 3. Relevant interfaces, especially customer platforms, are functional. 4. The IT infrastructure is capable of representing the relevant processes. 5. Systematic user administration is implemented for customer platforms, incl. substitution rules. 6. The standards of data transfer are defined and communicated, and compliance is ensured. 	<ul style="list-style-type: none"> • Network structure plan • Hardware and software • Overview of access permissions • Interface matrix • Parameters and system availability • Data protection policies • Interfaces with customer systems

L7.4.3 Are the workstations set up in accordance with ergonomic and safety principles?

Minimum requirements relevant for evaluation	Examples for implementation

1. Availability is ensured as of the start of work.
2. Individual needs and physical requirements are taken into account.
3. Escape and rescue routes are defined and clearly indicated.

- Appropriate lighting
- Concepts for noise protection
- Specifications regarding ambient temperature
- Workplace analysis
- Hazard assessments
- Office/space concepts
- Order and cleanliness
- Escape and rescue routes
- Ergonomic aspects

L7.5 Effectiveness and efficiency: How effectively is the process being carried out?

L7.5.1* Are there suitable parameters defined for customer management, including target values, and are they applied?	
Minimum requirements relevant for evaluation	Examples for implementation
<ol style="list-style-type: none"> 1. Process-specific parameters are defined, monitored according to risk and communicated. 2. Targets are agreed, specific, measurable, attainable, realistic and scheduled. 3. A risk-based target/actual comparison is conducted. 4. The timeliness of the targets is ensured. 5. Targets are communicated to all relevant positions in the company. 6. A customer satisfaction parameter is regularly collected and tracked. 	<ul style="list-style-type: none"> • Processing time and number of customer inquiries • Customer service cost • Customer satisfaction index (CSI) • Target definition • Target tracking • Target adjustment • Damage, complaints, customer feedback • Market research/customer analyses • Benchmark studies • Service level/process times
L7.5.2 Is process data consolidated, evaluated and communicated in customer management?	
Minimum requirements relevant for evaluation	Examples for implementation

<p>1. The necessary process parameters (target values) are defined and documented. The actual data is consolidated, evaluated and communicated.</p> <p>2. The recorded data can be allocated to processes, the data is available, legible, accessible and archived as specified. Traceability requirements are met.</p> <p>3. The data sources for parameter determination are plausible and reasonable. Analyzability must be ensured over a defined time period.</p>	<ul style="list-style-type: none"> • Error logging • Risk assessment • Process monitoring • Complaint analyses in multiple dimensions (reason for complaint, product group, storage area, shipping method, route, customer, etc.) • Customer surveys • Customer satisfaction index (CSI, incl. delivery backlog)
<p>L7.5.3* In case of process and target deviations, are causes analyzed and corrective measures checked for effectiveness?</p>	
<p>Minimum requirements relevant for evaluation</p>	<p>Examples for implementation</p>

<p>1. If process and target requirements are not met, immediate actions are taken to fulfill the requirements, until it has been proven that the corrective actions have been effective. The employees are familiar with the immediate actions.</p> <p>2. Suitable methods are implemented to analyze the causes, and customer requirements are taken into account.</p> <p>3. Actions are taken to avoid recurring errors and are based on a root cause analysis.</p> <p>4. Corrective actions are derived, their implementation is monitored and the effectiveness verified.</p> <p>5. Deviations from the target value and their causes are documented.</p>	<ul style="list-style-type: none"> • Failure analysis Methods • Immediate actions • Effectiveness • ESG requirements • Responsibilities in action implementation • Deadlines for action implementation • Action plans/action lists • Archiving procedures • Recurring errors
<p>L7.5.4 Are methods of continuous process improvement implemented?</p>	
<p>Minimum requirements relevant for evaluation</p>	<p>Examples for implementation</p>

<ol style="list-style-type: none"> 1. The potential for improvement is continuously determined based on findings relating to quality, costs, and services. 2. A process for continuous improvement of performance capability is applied throughout the company and with all supply chain partners. 3. Risk analyses are regularly updated. 4. Employees are motivated to submit suggestions for continuous improvement. 	<ul style="list-style-type: none"> • Service provider evaluation • CIP • Action plans • PDCA / Kaizen / FMEA • Lessons learned • Idea management • Actions for process stabilization
<p>L7.5.5 Are the customer management processes checked regularly and in case of changes?</p>	
<p>Minimum requirements relevant for evaluation</p>	<p>Examples for implementation</p>

<ol style="list-style-type: none"> 1. The type and scope of audits are defined. 2. Customer requirements are factored in. 3. In case of deviations, action lists based on root cause analysis are created. 4. Changes are documented. 5. Checks are performed based on risk. 	<ul style="list-style-type: none"> • Change management • Reconciliation logs • Audit program and plan • Improvement program • Document management system (workflow) • Auditor qualification • Customer-specific requirements • VDA volumes • Effectiveness check • Action list • Changes from process improvements
<p>L7.6 What is the process result? Process output</p>	
<p>L7.6.1 Are all processes from the work contents implemented, reviewed and communicated according to quality standards and available as results?</p>	
<p>Minimum requirements relevant for evaluation</p>	<p>Examples for implementation</p>

<p>1. Customer management ensures:</p> <ul style="list-style-type: none"> - Transparent customer satisfaction - Data synchronized with the customer - Actions for continually improving customer satisfaction - Communication coordinated with the customer 	<ul style="list-style-type: none"> • Archiving requirements (fire protection, legibility, duration) • Customer evaluation • Rating • Communication plan • Action plan • Customer satisfaction index (CSI) • Supply security
<p>L7.6.2 Is the lessons-learned method regularly used in order to implement the resulting findings and potential improvements?</p>	
<p>Minimum requirements relevant for evaluation</p>	<p>Examples for implementation</p>

<ol style="list-style-type: none">1. Customer feedback is analyzed for deviations and causes and serves as the basis for the lessons-learned method.2. Findings from interfaces are taken into account.3. Deviations are documented and used for improvement measures.4. The implementation is risk-based.	<ul style="list-style-type: none">• Processing of customer feedback• Continuous risk management• Action tracking• Root cause analysis• Retrospective• Best practice/good practice• Deming Cycle• Daily Scrum• Sprint Review
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8 Glossary and index of abbreviations

Definitions and terms from the VDA publications are presented in a comprehensive online glossary of the VDA QMC:

<https://vda-qmc-learning.de/module/glossar/glossar.php>

Abbreviation	Explanation
E_G	Result of all audited elements
E_{Kn}	Risk assessment
E_{L1}	Process element: project management/strategy
E_{L13}	Process element: supplier and service provider management
E_{L2}	Process element: planning and implementation of logistical processes
E_{L4}	Process element: procurement logistics
E_{L5}	Process element: transport logistics
E_{L6}	Process element: in-house logistics
E_{L7}	Process element: customer management
E_{Ln}	Compliance level of a process element
E_{Pot}	Compliance level of a potential analysis
5-S	5S method
BCM	Business Continuity Management

Abbrevia- tion	Explanation
CRM	Customer Relationship Management
CSD	Community Software Development
CSI	Customer Satisfaction Index
GDPR	General Data Protection Regulation
EDI	Electronic Data Interchange
ERP system	Enterprise Resource Planning
ESD	ElectroStatic Discharge
ESG	Environmental, Social, and Governance
DTS	Driverless Transport System
GPS	Global Positioning System
HiFo	Highest in, First out
OK	OK
Incoterm	International Commercial Terms
ISO	International Organization for Standardization
FiFo	First in, First out
LiFo	Last in, First out
BBD	Expiry date

Abbrevia- tion	Explanation
MMOGLE	Materials Management Operation Guideline / Logistics Evaluation
HRC	Human-Robot Collaboration
MTM	Methods-Time Measurement
n.e.	not evaluated
NOK	not OK
POT	Potential Analysis
RACI chart	Responsible, Accountable, Consulted, Informed Chart
RFID	Radio-Frequency Identification
StVZO	German Road Traffic Act
TISAX	Trusted Information Security Assessment Exchange
TPM	Total Productive Maintenance
VDA	Verband der Automobilindustrie e. V.
VR/AR	Virtual Reality / Augmented Reality

Quality Management in the Automotive Industry

The current versions of the VDA publications covering quality management in the automotive industry can be found online at <https://www.vda-qmc.de>.

You may also order via this homepage.

Reference:

**Verband der Automobilindustrie e. V. (VDA)
Qualitäts Management Center (QMC)**

10117 Berlin, Behrenstr. 35

Phone +49 (0) 30 89 78 42-235, fax +49 (0) 30 89 78 42-605

Email: info@vda-qmc.de, Internet: www.vda-qmc.de

VDA QMC

Verband der Automobilindustrie
Qualitäts-Management-Center