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# Principles

## Preamble

"Always on" is the motto for many people these days: at home on the notebook, on the road with the smartphone - mobile data access worldwide is now almost taken for granted.

Digitalization and electromobility are the top innovation drivers in the automotive industry today. CARIAD is an automotive software subsidiary in the Volkswagen Group. The Group thus bundles its software development in CARIAD, including work on a uniform software platform for all Volkswagen Group brands. Part of the software consists of the development and operation of the Modular Backend Building Block (MBB), which is realized in the two solution spaces as described in chapter Technical Specification.

In order to be able to meet the increasingly demanding requirements, a partner is sought with these specifications, who supports CARIAD with expertise, innovation, responsibility and motivation to further develop and provide the best possible customer experience.

The idea of continuous improvement is part of our everyday practice and forms the basis for constantly optimizing the customer experience.

In order to realize faster time-to-market cycles, for example, it is necessary to optimize SW releases from large, dependent major releases to independent SW updates of individual SW components.

## General

The present specifications for development, testing and operational services as well as general IT services describe technical requirements.

This document describes the affected interfaces, processes and the requested service as the basis for the award.

The supplier must take these specifications fully into account when preparing his offer. In its offer, the bidder must take into account all services that are required to fulfill the requirements of the specifications. The offer must refer to these specifications together with the applicable documents and plausibly evaluate the services requested therein. Deviations from the specifications must be expressly identified as such in the offer with reference to the relevant section.

As contractor, the supplier shall ensure that the service described in the specifications is provided to CARIAD SE (a Volkswagen Group Company) in accordance with the specifications.

CARIAD SE reserves the right to carry out a cost plausibility check before and after the nomination and to renegotiate accordingly. The offered prices and dates may not be exceeded.

The contents of the specifications are subject to confidentiality and may only be handed over to third parties with the written consent of CARIAD SE.

The services shall be provided in accordance with the technical and organizational specifications of the Customer under the supervision and sole authority of the responsible employees designated by the Contractor as an independent and autonomous service of the Contractor.

## Structured offer

On the basis of the inquiry, the contractor shall prepare an appropriately structured offer free of charge. This offer must contain all details for the derivation of the offer value and for the plausibility check.

If CARIAD SE requests further details on the offer, the contractor undertakes to provide them immediately and free of charge.

All requirements for the offer are described in the attached tender document.

## Requirements

The Contractor shall comply with the following principles and overarching requirements and objectives:

* High scalability for continuous growth
* Very high quality of service for customer and meeting SLAs for more demanding functions
* faster time to market, by reducing roll-out and update cycles
* High cost efficiency and cost transparency in the project
* Compliance with the data protection and security requirements of the AG
* Holistic documentation
* Application of standard software products
* in case of need AG-specific extensions (individual development)
* regular commercial and technical control of the progress of the contract by the contractor and the AG.
* clear principles according to which the project will be carried out and a clear project vision as a representation of the project goal.
* Collaboration between project teams based on partnership:
* Timely and practical specification of requirements by means of user stories (epics), whereby the customer actively participates in their definition and is responsible for them.
* Immediate communication in case of problems, even if it jeopardizes cooperation.
* Maximum flexibility in the realization of projects:
* If necessary - e.g. in case of insurmountable problems in the cooperation between the contractor and AG or with third parties - the software project can be terminated or transferred to third parties without great financial effort.

## Client

The client (hereinafter also referred to as "Client") of these specifications is CARIAD SE.

## Contractor

In this document, "Contractor" (hereinafter also referred to as "Contractor") is used as a proxy for both bidders prior to award and contractors after award of the tendered services.

## Aim of the specifications

The document shall

* describe the cooperation between the Client and the Contractor,
* define the necessary regulations and concretizations regarding services and remuneration for both contracting parties,
* describe the necessary conditions for the agreement of IT services,
* Provide the basis for the conclusion and control/monitoring of specific performance agreements for the IT service,
* describe in as much detail as possible the IT services and the ITSM processes to be provided by the Contractor and to be expected by the Client in order to anticipate the risk of misunderstandings,
* Establish a formal system of setting performance targets and service level monitoring to put reviews in the future on a mutually acceptable data basis,
* Establish a common understanding on the definition of service requirements and the principles of service level measurement.
* and provide the parties to the specifications with an easily referenced document for the previously stated objectives.

The intended model aims at a close and long-term partnership between the customer and the contractor. Both partners must be aware that not every detail of the business relationship can be formulated in a contract. It is therefore necessary to establish a common understanding and a fundamental basis of trust on both sides.

The AG assumes that possible definitional ambiguities that arise during the term of the contract will be discussed in a partnership-based procedure, resolved and adopted in regular operation.

## Attachments to the document

It should be noted that this specification has its own annex documents. When the service is commissioned, this service description including all referenced documents becomes part of the contract.

## Lot by lot award

This RFP is designed to form lots from the services summarized in Attachment K.

The Principal leaves open the option to award the services listed as "**Additional Services**" and **"Enabler Services"** either together with **Lot 1 - Core** or **Lot 2 - Car2X.** The Contractor shall be obliged, irrespective of the lot for which it bids, to include the range of services listed as "**Additional Services**" and **"Enabler Services" in the bid and to** price them.

This results in the following lots:

* Lot 1 - Core
* Lot 2 - Car2X

The Contractor may offer individual lots, but also all lots. If both lots are offered, the Contractor shall state whether one, and if so which, lot is preferred. Partial services from lots do not constitute a valid offer.

It shall be at the sole discretion of the Client whether to award a contract by lots. If no lot-by-lot award is made, the range of services broken down by lot below shall apply in full.

How the lots are to be priced and which price items are to be applied in which lot is explained in chapter Compensation.

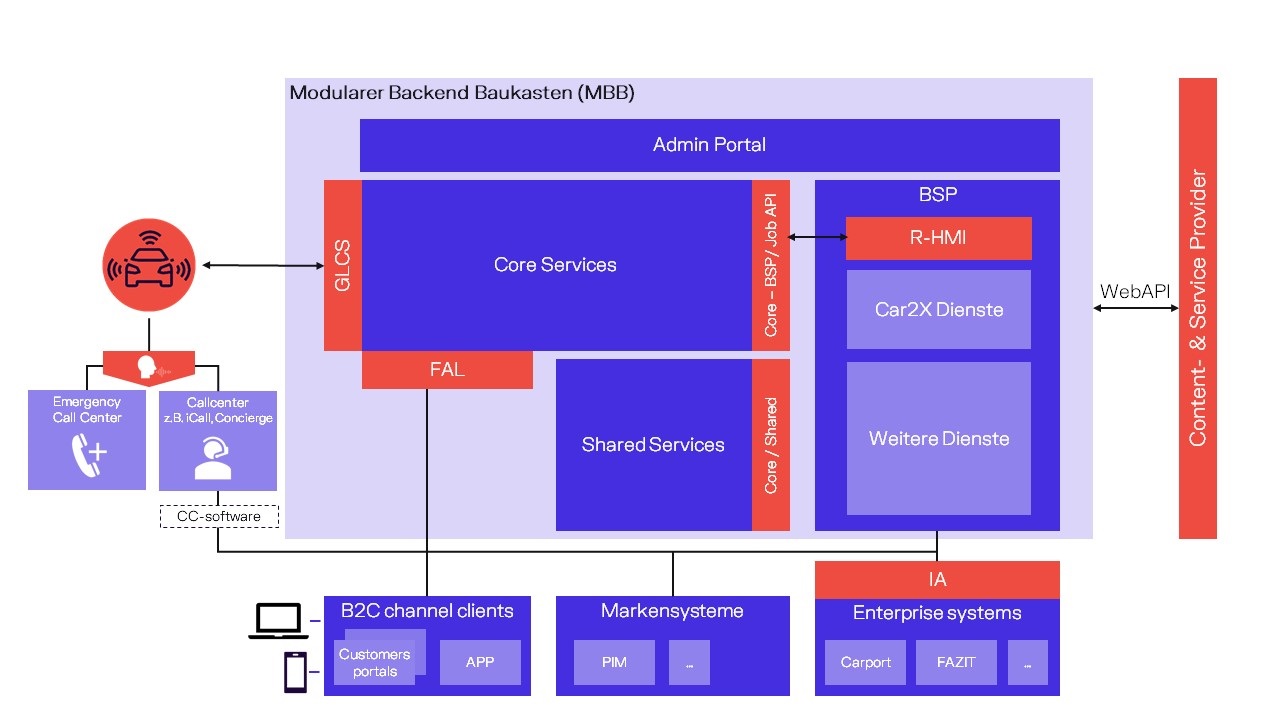
If the tender documents refer to the Contractor (CO), the contents, requirements and definitions shall be valid for each lot and shall be taken into account by each lot during the performance of services.

# Specific order contents

## Technical specification

CARIAD SE operates the **Modular Backend Building Kit (MBB)**, which is available as an enterprise backend system for mobile online services (Connected Car Services). In the MBB, all digital services and backend functions related to the vehicle are managed.

The MBB is a collection of several mostly JEE applications, which mainly require several servlet engines as runtime environment and in the JEE environment common and additional peripheral systems such as DB, LDAP, etc.. The MBB has a modular structure, but the modules cannot be used in any combination.



1. MBB structure

The MBB is a backend that is used to provide communication for the connected car services of all Group brands and markets. There is brand separation for various modules, which are operated on two different platforms. The Connected Car Services are divided into different modules, further applications and analysis systems, which belong to CAR IT. The MBB modules have been logically divided into categories:

* Core,
* Admin,
* Shared,
* Business Services and
* Other interfaces

Business services are divided into infotainment services and vehicle-related services (Car2X), which are presented either in the vehicle or in a front end.

The number of Connected Car Services to be supported, which are made available to the customer for use, as well as the annual growth, can be found in the Compensation section.

The MBB provides the uniform **communication and data platform** over several releases. The MBB provides both the back-end infrastructure for all telematics and infotainment systems and the communication protocol and vehicle interface. The focus is on the management and operation of the telematics and infotainment services, not on their distribution.

To ensure a smooth transition to live operation, there are different staging environments (e.g. Test and Integration, Approval, PreLive and Live).

A high degree of flexibility in dealing with changing requirements and change frequencies, as well as outstanding coordination skills, are basic prerequisites for providing the required services. Partnership and communication "at eye level" with stakeholders from technical development, service managers and operating departments is also an indispensable quality.

In addition to the challenges in day-to-day business, the SOP weeks, which take place three times a year with the participation of all Group brands, should be highlighted. Major releases for the Modular Backend Toolkit are distributed to the production environment in order to bring innovations in digital services to the customer at the same time as the start of production of new vehicle models.

The following list provides a rough overview of the technologies currently in use and does not claim to be exhaustive:

* Access Management - Tivoli Access Management Webseal
* AWS Services (RDS, EC2, Cloudwatch, etc.)
* CA APM
* Cassandra
* Concourse
* Content Management - Adobe Communique (Day)
* Directory Proxy Server SUN
* DNS - BIND
* Dynatrace
* F5 Firewall
* Gradle
* Grafana
* Jenkins
* Kafka
* Kibana
* Kubernetes / Docker
* Linux (Redhat and others)
* Maven
* Microsoft Domain Controller
* Microsoft Federated Identity Mgmt.
* Microsoft Key Management Server
* Microsoft SQL Server
* MongoDB
* MQTT (Message Broker)
* NDM WebSphere
* NCCR
* Open API
* Oracle
* Portal Liferay
* Portals - WebSphere Portal Server
* Redis
* Rsync
* RVS
* Splunk
* Tivoli Access Manager Policy Server
* Tomcat Application Server
* Translation - WebSphere Translation Server
* WAF
* Web Scraping Software - Kapow
* Web Server - Apache
* Web Server - IBM HTTPD
* Web Server - Microsoft IIS
* WebSphere Application Server
* WebSphere Message Broker

The Contractor must be proficient in the technologies listed and provide evidence of this in the bid.

The MBB and the associated applications are currently operated in two different solution spaces (platforms). Vehicles are clearly assigned to one solution space. The VIN can be used to limit troubleshooting in the event of a fault.

In addition to MBB 1.5, the services are also operated in ODP 1.0 - "One Digital Platform" (ODP).

Upcoming vehicle startups will be integrated on the ODP platform. The IT services that are in MBB 1.5 will only receive safety or regulatory updates. There are no plans to include new vehicles in MBB 1.5.

|  |  |
| --- | --- |
| Surroundings | Description |
| MBB 1.5 | OnPremise operating environment of MBB 1.5 for the European/Worldwide market (excl. China) |
| ODP 1.0 | Cloud operating environment of ODP 1.0 for the European/Worldwide market (excl. China) |

1. Operating platforms

### ODP 1.0 - Public Cloud

The ODP (One Digital Platform) of Volkswagen AG is a separate infrastructure area in a public cloud environment based on the cloud services of the AWS platform. Corresponding guidelines and processes are used for the ODP, which must be observed and complied with.

### MBB 1.5 - WebCenter

The WebCenter is an on-premise operating solution in a delimited infrastructure area with an architectural zone model. For the WebCenter of AUDI AG, there are corresponding guidelines and processes that must be observed and complied with.

### Specifications

The Contractor must take into account and implement all of the Client's specifications when providing its services, e.g. IT security and architecture specifications.

If the Contractor plans to use additional (open source) components, these must be explicitly approved and legally released by the Client (architecture) via a dedicated process. The approval must be obtained by the Contractor in a tool specified by the Client.

The AG expects the support of the CO in the handling of the process.

For the conception and realization of its services, the currently valid specifications and methods (e.g. Metrikkatlog, K-GAS, A-SPICE, etc.) must be used.

The exact specifications and guidelines as well as the associated release processes are discussed and documented in detail between the contractor and the customer during the fade-in phase.

### Services

#### Attributes

The services are divided into three categories from simple to complex and defined by the following attributes:

|  |  |  |  |
| --- | --- | --- | --- |
| **Attribute** | **Simply** | **Medium** | **High** |
| Source code complexity (determined with Sonar Cube) | A-B | C | D-E |
| Number of services/systems dependent on the service | <= 3 | 4-8 | >=9 |
| Number of Lines of Codes | <= 10.000 | 10.001 - 59.999 | >= 60.000 |
| Number of libraries used | <= 8 | 9 - 15 | >= 15 |

1. Services categories

An overview of the current services can be found in Annex K. The services described there are not to be understood as fixed, the scope of the services may change in the course of the contract term due to the addition or removal of services.

#### Core

Core modules are the central components used by all other modules that communicate with the vehicle. Core components are the modules that enable and manage the connection between the vehicle and the MBB. Core Services are agnostic to business service payloads. More details on Core Services are described in Appendix K.

Core functionalities are e.g. security, registration of vehicles at the backend as well as at the MNO (Mobile Network Operator), routing or the provision of external web APIs for the use of non-vehicle clients such as smartphones and customer portals of all brands.

They are essential for the use of business services before the end customer.

#### Car2X

After infotainment services and the modular backend system went into production in recent years, further online services have emerged as part of Audi/VW Connect, including vehicle-related services (Car2X services).

The relevant Car2X services are further detailed in Appendix K.

#### Other services

In this context, the term "other services" includes the green services (Intelligent Charging Functions Backend (ILF) and Plug&Charge Backend (PnC)) and Content Management System (CMS).

The Plug&Charge function provides a convenient option for authentication and authentication at the charging infrastructure. It replaces common external authentication media such as RFID card, app, SMS, or similar.

The content management system on the MBB and ODP1.0 platforms is used to manage various content types for in-vehicle infotainment services.

Further details on services listed above can be found in Appendix K.

#### Enabler services

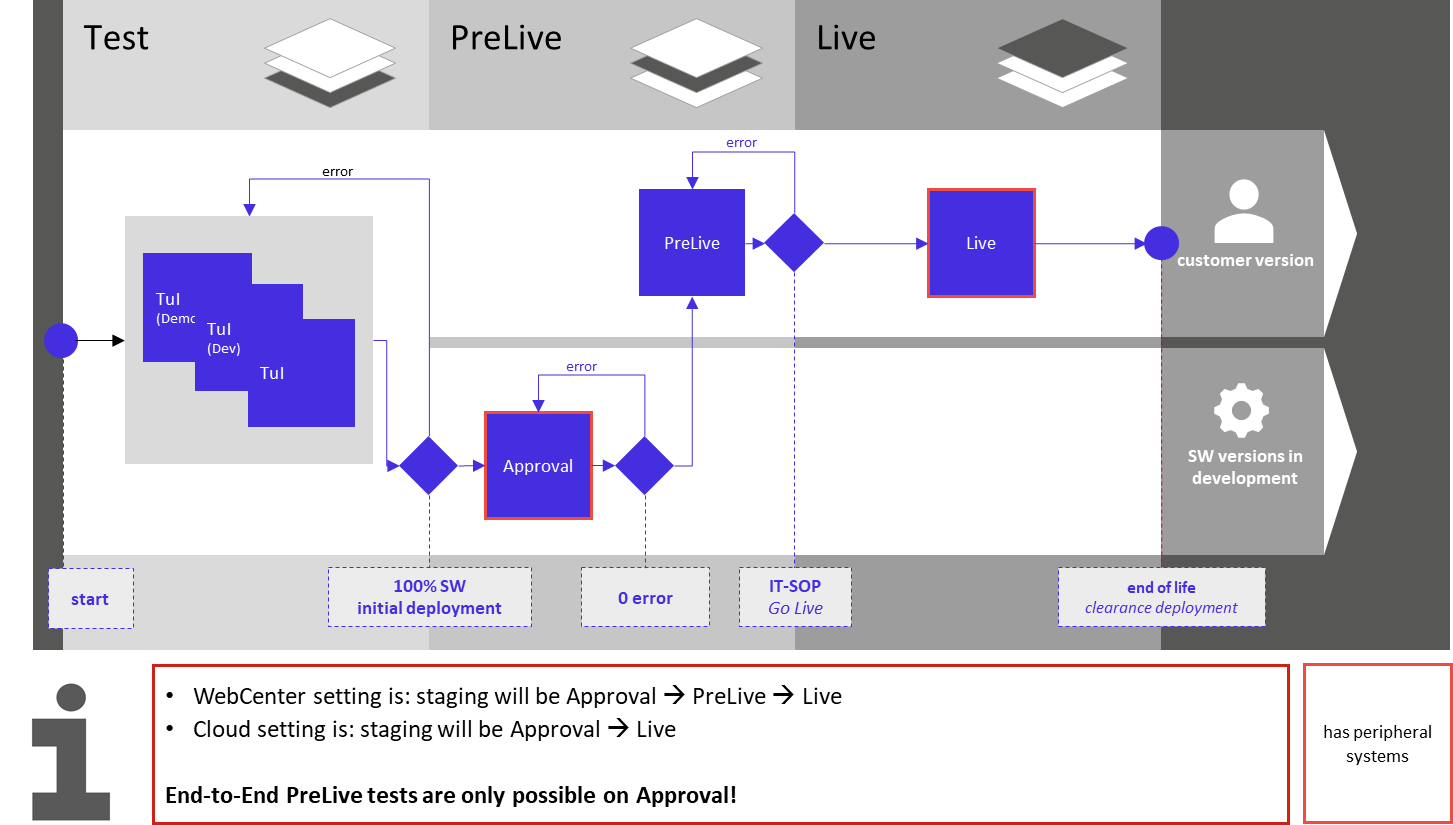
Enabler services are services that are used multiple times and thus cannot be clearly assigned to a service group.

These include enabler services such as the CI/CD pipeline or the testing framework, whose basic structure is the same for all applications and must be filled with service-specific content for each application. The development, provision and operation of this basic functionality is performed as part of the enabler services, e.g., generic quality gates must be integrated into the pipeline functionality for the CI/CD and basic functionalities such as the test of the registration component must be provided across all services.

### Staging Environment

Software and software functionalities have to be provided to different user groups (developers, testers, customers) in different phases of a software lifecycle.

The different phases are realized with the help of different stages or environments and are shown in the following figure.



1. Staging Environment

#### TuI: Integration and development

After programming a new software functionality, it is integrated into a target environment (MBB). The developers (both vehicle and software developers) test the basic functionality of the new software on this environment.

The Contractor shall be responsible for the operation of the "Development Environments". The platform is provided by the customer. These start installations of MBB applications and are responsible for the availability of the system independently. Monitoring of the MBB applications is partially established and used by the development team.

#### Approval

The Approval environment is architecturally similar to the PreLive and Live environments.

This environment is primarily used to perform integration tests and obtain releases. Furthermore, this environment is used for demonstrations at trade fairs, press trips or similar. This environment has interfaces to various peripheral systems.

Monitoring of MBB applications is largely established and used by the DevOps team.

#### PreLive

The PreLive environment is identical to the live environment. Among other things, this environment is used for final testing of the services before they go live and for validating errors that occur in production as part of a root cause analysis.

The PreLive environment is not available for ODP.

#### Live

The live environment contains all services that are currently "live before customer". This means all services that are necessary for the customer experience.

This environment has interfaces to all relevant peripheral systems and content providers.

### Backup and Recovery

The Contractor is responsible for ensuring that a backup of all relevant data is planned, set up and regularly performed in order to be able to initiate full recovery processes at any time. The Contractor must use the service provided in the respective solution rooms.

The Contractor's backup and recovery and IT service continuity plans must be coordinated with the Client's continuity procedures so that an end-to-end backup and recovery/business continuity plan is supported in the best possible way in the event of a disaster (see chapter IT Service Continuity Management).

### End-to-end responsibility

To ensure that the customer experience is fully restored as quickly as possible in the context of disruptions, the Contractor assumes end-to-end responsibility.

This means that the Contractor shall accept, coordinate and resolve any disruptions to the Connected Car Services that affect the customer experience and are **within its responsibility or affect the adjacent systems and interfaces.**

In the Fade-IN phase, the Contractor must develop a concept for measuring end-to-end responsibility and generating and tracking messages in the event of any failures so that end-to-end responsibility is sustained and end-to-end availability can be restored as quickly as possible.

The concept must also describe how the CO can coordinate and manage disruptions that are outside of the CO's responsibility but that affect the customer experience.

The end-to-end concept must be implemented by the end of the fade-IN phase

## Description of the project environment

The Contractor is responsible for the complete software life cycle from its development to its implementation and operation as described in the following chapters.

The realization is to be carried out according to the SCRUM methodology and the Scale agile Framework (SAFe).

The Contractor shall comply with the regulations specified by the Client. The Client reserves the right to deviate from the standardized procedures if necessary. All relevant measures and tests shall be carried out for each software increment implemented.

All processes of the VDA scope must be designed in such a way that they are **ASPICE v3.1** compliant and that all required process outcomes and output work products are generated.

## Objective and performance description

The "DevOps" philosophy established and practiced at the AG unites the otherwise detached and separate areas of software development and IT operations:

**"You build it - you run it."**

The goal and result of this process improvement approach is an acceleration of development services as well as a high-quality "product" that promotes stable IT operations:

* Shorter release cycles
* Respond more quickly to changing requirements
* Early recognition of disturbances or problems and direct solution in the team
* more efficient cooperation

### Development

As part of its service provision, the Contractor shall undertake the new and further development of functions (including "microservices" and "software increments"). The delivery of the development service to the customer is largely carried out via a Continuous Integration Platform (CIP).

The requirements for the respective developments are broken down into user stories as part of PI planning or in the story breakdown. These are to be implemented by the CO within sprints (development iterations).

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Automatisch generierte Beschreibung

1. Overview of the basic procedure

The communication structure must be set up in such a way that the necessary communication

between the product owner of the AG and the DevOps team is ensured.

Business requirements of the customer are passed on to the proxy product owner (CO) via the product owner (CO). The proxy product owner (CO) feeds the business requirements into the DevOps team (CO):

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Automatisch generierte Beschreibung

1. Communication structure

#### Requirements management

New requirements (CRs) are addressed to the CO via the relevant change bodies (CCBs, CABs, etc.). The respective valid process is supplied by the CL.

The Contractor must follow the SAFe framework for agile software development used by the Client and maintain a backlog that is transparent for the Client.

The Contractor creates corresponding tickets (JIRA) for the changes in the project-specific tool (currently Atlassian JIRA) and continuously maintains the corresponding status in these.

The AG assesses whether a Change is relevant for a service and the initial "complexity assessment", which is carried out by the CO, is in order for the respective service.

When creating the new requirement (new CR), the technical assistance for correct formulation is provided independently by the Contractor. The Contractor shall ensure the implementation of the scope of work both for ad hoc scopes of work and for new requirements. This includes all necessary clarifications up to code implementation, testing, deployment preparation and technical documentation in the systems provided for this purpose, while adhering to the schedule.

#### Effort estimation

As part of the requirements process, the contractor makes an initial rough cost estimate for a change request (Epic). The estimate includes all services up to Go Live.

On the basis of this rough cost estimate, internal processes are initiated at the AG and the AG decides whether the CR should be implemented.

The Client expects a high degree of accuracy from the Contractor within the scope of the effort estimates. If the Client increasingly or permanently detects deviations or corrections with regard to the effort estimation, the Contractor shall submit measures to the Client which will improve the estimation accuracy in the future. The Client leaves itself open to define corresponding service levels for the effort estimation if required.

#### PI-Planning (planning workshop)

PI planning meetings are held at regular intervals at the WG.

In the workshop, several teams of the Agile Release Train (ART), other trains/stakeholders as needed (depending on the topic), and the entire project team meet to find common visions, align, identify dependencies among each other, and jointly create a roadmap (sprint planning).

Contents of PI Planning include:

* Technical analysis of the requirements
* Feature planning and assessment of short-term requirements (architecture, vision and product development)
* Preparation of the planning for the next months (conception, design)
* Breakdown of user stories and use cases (story breakdown)
* Sprint planning
* Presentation of the planning results in the plenum incl. presentation of risks
* Obtaining management commitment

The Contractor shall have the following responsibilities per PI Planning:

* Preparation of the workshop / preparation of project contents
* Participation of the entire project team in the workshop (on-site presence)
* Follow up of the workshop
* Participate in and conduct reconciliations during the pre- and post-processing phases.

The PI-Planning will be convened by the AG. A precise procedure is defined between the customer and the contractor during the fade-in phase. The customer expects the expertise of the contractor in the planning of the releases.

#### User Stories

User stories describe the desired behavior of software from the perspective of an actor in the language of the requester (i.e., functional not technical).

The AG continuously discusses with the customer and its stakeholders the functionalities that represent the proposal for the scope of the next sprints and prioritizes this list in the form of user stories in the product backlog accordingly.

Within a sprint, only user stories that meet the Definition of Ready (DoR) are included and implemented. The DoR is described in the Quality Requirements chapter.

#### Specification

In the story breakdown, the DevOps team estimates and agrees on the functionality of the user stories with the PLC and splits them into meaningful small parts. The customer is available for questions. The contractor prepares a binding cost calculation.

The Contractor shall include in its estimate all expenses incurred, including but not limited to:

* Necessary coordination, meetings and workshops involving other involved trades/development teams/stakeholders.
* Consulting services/ process consulting
* Requirements engineering
* conceptual elaborations
* Implementation of the effort estimation
* Expenses for development services
* Implementation of quality assurance
* Creation and updating of documentation
* Report creation
* Test scopes (Testing)
* Acceptance
* Deployments
* Release
* Configuration
* Post-Sprint Analysis

Business analysis support and customer testing support are provided by the development team and are also included in the cost.

#### Development iteration

The Contractor develops and tests the user stories scheduled for development within a sprint (development iteration). The platform for the development environment is provided by the customer. Quality mechanisms are established within the development environment (SonarQube), which must be fulfilled by the contractor.

The contractor selects the user stories from the backlog according to prioritization and, if necessary, defines them with the customer in a backlog refinement or sprint planning for a sprint. The functional degree of fulfillment of a user story is defined (Definition of Done/ Level of Done), see chapter Quality Requirements.

The AG distinguishes between development and IP sprints (Innovation and Planning Iteration).

As a result, the **development sprint** delivers a releasable, tested, documented and executable product for integration with the surrounding systems. The AG drives the development of new innovations during **IP sprints.** The purpose of an IP Sprint is to create a period of time to address subject areas that cannot be implemented during regular development sprints due to resource utilization.

Within an IP Sprint, PI Planning takes place as described in chapter PI Planning (Planning Workshop).

The Contractor shall comply with the following general conditions for all Sprints:

* Time-critical or ad-hoc and special issues are to be implemented separately, e.g. for high-priority incidents
* Sprints follow each other immediately
* A sprint usually lasts two weeks
* A sprint is not extended (duration)
* Expenses within the scope of warranty (elimination of defects) as well as for operating and support services by the Contractor are not part of Sprints.

In the event that changes in the content of the scope of the requirement are notified by one party during discussions, this change shall only be valid after written approval by the Client. In case of serious changes, the effort will be re-evaluated.

The Contractor actively coordinates with relevant interfaces as required, e.g. coordination with ECU teams, front-end teams, other teams from the train (dependencies, enablers, etc.) and implements any resulting measures.

The Contractor shall provide sufficient personnel for the separate implementation of time-critical ad hoc and special topics.

#### Deployment Planning

The objective is to independently plan and manage the changes necessary for staging all. This includes the following tasks:

* Documentation of all deployments carried out in the designated tools, including package and version number
* Scheduling of deployments/operational changes on all test environments as well as on all operational environments
* The registration of the deployments/operational changes for the operating environments in the deployment planning tools provided for this purpose.
* Participation in the regular meeting "Deployment planning Audi connect" (or a comparable follow-up meeting) in order to announce the deployments/operational changes for the commissioning department in the appointment
* Participating in meetings to plan live walks to represent deployments/operational changes for the AG.
* Coordination and release of the deployments and tests on the test and operating environments
* Continuous creation of the deployment plan for the AG. The customer requires a current tool-based overview of the upcoming deployments from the customer. Deployment tickets in the tool specified by the customer (currently JIRA) are to serve as the basis. This should also show when a staging of a service is planned.
* Creation of release notes for the AG
* In the case of urgent special deployments ("Emergency Changes"), communication with the customer and the preparation of the required documentation and tickets will also be carried out by the contractor.

The following deployment cycles can currently be assumed depending on the number of changes in the services:

1. TuI (project): As needed (usually weekly)
2. TuI (developer): as required
3. TuI (customer): As required
4. Approval: As needed (usually weekly)
5. PreLive/Live: As needed (usually once per quarter)

In the future, as described in the preamble, the release procedure is to be changed. The number of major releases is to be reduced by minimizing the technical dependencies within the packages.

#### HyperCare

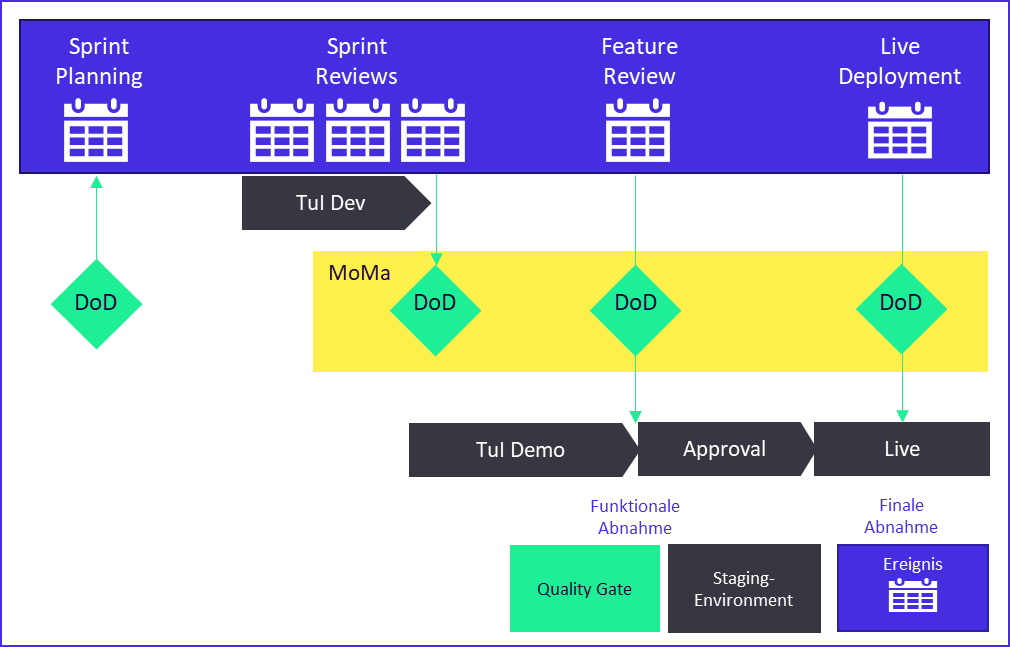
The Contractor shall ensure that the required service levels in terms of availability and functionality are met after deployment of a component.

For this purpose, depending on the complexity of the components and/or the release, the Contractor must establish a HyperCare team that can react as quickly as possible to deviations or malfunctions.

The duration of the HyperCare phase must be selected by the Contractor in such a way that all agreed service levels are guaranteed.

#### Quality requirements

The customer has defined different quality gates. Only when these predefined quality criteria are fulfilled by the contractor, a release for downstream sections takes place.



1. Overview quality requirements

**Functional acceptance** takes place as part of a feature review starting with the TuI demo and is the prerequisite for deployment on the live environment. Quality gates to be met are, for example:

* Achieved test coverage according to service level
* Quality gates reached according to SonarQube
* Achieved cSRI according to Modular Master list (MoMa).
* Holistic documentation

The quality gates listed are currently being measured; the list does not claim to be complete. Changes to the quality gates may occur in connection with continuous service improvement measures.

For **final acceptance, the** functionality of features is verified by the customer in accordance with the agreed quality gates on the live environment. Any errors found are classified and prioritized as follows and must be rectified by the Contractor in accordance with the defined service level:

|  |  |
| --- | --- |
| **Code** | **Meaning** |
| **A**  **Blocker** | **Preventing use**  The system is not executable. Not suitable for productive use. Error must be corrected as soon as possible. |
| **B**  **Major** | **Operational**  The system is executable with acceptable workarounds. Suitable for productive use. Error must be fixed as soon as possible. |
| **C**  **Minor** | **Simple defects**  The flaws do not hinder the runnability of the system. Suitable for productive use. Error must be corrected promptly. |

1. Error classifications

For final acceptance, all quality gates of the Modular Master List (MoMa) (see chapter Service Transition) must be successfully passed and documented.

A precise definition of the criteria for a successful functional and final acceptance takes place within the fade-in phase by the customer.

The delivery of the development service to the AG takes place in the form of a Continuous Integration Platform (CIP).

##### Definition of Ready (DoR)

The Definition of Ready is intended to ensure that only sufficiently elaborated user stories are adopted in sprints. The goal is not to interrupt development work unnecessarily due to unclear requirements.

"DoR" is a list of criteria that define when a Product Backlog Item (User Story) has been sufficiently specified and can be released for implementation in a Sprint, including.

* Preliminary analysis was performed by the contractor, analysis results are documented in the respective user story
* Subtask are created after refinement
* User Story was presented to the respective architect
* User Story corresponds to the INVEST principle [[1]](#footnote-2)
* It is clearly described which subcontracts are required from other teams and which coordination with other teams is necessary to implement this story.
* Rough concept for the test procedure is available
* The user story is linked to a team epic
* The relevant stakeholders are documented in the user story

The complete criteria are communicated to the Contractor within the Fade-IN phase. The preparation and formulation of user stories is carried out by the contractor in cooperation with the customer.

This has the advantage of incorporating important hints and perspectives from development and achieving a higher DoR rate of story points.

##### Definition of Done (DoD)

Definition of Done describes the functional degree of fulfillment of a user story, e.g. unit tested, automatically tested, documentation, non-functional requirements and is accepted by the customer.

The following definitions shall be established between the parties during the initialization phase and adjusted as needed during the course of the project:

Definition of "Done" for a User Story

Definition of "Done" for a Sprint

**Definition of "Done" for a feature**

Definition of "Done" for a release

In particular, the following aspects are to be included in this definition:

* Integration tests
* Integration into the existing IT landscape (depending on the interfaces involved)
* Transfer to the support structures of the AG's specifications

#### Software maintenance (LCM)

The objective of software maintenance is to ensure compatibility between the application and underlying infrastructures and middleware components. It includes the implementation of adjustments to ensure secure and stable operation for existing applications, without their functional evolution.

Among other things, software maintenance consists of reactive as well as preventive and adaptive maintenance, such as

* modify an application code, test it and put it into production,
* Adaptations due to updated infrastructure components (e.g. operating systems, network, etc.)
* Adaptations due to updated middleware components (e.g. databases, web servers, etc.)

Software maintenance shall be performed in accordance with the relevant definitions and standards as described in chapter Development. The scope of software maintenance shall be remunerated as described in chapter Remuneration.

#### Bugfixing

Bugs caused by the Contractor during the development iterations and for which the Contractor is responsible shall not be planned and calculated as expenses in subsequent sprints, but shall be remedied by the Contractor at its own expense and in parallel with the regular business within a period defined by the Client. In this case, the bug fixing must not affect the performance of the development team, which is in sprints.

If it can be proven that the identified bugs were not caused by the contractor, corresponding user stories are created for subsequent sprints and assigned story points.

#### Warranty (removal of defects)

Faults (errors) caused by the Contractor which occur within the live environment and can be reproduced shall be analyzed and rectified by the Contractor within the scope of its warranty at its own expense.

The elimination of defects may not be calculated as an expense in subsequent sprints, but must be eliminated by the Contractor at his own expense and parallel to the regular business within a period defined by the Client. The typification and prioritization of defects is determined jointly in the fade-in phase.

The effort required to correct defects must not impact the performance of the development team, which is in sprints.

The Customer shall not reimburse the Contractor for any expenses incurred for rectification (removal of defects).

### Testing

#### General

Testing is understood by the AG as an integral part of the iterative procedure and is part of every sprint.

Testing in the context of this specification includes all functional and non-functional testing.

The Contractor shall test all in-house developments on the basis of the quality criteria defined by the Client. All testing tasks shall be performed in accordance with the test procedure implemented by the Client and the specified tools.

Each new or further developed software increment must run through various test cases and scenarios according to the Client's specifications before it is introduced into the productive environment. These shall be communicated to the Contractor by the Customer during the Fade-in phase.

The following basic principles of AG apply to testing:

**High degree of automation**

In order to support rapid responsiveness to changing requirements as well as the permanent refactoring of program codes, as many systematic test cases as possible must be designed and automated. This includes both structure-based tests (unit tests) and business-oriented system and acceptance tests. The execution of manual tests must be requested by the contractor from the client and approved by the client.

**Test responsibility**

Responsibility for all testing activities is distributed across the entire DevOps team. As a result, the boundaries between the classic test roles and the developers disappear. In addition to the tests performed by the contractor, the customer or third parties commissioned by the customer can also test the contractor's development services.

**Continuous Integration**

Continuous Integraton describes the process of continuously assembling components to form an application. The goal of continuous integration is to increase software quality. Typically, not only is the overall system rebuilt for this purpose, but automated tests are also performed and software metrics are created. The entire process is triggered automatically by checking into the AG's version management.

If the customer already has existing tests, these are to be taken over and used by the contractor.

The CO's duties include, but are not limited to:

* Preparation/creation of functional and non-functional tests
* Obtain information from test data management of the PLC
* Execution of tests and related communication
* Analysis and documentation of test procedures and results
* In case of error, ticket opening and assignment to third party if necessary
* Revision of existing test cases
* Provide reporting and logs
* Support for IT security tests of the AG
* Advise the WG and bring innovations to testing,

which will be discussed in more detail in the following chapters.

#### Preparation/creation of functional and non-functional tests

The preparation and creation of functional and non-functional tests must be based on user stories.

The Contractor shall perform the following tasks, among others:

* Creation of test concepts based on the test strategy specifications of the AG and the user stories
* Implementation of the test concept to ensure automated execution of the tests in the CI/CD pipeline
* For each change to the code/configuration, the Contractor shall check whether the existing tests are sufficient, need to be repeated or adapted, and shall perform them.

#### Test Data Management

Test data management ensures the consistency and consistent quality of the test data used across all test activities by separating test case creation, execution and test data maintenance.

Test data includes, for example, VINs, tokens, certificates.

Test data management is provided by the customer. The contractor is responsible for requesting the required data from the client.

#### Execution of tests and related communication

Finally, for each deployment, the Contractor shall perform fully automated system and component tests, including regression tests, which confirm the fulfillment of new and existing requirements (user story). If possible, the fully automated tests are to be triggered via the pipeline by checking them into the client's version management.

When planning his tests, the Contractor must take into account, for example, planned events/freezes of the Client and also communicate these within his organization.

The Contractor shall use the tools specified for this purpose for communication, e.g. via ticket.

#### Load and performance tests

The AG distinguishes between load and performance test components and comprehensive load and performance tests.

##### Load and performance test components

The Contractor shall prepare load and performance tests (LuP). Among other things, the Contractor shall perform the following tasks:

* Regular preparation, planning of load and performance tests (including stress tests), in time before live deployment of the corresponding release candidate
  + Development of a test concept per service, which has to be provided to the AG
  + Development of the test scripts to be provided to the AG
  + Coordination with relevant stakeholders and surrounding systems in the context of change management
* Perform load and performance tests using a standardized tool to ensure reproducibility
  + Scaling of all relevant components
  + Documentation and monitoring of the test run
  + Cleanup and rollback of the scaling to the target state
* Follow-up of LuP tests
  + Analysis of the results of the LuP tests
  + Evaluation, derivation of findings and addressing of findings (functional, non-functional) to relevant stakeholders
  + Troubleshooting of the services in the event of anomalies found

The preceding list is not to be assumed as binding, but merely serves as a calculation aid for the Contractor.

The current test effort amounts to an average duration of two to four days and is announced by the customer with approximately one week's advance planning. The load and performance tests usually take place between 6 p.m. and 4 a.m. from Monday to Thursday. The customer reserves the right to adjust the frequency.

##### Comprehensive load and performance tests

Comprehensive load and performance tests take place at the AG every six weeks.

At the present time, the customer is carrying out these tests himself. To support the overall load and performance tests, the Contractor shall perform the following tasks, among others:

* Regular preparation, planning of LuP tests (including stress tests) in time before live deployment of the corresponding release candidate
  + Development of a test concept per service to be provided to the AG (based on number of expected vehicles / expected load, e.g. in requests/second)
  + Development of the test scripts to be provided to the AG (if not already available for the respective test case)
  + Coordination with relevant stakeholders and surrounding systems in the context of change management
* Participation in the implementation of LuP tests
  + Continuous adaptation of test concepts
* Follow-up of LuP tests
  + Analysis of the results of the LuP tests
  + Evaluation, derivation of findings and addressing of findings (functional, non-functional) to relevant stakeholders
  + Troubleshooting of the services in the event of anomalies found

The current test effort amounts to an average duration of three to four days and is announced by the AG with approx. 14 days planning lead time. The overall LuP tests usually take place between 8 a.m. and p.m. on 18weekdays. The customer reserves the right to adjust the frequency.

Overlapping load and performance tests are compensated as described in chapter Compensation.

#### Analysis and documentation of test procedures and results

All testing activities are documented and reported in detail in the system specified by the customer, e.g. by means of a test completion report, meeting minutes, etc. The test results must always be documented. The traceability of deployment, the associated test and the release based on it must always be documented.

The test results must be checked with regard to the test procedure and the expected result (test analysis). If deviations are found during the test analysis, the Contractor must independently submit appropriate countermeasures and initiate them after approval by the Client.

The final release of a deployment is based on the respective release guidelines of the customer and should be automated. An automated release must be documented; at least the following information must be documented in the comment in the release ticket:

**"Release by automated user is based on release policy "XY"."**

After a release, the Contractor independently registers the packages for the next system instance with the Client's deployment coordination (deployment planning meeting).

In addition, the Contractor shall ensure that both the requester and all parties involved in the implementation of the change/CR remain in the information flow. Communication shall only take place in the tool specified by the Client.

The Contractor shall ensure test coverage in accordance with service level specifications of all relevant use cases of the Service through the tests.

Based on its test quality and test performance, the Contractor must be able to make the decision to release a service to the next higher operating environment ("staging"). The Contractor is responsible for determining the quality and quantity of the tests in such a way that a reliable conclusion can be drawn about the software.

The Contractor is responsible for ensuring that the tests are up-to-date. The Contractor is responsible for ensuring the permanent test capability and the up-to-dateness of the test cases.

The Contractor shall prepare a test concept for each service in accordance with IEEE 829 - 2008, which specifically shows, for example, which test methods and objectives are being pursued.

#### Revision of existing test cases

The existing tests shall be revised by the Contractor at all stages in the sense of life cycle management if this is required by a Change Request (CR) of the software or the interface.

#### Provide reporting and logs

Reporting has to be done automatically in Xray. The reporting has to follow the Xray concept. If required, dashboards must be created in Xray to document the development and tests in Jira. The tests have to be linked to the Jira tickets.

#### Support for IT security tests of the AG

The Contractor also tests other areas of the Client, such as IT security.

If the cooperation of the AG should be necessary, the AG supports the AG, for example, by providing information, data, access, support or advice.

#### Advising the AG and introducing innovations for testing

The Contractor shall advise the Client with regard to the further development and optimization of test procedures, tools, etc., shall contribute its experience and best practices, and shall actively draw the Client's attention to innovations and new developments.

Within the scope of technological improvement, concrete proposals are to be made at least once (1) per year in order to improve, accelerate or make more cost-effective the services provided. For this purpose, existing pain points of the Contractor or general new trends in testing may be addressed.

### Operations and Support

#### Availability Management

The objective of Availability Management is to ensure that the availability level of all services under the responsibility of the Contractor meet the current and future agreed availability targets, support the business process without interruption and meet or exceed them in a cost-effective manner.

The focus will be on those aspects that affect the availability of services and resources, as well as ensuring that availability targets are measured and achieved in all areas.

To achieve this, proactive and reactive activities are performed by the CO within Availability Management, including:

* Obtain, define and summarize requirements for the availability of (new) services
* Ensure availability targets and implement requirements as well as subsequent troubleshooting and analysis (e.g. after a malfunction or failure)
* Availability planning and monitoring
  + Planning and monitoring of the current availabilities of the services and the IT infrastructure used as well as planning and initiation of measures to ensure availability targets are met
  + Ensuring the correct function and, if necessary, implementing or adapting availability measurements of the services using the AG's Availability Management measurement tool. This includes the integration into the development processes, e.g. by proactive evaluation of new requirements (backlog items) and their technical implementation and test concepts with regard to the effects on the availability monitoring and the availability targets.
* Testing of procedures and technologies ensuring availability
  + Appropriate effectiveness verification by performing and documenting regular tests of the procedures and automations used in the services for availability monitoring, failover (e.g., server redundancies), and disaster recovery, among others.
* Availability reporting and forecasting
  + Monitor and report on application availability against service level targets, including long-term trends.
  + Short-term preparation and provision of information regarding unplanned unavailability of applications and IT infrastructure
  + Evaluation and commenting on incidents relevant to availability
  + Preparation of regular availability forecasts over the next 12 months with regard to the expected target achievement, including and evaluating all relevant planned changes as well as the planned functional and non-functional changes to application development
* Proactive and reactive measures to ensure availability
  + Derivation of proactive measures from the forecast as well as from the analysis of the availability-relevant incidents and problems
  + Setting of required availability-securing measures in the product backlog
  + Regular analysis of weak points and taking appropriate countermeasures
  + Organization and processing of preventive measures (maintenance)
* Consideration of the holistic nature of architecture and design

If changes are sought in the architecture or technical design, these are implemented in change management.

#### Capacity Management

The aim of capacity management is to ensure that the capacity of the services and the IT infrastructure is always sufficient to meet the agreed capacity and performance targets as economically as possible, also taking into account future requirements on the part of the business processes.

Capacity management takes into account all resources required to provide the IT service and plans or forecasts short-, medium- and long-term requirements and capacities. It is also designed to proactively prevent application unavailability, performance degradation and incidents caused by workload.

The Contractor shall be responsible for the capacity management of its services and shall cooperate with the responsible departments of the Client and third parties.

To achieve this, proactive and reactive activities are performed by the CO within Capacity Management, including:

* Capacity monitoring
  + Determine business process-related metrics that map the intensity of use of the applications and their infrastructure, as well as capture their performance
  + Design and recommend measurement methods to regularly determine these metrics for continuous monitoring of the capacity needs of the applications and their infrastructure.
  + Reconcile infrastructure-related metrics on capacity utilization of application infrastructure components with those responsible for operating the infrastructure components
  + Defining critical threshold values for all key figures so that capacity bottlenecks can be identified in good time and countermeasures can be initiated
  + Regularly reviewing these key figures for deviations from the expected trend. The derivation of the resulting risks and the initiation of appropriate measures to avoid the risks.
  + Identifying and analyzing capacity bottlenecks in the applications and their infrastructure components. The derivation of the resulting risks and the initiation of suitable measures to avoid the risks.
  + Continuous updating and recording of system boundaries and the approach to system boundaries with subsequent risk analysis
  + Setting of required measures in the product backlog
* Forecast of capacity requirements and measures to safeguard capacity
  + Degree of utilization of the systems through automated acquisition
  + early detection of trend deviations
  + Propose, track, and report on actions required to ensure the performance and capacity of applications and their infrastructures
  + Review requirements definition and development specification of application releases for consideration of capacity management requirements, including quantity scales, scalability, performance, measurability of capacity metrics and testing.
  + Setting of measures in the product backlog in order to be able to monitor the required application-related capacity key figures
  + Proactively review application releases in light of changing capacity behavior
  + Carrying out regular detailed evaluations of the performance of all components
  + Forecasts of capacity development based on business requirements and capacity utilization in recent months
  + Formulation of requirements for adaptations (contents, risks, opportunities, costs)

Within the scope of commissioning, primarily for new services, the setup or adaptation of infrastructure, middleware (also databases), configuration settings and others must be carried out.

Among other things, the Contractor shall perform the following tasks here:

* Initial project setup during a kick-off meeting
* Advise on the components required for an application (per environment).
* Conception and planning of the necessary tasks
* Coordination and scheduling regarding the service elements
* Implementation of all planned tasks
* Initiate firewall activation (per environment)
* Apply for, document and install certificates (per environment)
* Deploy VMs and databases if required
* Creation of a deployment job in a Continuous Integration Platform
* Creation of an Application Server instance
* Creation of a Web Server instance

#### Change Management

Change management is the process of controlling all changes to a service in a controlled manner so that the implementation of approved changes is associated with minimal disruption.

This process includes everything from acceptance, quality assurance to deployment of the respective changes, so that the changes can be implemented and deployed without any disruptions for the customer.

All changes (RfCs) must go through this process.

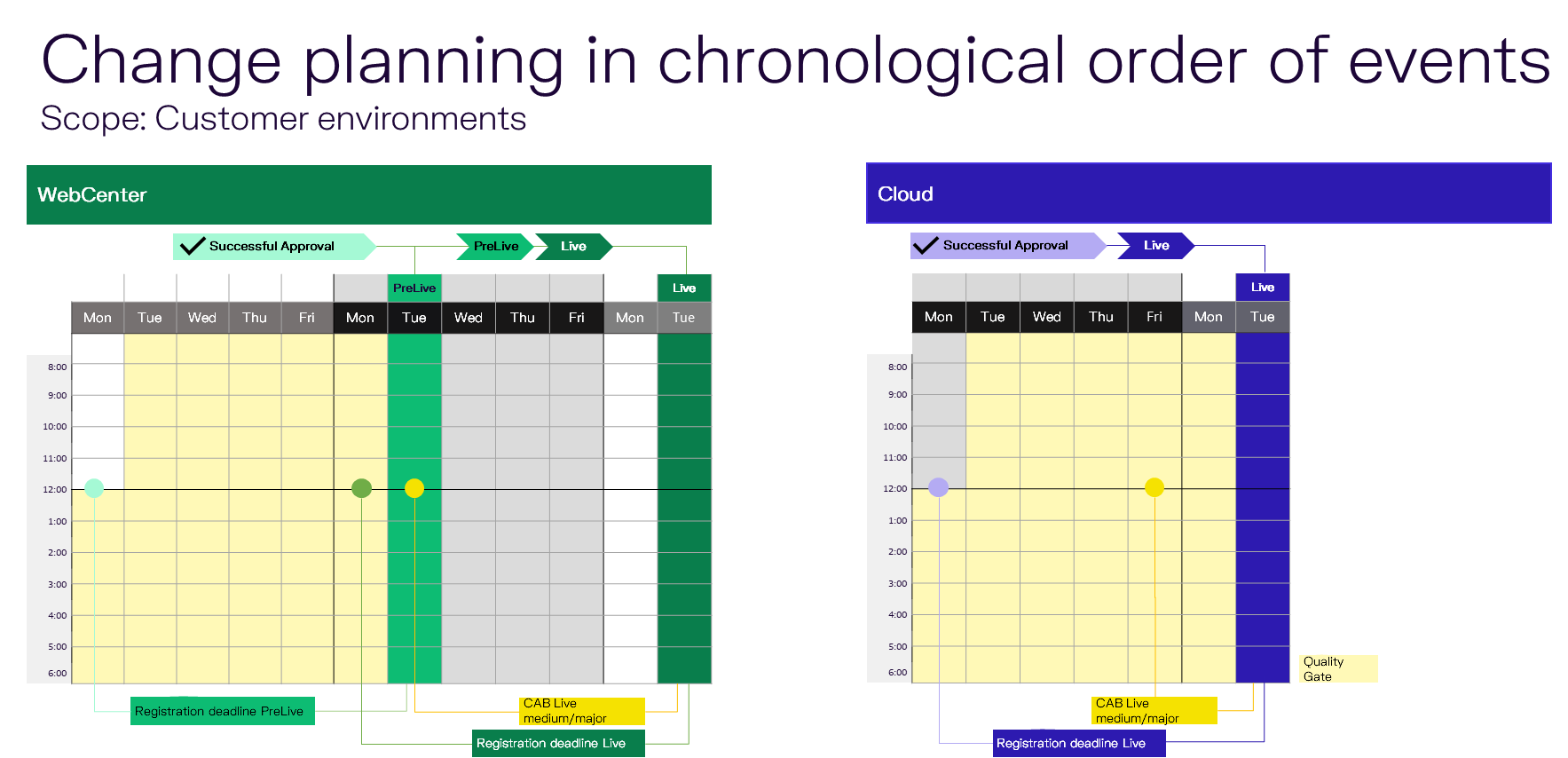
Change Management is used to successfully implement any changes to the system (Changes):

* Minimize the impact of change-related incidents on service quality,
* document efficient and prompt handling of all changes,
* use standardized methods and procedures,
* Apply a thoughtful process to assess risk and business continuity,
* Maintain the balance between the need for and the impact of a change,
* ensure high visibility and open communication channels,
* as well as procedural requirements.

The Contractor's primary change management responsibilities are as follows:

* Assessment and identification of impact and availability risks in change planning
* Coordination of changes with affected stakeholders
* Registration of changes, taking into account the currently valid quality and release process, in tools specified by the customer.
* Depiction of dependencies Change planning, safeguarding and ensuring that no changes with conflict potential are carried out in parallel by other units
* Performing quality assurance of the installation package
* Providing the installation package in the tools specified by the client (includes software increment and accompanying documents)
* Execution/implementation of the change in the timeframe and tool solution specified by the customer via the change management process.
* Checking the version number of the application after change conversion
* Checking the application behavior for errors or changes in the application after change implementation in the form of automated tests
* When problems occur, appropriate measures must be taken, such as rollback or error analysis.
* Qualified feedback to the AG's deployment coordination after implementation

The current change process is shown in the figure below. This regulates the lead times, quality inspection and time windows. The process flow is based on the staging concept. The change activities for the two solution spaces do not usually take place on the same day.



1. Deployment procedure

The result is approved and successful changes to the systems.

The scope of services depends on the solution space of the service in question.

In change management, a distinction is currently made between three types of change:

**Standard change**

Changes predefined in the ITSM tool, which are processed on the basis of a tool-based standard process and do not require approval. Standard changes can be processed as service requests within the framework of request fulfillment.

**Normal Change**

This describes changes that are controlled and approved via the rule process.

**Emergency Change**

A special case of a change with the aim of avoiding major damage or immediately rectifying critical faults. The change is only released by the MIM of the PLC.

The implementation of changes must be possible at any time.

##### Release Management

Any changes to the service are controlled via this process and handed over by the customer to the contractor. This process must ensure that any changes are implemented on schedule and without disruptions.

The release management process distinguishes between:

* Major Release and
* Minor Release

**Major Release**

Major releases usually take place three to five times a year and usually include all existing applications as well as new applications in the context of commissioning.

Major releases are to be implemented before the customer without downtime of the applications. If, in exceptional cases, downtime cannot be avoided, it must be reduced to an absolute minimum and agreed with the customer.

In the case of a major release, the Contractor must take over the coordination, planning and agreement for the implementation. The parties involved include the client's deployment planning, the brand representatives involved and other contacts of the client as well as third parties defined by the client.

For this purpose, weekly regular meetings (jour fixe) will be scheduled on site by the customer during the preparation period. In this context, the Contractor shall also, in cooperation with the Client's deployment planning, carry out the deployments and other planned changes to the operating environments on the basis of changes to be set.

Deployments are carried out at a Group location in Germany (e.g. Ingolstadt); as a rule, all the trades involved are also on site in order to be able to intervene as quickly as possible in the event of problems or to obtain test results as quickly as possible. Major release implementations can extend over several days and are carried out in shifts.

The operating environments are updated with the new release in a predefined sequence (see chapter Staging Environment). The dates for the major releases shall be communicated to the Contractor by the Customer in good time. The Contractor shall provide the Client with all relevant information for the creation of the necessary plans, such as the time and sequence plan (story book, story line, etc.), in order to plan the implementation.

The Contractor shall perform the deployments at the planned time in accordance with the Client's schedule.

During the implementation period of the Major Release, the Contractor shall ensure that the final consolidated test results are made available to the Client in a timely manner in an agreed form, quality (chapter Service Transition) and meaningfulness. The Contractor shall be responsible for checking the test results and shall ensure testability.

In the follow-up phase, the Contractor provides leading support and independently organizes all measures in coordination with the Client in order to fully complete a release.

The planning and execution of retrospectives (e.g. lessons learned) are included. Even after regular deployment activities, the CO is actively available for any kind of follow-up tasks.

Major releases are closely related to project management and must be processed on the basis of this.

The actual deployment of the major releases takes place within the framework of sprints and the Contractor is remunerated for this.

**Minor Release**

A "minor release" usually includes minor changes to applications. These services or software packages already exist on the environment in question.

For minor releases, the Contractor does not have to provide any services within the scope of Release Management. Operational implementation takes place in Change Management. The Contractor's services are described there.

#### Configuration Management

The aim of configuration management is to provide all the necessary information on configuration items (CIs), to maintain the relationships between CIs and is responsible for ensuring that CI information is up-to-date, consistent and of high quality. CIs are managed continuously throughout the entire lifecycle of the CIs.

A Configuration Item is defined as any component that must be managed to provide a service. Examples of CIs are applications and their components.

The customer's configuration manager retains overall responsibility for configuration management and defines specifications for the administration and documentation of configuration items. The Contractor supports the configuration management and in particular the data maintenance of the CIs after consultation with the Customer over the entire lifecycle in the defined area of responsibility.

Disciplines such as incident management, request fulfillment, problem management and change management access information from configuration management. This includes, among other things, responsibilities for the support of the CI in the service, information on the criticality of the CIs or service level specifications. Furthermore, up-to-date and correctly maintained CI relationships enable impact analyses to be carried out, e.g. in the context of incidents, problems or changes. The configuration management process is thus closely related to other operational processes and is mutually dependent on them.

The Contractor is therefore responsible for identifying and evaluating deviations from the objectives and requirements described in this chapter and for planning and, if necessary, implementing countermeasures with the involvement of the Client.

In particular, in the event of inconsistencies in the Configuration Management Database (CMDB) or the Configuration Management System (CMS), the Contractor shall take or trigger any further action necessary to resolve such inconsistencies.

The AG can request the inclusion of new elements or information in the data storage at any time.

The Contractor's primary Configuration Management responsibilities are as follows:

* Ensuring seamless and complete documentation of all configuration items (CI) in the service. This documentation should always be kept up to date. Re-documentation is to be refrained from
* Ensure and continuously improve the data consistency and data quality of the configuration items relevant to the application(s) and the delivery of the Ops services.
* Use and maintenance of at least the attributes of the CIs specified by the AG in the configuration management process.
* Maintenance of the CI information according to the process specifications in the tools of the WG
* Immediate initiation and implementation of corrective actions should a discrepancy be found (e.g., inconsistency of versioning)
* Checking and, if necessary, updating CI information for completeness and correctness, in each case before implementing changes to the service
* Support in the definition and maintenance of service trees (service landscape) and their dependency structures
* Documentation in the configuration management database (CMDB) and in the PLC's configuration management system (CMS)
  + Specification of the work steps in all relevant processes that are considered as filling processes within the scope of CI recording
  + Definition of the tool(s) to be used for the documentation, if there are no concrete specifications from the customer.
  + Definition of the steps to be performed for the documentation.
  + Description of the work steps in the performance documentation.
  + Instruction of the personnel in the work steps.
  + Ongoing quality assurance

Furthermore, the Contractor must ensure that the information stored in the central data collection is also used for all activities that require this information. For this purpose, filling and using processes are to be defined and corresponding instructions for the service-providing personnel are to be created.

In the documentation of this specification, the **term CMDB** is used as a comprehensive data collection of all configuration items. It is not assumed here that this is a tool. Rather, it is assumed that a collection of tools (see Tools chapter) and documentation components is used in total as a CMDB. The Contractor must ensure that complete CI documentation is provided in the Customer's tools.

Especially for the configurations of the Connected Car services, necessary configurations of the services from the relevant change committees (such as CABs) are carried to the Contractor. It is imperative that such configuration adjustments are also maintained by the Contractor in the Client's specified tools.

Configurations of the Connected Car services are mainly carried out in the respective admin tools. It should be noted here that:

* Configurations on approved environments are to be coordinated with the support units involved and documented in the tools provided for this purpose.
* configurations are to be adopted on all environments according to requirements or necessity. In this context, attention must be paid to the temporal or functional dependencies (e.g. to peripheral systems).

Further details on this are explained again in the Documentation chapter.

#### Continual Service Improvement

The goal of Continual Service Improvement is to continuously improve the efficiency, effectiveness and cost-effectiveness of services and all relevant procedures, processes, methods and tools. To this end, quality and process management methods are used to learn from retrospective results.

The CO's duties include:

* Establishing, documenting and deploying a structured approach to Continuous Service Improvement to continuously improve the effectiveness and efficiency of IT processes and services.
* Identify areas where metrics or process goals are not being met or are not being met in an optimal manner
* Definition of concrete and measurable initiatives to improve processes and services. The resulting initiatives are either internal improvements that the Contractor pursues on its own responsibility or initiatives that require cooperation with the Client and/or other stakeholders.
* Coordinate and synchronize continuous improvement process initiatives and activities with the AG and other stakeholders.
* Continuously monitoring and documenting CSI initiatives for planned progress and initiating corrective action as necessary.
* Continuous review of whether implemented CSI initiatives are having the intended success/effect.

Continual Service Improvement is designed to save resources and time, reduce costs and optimize quality.

All processes as well as documented knowledge or procedures are generally subject to an inspection and optimization cycle at least twice a year. The Contractor shall accompany this cycle and support any resulting optimization measures. It is expressly desired that the Contractor introduces his own optimization proposals.

A standardized procedure for submitting suggestions for improvement is provided by the AG, which must always be used.

Unauthorized adjustments to processes and procedures or changes at the suggestion of third parties are expressly excluded. All changes to processes and procedures are coordinated and controlled with the customer via the defined continuous service improvement process.

#### Event Management

The aim of event management is to monitor all events occurring in the Contractor's area of responsibility (see chapter Technical Specification) in order to ensure normal processes and to identify and evaluate unusual events in a structured manner and, if necessary, to initiate suitable measures and solutions.

Event management also involves automating processes to track and escalate unpredictable event circumstances.

Technical measures are implemented in coordination with the customer. Event management provides the entry point for the execution of numerous operational processes and activities such as incident management and change management.

In addition to monitoring, event management also includes the development of the test strategy (test plan) and the upgrading of the monitoring tools. The Contractor shall use the tools specified by the Client for monitoring (see chapter Tools).

The Contractor's responsibilities under the Event Management process include:

* Acquisition of relevant information from all interface processes, such as the service transition process, which are necessary for holistic monitoring.
* Definition and implementation of measuring points with associated threshold values (thresholds) from the concepts for the monitoring application
* Active identification of requirements and gaps (adaptation needs) for monitoring tools at the AG as well as suggestions for closing them
* Integration of the product, its related components and transactions into the monitoring tool of the AG, control it with third parties or carry it out yourself
  + Check integrations performed by third parties for correctness and point out deficiencies if necessary
* Identification of events as well as event types through manual (dashboards) and automated monitoring
* When an event is generated, ensuring that all necessary information is available to filter, classify (e.g., information, alarm, exception, etc.) and take appropriate action (e.g., fault codes, components affected, severity of fault, possible causes, etc.).
* Linking of events to the respective IT services so that a priority assessment (i.e. impact and urgency) can be made
* Automatic creation of incidents from critical threshold violations, if the AG's event management environment allows this, otherwise manual creation of incidents
* Creation and maintenance of the operations manual. The operating manual contains an exact description of the workflows that are to be carried out by the CL's operational monitoring in the event of an event from the monitoring. These work processes must be in a reasonable relation to the typical work processes of the operational monitoring of the CL and require the release by the CL.
* Process events and integrate them into follow-up processes (e.g., incident, problem, change management) according to the definition of the customer.
  + Recognize events
  + Log events
  + Classify events (match with thresholds)
  + Report events to interface processes according to values and trigger actions
* Forecasting based on tracked events (alarm to error) and derivation of measures as well as continuous adjustment of process parameters such as the extension of threshold values (tresholds) based on new findings in coordination with the AG (life cycle management)
* Creation of process reports
  + Event reporting to all event types to interface processes (including Capacity Management, Configuration Management, Availability Management, Service Level Management)
* Provision of open, documented interfaces agreed with the customer in order to integrate monitoring solutions into the customer's monitoring tool.
* If the AG introduces a new holistic monitoring tool for its services, the support and cooperation with the AG's staff and third parties, if applicable, to implement this holistic monitoring tool for the event monitoring of the services
* Accurate measurement of performance against service levels. This may include measurement of service delivery by other service providers or by third parties if the Contractor's systems act as key systems to collect such data
* Provision of root cause analysis (RCA) and trend analysis in connection with events
* Provision of an initial root cause analysis in connection with events that led to Impact Level 1 and 2 incidents on the following day and in coordination with the AG

The solution implementation for occurring events takes place in the respective interface process.

Value of Events:

1. **Information (INFO):** The event does not require immediate action and is not an exception. This type of event is used to check the status of a service, confirm the status of an activity and generate statistics.
2. **Warnings (WARN/ALERT):** The event is generated when a service (application / utility) approaches an agreed threshold (KPI). Warnings are intended to notify in order to take the necessary actions to prevent an exception from occurring.
3. **Exception (ERROR):** The event is generated that a service is currently operating below the normal thresholds (predefined). This means that the business service is affected and the service shows failure, performance degradation or loss of functionality.

#### Identity and Access Management

Identity and Access Management (IAM) provides support for protecting the confidentiality, integrity, and availability of assets by ensuring that only authorized users can access or make changes to the assets in question.

The IAM process is responsible for managing and checking the currency of user rights in the Connected Car environment.

The Contractor shall comply with the Client's Identity and Access Management requirements and implement procedures and processes accordingly.

The granting of consent (Approval Authority) and responsibility for all data and system accesses shall remain with the Client. General approvals by the customer are excepted.

The Client shall inform the Contractor about organizations and personnel who are to have access to the systems operated by the Contractor and about the degree/level of access to which they are entitled in terms of the security requirements.

If the Contractor has been instructed by the Client to perform services within the scope of Access Management, the following activities shall be part of his duties:

* Implement and maintain mechanisms to protect against unauthorized access, destruction, loss or modification of the CL's data. The safeguards implemented by the Contractor shall be released by the Client in advance and shall at least match those established by the Client immediately prior to the Commencement Date
* Implementation of a new or the use of an existing information security approach at the AG in accordance with a resource ownership concept for the secure identification of owners and for periodic checks of authorized accesses
* Carrying out research on system security issues, taking into account the principles of data protection law, e.g. by evaluating accesses to the services that have taken place
* Management and administration of access to the Client's systems, software and stored data operated by the Contractor. The activation of accesses by the Contractor shall in principle only take place after release by the Client.
* Assigning unrestricted administrative rights regarding the Services' systems to the AG's IT Security/IT Security department, including unrestricted access to audit trails and logs.
* Comply with all instructions and procedures of the AG in connection with such accesses in accordance with the AG's regulations.
* Implementing and following up on predefined security rules and access authorizations
* Compliance with all AG policies and regulations on data privacy and security, including security, data and record management, electronic records and data archiving.
* Conformity to requirements from legal, official or supervisory guidelines and announcements as well as to the security principles of the AG.
* Monitoring users of the systems and services for authorized access in compliance with data protection and internal security policies, as well as monitoring access violations and notifying the Client in a reasonable and timely manner when access violations have occurred.
* Preparation and submission of monthly reports, showing the Client such user accounts (accounts), which should be deleted from the Contractor's systems.
* Provision of reports on access attempts and access violations as well as the retention and handover of investigation documentation to the AG in accordance with the specifications
* Coordinate with the AG's IT Security department to establish procedures, forms, and approval levels for assigning, resetting, and revoking or deleting user identifications (User IDs) and passwords used to access data or systems by authorized users, including:
  + Assist in performing all related administration of user IDs and passwords as requested by the AG, e.g., maintaining lists and records of requested and established user IDs, accesses, and authorizations.
  + Assumption of all related responsibility of user IDs and passwords for the systems operated by the Contractor and other systems in use
  + Assist in the maintenance and upkeep of a secure online database for all access requests, access rights, and approval permissions at a minimum by documenting all access requests and established access permissions in this online database.
* Coordinate system password changes and (subject to AG approval) implement the changes and test the passwords.
* Integration of the AN logical security management process with other service management processes, particularly incident management, change management, security management, request fulfillment, and IT service continuity management

The CO has the following operational tasks in the IAM as a priority, based on service request tickets:

* Acceptance of user requests via the tools specified by the AG
* Validation of the user applications according to the specifications of the AG
* Creation/authorization of new users
* Change existing permissions/user
* Deletion of permissions/users
* Password reset

#### Incident Management

An incident is a disruption to the service, e.g., a technical malfunction, a reduction in quality, or an unplanned interruption. A failure or malfunction of a configuration item (CI) without any previous impact on the IT service is also an incident, e.g., the failure of a server with redundant configuration.

Incident Management manages all incidents throughout their lifecycle according to the AG's specifications.

The primary goal of incident management is to restore the service to full functionality as quickly as possible and within the agreed time. Incident management is understood to mean all tasks that enable the user to obtain the agreed service again and to continue processing his business process.

Incident management is used to

* to rectify the fault as quickly as possible,
* Ensure the best possible use of resources for troubleshooting,
* Create and maintain meaningful documentation of incidents that have occurred,
* Develop and implement a consistent approach to all reported incidents,
* Actively analyze malfunctions.

The essential tasks of the Incident Management for the CO are thereby:

* Detect, localize and classify fault (verify impact)
* Coordination and resolution of all incidents related to the Contractor's area of responsibility until the full functional scope of a service is restored, whereby the necessary coordination with other support units is carried out independently by the Contractor.
* In particular, managing the critical (Prio 1 and 2) incidents in cooperation with all other service providers and the AG to ensure the fastest possible resolution of these incidents, taking into account the AG's assessment criteria for classifying incidents as critical incidents.
* Independent handling of incidents assigned in the client's system, including analysis and technical review of all ticket content, including log files and configurations, if applicable.
* Receipt and processing of incident tickets via the ITSM tools specified by the AG within the defined response and resolution times
* Investigate in the given tool of the AG whether a solution or workaround for the malfunction is already available
* Communication within the framework of ticket processing with the responsible specialist departments and other support units
* Developing and deploying workarounds, as well as testing the effectiveness of workarounds and correcting errors as necessary
* Optimize resolution time from the time an incident is opened to final resolution in collaboration with all groups involved in the implementation process
* In case of incidents from third parties affecting the Service, the Contractor shall be responsible for coordinating and assisting until the incident can be resolved.
* Support of all interface partners in the analysis and processing of incidents, the cause of which could lie in the area of responsibility of the contractor
* Initiation, coordination, and preparation and follow-up (documentation) of required meetings and task force appointments to resolve the incident.
* Coordination of the corrections to be carried out and creation of change requests
* Document and provide knowledge records in the client's ITSM tool and thus transfer knowledge to upstream support units and provide input to knowledge management.
* Execution and documentation of all necessary analyses of the incidents in the specified tool of the client
* Recognize and document reoccurring incidents and transfer to problem management (problem candidate)
* Trigger interface processes such as security management, cyber security management, etc.

The result is the restoration of the disturbed function.

In the case of serious faults (Prio 1 and Prio 2) or faults whose trigger cannot be determined without difficulty, the CIM of the Contractor must be involved.

In the event of failures of critical applications, a major incident can be declared from a central location at the AG in order to resolve the priority 1 or priority 2 fault with the highest urgency and management support in an overarching process, the major incident process.

The incidents are prioritized according to the specifications of the AG. One of seven priorities (severities) is selected in an incident ticket. The following figure shows the currently valid classification of incidents.

Ein Bild, das Tisch enthält.

Automatisch generierte Beschreibung

1. Priority model

The Contractor shall, at the request of the Client, prepare reports on the activities carried out in this process during the reporting period.

##### Ticket tracking

In the event of malfunctions (including those caused by third parties) that affect the Contractor**'s area of responsibility,** the Contractor shall be responsible for promoting the elimination of the malfunction and for providing support until the malfunctions have been eliminated.

The Contractor assumes a **driving role in** this process and actively obtains information from other involved support units or third parties about the current status of the fault clearance.

If a ticket has been opened and processed or routed by the Contractor (inquiries and faults), the Contractor must be able to provide competent information at any time in response to inquiries about the ticket status.

To do this, proceed as follows, among other things:

**Active tracking of all tickets entered or processed by the Contractor and forwarded to other support units.**

If the current work status is not documented in the ticket, the Contractor shall actively request information and documentation in the ticket from the respective support unit or third parties in order to fulfill its responsibility to be able to provide information to the Client.

If necessary, the Contractor will also contact the involved support units or other defined contact persons independently by telephone and/or in person in order to obtain background information on malfunctions.

##### Major Incident Management

Major incidents cause serious interruptions to business operations and must be resolved with the highest priority.

The overarching coordination of a major incident is performed by the customer's Major Incident Manager (MIM), who is supported by the contractor's Critical Incident Manager (CIM). Special expert groups are put together by the MIM in "task force mode", and the CIM is responsible for involving the necessary employees from the Contractor's DevOps teams.

The Contractor shall support the Client across the entire service portfolio in accordance with the Client's Major Incident Process as amended from time to time.

A Major Incident means performing the highest priority Incident Management activities.

The essential tasks of the Major Incident Management for the CO are thereby:

* After identifying the incident or involvement in the major incident process, locate and classify (verify impact).
* Identification of services and customers affected by mass disruption
* Determining the extent to which the mass disruption may cause further damage within the Services (e.g., data disruption, network and application availability) and taking appropriate action to prevent this without delay
* Investigate whether there is already a solution or workaround for the fault
* Support of the Major Incident Manager by the Critical Incident Manager across the service portfolio and until the Major Incident is resolved according to the AG's Major Incident process.
* Investigations and diagnostic measures to identify workarounds.
* Documentation of steps taken to resolve the incident in order to restore normal operational service operations according to service levels
* Solution finding and troubleshooting in coordination with all parties involved, root cause analysis, identification and implementation of preventive measures
* Derive a problem ticket with all details of the incident and steps to resolve it for later statistical analysis and as a basis for the problem management process
* Regular communication of information to management as well as other support instances on the status of troubleshooting.
* Continuous detection and improvement of the process
* Contractor implements and documents a process for escalation of such incidents to the Client and to the Contractor's management that have not been resolved within required timeframes with respect to priority levels or other priorities.

#### Integration service

The goal of the integration service is to effectively deliver end-to-end services through smooth and efficient collaboration with all other internal and external parties involved in the support (e.g. operating, car IT service desk, interface systems support functions, technical platform support, etc.).

The Contractor recognizes the importance of other service providers and the Client and will work professionally with them to achieve a consistently high end-to-end quality of service.

For all processes listed in the scope of services, the Contractor shall integrate itself into the processes, tools and committees of the Client.

The CO's duties include:

* Coordination of interfaces of the cooperation with the parties involved in the support chain, as far as these are not already specified. These interfaces must be documented and agreed with the customer. The documentation can be done e.g. in the operation manual (Oman), service manual (SHB) and support concept of the application.
* Integration into the process flows, tools and committees of the customer for all processes of this service description. The coordination takes place with the service manager and, if necessary, other process managers of the customer.
* Consulting and assistance for stakeholders in the end-to-end support process
* Staffing of the functions, roles and committees required for the IT Service Management (ITSM) processes in coordination with the client
* Alignment of the IT service management processes with the ITIL standard in the version released by the customer. As of the handover date, this is the ITIL v3 version.
* In areas where the CL has a standard tool, the CO will use it (e.g., in the areas of Change, Incident, Problem, and Knowledge Management) to promote transparent and consistent end-to-end service delivery across all stakeholders
* Testing of the AG's tools to be used for the provision of the service before new tool releases are rolled out.
* Other tools to be used must be agreed with the customer before use and approved by the customer (see Tools chapter).
* The Contractor will work with the other service providers and the Client to drive continuous improvement of services and collaboration between all parties involved

#### IT Service Continuity Management

IT Service Continuity Management (ITSCM) supports the business continuity process by ensuring that the required technical and performance-related IT operational elements can be restored within the required and agreed timeframes. The Contractor shall provide IT Service Continuity Management.

The Contractor shall prepare an IT Disaster Recovery Plan in accordance with Attachment O that identifies only the specific procedures that the Contractor must implement within its area of responsibility to enable the recovery of the AG IT Services (e.g., loss of buildings from which the Contractor's employees provide services to the AG).

The aim is to create the necessary conditions to ensure that service can be restored within the required time in exceptional situations. Measures to avoid risks and minimize the effects of risks should be ensured. Possible exceptional situations include, for example:

* Ensuring that the Services provided by the Contractor will not result in a significant curtailment in the event of a disaster at locations where Services are provided (e.g., fire to a building, pandemic, etc. ).
* Ensuring that services can be restored at agreed times in the event of a disaster (e.g., a data center fails).

The aim is thus to ensure that the Contractor can basically provide the minimum requirements agreed in the service levels. This is done by reducing the risk of catastrophic cases to an acceptable level and by targeted recovery planning for the service.

In addition, the Contractor must prepare a disaster recovery plan containing the specific procedures that the Contractor must ensure as part of the provision of the Services in order to enable the restart and recovery of the AG IT Services (e.g. recovery of Services or recovery of the availability of applications). Such Disaster Recovery Plan shall comply with the requirements of Annex N with regard to structure and content.

The Contractor shall prepare and maintain a specific restart plan for the services for which it is responsible, which shall take into account the following aspects, among others:

* Dependencies between the services and other services (mapping of the system chain -> application database middleware infrastructure), for which the Contractor is not responsible, to determine the order in which the services are restarted.
* Service-specific aspects that must be considered in a restart situation
* Technical and organizational interfaces to the disaster recovery planning of the AG

The ITSCM is essentially designed to ensure:

* The availability of IT services of time-critical business processes in emergency and crisis situations
* The controlled IT-side continuation of business operations
* The knowledge and calculability of risks
* The prevention of damage up to total loss
* Compliance with legal and regulatory requirements for holistic risk management
* The operation and monitoring of an ongoing ITSCM process.

The CL is responsible for its business continuity plans and its business continuity management. The Contractor's plans according to Annexes N and O shall be reviewed and approved by the Client prior to implementation.

The CO's duties include:

* In collaboration with the AG in the interest of ensuring coordinated dovetailing of the Disaster Recovery Plan with the IT Service Continuity Plan, as well as updating and maintaining, managing, testing, and implementing any portion of the Disaster Recovery Plans and associated activities related to the continuous delivery of the Services
* Ensure proper intertwining and coupling of the IT service continuity plan and disaster recovery plans to maintain a holistic approach
* Business and service continuity management for the provided services and business services
  + Conduct required emergency preparedness for all CO sites by planning and implementing disaster prevention, recovery, and mitigation measures (e.g., for personnel, connectivity, buildings).
  + Emergency preparedness must ensure that:
  + Effects of a disaster on the Services are not apparent to the AG for more than 24 hours
  + At a minimum, process and meet resolution times for all Impact 1 and 2 incidents in accordance with agreed service level targets.
  + Emergency preparedness for all productive instances of the applications. This includes, but is not limited to:
* If required, the incorporation of backlog items for the disaster-proof construction of applications
* Coordination and creation of disaster recovery plans (DRP) for applications
* Consideration of critical dependencies to other applications
* Consideration of necessary measures to ensure the restart of applications and their processing procedures for interfaces after a disaster.
* Assume full responsibility for the execution of all Disaster Recovery Services (DR) procedures within his/her area of responsibility once a disaster event has been identified and declared as a disaster case by the AG.
  + Ensuring the effectiveness of emergency preparedness by organizing, conducting, and documenting a semi-annual disaster drill based on the emergency preparedness prepared

The Contractor shall submit a proposal for the structure of the IT service continuity process as part of the offer.

The contractor must present the planned implementation of the IT service continuity process and the necessary KPIs to the customer for approval during the fade-in phase. After approval by the customer, the process is documented and established by the contractor.

Within the first six months of the regular contract term, the Contractor, in cooperation with the Customer, shall prepare disaster scenarios and recovery plans (Annex N) for the systems located in its area of responsibility. The recovery plans shall be updated and checked continuously but at the latest at each major release.

In principle, the framework conditions of the IT emergency concept of the AG are to be considered and included.

##### Disaster Recovery Planning

All disaster recovery plans and their modifications must be approved in writing by the AG.

The CO's duties include:

* Efficiently manage and maintain the AG's IT disaster recovery plans as they exist on the start date.
* Support in performing a gap analysis as part of the IT continuity strategy, of the AG's disaster recovery plans in place as of the start date; in doing so, the gaps are to be identified and justified and a recommendation for their elimination is to be submitted to the AG
* Maintenance and continuous enhancement of the CL's disaster recovery plans, including in the context of the using system over the entire period of the contract, including such enhancements that arise due to the introduction and use of new technologies (equipment, software, applications, etc.) or new resource units, processes, business functions, locations and priorities
* Provision of all necessary cooperation and assistance to the customer for the integration of the contractor's disaster recovery plans into the IT service continuity plans of other services of the contractor, so that the mapping of the entire system chain (application middleware infrastructure) can be ensured.
* Documentation of the Contractor's procedures and practices, both for performing data backups and for providing IT disaster recovery services and business continuity support.
* Documentation of the priorities set by the AG regarding data backups, disaster recovery and IT service continuity.
* Work with the AG to integrate security measures for normal operational business into IT disaster recovery plans.
* For use in the event of a disaster, the creation and submission of a list and its maintenance for the definition of key persons and notification procedures, both for the client, the contractor and other service providers.
* Observing the AG's definition and procedures for declaring a disaster.
* Provision of the Contractor's criteria and procedures to the Client leading to the declaration of a disaster at Contractor's properties.
* Provide a single point of contact (SPOC) and its representative, both for disaster recovery plans and related communications and other activities that are the responsibility of the Contractor.

##### IT Service Continuity Tests

The CO's duties include:

* Establishment of joint test objectives with the client to functionally ensure the disaster recovery plans that the systems under the responsibility of the contractor and the dependent systems (consideration of the system chain) of the client are available again after a disaster within a defined time frame
* Planning and execution of tests of all elements of the Disaster Recovery Plans at least once a year, related to the responsible business-critical services and systems. If test sites of the Principal have been defined in the Disaster Recovery Plans, this shall be carried out depending on the availability of these test sites and in cooperation with the Principal and its representatives, including possible disaster recovery service providers or other service providers that provide services for the Principal.
* Timing of test dates in consultation with the AG so that the AG and his representatives have the opportunity to observe and participate in the tests.
* required support for coordination and management of other service providers used by the AG during the tests in accordance with the disaster recovery plans
* Continuation of an operational operation and the management of the services during the periodic tests of the disaster recovery plans.
* Provide a report of the test results to the AG within 30 (thirty) days of each test.
* Updating of disaster recovery plans, if changes were made during recent tests that led to the specified results
* Supporting the third party vendors and application support in planning and executing the disaster recovery test of the applications as well as in the disaster recovery case itself

#### Knowledge Management

The primary goal of knowledge management is to make knowledge available efficiently and to keep it up-to-date in the long term. The aim is to avoid the need for costly reacquisition of knowledge once it has been acquired.

It enables the quality improvement of decision making by providing reliable and assured information.

The Knowledge Management process ensures the capture of knowledge data across the service management lifecycle and makes it available as needed.

The contractor makes this knowledge available in a common knowledge base of the customer. The actual format is defined by the customer in the fade-in phase. The customer is open to suggestions from the contractor.

Knowledge Management is responsible for, among other things:

* document knowledge (e.g. in the form of knowledge entries)
* To make knowledge available for everyone
* Check knowledge for validity
* Keep knowledge always up to date
* Actively drive knowledge transfer, e.g. to upstream support units

The essential tasks of Knowledge Management for the CO are:

* In coordination with and according to the requirements of the AG, the formulation and use of a knowledge management strategy to identify relevant insights or relevant knowledge, as well as data and information that support the knowledge
* Establishment, documentation and use of a structured approach in knowledge management for the identification and documentation of relevant knowledge
* Maintain documentation (chapter documentation) throughout the application lifecycle that promotes application support service, including but not limited to
  + Service Manual (SHB)
  + Operating Manual (Oman)
  + Best Practices
  + Incident resolution methods
  + Known Errors
  + Instructions for upstream support units, e.g. service desk
  + Self help articles
  + Frequently Asked Questions (FAQs)
  + Descriptions for performing regularly recurring activities such as performing standard changes, service requests, application monitoring.
* Knowledge documentation and storage in tools and locations of the AG, e.g. ITSM tool, Confluence
* Identify knowledge gaps and set up countermeasures, e.g. through necessary knowledge transfer between stakeholders and/or knowledge documentation
* Use of structured, traceable knowledge transfer when adopting new or modified applications or application components, e.g., by:
  + Knowledge acquisition (structured recording and acquisition of the available documented knowledge as well as interviews of the knowledge holders)
  + Review of application and operational documentation for sufficient currency, suitability, and usability for application support.
  + Workshadowing and reverse workshadowing (working with previous knowledge holders to fill knowledge gaps).
* Review, maintain, update and expand knowledge entries in the AG's specified tool and other relevant documentation.

The Client may use the knowledge without restriction and for an unlimited period of time, even beyond the term of the contract. After the end of the contract, the documentation shall become the property of the Client.

The Contractor shall explain its concept for the development and management of knowledge in the offer.

#### Problem management

The purpose and goal of problem management is to sustainably eliminate faults and their subsequent effects or to prevent faults and the occurrence of faults. To achieve this goal, Problem Management must identify the reason for the disruption that has already occurred or that could occur and then initiate activities to improve the situation. This includes stabilizing applications and increasing service quality by analyzing and sustainably eliminating the root cause of incidents.

The problem management process has a reactive and a proactive aspect. The reactive aspect concerns the resolution of problems resulting from one or more incidents (see also the chapter on Incident and Event Management). A special focus will be placed on proactive problem management, which deals with the identification and resolution of problems and known errors before an incident can occur for the first time.

The main objectives of Problem Management are:

* Proactively track down and fix problems and known errors (known errors) so that disruptions are minimized
* Sustainably eliminate the causes of problems
* Ensure that problem resolution resources are deployed in the order that meets priorities based on business needs
* Increase the productivity of support staff, e.g. by avoiding potential incidents or through proactive problem management
* the provision of necessary and useful information for management

This results in the following tasks for the CO in the context of problem management:

* Documentation of all detected problems in the ITSM tool of the customer as well as further processing in the problem management
* Prioritization, schedule monitoring and coordination over the entire life cycle of the problem
* Analysis and elimination of the causes of recurring incidents, with the aim of avoiding the recurrence of incidents with the same cause.
* Carrying out and documenting root cause analyses of the problems in the tool provided by the client.
* Identification and qualification of software defects, e.g. by testing the functions and performance with regard to the application specification and customer expectation
* Implementation or realization of measures to prevent recurrence of problem. This includes the introduction of backlog entries or requests for change (RFCs, CR), e.g., to correct errors or deficiencies in the IT infrastructure or application design.
* Escalation if corrective measures are not implemented or not implemented correctly
* Updating the service knowledge management system and corresponding support documentation with all information on workarounds for known problems to support incident management and upstream support levels.
* Coordination and follow-up of the change, if software changes are required for the elimination of error causes
* Take preventive measures, such as regularly evaluating incidents for failure patterns and setting problems for root cause analysis and elimination.
* Recognize errors as well as identify trends and initiate appropriate measures for them
* If necessary, implement workarounds to bridge the period until a sustainable solution is implemented and document them in the AG's Known Error Database.
* Eliminate causes: Document and evaluate errors, solve problem and complete processing.
* Third party problem
  + In case of third party problems affecting the Service, the Contractor shall be responsible to coordinate and assist until the problem can be resolved.
  + Support of all interface partners in the analysis and processing of problems, the cause of which could lie in the area of responsibility of the Contractor

Furthermore, the CO is responsible for managing and coordinating existing problem tickets and controlling their processing. The CO plans and leads regular (weekly) meetings with involved parties to drive the resolution of issues.

If necessary, the Contractor will also contact the involved support units or other defined contacts independently by telephone and or in person in order to obtain background information on malfunctions.

##### Group Problem Management

Group Problem Management (KPM) enables users to identify, record and process problems across brands and business units according to defined rules, and to track the status of problem resolution (including analyses, measures, deployments and effectiveness). All departments using the system access the same data in a standardized system with consolidated processes and workflows.

The Group Problem Management process comprises the key steps listed below:

* Problem description
* Problem analysis
* Definition of measures
* Use of measures
* Proof of efficacy
* Problem closure

The Group system KPM supports the defined fault clearance process (FAP) across all areas in the Group.

The CO's duties include, but are not limited to, in process:

* Carrying out the activities of problem management
* Receipt and processing of KPM tickets
* Bringing about solutions
* Documentation in ticket

#### Request Fulfillment

Request Fulfillment has the task of registering all service requests and processing the requests according to their urgency. Service requests are all requests submitted by authorized users, including requests for information, advice, a standard change, or access requests.

Note: The greatest synergy effects in the execution of request fulfillment arise in connection with a service catalog. It can be used to standardize recurring requests and process them with the minimum of effort. A key objective is to achieve a high level of user satisfaction when processing service requests.

The goal of Request Fulfillment is to process all user requests related to the service under consideration. The process is responsible for the acceptance, categorization and handling of the request. The process also provides an interface to Incident Management, Change Management and all other potential processes.

Request fulfillment includes the following actions:

* Acceptance of inquiries, e.g. by VW Group brands
* Categorization of requests, also based on the defined complexity
* Processing of requests based on the specified SLAs
* Documentation of requests and responses
* Implementing the requests according to the AG's support process

The essential tasks of Request Fulfillment for the Contractor are:

* Receipt and processing of service requests via the ITSM tools specified by the client within the defined response and resolution times
* Implementation of the defined service requests in a service catalog coordinated with the AG
* Coordination with the AG for the implementation of unclear or undefined service requests
* Submission of proposals to the AG for reasonable extensions of the service catalog for previously undefined but repeatedly incoming service requests
* Monitoring and coordination of the implementation of service requests
* Optimization of the resolution time of a service request in cooperation with all groups involved in the implementation
* Contribute suggestions to the product backlog to avoid frequent service requests, e.g. by developing missing application functionalities, self-service functions or automations
* Enabling upstream support units such as the CAR-IT service desk to independently process defined service requests. This includes, for example, password resets or the handling of authorization requests.
* Document and provide knowledge records in the client's ITSM tool and thus transfer knowledge to upstream support units and provide input to knowledge management.

All tasks that cannot be handled by one of the other processes are handled in the request fulfillment process.

Service Request in the context of this service are for example:

* Execute database statements
* Provide log files
* IAM requests
* Provide Ad Hoc Reports

The process is based on a service request catalog. This is presented and handed over to the Contractor during the fade-in phase. The Contractor shall further elaborate and continuously adapt the service request catalog.

#### Security management

The goal of security management is to ensure that all goods, information, data and IT services of a company are protected at all times with regard to their confidentiality, integrity and availability. These protection goals are determined on the basis of the Business Criticality Classification (BKE) or the Quick Check.

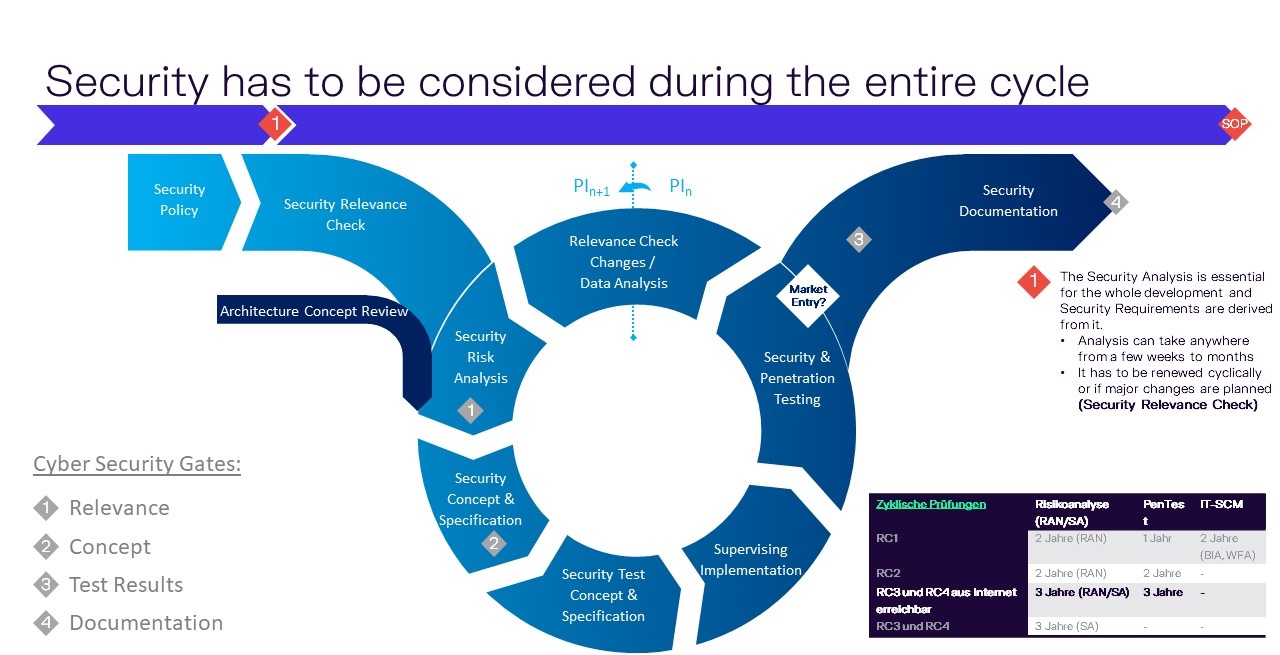
Security Management serves to:

* To avoid security breaches,
* Be able to respond to security breaches in a planned manner and as quickly as possible
* Identify, document, review, report and, if necessary, turn off alerts,
* Track the Group's security notifications and initiate and implement actions as needed to close security gaps,
* Create and implement a safety plan; and
* Create a list of measures to establish service as quickly as possible or to avoid interruptions.

The Contractor is obliged to comply with all applicable security requirements. This includes compliance with the security policies of the Client and the Contractor as well as legal and regulatory requirements.

In particular, the CO's duties include:

* Ensuring high IT security standards throughout the entire IT product lifecycle
* Defining and implementing organizational and technical measures to secure the Contractor's IT organization (IT services, IT infrastructure, data) with regard to availability, confidentiality and integrity.
* Regular review of the effectiveness of the IT security measures and facilities deployed by the Contractor.
* Detection and defense of IT security breaches in connection with the services managed
* Immediately informing the AG when security risks or breaches are identified; notification and escalation are carried out in accordance with the AG's security and data protection policies and procedures
* Sensitization and training of the Contractor's employees with regard to the objectives and procedures in security management
* Central coordination and implementation of IT security activities according to UNECE regulations
* Assist in the development and use of an action plan and escalation process for any potential or actual safety violations by, for example, providing constructive suggestions and examples, and informing the AG of any potential or actual safety violations as outlined in the action plan
* Assist in conducting security audits and initiating corrective actions to prevent and reduce the number of security breaches, this includes assisting with incident investigations that can inform corrective security actions. The support consists, for example, of participation in workshops, adaptation of operational procedures and participation in analyses of security breaches related to the services.
* Respond to all inquiries from security audits made by the AG and/or their administrative or regulatory authorities or supervisory agencies.
* Compliance and implementation of all regulations of the AG as well as legal requirements
* Proactive scanning of all deployed artifacts for vulnerabilities and, in case of threat scenarios, implementation of appropriate countermeasures
* Cooperative collaboration with the client to plan changes for processes, procedures and systems in the area of security, so that technological or requirement-related further developments can be included.
* Support and adhere to the AG's Security Security process:



1. Security Cycle

For potential additional systems that are not covered by the Group IT Security Management, the Contractor must follow the manufacturer's warnings on its own responsibility and, if necessary, initiate and implement measures in accordance with the Client's security guidelines in order to close security gaps.

#### Service Transition

The service transition process aims to transfer new IT applications, releases or existing services to operation and support (Ops services) in a quality-assured and high-performance manner. This provides optimum support for the customer's business processes in terms of functional and non-functional requirements.

The process ensures that all qualitative prerequisites for productive operation and support have been created.

The service transition is carried out using the IT product development process (IT-PEP) procedure model, which is to be applied to all projects involving an IT product.

The tasks and objectives of Service Transition are to:

* Define, design and evolve applications with a focus on the Service Readiness Index (SRI).
* Editing of responsible documents before, during and after service transition
* Transition of an application from project to operation.

The essential tasks of the service transition for the CO are thereby:

* Ensuring the holistic execution of a service transition, taking into account potential business and technical risks
* Ensure compliance with AG internal process specifications and guidelines, in particular with regard to the AG Service Transition process, including integration of the process into other AG Service Management processes
* Develop a transition plan that describes the functions and activities for deploying a release to the staging environments within the scope of the services and includes management for risks. In particular, this includes load and performance testing (chapter Load and Performance Testing).
* Identification and elimination of deviations of the Service Transition Plan incl. immediate communication to the AG
* Regular coordination of planned releases with the AG
* Execution of Service Transition activities and milestones, which include, but are not limited to:
  + Integration of the application into existing systems and documentation such as monitoring (e.g. concept and implementation of end-to-end monitoring)
  + Integration of the new application into the existing support structures (e.g. support contracts, SLAs)
  + Ensure support transfer for new content and update of relevant action instructions in the AG's ITSM tool
  + Inclusion of new services or functions in the operational communication concept and alerting for planned and unplanned events
  + Testing of operational support paths and documentation of success
  + Integration of the application into the service structures in the customer's ITSM tools, extension of the service structures if necessary.
  + Enhancement of all operational reports with new systems and/or functionalities
  + Extension of the operational system management with new systems and/or functionalities
  + Support and provide input from for training concepts and training materials of new systems and/or functionalities.
  + Support and provide input for data migration concepts of new systems and/or functionalities.
  + Creation and quality assurance of application package documentation (installation guide, admin manual, error manual, user guide, release notes)
  + Creation and delivery of solution concepts and architecture documents for new systems and/or functionalities
  + Participation in service transition workshops and sessions for know-how transfer in the context of service transition of new systems and/or functionalities
  + Creation and delivery of test concepts (functional testing, load and performance testing, penetration testing, non-functional testing) of new systems and/or functionalities
* Coordination of the transfer of the change to the instances for which the Contractor is responsible as well as any necessary know-how transfer
* Checking the documentation for the components for up-to-dateness and completeness
* Implementation and planning of measures for communication and interfaces between the Contractor, other service providers and third parties affected by the Transition
* Documentation of the progress of the takeover by means of the current version of the service readiness checklist (currently Modular Master List)
* Provide an estimate of whether and how the component release being adopted will impact future support efforts
* Promote information sharing with and between the AG, other service providers to improve an end-to-end view during transition
* Prepares end-to-end reporting in a technical format agreed with the AG on the status of the acquisitions of new or modified applications (in particular with regard to timing, costs, risks and impact on the AG's business processes) and presents this to the AG on a regular basis

Commissioning is based on the Modular Master List ("MoMa"), which is the standard tool (based on IT-PEP) for commissioning in the CAR-IT area and must be used. A completed service transition is to be announced to the customer in accordance with the defined service level in good time before a go-live.

After an application has gone live, operational support must always be provided, even if, as part of a stabilization phase, open operational takeover steps still have to be carried out by the client, contractor or other parties involved. In this case, the Contractor must enable the Client's upstream support units so that they can provide the best possible support based on all the information already available.

The AG formally confirms the completion of commissioning after all defined service transition activities have been completed.

Within the scope of a decommissioning (end-of-live), the Contractor shall take over the phase out on its own responsibility. Essentially, these are the following tasks:

* Preparation of a project plan with milestones for dismantling/ decommissioning
* Shutdown and phase-out of the predecessor system
* Initiation of the dismantling of old infrastructure components
* Preparation of the later dismantling of the application (infrastructure, documents, support, ...)
* Updating documentation

These activities must be carried out in a timely manner. Any economic impact due to delay by the Contractor must be borne by the Contractor.

During the fade-in phase, the service transition process is discussed in detail between the customer and the contractor. The contractor has the opportunity here to concede optimization potential.

This procedure and the associated services are continuously optimized within the framework of a CIP (cf. process Continual Service Improvement). The Contractor must always use the current version. Changes within the scope of the CIP, which relate to the scope of services, must be supported by the Contractor in a cost-neutral manner.

At the start of each Service Transition, the Contractor shall submit a project schedule with milestones. The necessary resources of the Contractor must be made available at the start.

#### IT Service Management (Service Planning)

The goal of service planning is to ensure the necessary service quality to guarantee the value creation of IT services during the operational phase. To achieve this, operational requirements are introduced at an early stage by service planning and their fulfillment is accompanied and supported during the service transition process. Service planning ends with the successful completion of the stabilization phase of a project, but continuous tasks in this area of activity are also necessary beyond this point.

To achieve this, operational requirements are introduced at an early stage through service planning and their fulfillment is monitored and supported. At the end of each project phase, an evaluated Service Readiness Index (SRI) is available. The SRI is part of the status report. The Service Readiness Index control tool is used for transparent presentation of the progress of ongoing service planning and for active control and development of operational readiness. Requirements are defined for service planning and assigned a maturity level per phase. The SRI (Service Readiness Index) is completed by the service planner - at least at the end of the project phase, or in between in the case of long phases. If the specified target SRI is not achieved by the go-live date, no go-live takes place. Exceptions are only possible with the express approval of the customer.

Service planning has the benefit:

* Reduction of rework after go-live
* Increase of solution rates in 1st and 2nd level support
* Relief for project teams and DevOps teams
* Increase in service quality and availability
* Increase of the control competence of current service planning
* Creating space for innovation

As part of service planning, the Contractor shall have the following responsibilities:

* Establishment of service planning
* Ensuring to complete the service transition activities and milestones.
* Complete fulfillment and achievement of the Service Readiness Index as well as presentation of progress and development of operational readiness.
* Managing the transition of all new or modified applications from project to operations
* Document creation and scheduling
* Creation of workbooks, monitoring concepts, their revision (workshops with the support units to constantly improve its quality)
* Reporting: status cSRI / projects, communication of risks
* Ensure operational requirements which include but are not limited to:
  + - * Infrastructure and license management (architecture concept/release, license requirements)
      * Test management (test concept, acceptance test phases, load and performance tests)
      * System management (system management concept, monitoring)
      * Non-functional requirements (non-functional concepts, security clearance, business impact analysis, emergency concept)
      * Documentation (operational documentation, project documentation, training documentation)
      * IT operations and organization (operations and support concept)
      * User qualification (training concept)
      * Know-how transfer (concept, operational capability through transfer sessions)
      * Data migration (migration concept, testing and verification)
      * Commissioning and go-live (planning, fallback planning)
      * Stabilization (concept, monitoring, securing resources, shutting down legacy system)
* Support in the administration of certificates within the scope of the lifecycle management of the services for which you are responsible
* Monitoring of the operating environments in the course of the installation of releases (early warning detection of possible complications) and implementation and maintenance of the necessary metrics to ensure stability

Service planning must be established in all phases of the IT product development process. All documents and approvals required for this are summarized in the service transition process specified by the customer. Service planning must be carried out for every IT project and every release.

#### Operations Control and Management

The goal of operations management is to ensure that recurring activities that occur during ongoing service operations run smoothly. This is ensured by structured organization, planning, execution and documentation. This results in important documents such as work instructions and work plans, which provide the necessary information to maintain operations. In addition, the CO will ensure that the monitoring and alerting functions of all units involved support the delivery of services.

The Contractor shall require all operational units involved, whether under the responsibility of the Client, another service provider or a third party provider, to document and execute their respective operational procedures.

Deviations from operational operating processes are identified and communicated by the Contractor to enable coordination of remedial actions.

It is assumed that the Contractor uses an operations management process for its service.

In this context, the Contractor shall actively pursue and promote the exchange of information with the Client and the other service providers in order to enable an end-to-end consideration within the framework of the Availability Management process.

For example, the Contractor is responsible for the documentation and management of licenses, certificates, technical users, etc.

The Contractor undertakes to present all relevant documentation, the process and the results, such as the documentation of work instructions or work plans, etc., at the Client's request. The documentation must be made in a tool specified by the Client.

#### Vulnerability Management

The aim is to analyze, plan, rectify and ultimately stage solutions to security-relevant vulnerabilities independently on the basis of a system specified by the customer. The integration of the vulnerability management carried out by the Contractor must be coordinated and ensured with the Client's vulnerability management.

Vulnerability management consists of the following tasks:

* Regular analysis of the responsible services for vulnerabilities (scanning, mailing lists, etc.)
* Vulnerability assessment
* Prioritization of the weak point elimination in consultation with the AG
* Elimination of the vulnerabilities
* Testing and deployment of the changed versions
* Documentation of the remedy
* Penetration tests
  + Preparation and support (e.g. assessment scope documents).
  + Provision of e.g. PostMan Collections, SOAPUI configurations
  + Test data provision (filling test vehicles with data)
  + Processing of Risk Assessment Committee (RAC) in case of defaults
  + Note: Execution of the tests by AG

#### Certificate and license management

The goal of the certificate and license management process is to achieve a regulated and centralized certificate and license supply and to

* optimize the licensing and certificate models used, and
* ensure efficient use of the available licenses and certificates.

To do this, identify the licenses and certificates that are too many, too few or invalid, so that either more licenses or certificates can be obtained or the number of licenses or certificates can be reduced.

The certificate and license management process is closely related to other processes and is interdependent with them, e.g. configuration management (documentation) and change management (requesting new requirements, changes, etc.).

The Contractor is responsible for comprehensive certificate and license management for the defined staging environments and must be able to provide information about the certificates and licenses in use at all times. This applies to the management of server certificates (SSL, WAF, etc.) as well as client certificates (TAM, LDAP, etc.).

The essential tasks of the CO in this regard include:

* Recording and documentation of data on certificates and licenses in the tool specified by the AG
* Tool-supported, continuous verification (monitoring) of certificates and licenses
* Implementation of forward-looking capacity planning and demand-based adjustment of the technical components used, taking into account the safeguarding of system stability
* Timely notification of expiry of certificates and licenses to the AG or third parties
* Initiate procurement process for issuance of new certificates and licenses as defined by the AG at the AG or third party.
* Trouble-free execution of certificate and license renewals
* Monitoring and proactive involvement in certificate and license exchange with third parties
* Regular reporting of all certificates and licenses to the AG

### Integrated projects

In "Integrated Projects", requirements are considered and a solution for them is defined. Integrated projects are characterized by the fact that they are not covered by the other processes and may require support from other experts. The contractor brings knowledge and know-how from day-to-day business into the respective integrated project; the transfer of knowledge between the basic and project teams is the responsibility of the contractor.

Managing the activities as integrated projects offers the following advantages:

* Involvement of additional specialist personnel
* Demarcation of resources between day-to-day business and integrated projects (separation of basic team and project team)
* Control of the project and participants according to the guidelines of the AG
* Use of synergies (knowledge, competencies, technology, organization)

The Contractor shall provide all services associated with the process. He has to inform himself about the activities in coordination with the customer and coordinate his process resources.

The Client reserves the right to commission the scope of integrated projects directly from third parties.

Invoicing of integrated projects takes place only after acceptance and release by the client. For extensive projects, defined partial acceptances are possible.

The Contractor shall establish an appropriate project management for the implementation of integrated projects. The project management shall ensure that the deadlines, costs and quality requirements (specifications, functions) of the projects are met in accordance with the order and that timely escalation takes place in the event of a threatened overrun or shortfall.

The clarification of the assignment required in the first step is just as much a part of the process as the development of concepts, detailed planning and all further phases within the framework of a project.

Project managers with appropriate qualifications and experience must be provided for project management. The project manager is responsible for the holistic management of so-called integrated projects. The project manager is authorized to give instructions to all employees and roles in the projects.

The essential tasks of the project management for the contractor are:

* Multi-project management for integrated projects
* Coordination of project resources
* Initiation of special projects
* Establishment and coordination of the project teams
* Project Quality Assurance
* Monitoring of quality, time and costs in the project
* Reconciliation and handover of the project results to the AG
* Strategic further development of project processes
* Further according to definition in the Fade-IN phase

## Service organization

The Contractor's service organization must be fundamentally suitable for adequately organizing, performing, controlling and optimizing all activities defined in the specifications. The Contractor must have suitable prerequisites and qualified employees to be able to implement the requirements defined in this invitation to tender and specifications. He shall ensure that the employees he deploys have the required professional experience as well as the necessary skills and abilities. All employees must be adequately instructed.

The Contractor's employees are expected to be familiar with the tools and procedures used by the Client. The Contractor undertakes to train its employees at its own expense.

Furthermore, the Contractor undertakes to provide its employees with ongoing training.

### Personal

Without exception, the Contractor may only deploy personnel who are demonstrably qualified to perform the services owed and who are organized, instructed and supervised by the Contractor. The Contractor shall also ensure that, without exception, demonstrably reliable personnel is used. Furthermore, the Contractor may only use such personnel who demonstrably possess all necessary authorizations, powers, professional approvals or permits.

The Contractor shall be responsible for the integrity, availability and confidentiality of the information entrusted to it.

The employees deployed by the Contractor shall be subject exclusively to the Contractor's right to issue instructions. Exceptions exist, however, when it comes to compliance with safety regulations and the prevention of danger to life and limb.

The qualification and number of personnel shall be such that continuous service provision, taking into account operational and legal requirements, can be guaranteed.

The Contractor shall, at its own expense and in accordance with the statutory regulations, subject the Contractor's employees to be deployed to a thorough review or has already done so upon hiring. The Contractor shall determine the additional scope exceeding the statutory regulations.

A valid access authorization to the Client's premises as well as a confidentiality obligation signed by the employee must be available for each of the Contractor's employees deployed within the scope of the provision of services.

### Dealing with personnel

Within the scope of this contract, the Contractor and the Client shall each be individually responsible for the management, control, supervision and deployment planning of their own employees.

The services shall be provided in accordance with the Client's technical and organizational specifications, under the supervision and sole authority of the responsible employees named by the Contractor, as an independent and autonomous service provided by the Contractor.

The employer must be notified of a change in the employee's personnel. This information is required so that the appropriate authorizations can be set up or deleted in User Management. The Contractor shall be responsible for applying for new users or deletions. The Contractor shall ensure that a change of personnel does not lead to any impairment of the quality of the service provision and is implemented smoothly. New employees shall be thoroughly familiarized with their tasks.

The employees assigned to the Contractor's on-call department shall be capable as a team at all times of performing the services required by this Statement of Work.

The Contractor shall ensure that sufficient personnel are available to provide the Service Content within the defined Service Levels (Annex I). The Contractor shall organize its personnel accordingly and also take into account the working hours and vacation times of its employees.

### System knowledge

The Contractor shall ensure that qualified service personnel are available for all contents of the specifications. The Contractor is obliged to provide the necessary personnel, remotely or on site.

It must be ensured that the Contractor's personnel pool is capable of supporting all products and systems within the scope of this specification in accordance with the service level. In addition, it is necessary that knowledge and experience are available for the use of the systems used by the Client as well as the measurement and analysis tools provided. The Contractor's employees are familiar with the system topography and documentation as well as the operating manuals and other documents required for fault processing.

The Contractor's employees assigned to on-call duty are, as a team, able at any time to trigger and track an escalation in a qualified manner for all products and applications used at the Client.

The Contractor shall ensure that stand-by personnel are available for each service in order to be able to provide the service content defined in the specifications in the required quality.

In addition to the corresponding process responsibilities, the Client expects that employees who are assigned a task, for example a project, a deployment, a change or other processes, will supervise this task from start to finish. The Contractor shall organize its personnel accordingly and also take into account the working hours or vacation times of its employees.

If, in exceptional cases, there is a change of personnel in these tasks, the Contractor must ensure a smooth transfer of knowledge. In addition, the Client must be informed of this in good time and communication with the departments involved must continue to be guaranteed. Under no circumstances may processes be changed between persons without informing the client.

### Accessibility

#### Collective number

The Contractor shall set up a central telephone number (collective call number, "stand-by number") which can be reached free of charge by the Client for the Client's communication with the Contractor (Contractor's personnel entrusted with the scope of services) around the clock. The Client expects that appropriately qualified personnel will be available at all times under this telephone number for personal communication.

#### E-mail box

The Contractor shall provide a central e-mail box for the communication of topics relevant to the contract, e.g. with regard to invoicing. This e-mail box is not used for communication or for the flow of information on service content (within processes, etc.).

#### CIM Phone

The Contractor shall set up a telephone number that can be reached free of charge by the Client for the Client's communication with the Contractor's Critical Incident Manager. The availability of the Critical Incident Manager must always be ensured via this special uniform telephone number 24\*7 (this telephone number may only be used for this purpose!).

### Service and support structure

The service and support structure in the Connected Car service environment includes 1st-level support, the Car-IT Service Desk and the DevOps team. The following figure shows this schematically.

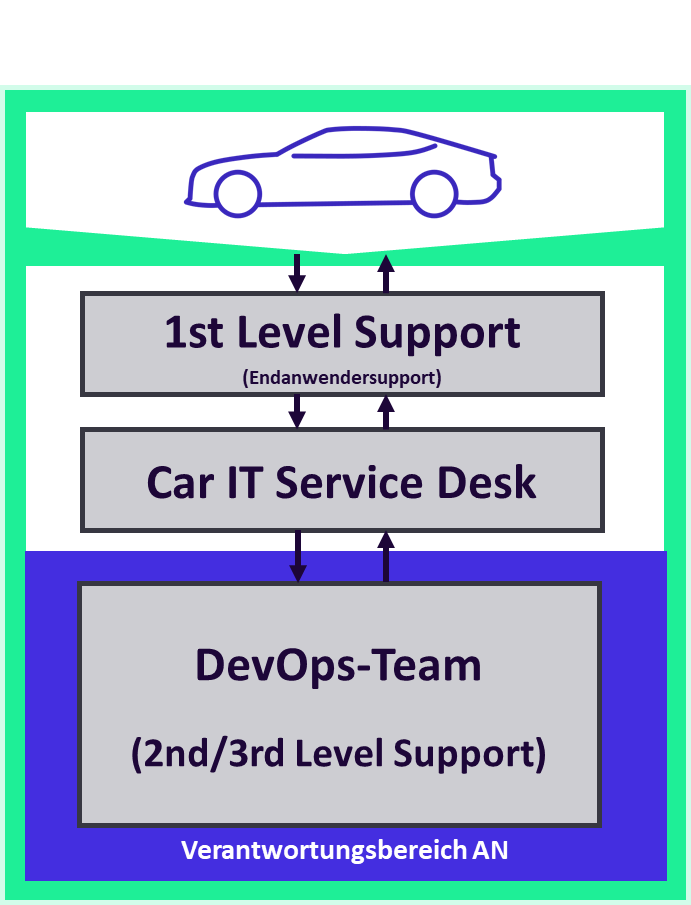


Figure 9Support structure

The **1st level support is** in direct contact with the end customer and ensures the end user support.

For the Connected Car Service, the **CAR-IT Service Desk** not only combines the role of the 1.5 level support, which accepts and processes the Connected Car Service requests and fault reports, but also forms a central communication point for all customers and users of the AG within the Connected Car Service (Single Point of Contact).

If the fault or request cannot be solved directly at the CAR-IT Service Desk, it is forwarded to various groups in **2nd and 3rd level support** for further processing.

The Contractor shall assume responsibility for application operation and software maintenance within the scope of this Statement of Work. In the end-to-end support chain, this corresponds to 2nd-level and 3rd-level support. It thus maps the "Ops" scope of a DevOps team consisting of application support and maintenance.

The main objective of the service and support structure is to achieve stable and trouble-free support of business processes by the applications. In addition, rapid recovery of the application in the event of a fault and competent, customer-oriented processing of incidents and service requests are to be ensured. The provision of Ops services should lead to a high level of user and customer satisfaction.

### Role Description

In the following, all roles that the Contractor has to designate in his service organization are further detailed. The roles are precisely finalized in the fade-in phase. The contents listed below form the basis for the coordination. The aspects named there must at least be implemented in the Fade-IN phase and supplemented by concerns brought in by the Contractor or the Client.

#### Account Manager

|  |  |
| --- | --- |
| **Responsibility** | The Account Manager is the highest management instance with regard to the services of this specification and for controlling the contract contents. He is the escalation instance that is addressed in particular in the event of faults in the service. The Account Manager must be the administrative superior of the Service Manager and the service organization or be granted these rights within the scope of this contract control. He is also responsible for the commercial area. |
| **Tasks** | * De-escalation of disruptions in service (service delivery) * Contact person for management queries * Provision of the resources of the service organization * Reports on de-escalations in the incident to the AG * Further according to definition in the Fade-IN phase |
| **Name** | The Account Manager shall be identified by name. |
| **Deputy** | A deputy shall be appointed for the Account Manager. |

1. Account Manager

#### Service Manager

|  |  |
| --- | --- |
| **Responsibility** | The Service Manager is responsible for controlling and managing the service for all issues. He is responsible for overall service control with regard to the agreed service levels. |
| **Tasks** | * Single point of contact for all service and contract-related issues   + Takes over the communication with third parties if necessary   + Responsible for coordinating the entire service team of the CO,   + is responsible for continuous improvement of the service,   + Is responsible for the integration and control of the required resources in the service (scheduling of personnel),   + Coordinates subcontractors as appropriate,   + creates reports and documentation and   + Is on-site for scheduled meetings. * Authorized representative for the underlying organization * Overall responsibility for all processes * Responsible for the strategic further development of the basic processes * First escalation instance in management with decision-making and directive authority in the event of disruptions * Direct access to the top management of the CO to enable quick reactions to acute measures * Monitor and manage **service level performance**:   + Initiation of a service level management   + Monitoring and processing of service level reports   + Activate measures to improve service levels   + Coordinate service level activities with Service Manager and AG.   + Service level reports to the AG * Responsible for license, certificate and maintenance management * Interface between license, certificate and maintenance management and finance management for necessary replenishments * Monitoring and control of all development and testing activities and operational activities as well as the associated service quality * Coordination between the individual DevOps teams, ensuring the flow of information * Continuous improvement of operating processes * Coordination of the interface between operational activities and projects * Control of the transfer of project results into operation * Further according to definition in the Fade-IN phase |
| **Name** | The Service Manager shall be named. |
| **Deputy** | A deputy shall be appointed for the Service Manager. |

1. Service Manager

#### Quality Manager

|  |  |
| --- | --- |
| **Responsibility** | The Quality Manager is responsible for a high quality standard of the Contractor's services. He is responsible for ensuring and optimizing the respective processes. He is also responsible for knowledge management, knowledge transfer, and the overall documentation of the service, the service processes, and the service systems.  The Quality Manager acts as an interface between the Contractor and the Client's Test Framework Manager and is aware of any changes to the Test Framework. |
| **Tasks** | * First AP for quality issues for the AG * Quality assurance (across all areas) * Monitoring of documentation quality (CI, knowledge, etc.) * Monitoring the quality of communication and information * Pointing out quality deviations * Derive measures, initiate and monitor their implementation * Support of the AG during audits/certifications (internal/external) * Close cooperation with the service manager * Documentation of all CIs (technical) * Documentation of all processes * Documentation of all knowledge required for contract performance, both strategic and operational * Ensuring the documentation basis. Monitoring and verification * Single point of contact for the AG for all test framework topics * Full support of the AG for all test - framework topics * Further according to definition in the Fade-IN phase |
| **Name** | The Quality Manager shall be named. |
| **Deputy** | A deputy shall be appointed for the Quality Manager. |

1. Quality Manager

#### Process Manager

|  |  |
| --- | --- |
| **Responsibility** | The process managers are responsible for ensuring and optimizing the respective processes. |
| **Tasks** | * Initiation of the processes in the Fade-IN phase * Monitoring the processes * Identify potential for change in the processes via the agreed KPIs * Development of optimization proposals for the improvement of processes * Continuous process improvement * Training, instruction and further education of personnel in case of changed or optimized processes |
| **Name** | The process managers are to be named for each process, they can act for several processes at the same time or in combination with other roles |
| **Deputy** | An alternate Process Manager shall be designated by name. |

1. Process Manager

#### Project Manager (Integrated Projects)

|  |  |
| --- | --- |
| **Responsibility** | The Project Manager is responsible for the overall management of the project and ensures that projects are completed on time, in quality and within budget. |
| **Tasks** | * Planning, initiation, implementation and control of projects * Multi-project management for all projects assigned to him/her * Setting up, scheduling and monitoring project resources * Carrying out project reviews * Report project status * Ensures sufficient communication within the project team * Ensuring compliance with quality criteria (project quality assurance) |
| **Name** | The Project Manager shall be named for each integrated project, and may act for multiple projects simultaneously or in combination with other roles. |
| **Deputy** | An alternate Project Manager shall be designated by name. |

1. Project Manager (Integrated Projects)

#### Critical Incident Manager (CIM)

|  |  |
| --- | --- |
| **Responsibility** | CIM shall ensure that in the event of critical faults in the systems and applications for which the Contractor is responsible, they are processed within the Contractor's organization and the Client is informed of the progress of the processing. This includes urgent service requests or faults in the service itself (all processes). In the case of serious faults (e.g., Prio 1 and 2), the CIM is involved as the contact person for the customer or for the customer's support or escalation units if they are involved in fault coordination. He takes over the communication with the AG in case of critical malfunctions. |
| **Tasks** | * Coordination of fault processing at the contractor * Facilitation in meetings of a Major Incident case as necessary. * Consistent documentation during the Major Incident in the AG's specified whiteboard. * Initial analysis of malfunctions in order to locate the cause quickly and in a targeted manner * Identify the appropriate DevOps team and engage them to quickly resolve critical incidents. * Create and review documents following resolution of a critical incident and participate in Prio1/2 meetings to ensure rapid, targeted, and sustainable root cause/resolution investigation * Central contact person of the AG or support or escalation units of the AG * Responsibility for the comprehensible and continuous reporting of measures taken (in connection with a critical incident) * Proactive and continuous information for the processing/resolution of faults to the AG * Casting the role 24\*7 hours * Participation in meetings with the AG or/and third parties commissioned by the AG, which are convened in the context of disruptions. * Initiation of a review meeting after the malfunction has been resolved * Accessibility always via a special uniform telephone number (this telephone number may only be provided for this purpose, cf. chapter CIM Phone). |
| **Name** | The CIM does not have to be named. The role can be taken by different persons if they know the service at the CL and have the administrative possibilities in the organization of the CO to be able to perform the tasks. |
| **Deputy** | See regulation at "Name". |

1. Critical Incident Manager (CIM)

#### Site Realiability Engineer (SRE)

|  |  |
| --- | --- |
| Responsibility | The SRE has an overarching role in the context of application development and in the context of their operation. The responsibility is not limited to individual applications, but goes across backend end-to-end use cases. |
| Tasks | * Description/development of overarching features to scale, automate and stabilize the platform. * Review and feedback on architecture, application development and operational concepts * Support for the definition of NFRs * Continuous monitoring of environments with regard to NFRs, incident avoidance, etc. on a use case basis. * On top of previous responsibility * Architecture and system analysis in the context of incidents * In-depth analysis of incidents and determination of the root cause as the trigger for the malfunctions in the live systems, taking into account the entire functional chains (incl. peripheral systems) + reconciliation of why the error was not found in the test * Analysis of operational and configuration parameters and their impact on application/system availability as a function of the entire impact chain. * Analyze application metrics in common monitoring tools or at the system level (e.g., at the Kubernetes level or on a source code basis) and derive root causes. * Execution of code reviews and derivation of measures * Perform architecture and configuration review * Evaluation of the found and defined problems / root causes regarding the impact on availability. * Definition of measures for the sustainable elimination of incidents * Evaluation of the found and defined measures regarding effectiveness and priority on availability * Independent planning and control / implementation of service "Go to Green" plans for identified optimization opportunities along the entire impact chain * Recording of improvement and enhancement potentials as a result of root-cause or white-spot analyses. * Documentation |
| Skills | * Experience with the monitoring tools used by the AG and their adaptation, especially: Kibana, NewRelic, Dynatrace, CA APM * Cross-industry experience with monitoring and operational concepts * Cloud architecture and infrastructure knowledge * SRE skills/mindset - skilled with common cloud software such as Kubernetes, Java applications, deployment pipelines in production environments. * Ability to make independent adjustments / customization suggestions to application code as part of incident and problem analysis. * Ability to analyze log files and assess application performance in the system context * SAFe and ITIL know-how * Expertise with SOAP and REST interfaces * Experience with JIRA and Confluence |
| Name | The SRE shall not be named and shall be staffed several times. The number of SREs deployed is at the Contractor's discretion, but must always be suitable to provide all required services to the defined extent and quality (service level). |
| Deputy | An alternate shall be appointed for the SRE. |

1. Site Realiability Engineer

#### DevOps Team

The AN's DevOps team consists of the proxy product owner and the DevOps team members, who are described in more detail in the following sections.

The number of teams deployed and their size shall be at the Contractor's discretion, but must always be suitable to provide all required services to the defined extent and quality (service level).

##### Proxy Product Owner

|  |  |
| --- | --- |
| **Responsibility** | The Proxy Product Owner acts as an interface between the Client and the Contractor's DevOps team. The Contractor guarantees that the Proxy Product Owner has the technical, professional and organizational skills and abilities to perform his tasks. |
| **Tasks** | * Single point of contact for the AG for all technical topics * Is responsible for the coordination of the entire DevOps team of the AN (authorized to give instructions), * thus controls, manages and is responsible for all ongoing DevOps activities at the AN, * is responsible for receiving and responding to inquiries, * Coordinates subcontractors as appropriate, * creates reports and documentation and * Is on-site for scheduled meetings. * Full support of the AG * Prepare, moderate, follow-up demo and review sessions * Review and release user stories and acceptance criteria (functional acceptance) * Ensuring the maintenance and prioritization of the Product Backlog in coordination with the AG, formulating and defining Product Backlog items. * Continuous monitoring of development progress * Ensure that the developers understand the elements of the product backlog at the required level (for this purpose, the proxy product owner mediates between the AG and the developers) |
| **Skills** | * Experience in the field of software development * High degree of personal initiative * Structured approach * Strong communication and methodological skills * technical understanding * Business analysis skills * Strategic decision-making ability * Leadership skills * Stakeholder management * Solution oriented thinking * Language requirement according to CEFR: English C1, German desirable |
| **Name** | The Proxy Product Owner must be named. The proxy PO must be named for each DevOps team. The roles can be filled in personnel union, however, the CO must ensure that the functional requirements can be fulfilled without restriction. |
| **Deputy** | A deputy shall be appointed for the Proxy Product Owner. |

1. Proxy Product Owner

##### Member of the DevOps team

The **responsibilities of the** DevOps team members include, but are not limited to:

* Development and optimization of software increments
* Elicitation/ determination of requirements for new software
* Recognition of priorities and conflicts within the requirements
* Specification and elaboration of user stories
* Execution of effort estimations (development and test efforts)
* User Stories Maintenance
* Implementation of user stories within the framework of sprints, in compliance with the programming guidelines and quality criteria as well as other applicable standards/guidelines for software development of the client
* Delivery of the agreed work results, delivery of the defined product, commitment to deadline and quality, in compliance with the quality gates, e.g., in meeting the definition of readiness of a user story.
* Identification of vulnerabilities and security risks as well as derivation and implementation of necessary measures
* Creation of scripts and tools for agile development
* Evaluation and assessment of new security technologies and market trends with regard to IT security on instruction of the AG, presentation of risks and alternative solution options
* Analysis and evaluation of requirements with regard to the impact on the architecture and future operability, support of the further development of the overall architecture of the AG
* Collaboration with stakeholders and interfaces, e.g. other support units and third parties
* Carrying out quality assurance of in-house services, e.g. through code reviews
* Import of regular updates also to ensure compatibility with e.g. middleware or database updates
* Implementation of applications, software components and interfaces to databases or other applications
* Programming of scripts for automation, e.g. monitoring, code analysis or build and release processes along a CI/CD pipeline, using tools such as Gradle, Git, Ansible, Docker, Jenkins or Kubernetes (ideally in a linked toolchain)
* Source code and version management using tools provided by the AG such as Git, Apache Subversion (SVN), CVS, or BitBucket.
* Design of test concepts, test scenarios, test cases
* Development of a proposal for the definition of the test strategy
* Planning, control, execution and monitoring of test procedures
* Execution of test procedures
* Active execution of tests
  + Pen testing support
  + Chaos Monkey Tests
* Analysis of the test results
* Administration of the test tools
* Continuous further development and optimization of test procedures and tools
* Advance test automation
* Documentation of test results and deviations
* Perform API design and maintenance
* Perform CVE scans
* Infrastructure application
* Create rollback concept
* Create extinguishing concept
* Create logging concept
* Perform configuration of the services
* Perform error management on all tools of the AG
* Performing deployments on all stages including the LIVE perform.
* Configuration, maintenance and monitoring of a comprehensive monitoring of the components in the scope
* Integration into the monitoring and system landscape defined by the AG
* Execution of the role of 2nd level support and 3rd level support.
* Accepting and bringing about solutions to service requests and fault reports
* If required, the forwarding and proactive follow-up (ticket follow-up) of service requests and incidents to other support units incl. prior qualification
* Accepting changes and ensuring successful implementation of all changes, including minor releases and major releases.
* Document "go-to-green" actions for development teams in concretized Jira tickets.
* Creation of results presentation
* Creating cost estimate
* Present complex relationships in an understandable way
* Creation and maintenance of documentation and reporting
* Advice to the AG regarding
  + Security Topics
  + Technical advice
  + Consulting/ training of the brands for possible connections
  + Innovation Management
* Introduction of optimization approaches and potential for improvement
* Preparation, execution and follow-up of meetings
* Reporting to the AG
* Identifying, analyzing and working through problems, risks and obstacles, e.g. by preparing risk analyses
* Initiate escalations as needed
* Coordination with third parties e.g. further teams of the surrounding systems
* User management e.g. create B2B user, request user rights etc.
* If required, on-site support e.g. for SOPs of the AG
* Collaboration and communication with stakeholders and interfaces, e.g. other support units and third parties
* Complete and sustainable documentation in the ticket system
* Extensive documentation within the processes, e.g. ASPICE
* Proactive participation in Continuos Service Improvement
* Create and maintain knowledge entries

A wide variety of skills are required for service delivery. The AG requires the following **skills** within the DevOps team:

* In-depth experience in the application and implementation of agile project methods based on Scrum and SAFe
* Language requirements according to CEFR: German and English (at least one profile C1 the second profile B2)
* Resilience in stressful situations, dealing with unpredictable situations
* Understanding of customer needs and problems
* High level of feedback, criticism and conflict management skills
* High ability to work in a team and social competence
* Time and self-management, high level of initiative
* High understanding of quality and professionalism
* Understanding of processes and procedures in the automotive industry
* Experience in the application and implementation of agile project methods based on Scrum and SAFe
* Scripting and programming skills
* Know-how in virtualization solutions
* Deep expertise in development, operations and agile, databases and automation
* Very experienced regarding software development
* Very experienced regarding test procedures, test strategies and test systems (tools)

### Meeting structure

In the following tables the meetings are further specified. Among other things, they show the name of the meeting, the frequency of the meeting and the location to be selected.

The meetings described below do not claim to be complete at this point in time. The information provided is intended to illustrate the character of the meeting.

The contents serve as orientation and are not yet final and complete. The meetings are strongly oriented towards the selected framework and can still be extended or changed if required and after consultation between the contractor and the client.

During the Fade-IN phase and the term of the contract, the customer may decide to harmonize meetings or expand the group of participants, e.g. by adding third parties. Open points are also further specified in the Fade-IN phase.

#### Steering committee

The Contractor must prepare the above-mentioned coordination together with the Client (input main topics), carry it out and follow it up. The list does not claim to be complete. The meeting is initiated by the customer.

|  |  |
| --- | --- |
| **Duration** | approx. 2 hours |
| **Appointment type** | Presence |
| **Agenda** | * Management summary of the scope of services * Escalations in service level attainment and overall service delivery (may be items that could not be resolved in subsequent meetings). * Deviations between expected and provided scope of services * Significant changes in the service organization (of the Contractor and the Client) * Contractual aspects (high level or escalations) * Commercial aspects (high level or escalations) |
| **Frequency** | Within the Fade-IN phase monthly thereafter quarterly or as needed monthly |
| **Participant** | Service Manager (AG/AN)  Account Manager (AG/AN) |

1. Steering committee

#### Service Review Meeting

The Contractor shall prepare, perform and follow up the said reconciliation. The list does not claim to be complete.

|  |  |
| --- | --- |
| **Duration** | approx. 2 hours |
| **Appointment type** | Presence |
| **Agenda** | * Review of the service (compared to the pre-meeting), including.   + In Time   + In Cost   + In Quality (Tests)   + Bugs created vs Bugs solved   + Deployments * Preview of the service (until the follow-up meeting)   + Discussion of the tasks to be processed * Discussion of problems as well as presentation of suitable proposals for their solution * Opportunities and risks of the service * Presentation of KPI/SLA achievement * Presentation of the services rendered (proof of performance for invoicing) * Presentation/calculation of the possible penalties * Presentation of optimization potentials * Contractual aspects |
| **Frequency** | monthly |
| **Participant** | * Service Manager (AN) * Service Owner (AG) * Other relevant roles (AG/AN) |

1. Service Review Meeting

#### Quality Board

The Contractor shall prepare, perform and follow up the said reconciliation. The list does not claim to be complete. The input for the meeting comes from both the contractor and the customer.

|  |  |
| --- | --- |
| **Duration** | 0,5 days |
| **Appointment type** | Presence |
| **Agenda** | Collection of optimization potentials of the service by adjustment of the processes, which come to the vote in the meeting, compiled by the contractor. Presentation of solution scenarios in connection with optimization potentials.  Analysis, consideration and improvement of the processes of:   * Service quality * Results of the analysis of the warranty (elimination of defects) * Documentation quality * Project quality * Presentation of possible optimization potentials (per process) * Presenting new measures for the optimization of processes * Review of measures of the pre-meeting * Determine impact on service levels or on KPIs |
| **Frequency** | quarterly |
| **Participant** | * Service Manager (AN) * Service Owner (AG) * Other relevant roles (AG/AN) |

1. Quality Board

#### Innovation Board

The Contractor shall prepare, perform and follow up the said reconciliation. The list does not claim to be complete.

|  |  |
| --- | --- |
| **Duration** | 0,5 days |
| **Appointment type** | Presence |
| **Agenda** | * New requirements (see chapter New requirements) * Optimization suggestions from all responsible areas, including Continual Service Improvement * Presentation of trends, new technologies, processes, other   At the Client's request, the Contractor shall subsequently provide the Client with a schedule and price plan. The Contractor must also check whether this results in optimizations to its price model. The implementation of optimizations and innovations always requires prior approval by the Client. |
| **Frequency** | semiannual |
| **Participant** | * Service Manager (AN) * Service Owner (AG) * Other relevant roles (AG/AN) |

1. Innovation Board

#### Project meeting (integrated projects)

The Contractor shall prepare, perform and follow up the said reconciliation. The list does not claim to be complete.

|  |  |
| --- | --- |
| **Duration** | depending on project scope |
| **Appointment type** | Presence, remote possible after consultation with the AG |
| **Agenda** | * Project status Content (Achieved and Planned) * Schedule * Cost plan * Quality of the results * Risks * Interfaces and dependencies |
| **Frequency** | as required within the framework of **integrated projects** |
| **Participant** | * Project Manager (Integrated Projects) (AN) * Project Manager (AG) * Other roles as required (AN/AG) |

1. Project meeting (integrated projects)

#### Fade-IN Meeting

The Contractor shall prepare, perform and follow up the said reconciliation. The list does not claim to be complete.

|  |  |
| --- | --- |
| **Duration** | Approx. 2 hours |
| **Appointment type** | Presence, remote possible after consultation with the AG |
| **Agenda** | * Review transition progress (compared to the previous meeting) * Presentation of optimization potentials |
| **Frequency** | The meeting is held weekly for the duration of the Fade-IN phase, or several times a week if needed. |
| **Participant** | * Transition Manager (AN) * All other relevant roles as required (AN/AG) |

1. Fade-IN Meeting

#### Release Planning Date

The Contractor must prepare, perform and post-process the aforementioned reconciliation for its subjects. The list does not claim to be complete.

|  |  |
| --- | --- |
| **Duration** | Approx. 1 hour |
| **Appointment type** | Presence as well as online as required |
| **Agenda** | In this meeting, the release management team of the customer fills the upcoming release with content or change requests. Every product owner of the customer and every proxy product owner of the supplier may participate in this meeting and report a reprioritization of their CRs. In addition, risks and problems in the processing of the stories are reported by the cluster managers in this meeting. |
| **Frequency** | weekly |
| **Participant** | * Release Manager (AG) * Service Owner (AG) * Proxy Product Owner (AN) |

1. Release Planning Date

#### PI- Planning (Planning Workshop)

PI- Planning is described in chapter PI-Planning (Planning Workshop).

#### Story Breakdown Meeting

The Contractor shall prepare, perform and follow up the said reconciliation. The list does not claim to be complete.

|  |  |
| --- | --- |
| **Duration** | Approx. 1 hour |
| **Appointment type** | Presence as well as online as required |
| **Agenda** | In this meeting the Product Owner of the AG together with the Proxy PO and the application team of the AN break down the functionality into User Stories with the corresponding Story Points. The resulting user stories are scheduled in the next sprints.  Based on the Reference User Stories a Precision Estimation is extrapolated and agreed with the Product Owner of the AG. |
| **Frequency** | At the starting point of the development of each new feature. The meeting is usually held as part of PI planning. If a requirement needs to be scheduled at short notice, a separate story breakdown meeting is arranged. |
| **Participant** | * Product Owner (AG) * Proxy Product Owner (AN) * DevOps Team (AN) |

1. Story Breakdown Meeting

#### Sprint planning

The Contractor shall prepare, perform and follow up the said reconciliation. The list does not claim to be complete.

|  |  |
| --- | --- |
| **Duration** | Approx. 1 hour |
| **Appointment type** | Presence as well as online as required |
| **Agenda** | Sprint planning defines which user stories can be delivered in the sprint and how they are to be implemented. The entire DevOps team works together on sprint planning. |
| **Frequency** | Takes place bi-weekly before the start of each sprint. |
| **Participant** | * Product Owner (AG) (Optional) * Proxy Product Owner (AN) * DevOps Team (AN) |

1. Sprint planning

#### Sprint Review Meeting

The Contractor shall prepare, perform and follow up the said reconciliation. The list does not claim to be complete.

|  |  |
| --- | --- |
| **Duration** | Approx. 1 hour / (DevOps team x sprint) |
| **Appointment type** | Presence as well as online as required |
| **Agenda** | At the end of the sprint, the team presents the developed user stories (development deliverables) within the sprint review meeting. The team only shows the functionalities that are so far that they could be used productively immediately. Functionalities that have not been tested or are unstable are not shown and are considered as not delivered.  The review enables the team to learn systematically. Here, we analyze which work processes need to be improved so that the team can work more effectively. |
| **Frequency** | at the end of each sprint |
| **Participant** | * Service Owner (AG) * Proxy Product Owner (AN) * DevOps Team (AN) |

1. Sprint Review Meeting

#### Meeting for functional acceptance

The Contractor shall prepare, perform and follow up the said reconciliation. The list does not claim to be complete.

|  |  |
| --- | --- |
| **Duration** | Approx. 30 minutes |
| **Appointment type** | Remote |
| **Agenda** | * Presentation of the development for functional acceptance * Talking through the agreed Definition of Done (DoD) for functional acceptance. |
| **Frequency** | After completion of a functionality |
| **Participant** | * Service Owner (AG) * Proxy Product Owner (AN) |

1. Meeting for functional acceptance

#### Deployment release meeting

The Contractor shall prepare, perform and follow up the said reconciliation. The list does not claim to be complete.

|  |  |
| --- | --- |
| **Duration** | 30 minutes |
| **Appointment type** | Presence as well as online as required |
| **Agenda** | The meeting allows the team to go over the last deployment in the respective environment together. All testing/release recommendations are gone through and evaluated together. The goal is to decide per application if the deployed version can be further staged or if troubleshooting and bug fixes are still needed. |
| **Frequency** | If there is a need (troubleshooting/bug fixing) for it, usually 2 days after each deployment. |
| **Participant** | * Product Owner (AG) * Other roles as required (AG) * Proxy Product Owner (AN) |

1. Deployment release meeting

#### Meeting for final acceptance

The Contractor shall prepare, perform and follow up the said reconciliation. The list does not claim to be complete.

|  |  |
| --- | --- |
| **Duration** | Approx. 30 minutes |
| **Appointment type** | Remote |
| **Agenda** | * Presentation of the development for final acceptance * Discussion of the agreed Definition of Done (DoD) for final acceptance |
| **Frequency** | After completion of a functionality |
| **Participant** | * Service Owner (AG) * Proxy Product Owner (AN) |

1. Meeting for final acceptance

#### Test Framework Meeting

The Contractor shall prepare, perform and follow up the said reconciliation. The list does not claim to be complete.

|  |  |
| --- | --- |
| **Duration** | approx. 1 hour |
| **Appointment type** | Presence, remote possible after consultation with the AG |
| **Agenda** | The purpose of this meeting is to synchronize the test framework of the trades. By using a common database, the synergy effects should be increased. Functions that are used together should only be developed once.  **Agenda**   * Open points * What functions were implemented * Which functions are to be implemented * Capacity planning * Further |
| **Frequency** | Quarterly |
| **Participant** | * Test Framework Manager (AG) * Quality Manager (AN) |

1. Test Framework Meeting

#### Incident Review (Testing)

The Contractor shall prepare, perform and follow up the said reconciliation. The list does not claim to be complete.

|  |  |
| --- | --- |
| **Duration** | approx. 1 hour |
| **Appointment type** | Presence, remote possible after consultation with the AG |
| **Agenda** | The purpose of this meeting is to analyze incidents that have occurred and discuss whether they could have been found during testing.   * Discussion of incidents * Hindsight * Coordination of measures and workarounds |
| **Frequency** | Quarterly, monthly if required |
| **Participant** | * Test Manager (AG) * Quality Manager (AN) |

1. Incident Review (Testing)

#### KPM Board

The Contractor must prepare, carry out (moderate) and post-process the said vote. The list does not claim to be complete.

|  |  |
| --- | --- |
| **Duration** | Approx. 30 minutes |
| **Appointment type** | Presence, remote possible after consultation with the AG |
| **Agenda** | * Talking through current KPM tickets   + Special cases, long runner, reopen   + If necessary, status transfer of tickets to other tools * Coordination of measures and workarounds * Suggestions for innovation and improvement   + Monitoring in the direction of JIRA.   + Adjustments to error reporting systems.   + Various adjustments and optimizations regarding the workflow. * Rehash appointment content   + Create logging   + Create metrics   + Create status reports |
| **Frequency** | weekly |
| **Participant** | * Relevant contact persons of the AG * Proxy Product Owner (AN) |

1. KPM Board

#### Deployment Planning Meeting

The Contractor must participate in the aforementioned vote and prepare its relevant content. The list does not claim to be complete. The meeting is initiated by the AG or third parties commissioned by the AG.

|  |  |
| --- | --- |
| **Duration** | 2 hours |
| **Appointment type** | Presence, remote possible after consultation with the AG |
| **Agenda** | * Planning and deployment resources based on the deployment calendar and deployment forecast:   + Request and scheduling of software deployments * Discussion of the event calendar for the next two weeks and comparison with the planning for the productive deployments. * Review/lessons learned of the previous week's deployments |
| **Frequency** | weekly |
| **Participant** | * Deployment Coordinator (AG) * Relevant roles for the planned deployments (AN) * Other relevant roles as required (AN/AG). |

1. Deployment Planning Meeting

#### Operations and Support

The Contractor shall prepare, perform and follow up the said reconciliation. The list does not claim to be complete.

|  |  |
| --- | --- |
| **Duration** | Approx. 2 hours |
| **Appointment type** | Presence |
| **Agenda** | * Operational concerns and planned actions on the infrastructure and applications in the form of a list by the contractor (low level) * Escalation for operational issues * Review status of the operation * Status of individual measures * Actions planned * Open points from the operation * Status optimizations * Interface to projects/other committees * Recovery test results * Capacity planning |
| **Frequency** | Weekly |
| **Participant** | * Service Manager (AN) * Service Manager (AG) * Other Relevant Roles for Operations and Support (AN/AG) |

1. Operations and Support

#### Daily Stand-Up Operations

The Contractor shall prepare, perform and follow up the said reconciliation. The list does not claim to be complete.

|  |  |
| --- | --- |
| **Duration** | Approx. 30 minutes |
| **Appointment type** | Presence, remote possible after consultation with the AG |
| **Agenda** | Reconciliation of operational aspects   * Current/urgent/short-term issues such as critical incidents. * Prio 1/ 2 Incidents of the last 24 hours (or of the last weekend) * Upcoming software deployments and emergency fixes |
| **Frequency** | Every working day (Monday - Friday) |
| **Participant** | * Service Manager (AN) * Further responsible contact persons of the CO and the CL (optional, depending on the situation) |

1. Daily Stand-Up Operations

#### Change Advisory Boards (CABs)

The Contractor must prepare, execute and post-process the content for which he is responsible for the coordination and, if necessary, evaluate the effects and dependencies of the topics discussed and derive and document the tasks relevant to him. The list does not claim to be complete.

|  |  |
| --- | --- |
| **Duration** | approx. 1-3 hours per week (the duration and number may vary) |
| **Appointment type** | Presence, remote possible after consultation with the AG |
| **Agenda** | * Presentation of planned changes (high and medium) of the CO (CO is responsible) * Presentation of planned changes (high and medium) of the AG and other commissioned third parties (AG is involved or informed) * Reconciliation of technical effects and dependencies |
| **Frequency** | weekly |
| **Participant** | * Service Manager (AN) or a meaningful role of the AN. * Deployment Coordinator (AG) |

1. Change Advisory Boards (CABs)

#### Incident, service request and problem review meetings

Within the scope of the incident, service request and problem management processes, several consultations with the client are necessary on a weekly basis.

The Contractor must prepare, perform and follow up the reconciliations. The list does not claim to be complete.

|  |  |
| --- | --- |
| **Duration** | approx. 5-10 hours per week (the duration and number may vary) |
| **Appointment type** | Presence, remote possible after consultation with the AG |
| **Agenda** | * Incident Management / Request Fulfillment   + Discussion of current incidents/service requests   + Tickets: special cases, long runners, reopening   + Coordination of measures and workarounds   + Follow-up of resolved incidents   + Presentation of KPI or SLA achievement * Problem management   + Tickets: long runner, measures to Major Incident   + Identification of necessary measures   + Root Cause Analysis Results   + Discussion of current problems   + Prioritization of problems   + Potential new problems   + Review of solved problems   + Presentation of KPI or SLA achievement |
| **Frequency** | weekly |
| **Participant** | * Service Manager (AN) or a meaningful role of the AN. * Critical Incident Manager (AN) * Service Manager (AG) * Major Incident Manager (AG) * Further responsible contact persons of the CO and the CL (optional, depending on the situation) |

1. Incident, service request and problem review meetings

#### Prio 1 and Prio 2 Review Meeting

The Contractor must prepare, execute and post-process the content for which he is responsible for the coordination and, if necessary, evaluate the effects and dependencies of the topics discussed and derive and document the tasks relevant to him. The list does not claim to be complete.

|  |  |
| --- | --- |
| **Duration** | According to demand |
| **Appointment type** | Remote |
| **Agenda** | * Current Prio 1 and Prio 2 tickets / problems * Identification of necessary measures |
| **Frequency** | following / on the next day (AT) of a Prio 1 and Prio 2 Incident |
| **Participant** | * Service Manager (AN) * Critical Incident Manager (AN) * Major Incident Manager (AG) * Problem Manager (AG) * All other relevant roles as required (AN/AG) |

1. Prio 1 and Prio 2 Review Meeting

#### Monitoring Meeting

The Contractor must prepare, execute and post-process the content for which he is responsible for the coordination and, if necessary, evaluate the effects and dependencies of the topics discussed and derive and document the tasks relevant to him. The list does not claim to be complete. The meeting is initiated by the AG.

|  |  |
| --- | --- |
| **Duration** | 1 hour |
| **Appointment type** | Remote |
| **Agenda** | * Current status dashboards and monitoring tools * Requirements management for monitoring processes and tools * Best practices * Identification of necessary measures |
| **Frequency** | Weekly |
| **Participant** | * Service Manager (AN) * Product Owner (AG) * Service Owner (AG) * All other relevant roles as required (AG/AN) |

1. Monitoring Meeting

### Escalation management

Service escalations occur when service level overruns occur repeatedly or persistently, or the service quality as a whole does not meet requirements. Financial escalations occur when the measurement or invoice cannot be mutually agreed upon. Project escalations occur when deadlines, times or costs defined in the project order are not met.

Escalation levels 1, 2 and 3 occur in the following cases:

Escalation level 1: Exceeding the KPIs defined in the Service Level chapter, according to the processes described there, or general problem with the quality of the service or project activities.

Escalation level 2: Escalation level 2 is used when escalations of level 1 occur repeatedly or permanently or cannot be resolved.

Escalation level 3: Escalation level 3 is used if permanent violations of escalation level 1 occur and no solution could be brought about in escalation level 2 either. In addition, escalation level 3 classifications take place if the faults are particularly significant for service delivery, service quality or the goals to be achieved with the service.

The escalation scenarios can be further adapted and optimized during the fade-in phase. However, the escalation procedure described here must at least be adhered to in each case. If nothing else is defined in the Fade-IN phase, all roles of the CL can address each escalation role of the CO.

The Service Manager must ensure that, in the event of escalation, the contact person with authority to issue instructions from the same company hierarchy acts on the part of the Contractor.

### Documentation

All activities, procedural instructions, responsibilities, task and process descriptions as well as tools and resources required within the scope of the service shall be documented and maintained by the Contractor in the service documentation system specified by the Client at a high quality level.

The Contractor shall grant the Client permanent access to the aforementioned documentation.

The documentation and all works created with this order shall become the property of the Client after creation. The Client shall have the sole right of use to the documentation after the end of the contract.

During the fade-in phase, the Contractor must agree with the Client which tools are to be used for which documentation at the Client.

Furthermore, he shall specify where gaps exist in the necessary documentation. The Contractor shall close these gaps with its own methods after consultation with the Client.

For this purpose, the Contractor may or must introduce its own tools free of charge and use the documentation tools available at the Client as a supplement. Data stored there shall be handed over to the Client at the end of the contract in a standard format (csv etc.) without being requested to do so.

#### Documentation of activities (processes)

The Contractor must create activity documentation for each task that has not yet been documented. This documentation must show all steps in the correct sequence and with the tools and interfaces to be used.

#### Documentation of the systems (topics)

The Contractor is obliged to carry out the continuous documentation of the technical systems. This documentation shall be handed over to the Client continuously and electronically. For this purpose, the Contractor shall apply the tools, procedures and processes used by the Client.

#### CI documentation (CMS/CMDB)

The Contractor shall ensure complete and uninterrupted documentation of all configuration items (CI) of its service. This documentation must be carried out in each case when the activities are completed.

Furthermore, the Contractor must ensure that the information stored in the central data collection is also used for all activities that require this information. For this purpose, filling and using processes are to be defined and corresponding instructions for the service-providing personnel are to be created.

To accomplish this, the Contractor shall perform the following activities:

* Specification of work steps in all relevant processes that are considered filling processes within the scope of CI capture.
* Maintain/update tools to be used for documentation.
* Definition of the steps to be performed for the documentation.
* Description of the work steps in the performance documentation.
* Instruction of the personnel in the work steps.
* ongoing quality assurance.

The same activities are to be specified for the using processes. These are also to be marked in the process plans and the corresponding instructions developed, trained and checked for sustainability.

In the documentation of this specification, the term CMDB is used as a comprehensive data collection of all configuration items. It is not assumed here that this is a tool. Rather, it is assumed that a collection of tools and documentation components is used in total as a CMDB.

In the fade-in phase, the Contractor must agree with the Client which tools are to be used for which tasks at the Client.

Furthermore, the Contractor shall specify where gaps exist in the necessary documentation and the tools provided by the Customer. The Contractor shall close these gaps with its own methods after consultation with the Client.

The Contractor shall ensure that complete CI documentation is carried out in the Customer's tools (as far as possible).

#### Performance documentation

The Contractor undertakes to continue/update the existing documentation.

The Contractor is the "owner of the document" of the performance documentation, even after its creation. However, the performance documentation shall remain the property of the Client. It shall be presented to the latter upon request or handed over upon termination of the contractual relationship.

The Contractor is responsible for knowledge management, knowledge transfer and overall documentation of the service, service processes and service systems.

The Client shall specify the structure and the basic contents of the performance documentation. The Contractor has the task of keeping the performance documentation on the basis of this structure. The following process is defined for this purpose:

* The Client shall specify to the Contractor the sequence of topics, services and chapters to be included by the Contractor in the service documentation.
* The Contractor presents a draft concept to the Client.
* The Client and the Contractor shall reach a mutually agreed decision on the final content.
* The Contractor adapts the concept and inserts the final version into the performance documentation.

The defined content is to be applied bindingly for both parties.

##### Performance Documentation Development, Testing and Software Maintenance (LCM)

The Contractor shall be responsible for the creation of all development-related and acceptance-relevant documentation (quality gates). The creation and maintenance shall be carried out in accordance with the customer's specifications and in the specified tool.

Development documents include the following analysis or work products:

* Module specifications
* Concepts including functional architecture and security requirements
* Release Notes
* Installation Guides
* Risk Acceptance Criterion (RAC), if required
* List of source code changes
* Documentation according to ASPICE (Workproducts and Process outcomes)

The customer expects the contractor to provide complete and coherent ticket documentation. The activities performed as well as the status of the current activities must be visible to the customer at any time in the corresponding ticket, e.g.

* Are all deploymen tickets processed listed in the acceptance?
* Are test tasks present, filled and closed at the deployment ticks?
* Are all processed tickets from the backlog (e.g. REQs, user story, CR) listed in the acceptance?
* Are all test cases linked to the respective processed ticket from the backlog?
* Are all processed tickets linked to the respective processed ticket from the backlog?
* Are all regression tests listed?
* Have all LuP tests been listed and performed?

##### Performance documentation Operations and Support

The Contractor shall be obliged to prepare an operations manual (Omanual) for the contents relevant to the contract. In doing so, the Contractor shall follow the exact nomenclature specifications of the examples provided by the Client (trade description, process description, process plan, task list, task description, etc.).

If operating manuals already exist, their contents and design specifications shall apply. The operating manual shall be created by the Contractor in tools provided by the Client; a corresponding definition shall take place at the beginning of the fade-in phase. The described trades and processes shall be concretized and specified by the Contractor in such a way that they can be documented in a structured operations manual. The Contractor shall assume this task within the Fade-IN phase and complete it successfully.

Furthermore, the Contractor shall ensure the continuous maintenance and continuation of the operating manual within the operating phase. Changes (at the request of the customer or due to changes in the service) must be incorporated into the operations manual within the service level specifications.

The operating manual shall be created and maintained in the Client's systems so that access by the Contractor as well as the Client and other authorized third parties is possible at any time.

The Contractor shall obtain at its own expense an appropriate qualification on the system in order to be able to perform the tasks assigned to it in the required quality.

### Reporting

The Contractor shall develop a suitable reporting system for its services. For this purpose, the Contractor shall be guided by the specifications and, in particular, by the processes and work steps defined therein. On the basis of the contents described therein, the Contractor shall determine which reports are to be delivered by the Contractor to the Client. The Contractor shall submit this list to the Client in the fade-in phase.

In this list, the Contractor shall identify and qualify the required reports.

After defining the process for which the report is to be used, its unique designation is given. The interval at which the report is to be prepared regularly is also defined. The deadline specifies the point in time by which the report must be submitted to the client at the latest. The type defines in which medium / format the report is to be created. Besides "PDF", other office formats, portals or cockpit representations are also possible. The presentation of the reports does not have to be static and can change according to the requirements of the AG during the contract period. In the case of distribution, the medium of communication specifies how the storage location is defined and where the results must be stored in a structured manner. The creator of the reports is basically the contractor. The recipient is defined by the AG for each report. During the Fade-IN phase, the content is defined for each report.

In addition to the defined reports in the processes, further reports can be defined at the instigation of the Client if they relate to the context of the Contractor's service. Furthermore, summary reports, which refer to the input from several processes, can be defined. Some of these additional reports are already entered in the table.

During the fade-in phase, the customer will review the corresponding list and correct it, if necessary, so that the result is a mutually agreed reporting structure. The Contractor shall implement and apply this structure.

The Contractor shall develop and establish a suitable methodology to enable reporting. The Client assumes that automated processes and software systems will be used as far as possible.

The Contractor must take into account that some raw data, e.g. for incident, change, problem and service request management, must be taken from the Client's tools and that these serve as the basis for the reports. For other processes and procedures, which may not be recorded or measured using the customer's tools, the contractor must develop its own methodology for the collection of raw data, which is used to generate the report.

The reports, reports and evaluations to be prepared by the Contractor are defined in Appendix H.

### Tools

In the following, tools are defined as tools and aids that are required in the broadest sense to provide the services defined in these specifications or to support their provision. The tools include systems that support and enable the technical activities, but also documentation, accounting and control tools. The requirements for these tools are derived from the specifications and the technologies and activities defined here.

The CL shall provide some of the necessary tools for the performance of the service on a mandatory or optional basis. The Contractor shall identify and close the respective gaps itself. The implementation of additional tools always requires the prior approval of the Client.

As a result of the Fade-IN phase, a complete tool landscape has been implemented, which enables the complete processing of the deliverables of this specification. To ensure this, the methodology defined below must be applied.

All data belong to the AG and must be handed over.

#### Tool Review

Furthermore, the Contractor uses the tools of the Client presented in the following chapter and assigns them to the necessary activities. For this purpose, the Contractor must take into account the extent to which the tools provided by the Client are or must be used on a 1:1 basis or the extent to which these tools provided by the Client can or must be adapted for the specific task.

Customizing refers to the tool functions, not to the content, the data in the tool. These must always be adapted to the task.

#### Tool provision by the AG

In addition, the tools are listed that are provided by the customer as mandatory or optional. Furthermore, it is defined which tools are to be used 1:1 or whether they can or must be adapted.

In the case of optional tools, the Contractor can decide for itself to what extent it implements these tools in its service organization or, if necessary, ensures this function with its own resources.

The tools listed below do not claim to be complete at this time.

Tools can be extended or modified if required and after consultation between the contractor and the customer.

| **Tool-**  **Designation** | **Brief description** | **1:1** | **an-**  **pass-bar** | **Engaging** | **optional** |
| --- | --- | --- | --- | --- | --- |
| Atlassian Confluence | Collaboration tool / documentation tool, e.g. for certificate and license management |  | x | x |  |
| Atlassian Jira | Ticket Tool (for some activities outside of pure service management) |  | x | x |  |
| HP Service Center 3 | ITSM tool of the AG | x |  | x |  |
| CA-APM | Application Performance Monitoring Tool Group Tool |  | x | x |  |
| Dynatrace | Application Performance Monitoring Tool |  | x | x |  |
| Grafana | Monitoring visualization tool |  | x | x |  |
| Splunk | Monitoring logging |  | x | x |  |
| Kibana (ELK Stack) | Monitoring logging |  | x | x |  |
| SPEAK/SMILE | Group monitoring tool |  |  |  | x |
| Heartbeat | Monitoring Tool |  |  |  | x |
| XRAY | Addon to JIRA |  | x | x |  |
| ConnecTat | Testing tool  Tool to test REST interfaces. These tests are already automated in the pipeline and are described as an XRAY. | x |  | x |  |
| Contest | Tool to test REST interfaces. The tool is available as source code in Bitbucket and as a description in XRAY. These tests are already automated in the pipeline and are described as an XRAY. |  | x | x |  |
| Gauge | Testing tool for REST interfaces, opensource, mainly for functional smoketests |  | x | x |  |
| TaaS | Testing tool + load generator for non-functional tests. Basically it consists of JMeter and load generators. The source code is available in Bitbucket. |  |  | x |  |
| Cucumber | Testing tool,  Opernsource, is available as source code in Bitbucket and as description in XRAY. |  | x | x |  |
| Selenium / Selenium GRID | OpenSource  Testing tool for testing GUIs |  |  | x |  |
| KPM | VW Group tool to support the fault clearance process (FAP) and Group problem management process (Tickettool) | x |  | x |  |
| Swagger Hub | Information source for interface descriptions |  |  |  |  |
| Concourse | Concourse is a pipeline-based, continuous program. |  |  | x |  |
| Jenkins | Open source automation server |  |  | x |  |
| Bitbucket | Bitbucket is a web-based online version management service for software development projects. |  |  | x |  |
| SonarQube | SonarQube is a platform for static analysis and evaluation of the technical quality of source code. |  |  | x |  |
| Black Duck | Solution for managing security, license compliance, and code quality risks arising from the use of open source in applications and containers. |  |  | x |  |
| Tableau | Tool for data visualization of reports |  |  | x |  |
| Teams Scale | Tool for viewing and determining test gaps for the AG | x |  | x |  |

1. Tools

##### Test tools

The AG currently has various test tools in use. The AG strives for a harmonized tool landscape for testing. The following premises have to be considered:

* Open source/ standard solution
* State of the Art
* Decoupling of expertise and framework
* Decoupling from temporal integration
* Tests must be reproducible
* Tests must be independent

The Contractor has already described its proposed solution for a uniform tool landscape in its offer.

### Auxiliary means

#### Means of communication

The Customer assumes that parts of the Service can be provided remotely. For this purpose, suitable communication solutions shall be provided by the Contractor to enable meaningful communication between the Contractor and the Client. In this context, the Client expects at least:

* a web conferencing solution (desk sharing) or
* a telephone conference solution.

Further means of communication must be provided by the Contractor in accordance with the state of the art and in consideration of the task.

#### ITSM tool

The ITSM tool used by the customer shall be used for the ITSM processes. The system is used to record, forward, process, track and document incidents, problems, changes, releases and service requests. The ITSM tool used by the Client must be used. Automatic online interfaces to the Contractor's own systems are not permitted.

Knowledge of the client's ITSM tool is assumed by the employees deployed by the contractor.

## Responsibilities

The fulfillment of the services described in these specifications must be guaranteed within the specified time period.

A substitute arrangement must be guaranteed, and a reduction in the scope of services will not be accepted.

The Contractor shall be responsible for ensuring that the specified services are performed and provided in a professional and qualitatively flawless manner.

Before signing the contract, the Contractor shall point out to the Client any ambiguities, missing contents, deviations and contradictions in the services described. He has to qualify this hint with the specification of the thematic and/or procedural content, the quantities and the financial value. Delays caused by the Contractor which lead to additional costs shall be borne by the Contractor.

## Performance period

The following subsections describe the contract terms.

Ein Bild, das Text, Monitor, Screenshot, Bildschirm enthält.

Automatisch generierte Beschreibung

1. Overview contract duration and phases

### Start of contract

The contract starts on 01.07.2022 with the beginning of the Fade-IN phase. The Fade-IN phase is planned for three months. After three months, on 01.10.2022, the full service responsibility according to this service description will start for the Contractor.

### End of contract

The contract ends on June 30, 2027, without the need for termination.

### Contract extension

A contract extension by the AG for a period of 6 months is possible.

This extension can be called a maximum of 6 times. Details will be jointly defined after prior notice (at least 3 months before the end of the contract).

A fundamental right of objection of the Contractor is excluded.

## General conditions to be complied with, standards, technical guidelines, operating equipment regulations, etc.

The Contractor shall ensure that it always obtains knowledge of the current and valid versions of the Client's data protection and IT security provisions and, in particular, other special regulations (e.g. compliance requirements) and complies with them accordingly, inter alia

* Cyber Security Requirements (CSGA)
* Group Basic Requirements Software (KGAS)
* Requirements to UNECE: UNR 155 CSMS as well as UNR 156 SUMS
* Requirements of the EU-DGSVO and the BDSG

## Service provision

The scope of services is usually provided remotely on the Contractor's premises, therefore there is no binding definition of the place of performance. The Client shall not make any premises available to the Contractor. Exceptions to this are the transition phases and planned on-site appointments.

On-site appointments will usually take place in Ingolstadt at the premises of the AG, participation via the AG's telecommunications solution (Microsoft Teams) is possible after prior coordination with the AG. Appointments at other locations, at the request of the AG, are not excluded.

When selecting the place of performance, the Contractor must observe the applicable data protection directives and laws and ensure that it does not thereby suffer any disadvantages or restrictions in the provision of its services. The place of performance may in no case be located in unsafe third countries (according to the GDPR).

All access authorizations to the Client's systems required for the performance of the services shall be provided by the Client to the extent necessary prior to the start of the project. The Contractor shall generally provide the services using its own work equipment and materials. The use of work equipment and areas of the Client shall be subject to a charge, unless otherwise agreed.

In their correspondence with the Client and as soon as they make contact with third parties on behalf of the Client, the Contractor's personnel shall always indicate that they are working on the basis of a contractual relationship between the Contractor and the Client.

### Contractor location

The Contractor shall provide suitable premises (e.g. co-location) for face-to-face meetings with the Client within a radius of max. 100 km around Ingolstadt. The Contractor shall provide information on this in its offer.

# General order contents

## Scope of application, conclusion of contract

"Contractual provisions" are all provisions between the Client and the Contractor that are either contained in the contract for the service itself or in documents referred to directly or indirectly by the contract.

The conclusion of the contract for the service shall take place within the framework of the procurement process of the AG with the inclusion of the purchasing conditions of Volkswagen AG, whereby any reference to Volkswagen AG shall then be understood as a reference to CARIAD SE.

The nature and scope of performance as part of the contractual arrangements shall be governed by these specifications, unless a matter is individually negotiated and expressly agreed otherwise in writing.

The Contractor's rights and obligations under the general statutory provisions shall remain unaffected unless otherwise agreed.

## Responsibility, information obligations and cooperation

The Contractor shall perform its services independently, on its own responsibility, results-oriented and exclusively with its own qualified personnel. The Contractor shall provide its services in accordance with the current state of science and technology and in accordance with the principles of proper professional practice, including documentation.

Any technical, professional or other requirements of the Principal shall not release the Contractor from its obligation and responsibility for complete and faultless performance of its services. The Contractor is permitted to involve subcontractors in the provision of services in coordination with the Client.

The Contractor undertakes to train its employees in accordance with the current state of the art and the applicable regulations and standards for the performance of the activities agreed in the order on high-voltage vehicles. Furthermore, proof of the above-mentioned qualifications must be provided upon request by the competent body.





The employees deployed by the Contractor shall be subject solely to the Contractor's right to issue instructions. The Contractor shall ensure that the right to issue instructions is exercised exclusively by him.

Coordination meetings on the content and implementation of the service provision take place between the coordinators of the contractual partners at regular intervals. Questions regarding the implementation of the contract and the provision of services are to be clarified exclusively by the respective coordinators or the contractual partners.

The Client shall coordinate concretizations and changes regarding the service to be provided exclusively with the Contractor's coordinator.

## Performance deadlines

The agreed performance deadlines and schedules are binding. In these schedules are

final dates and, if applicable, intermediate dates; they can only be included in writing.

and amended by mutual agreement.

## Performance change

The written agreement must contain statements on the following points: Description of the scope of services, remuneration (with written offsetting of increases and reductions), schedules and execution deadlines, as well as any other contractual provisions.

## New requirements

The AG plans to continuously optimize and expand its overall service and, as a result, its system architecture as well as its processes and workflows. This is done within the normal framework of service optimization and further development.

New requirements are understood to be, for example, major strategic changes as well as completely new service components and orientations.

This may result in new service requirements or new services, e.g. addition of new platform and fundamentally new technologies.

The Contractor must be able to accompany and implement these continuous improvements and enhancements. The agreement of new requirements and services takes place within the change control procedure.

The change control procedure applies to the agreement of new services as well as in all other cases in which the contract prescribes the application of the change control procedure, e.g. if

* the structure or parameters of the pricing model are changed or
* the service descriptions are changed
* in the event of changes to the service level management or
* on the reference user stories.

The change control procedure does not apply

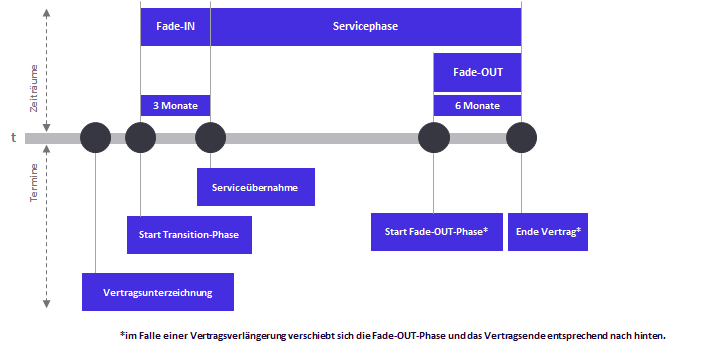
* when adding or logging off services
* for adjustments as described in chapter xx

The change control procedure is initiated by one party submitting a change request. Each party shall process a change request of the other party without undue delay. The change control procedure ends in the event of agreement between the parties.

The change control procedure is designed by mutual agreement as part of the fade-in phase.

## Transition phases

Transition phases are periods of time that occur before the actual contract term and at the end of the contract term. The services to be provided in the transition phases supplement the services that constitute the actual content of the contract.



1. Transition phases

The period before the actual start of the contract is the Fade-IN phase. The purpose of the Fade-IN phase is to complete all necessary preparatory activities required for secure and stable operation. In particular, the Contractor shall also plan and take into account the necessary coordination and change processes at the Client's when adapting and implementing the Client's tools in its service and support organization.

At the end of the contract term, the fade-out phase begins in addition to SLA-compliant operation. During the fade-out phase, knowledge is transferred and documentation and descriptions (service documentation) are handed over from the contractor to the customer. In principle, the customer can also define a third party as the recipient of data and information.

In any case, the Contractor shall be obliged to provide both the Client and a third party designated by the Client with the necessary information as defined in these specifications.

### Fade-IN phase

At the start of this phase, the customer hands over to the contractor the detailed processes in the context of this performance specification, which the contractor must establish and operationalize as part of the fade-in phase. Furthermore, he must take up and further detail this in his operational documentation.

In the Fade-IN phase, the Contractor shall fully develop its service organization. At the end of the Fade-IN phase, it must be able to provide the contractually agreed scope of services completely and independently. The content of this phase also includes, in particular, the qualification and instruction of the scheduled personnel.

The activities described in these specifications require implementation of the topics and processes and familiarization of the contractor. In addition to knowledge of the products and systems used by the customer, familiarization with the configurations and processes is required.

For this purpose, the Contractor shall prepare a transition plan that ensures the transfer of responsibility.

During the transition, the CO will implement the following goals, among others:

* All organizational measures such as access authorizations
* Establishing the ability to work of all employees of the Contractor in this trade
* Documentation viewed
* Service level measurement established
* Required reporting set up and established
* Knowledge platform adopted
* Documentation transferred to a knowledge platform
* Organizational structure established
* Processes implemented and operationalized
* Organization and roles staffed, established and documented
* Handover workshops with the handing over entities in the premises of the AG
* Definition of the billing process
* Confirmation of acceptance of responsibility of all contents in the context of this performance specification

The Contractor shall be solely responsible for the detailed planning and implementation of the fade-in phase within the specified period. The Client shall support the Contractor in this respect.

Only when the above-mentioned points and defined milestones of the transition plan have been successfully implemented from the AG's point of view can the service takeover take place.

After an initial familiarization phase, the Contractor is expected to relieve the Client's or the previous Contractor's personnel in regular operations at an early stage during the fade-in phase after four weeks. The personnel capacity freed up at the Client or the previous Contractor is to be used for the transfer of know-how from the Client or the previous Contractor to the Contractor.

#### Critical milestones within the Fade-IN phase

This chapter contains the qualitative description of the critical milestones and some acceptance criteria. The Contractor must define further quality criteria as part of the transition.

The CL reserves the right to review critical milestones within ten (10) working days. If the CL rejects the critical milestones, it shall provide the CO with a list of identified defects. The Contractor shall remedy these defects prior to acceptance. Once the CO re-releases the critical milestones for acceptance, the CL shall again have ten (10) working days for review and acceptance. This process shall be repeated until the critical milestones are released by the CL.

##### Implementation of transition workshops

The Contractor shall conduct workshops to specify technical, process and organizational requirements. The first initial transition workshop must take place no later than 14 days after signing the contract.

**Acceptance criteria**

* Workshops conducted

##### Completion of the detailed transition plan on schedule

The Contractor shall develop and deliver a detailed transition plan to be approved by the Customer. Based on this detailed transition plan, the Contractor shall carry out the transition of all affected services.

The description of the transition and the associated detailed plan shall be updated in close coordination with the AG before the expiry of two weeks after the start of the transition and shall be submitted to the AG for approval in a format approved by the AG.

The results of the Transition Workshops are summarized by the CO in the Transition Plan on an ongoing basis and kept up to date.

The Transition Plan includes all critical milestones, organizational issues, all processes and deliverables of the migration.

**Acceptance criteria**

* The transition plan includes all critical milestones, organizational topics and all migration processes. These are planned and described both in terms of time and content.
* The detailed transition plan was prepared by the Contractor and mutually agreed with the Client.

##### Timely completion of acceptance criteria for critical milestones.

The Contractor shall submit the acceptance criteria for the critical milestones to the Client for approval. The description of the acceptance criteria shall be submitted in the Transition Plan to the CL for approval in an approved format before the expiry of two weeks after the start of the transition.

**Acceptance criteria**

* For each more critical milestone, a written deliverable was recorded that (at a minimum) met the appropriate acceptance criteria.
* The acceptance procedure for the critical milestones was specified and recorded.
* An acceptance manager has been defined for each critical milestone. The responsibility for acceptance coordination lies with the transition manager.
* For each of the more critical milestones, a handover date was communicated to the acceptance manager with a date correspondingly earlier than the target date to allow for review by the acceptance manager.
* This result was accepted by the AG.

##### On-time availability of the governance and service management organization for service delivery already in transition

The Contractor shall ensure that the governance and service management organization for the Delivery is already established and available in the Transition by the date agreed with the Customer in accordance with the Transition Plan.

This requires that the Contractor submits correctly completed applications for the accesses (contractor passes) and accesses/authorizations for tools/systems required for the performance of services to the Client for approval at an early stage, no later than 14 days after the award of contract.

**Acceptance criteria**

* The defined roles and positions of the Contractor are filled and trained to the framework conditions at the Client.
* The required meetings and committees were detailed and described in writing in terms of composition, purpose, agenda, and responsibilities.
* The groups of people are known and have been informed about their roles and responsibilities.
* Applications for the accesses (external company passes) and accesses/authorizations for tools/systems required for the performance of services have been received by the Client in due time.

##### Implementation of the escalation procedures to be followed

The Contractor shall ensure that it has implemented the agreed escalation procedures in its process landscape.

**Acceptance criteria**

* The escalation process for the transition as well as for the service delivery is recorded in writing.
* The roles involved are assigned people.
* The documentation of the escalation process was presented and made available to the persons involved.
* Consent was obtained from the parties involved.

##### Knowledge transfer checklist created per area

The Contractor shall provide the Client with a current checklist of the knowledge transfer activities and results planned and required by the Contractor.

The checklist must, according to the specifications, plan, support and document the knowledge transfer per trade and process (also includes a time schedule).

**Acceptance criteria**

* The knowledge transfer list has been coordinated with the AG and the previous service provider and is available to them.

##### Completion of the DevOps concept

The Contractor creates a detailed DevOps concept.

**Acceptance criteria**

* The DevOps concept was created and mutually agreed with the AG.

##### Completion end-to-end concept

The Contractor shall prepare an end-to-end concept for measuring end-to-end responsibility and generating and tracking messages in the event of any failures so that end-to-end responsibility is sustained and end-to-end availability can be restored as quickly as possible. The concept must also describe how the CO can coordinate and control failures that are outside of his responsibility but that affect the customer experience.

The end-to-end concept must be implemented by the end of the fade-in phase.

**Acceptance criteria**

* The end-to-end concept was prepared on time and agreed with the AG.

##### Timely integration of service processes

The Contractor shall ensure that it has completed the integration of the AG Service processes and workflows into its process landscape.

**Acceptance criteria**

* Service processes implemented, documented and approved

##### Timely submission of the concept test frameworks

The Contractor shall provide the Client with a concept regarding the test framework to be created in terms of architecture and leveraging synergies based on the tools awarded by the Client no later than 4 weeks after the contract is awarded.

**Acceptance criteria**

* A detailed plan for the realization of the concept, including a defined schedule and milestones, must be presented to the customer at the latest 14 days after the concept has been approved as part of the test framework meeting.

##### Development Service Reporting

The Contractor shall ensure that all required reports are implemented and reported in a format as specified by the Client.

**Acceptance criteria**

* All relevant service levels have a coordinated reporting format.
* Performance acceptance documents were prepared and reconciled.
* The authorized signatories, process owners and participants have been named.
* Any clarifications and extensions or additions to the service levels were recorded in a document.

##### Documentation completed

The Contractor shall ensure that all documentation (incl. knowledge management entries) and manuals are completed in accordance with the Client's specifications and handed over to the Client.

**Acceptance criteria**

* The documentation structure was created by the contractor during the transition and released by the customer.
* The storage location for the documentation has been defined.
* Templates were created by the contractor and approved by the customer.
* Gaps in the documentation were filled by the Contractor and existing documentation was updated.
* The documentation is complete and has been accepted by the customer.
* The provision and maintenance of the knowledge management entries have taken place.

##### Timely implementation of activity allocation reporting

The Contractor shall ensure that all required and necessary financial reports are implemented and reported in a format as specified by the Client.

**Acceptance criteria**

* All relevant financial management reports.
* Descriptions of reports have an agreed report form.
* In case of ambiguities or vagueness in the procedure of measurement or determination of the values, a written explanation is available in a central document.
* Performance acceptance documents were prepared and reconciled.
* The authorized signatories and persons responsible for acceptance have been named.

##### Transition of the service in accordance with the agreement

The Contractor shall ensure that, in accordance with the agreed Transition Plan, all contents agreed for the Fade-IN phase have been fulfilled, i.e. critical milestones as well as all activities to be performed within the Fade-IN phase according to these specifications, and that the transition is completed within the specified time.

**Acceptance criteria**

* The transition has been successfully completed, i.e. all activities to be performed within the Fade-IN phase have been provided and successfully completed.

### Fade-OUT phase

Six months before the end of the contract, the termination service of the Contractor shall commence. In the last three months of the contract period, the Contractor shall cooperate with the successor service provider named by the Client in order to support the smooth transfer of service provision to the latter. This shall only apply if it is not an extension on a new contract basis.

The Contractor is expected to proactively cooperate in the fade-out phase of the termination service, including know-how transfer and parallel service.

The familiarization of the new Contractor by the Contractor shall take place in accordance with a handover and time schedule to be agreed in advance between the Client, Contractor and the new Contractor. This handover and time schedule shall be drawn up by the Contractor by the beginning of the fade-out phase at the latest and shall be agreed with the Client and/or the new service provider.

Termination services are expected from the previous CO. These include:

* Collaboration in the handover project and participation in the preparation of the handover plan
* Provision of the necessary resources
* Handover of the complete documentation
* Follow-up documentation in case of incomplete, missing, non-up-to-date and/or incorrect documentation
* Support during the transfer of responsibility to the new service provider or the AG
* Handover of ongoing tasks and projects to the new service provider or the AG
* Joint definition of a "frozen" zone for the start of new projects with the AG
* Reduction of technical interfaces, if necessary
* Migration of data/data relocation
* Knowledge transfer to the successor service provider, if necessary also through
* Work shadowing
* Employees of the future service provider acquire the necessary knowledge for the provision of services by accompanying employees of the Contractor during the provision of services. The Contractor's employees must explain their activities and be available for queries.
* Reverse Shadowing
* Here, employees of the future service provider carry out the activities for service provision, while employees of the contractor support them, intervene in a corrective manner and are available for questions.
* Workshops
* Support of trial runs of the successor service provider
* All other activities necessary for the successor to be able to take over the IT service with the same quality without interruption.

### Transition Manager

The Transition Manager is a role limited to the duration of the Fade-IN and -OUT phase. He is responsible for the Fade-IN and -OUT phase of the transition and controls all activities of the Contractor that are necessary to take over or hand over the service. Furthermore, he is responsible for the information of the customer.

The role must be named. The staffing of the role may not be changed without compelling reason. The Transition Manager is responsible until the fade-IIN phase is transferred to regular service, including coordination of remediation of deficiencies identified at the time of transfer.

## Service level

The table attached as Annex I contains all service level targets applicable within the scope of service provision. The target values to be achieved are named "**Expected Service Levels".**

The Contractor must take all possible measures to meet the service level requirements. To this end, the Contractor must also ensure that the service level requirements are measured in a verifiable manner and submit this information to the Client. This will be done both in a planned manner at regular intervals in meetings and reports, but also in an unplanned manner at the request of the customer.

The Contractor is responsible for the

* Data acquisition,
* Data Consolidation,
* Key Figure Determination,
* Reporting,
* Development of measures and
* Archiving

of key figures and their results on the basis of the service level specifications defined below. The exact measurement method and measurement points are defined jointly between the customer and the contractor in the fade-in phase and documented by the contractor.

All key figures shall be presented in the service review report. The Contractor shall prepare the contents, the form and the layout of the report as a report template and submit it to the Client for review. After approval of the template by the Client, the Contractor shall implement the report and provide it at the defined interval.

The Client reserves the right to supplement the list of service level specifications in consultation with the Contractor.

### Times

The definition of the times forms the framework for the service provision and the measurement of the key figures. Technical and personnel availability must be ensured within the times.

A substitute arrangement for staff availability in the event of vacation, illness and other absences must be ensured.

|  |  |  |
| --- | --- | --- |
| **Measurement object** | **Definition** | **Service level** |
| **System time (technical)** | The system time is the time in which the technical components and systems and the service objects of the service are available. | **Mon - Sun**  **from 00:00 to 24:00**  **incl. Sundays and holidays** |
| **Service time (personnel)** | All activities and service levels from the processes are to be ensured during the service time. The service time applies to all activities of the described scope of services of the Contractor. | **Mon - Sun**  **from 00:00 to 24:00**  **incl. Sundays and holidays** |

1. Times

Working days are understood as Monday to Friday excl. public holidays.

### Critical Service Levels (KSL) and Key Measurements (KM)

The AG distinguishes between Critical Service Levels (KSL) and Key Measurements (KM). Critical Service Levels (KSL) are service levels for which service level credits (penalties) can be agreed.

Key Measurements (KM) are service levels for which no service level credit is due if they are not met, but which are important for the business operations of the AG.

If the defined target values of one or more KSL are not achieved, the Contractor shall immediately define and implement measures to remedy this deficiency. To this end, the Contractor shall immediately set up one or more internal projects with the aim of identifying the causes of the non-compliance within a maximum of one week and developing a plan to eliminate them.

Expenses for these projects shall be borne by the Contractor. The projects must not result in any capacity bottlenecks that affect the regular service and are related to the implementation of these projects.

The results of the project planning shall be presented to the AG in appropriately convened meetings.

The Contractor must implement the measures within a maximum of a further four weeks in order to return to the agreed service quality. As a result of the implementation of the measures, all service levels must be complied with again.

If Critical Service Levels are not complied with despite the Contractor taking measures, the Client may arrange for the Contractor to pay a penalty (so-called "Service Level Credits"). The exact amount is determined for each Service Level Specification (KSL). However, the total of all penalties shall not exceed 8% of the amounts incurred in the month under consideration.

During the term of the contract, the AG may change the classification of Critical Service Levels and Key Measurements. This may occur, for example, in connection with changes in the environment of the Services, the introduction of new equipment, new software or new procedures for the Services.

### Transfer date

Active measurement of the agreed service levels takes place from the handover date.

The handover date is the date on which the Contractor assumes full responsibility for the Services described in the Contract.

The transfer date depends on the fade-IN phase and is defined there.

The Contractor shall establish and pilot service level measurement and reporting as early as the Fade-IN phase.

## Remuneration

Payment for services will be made according to a payment schedule established at the beginning of the contract, taking into account milestone or service sections.

The order value includes all ancillary costs. Likewise, all expenses and costs not expressly assumed by the Client shall be borne by the Contractor and shall be compensated with the agreed price. Travel time, travel expenses and incidental expenses shall only be remunerated if this has been expressly agreed.

In the event of reductions in performance by the Client, there shall be no claim to receipt of the entire nominated order value (e.g. as a result of project cancellations).

This chapter regulates the obligations of the CL to the CO for

* the Service in accordance with this Statement of Work,
* any additional integrated projects commissioned,
* other additional services (which are not part of the contracted services) and
* the implementation of the transition phases (fade-in phase, termination services)

compensation to be paid and related performance reporting, invoicing and other compensation-related obligations.

With this price model and the amount of the remuneration to be paid defined from it, all services agreed between the Client and the Contractor are compensated.

### Pricing model

Different types of price items are defined (see Appendix J)

* Flat rate remuneration
* Remuneration per piece
* Remuneration according to time spent

Unless otherwise requested by the customer, prices shall always be quoted and invoiced in euros. The price quotations are in each case net without VAT.

The tender prices are to be entered by the Contractor in Annex J. Changes in the versioning are always to be indicated. Only a fully completed price table shall be considered valid and shall be recognized as an offer. No other price formats will be accepted.

All activities for the services described as well as any necessary supplies by the Contractor shall be included in the price items.

As a matter of principle, the Contractor must ensure that there is no "mixing" (cross-financing) between the individual price items and that no remuneration is paid in excess of the items defined in the price table. If the Contractor is of the opinion that items relating to the contents of the specifications are missing from the price table, he must point this out before the start of the contract when submitting his offer.

In Annex J, the cells marked in yellow must be filled in by the Contractor. The structure and format of Annex J may not be changed by the Contractor.

### Price positions

The following subchapters describe the various price items of the

Attachment J.

Except for the daily rates defined in the "Integrated Projects" tab, RUS prices as well as the costs of the transition phases, all price items for the two infrastructures MBB 1.5 - WebCenter and ODP 1.0 - Public Cloud are to be priced separately.

Furthermore, the prices for both the regular contract term and the contract extension must be stated.

When calculating the monthly invoice amount, the Contractor must check and observe the following rules:

* The commissioned and invoiced price items match.
* The invoiced prices for an item are in accordance with the current version of the price table.
* Each service is billed only once.

The defined meetings, roles and reports are to be included in the prices and will not be compensated separately to the Contractor.

#### Development and Testing

The pricing model is mapped via the "Reference User Stories" (RUS). These are described in more detail in Appendix P "Reference User Stories".

The Contractor shall price the RUS with all services as described in the chapters "Development" and "Testing" in the price sheet.

The CRs/features are divided into individual user stories in the story breakdown. The user stories are to be assigned to the RUS in terms of effort and released by the customer. The Contractor shall be invoiced on the basis of the negotiated prices of the respective RUS.

Billing example:

A new feature is offered and produced in story breakdown with two user stories of TYPE RUS1 and five user stories of TYPE RUS6. The total price is then determined with

**(2\*Price RUS1) + (5\* Price RUS6)**

The customer leaves the option open to make adjustments to the reference user stories during the course of the contract, e.g. changes, deletions and additions.

Remuneration to the Contractor shall be made in the form of payments on account:

**50% after functional acceptance**

**50 % after final acceptance**

#### Software maintenance (LCM)

The services and expenses of the software maintenance (LCM) shall be remunerated to the Contractor as a lump-sum monthly service. The lump-sum monthly payment does not refer to a single service, but to the sum of all services.

The lump sum shall include all expenses of the Contractor which are necessary to perform the services described in chapter "Software Maintenance (LCM)" and in chapter "Comprehensive Load and Performance Testing".

#### Operations and Support

The services and expenses for operations and support shall be remunerated to the Contractor as a lump-sum monthly payment. The lump-sum monthly payment does not refer to a single service, but to the sum of all services.

The lump sum shall include all expenses of the Contractor which are necessary to provide the services as described in chapter "Operations and Support".

#### Major Releases

Major releases (see chapter2.3.3.3.1 ) are noticeable changes for vehicle owners and therefore require precise planning. This planning, as well as the implementation (incl. pre- and post-processing) are remunerated individually.

The actual deployment of the major releases takes place within the framework of sprints and the Contractor is remunerated for this.

#### Integrated projects

A "budget framework" with a defined euro amount is agreed upon, which assures the customer that the contractor will provide services and corresponding skills to the value of this amount.

The budget framework shall be managed as a "person days contingent" and shall cover the services in integrated projects. The Contractor shall submit a separate offer to the Client for each integrated project. The preparation of these offers is free of charge for the CL.

The monthly remuneration shall be based on the actually ordered daily rates or the corresponding price volume for the performance period (month). The valid daily rates for billing are to be stored in Appendix J in the "Integrated Projects" tab.

The Contractor must always have all daily rate positions and the associated skills ready. A limitation of individual daily rate positions to a maximum number is not permitted.

#### Transition phases

The transition phases include activities to be performed at the start of the contract in the Fade-IN phase and activities to be performed at the end of the contract in the Fade-OUT phase. Like the services, the prices for the phases must therefore also be differentiated. The basic focus tasks in the phases are described in chapter "Transition phases".

The lump sums shall include all expenses of the Contractor which are necessary to perform the services described in the chapter "Transition Phases".

### More prices

#### Additional expenses

Additional expenses can only be taken into account and remunerated in exceptional cases if the Contractor is not responsible for them. An incorrect estimation of expenses by the Contractor shall in no case justify a subsequent claim for additional expenses. If additional expenses arise for which the Client is responsible, these must be credibly presented by the Contractor and reported as early as possible.

#### Other costs and incidental expenses

Travel and incidental expenses as well as other costs are not reimbursed and must be included in the price of the flat-rate service. Further regulations in this regard can be found in the Group-wide guidelines on travel expenses.

### Quantities

The following table is intended to serve as a guide for the Contractor's price calculation. The quantities are only estimates which do not represent an obligation for the customer to take delivery.

|  |  |  |
| --- | --- | --- |
| **Description** | **Reference period** | **Quantity/Piece** |
| **Tickets**   * Service Requests * Incidents * Problems * Mails * KPM | 12 months | **Service Requests:**  approx. month: 150  **Incidents:**  approx. month: 650  **Incidents[[2]](#footnote-3):**  approx. month: 1.500  **Problems[[3]](#footnote-4):**  approx. month: 70  **Problem Tasks[[4]](#footnote-5):**  approx. month: 80  **KPM Tickets**  approx. year 250 |
| **Development teams Core**  (excl. scope of testing and operations) | - | 12 teams |
| **Development teams CAR2X**  (excl. scope of testing and operations) | - | 5 teams |
| **Other services** | - | 2 teams |

1. Quantities

### Proof of performance, invoicing and due date

The Contractor shall record the services it has provided on a monthly basis using the billing process to be defined in the Fade-IIN Phase and submit this data to the Client for review.

The Contractor shall implement a standardized finance and order management system which controls all commercial processes from budget planning to invoicing in accordance with the agreed price model. The order shall be placed exclusively by the Client's contract-managing departments.

The Customer shall check the respective proof of performance internally and, if it has no objections, release it. If the Client has any objections, it shall notify the Contractor thereof and give it the opportunity to rectify the affected part of the performance record. After release of the proof of performance by the Client, the Contractor shall invoice the released amount (as a total amount).

The Contractor shall only be remunerated for services called off by the Client, as defined in the chapter "Call-off and invoicing of services".

Amounts duly invoiced shall be paid by the Client to the Contractor by the 25th (twenty-fifth) calendar day of the month following receipt of the invoice.

The Principal shall be entitled to withhold payments or to reclaim payments already made or to set them off against future invoices if an invoice of the Contractor does not comply with the requirements. The Client shall notify the Contractor of this without delay and give the Contractor the opportunity to correct the invoice so that it conforms to the contract. In any case, the Client's obligation to pay shall only arise once a correct invoice has been submitted and this has not been disputed by the Client.

The Contractor shall consistently provide the IT Services in accordance with the provisions of these specifications and shall not be entitled to discontinue the Service or to negatively modify the Service to the detriment of the Client or other service recipients, even if the Client exercises its aforementioned right.

## Proof of performance / acceptance

The Contractor shall indicate completion of the partial or total services defined in these specifications in accordance with milestones for acceptance or by means of corresponding proof of performance in writing with the invoice.

The Client shall inspect the services after notification of completion by the Contractor. The Contractor shall, at the Client's request and without separate remuneration, make the services available for acceptance and submit the necessary performance records and documents. Defects occurring during acceptance shall be recorded.

If there are only minor and insignificant defects which only insignificantly impair the intended use, the Customer shall declare acceptance. The Contractor shall immediately remedy any defects that prevent acceptance and resubmit its services for acceptance. The above provisions shall apply accordingly to a renewed acceptance. Acceptance of partial services shall not restrict the Principal from later asserting claims for defects in partial services already accepted, insofar as such defects only become apparent through the interaction of the system parts.

## General legal relations

The contractual provisions shall apply with regard to the agreed rights and obligations on topics such as disruptions to performance, third-party rights, liability and warranty as well as confidentiality and data protection.

### Warranty and liability

The Contractor undertakes to perform the services professionally and carefully. In the event of a breach of these obligations, the warranty and liability provisions of the contractual regulations shall apply.

### Third party rights

With regard to services to be provided by the Contractor, the Contractor shall ensure that the rights of third parties are not infringed in an inadmissible manner. In the event of infringements of rights, the contractual provisions shall apply.

### Secrecy and data protection

The services to be rendered on behalf of the Client are subject to confidentiality. The contractual regulations shall apply.

## Cancellation

CARIAD SE may terminate the contract at any time with a notice period of 2 weeks to the end of a month.

The Contractor may only terminate with a notice period of 2 weeks to the end of a month if the Client has committed a material breach of contract and this breach of contract is not remedied even after written notice of termination and the expiry of a reasonable period. Termination must be in writing.

Should the Client terminate the contract for a reason for which the Contractor is not responsible, the Contractor shall be entitled to the agreed remuneration for all contractual services rendered by the Contractor up to the effective date of the termination plus compensation for proven costs for the provision of personnel and materials for a period of up to one month after the effective date of the termination.

If the contract is terminated for a reason for which the Contractor is responsible, the Contractor shall only be entitled to remuneration for those parts which the Client can use sensibly and economically, at most the contractually agreed remuneration for all services recognized as being in conformity with the contract up to the time the termination takes effect. Further claims of the Contractor shall be excluded in this case. The Client shall be entitled to give partial notice of termination.

## Language

Verbal communication between the Contractor and the Client shall generally be in German or English.

Written communication between the Contractor and the Client shall be in German or English. This concerns elaborations, e-mails, tickets and the like.

Reporting as well as work and operational documentation is in English.

The Client shall specify the respective language to be used. The offer shall be submitted in German.

## Call-off and billing of services

The services shall be provided on the basis of the General Terms and Conditions of Purchase for IT Services. If the Bidder has concluded a framework agreement with the Client, the provisions of this framework agreement shall apply instead of the General Terms and Conditions of Purchase.

The call-off of services shall be made exclusively by the Client or by persons authorized by the Client. If orders are accepted by third parties (non-authorized persons) or not in accordance with the process, the Contractor shall have no claim to remuneration.

## Differentiated procurement

The contents of these service specifications may also be contracted out to other service providers or provided by the Client itself without stating reasons. It is then the responsibility of the respective service provider to coordinate the defined interfaces in such a way as to ensure that the overall task is fulfilled.

## Adjustments

The AG reserves the right to change the framework conditions and contents stated in these specifications for:

* Services,
* Functionalities,
* Topics or
* Processes
* More

Customize.

It must be assumed that during the term of the contract, as part of "normal" technical further development, fundamental lifecycle management or changes in strategy on the part of the customer, new aspects for processes or techniques may also arise that have not yet been described in this service description, have been described differently or have only been described in part.

The tenor of these terms of reference remains the same notwithstanding these innovations.

The Contractor shall be obliged to support any possible extensions or additions in the context of these specifications.

## Joint order processing

In the case of overarching malfunctions or "problems", coordination between the various service providers is required. In this case, all service providers involved must deal with the fault until it has been finally resolved. This is independent of the area of responsibility in which the actual fault occurred.

In the event of disruptions to the services included in the scope of the order, the Contractor shall assume a coordination role involving other service providers. The Contractor must also promote the elimination of the malfunction.

If the malfunction is caused by third parties or surrounding systems, the Contractor is responsible for following up and, if necessary, escalating the remediation of the malfunction until full function is restored.

## Remote Access

The Contractor will be required to outline the remote access requirements and necessary bandwidth and policies prior to signing the contract.

The specifications and regulations of the Client regarding remote access shall remain valid. The Contractor shall request the current version of the regulation from the Client, inspect it and implement it.

## Access to data and systems

Data and systems may only be accessed with personalized authentication. This applies both to dial-in from outside and to local access. The Contractor must ensure this technically and organizationally.

Access is via online access, no external devices (operating equipment) are provided by the AG.

The accesses must meet the relevant data protection and security requirements. The type and scope of accesses are coordinated in the fade-in phase.

## Logging of accesses

The Contractor must log all system accesses by its employees, the actions performed, the time and the respective user by name. The logging must be audit-proof and tamper-proof. The Contractor must be able to provide the Client with information about the content of the logging at any time.

The logs must be archived by the Contractor for the entire duration of the contract, unless other arrangements have been made in the Fade-IIN phase.

At the end of the contract period or if required, the protocols must be handed over to the AG.

## Means of communication

The scope of services is usually provided remotely. For this purpose, suitable communication solutions shall be provided by the Contractor that enable meaningful communication between the Contractor and the Client. In this context, the Client expects at least one web conferencing solution compatible with the Client (Microsoft Office 365).

## Crisis case

If the customer declares a crisis, the contractor must be on site with a team capable of acting and making decisions in accordance with service level specifications. Until the resources arrive on site, participation in crisis conference calls is essential.

This team must consist of specialists, management and others, depending on the situation. If necessary, a 24/7 crisis team is convened. The goal is joint, rapid and targeted crisis elimination.

## Provision of the AG

The Client shall support the Contractor in the performance of the agreed services to the best of its ability, in particular also provide necessary aids, such as technical or organizational interfaces, to an appropriate extent and create all agreed prerequisites or those within its scope.

This concerns in particular:

* Contractor badges\*),
* Documentation (if available),
* Access to the AG's policies, regulations and guidelines.

\*) subject to a charge for the Contractor

## Provision of the Contractor

The Contractor shall be responsible for all necessary equipment, machines, materials, aids, etc., as well as for providing and keeping them ready which are necessary for the performance of the services.

The Contractor warrants that the services listed in this document, including all additional appendices, will be performed professionally, in perfect quality, without gaps and in compliance with all guidelines and regulations.

The Contractor shall inform the Client in writing if necessary services for the service are not included in the defined scope of services. The Contractor shall quantify this indication by stating the activities and the necessary quantity.

## Written form

Written form is given if an authorized person signs a document (transmission as PDF possible). All declarations of intent - such as acceptances, specification of sprints, etc. - under this contract must be in writing.

## Ownership of CARIAD SE

All services created, such as documents and software as well as source codes, shall become the property of the Client for unrestricted use, insofar as no separate license agreements exist to the contrary.

## Subcontractor

The transfer of the provision of contractual services to third parties (subcontractors, use of freelancers, etc.) by the Contractor shall require the prior presentation of the subcontractors and the written consent of the Client. The Client has the right to reject subcontractors.

The intended subcontractors as well as the services to be outsourced shall be named in the bid submission (Annex E).

The Contractor shall, notwithstanding any consent granted by the Client, only use such subcontractors for the performance of services,

* who are also and demonstrably competent, efficient and reliable and who have also undertaken to carry out their staff deployment likewise in full compliance with the obligations set out in the chapter on organization,
* who are aware of the current version of the data protection and IT security provisions, in particular also special regulations (e.g. compliance requirements) of the Principal, and who comply with them accordingly,
* which do not come from or operate in insecure third countries (according to the GDPR) and
* which will comply with the qualities of the Service set forth in this Statement of Work and the applicable documents and the Service Level Specifications defined therefor.

The Contractor shall continuously verify compliance with this obligation and also document the verification.

The Contractor undertakes not to prevent its subcontractors from concluding contracts with the Principal or a group company for such services that are not the subject of this contract. This obligation of the Contractor shall also extend to exclusivity agreements which could prevent the Principal, the group companies or the subcontractor from obtaining services which they require for the processing of such orders.

## Manufacturer support

The customer expects that maintenance/support by the respective manufacturer exists for all systems and equipment required for the provision of the service. The systems used must not be "end of life". The Contractor must conclude the necessary agreements with the manufacturers. If the manufacturer support is provided by the Client, the Contractor must inform the Client in good time if these agreements need to be extended or adapted.

Regardless of the specific support agreements and the type of provision, the CL expects expertise and certifications that enable the CO to competently use the support agreements in the context of these specifications.

# General

## Definitions, terms, abbreviations

## Other documents

The Client shall provide the Contractor with the internal agreement documents / method and process descriptions required for the fulfillment of the contract in the respective valid version or shall ensure that these can be viewed at the Client's premises.

The Contractor shall provide the Client with evidence of certification in accordance with ISO 17025 for the scope of the test bench.

## Software

If the services requested in the specifications include complete or partial scopes for the development of vehicle-related software, i.e. software that has an influence on the vehicle and its functionalities, the documents included in this chapter are mandatory.



## Special features

If special features according to VDA Volume "Product Creation - Process Special Features (BM)" are components of the ordered scope or if the scope is marked by the Customer as relevant for special features, the Contractor undertakes to apply or to ensure and to comply with the guidelines of the Group Basic Requirements Software (KGAS), of LAH.893.909.C Special Features and of the Formula Q Capability Software (available in the current version in Group Supply) when fulfilling the order.





## Processing of personal data

If the Contractor processes personal data for, together with or originating from CARIAD SE, a separate data protection agreement may have to be concluded in accordance with the European General Data Protection Regulation (GDPR). This is determined by whether there is commissioned processing, joint responsibility or separate responsibility.   
  
The relationship between CARIAD SE and the Contractor has been examined and corresponds to one:









In the case of commissioned processing, the conclusion of a so-called agreement on commissioned processing (AVV) in accordance with Art. 28 DSGVO is mandatory, in which the subject and duration of the processing, the type and purpose of the processing, the type of personal data, the categories of data subjects and the obligations and rights of the controller are to be specified. The contract template for this is provided by the AG.

If, within the scope of the commissioned processing, personal data are processed by the Contractor which have an increased protection requirement, the Contractor shall, at the Client's request, have an assessment of its technical and organizational measures carried out in accordance with TISAX at its own expense. It must be ensured that the "Scope" of the certification corresponds to the specific service and that the certification includes the test objective "Data" (in the case of processing of special categories of personal data, the test objective "Special Data").

In the event of joint responsibility of the Client and the Contractor for the processing of personal data, a Joint Control Agreement (JCA) pursuant to Article 26 of the GDPR is required, in which in particular the respective tasks of the obligated parties with regard to the rights of the data subjects are regulated and documented in a transparent form. The contract template for this is provided by the AG.

### Evaluation of the information security of the partner companies

Classification of the release(s) sought:

**NO**

**Prototypes** (vehicles/design-relevant parts subject to secrecy, according to classification by development/design)

**Components and assemblies** subject to secrecy, installed in production vehicles or not relevant to design.

**WFS components** (e.g. development and production facilities for key, locking set, engine control unit, WFS master, electr. steering lock, etc.)

**Other** (see attachment)

### Supplied documents

Other applicable documents and the documents referenced therein shall apply in the version valid on the date of issue of the specifications. The Contractor shall ensure that it works with the applicable documents valid for the specifications.

In particular, the following documents and standards shall be taken into account, which shall apply as the basis of the contract at the time of conclusion of the contract:

* General Terms and Conditions of Purchase of Volkswagen AG (General Procurement Division)
* General Terms and Conditions of Purchase of IT
* Cyber Security Requirements (CSGA)
* Group Basic Requirements Software (KGAS)
* Requirements to UNECE: UNR 155 CSMS as well as UNR 156 SUMS
* Requirements of the EU-DGSVO and the BDSG

Source of supply: Other applicable documents not included in the specifications can be obtained from the Volkswagen Group's B2B supplier platform at [www.vwgroupsupply.com](http://www.vwgroupsupply.com) or will be made available on request.

# Attachments

Attachment A\_ Group Basic Requirements Software LAH 893.909 - Version 3.7

Annex B\_Exclusions to the tender\_V1.0

Attachment C\_Bidder Question List\_V1.0

*Attachment D\_Questionnaire\_V1.0 - will be created in the course of the tendering process*

Attachment E\_Subcontractor\_V1.0

Attachment F\_References\_V1.0

Appendix G\_Grouping of IT Services v2.6

Appendix H\_Reports and Reports\_V1.0

Annex I\_Service Level Table\_V1.0

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Attachment J-2\_Price\_Sheet\_Los2Car2X\_V1.0

Attachment J-3\_Price\_Sheet\_Other\_Services\_Enabler\_Services

Annex K\_Categorization Services\_V1.0

Annex L\_Service Concept\_V1.0

Attachment M\_Transition Concept\_V1.0

Attachment N\_DRP\_Template\_V1.0

Attachment O\_Recovery\_Plan\_AN\_V1.0

Attachment P\_ReferenceUserStories\_V1.0

Annex Q\_CARIAD \_Cyber Security Basic Requirements

Appendix R\_Group Basic Software Requirements LAH 893.909 - Version 3.7

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1. according to William Wake [↑](#footnote-ref-2)
2. Incidents, which are generated as events from monitoring [↑](#footnote-ref-3)
3. Problems for which the Contractor is responsible [↑](#footnote-ref-4)
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