Availability Management

Process

The Availability Management process consists of two procedures.

The first procedure is called "Service Infrastructure Design". This procedure is used by availability managers when they design new service infrastructures or when they adjust the design of existing service infrastructures.

The second procedure is called "Availability Tracking". It is used by availability managers when they track the availability and reliability of the services which availability they are responsible for.

For more details about these procedures, click on the Process button to return to the graphical representation of this process and click on the box that represents the procedure that you would like to know more about. The graphical representation of this procedure will appear and you will be able to click on the Description button in the upper left-hand corner of your screen to read more about it.

Mission

The mission of the Availability Management process is to ensure that the duration, and the number, of service outages do not cause the availability or reliability objectives of the SLAs to be violated.

Scope

The scope of the Availability Management process is limited to the design of service infrastructures and the identification of problems that threaten to violate, or have already violated, the availability and/or reliability objectives specified in active SLAs.

Level of Detail

The level of detail in which Availability Management information is to be registered is specified in the field utilization guidelines for the fields of the form that is available in the service management application for the support of this process.

The following form is available in the service management application for the Availability Management process:

- Problem

Click on the form to obtain the field utilization guidelines for each of its fields.

Roles & Responsibilities

The table below presents the only role that plays a part in the Availability Management process, along with its responsibilities. Click on the role to review its profile.

Role	Responsibility	
Availability manager	Designs service infrastructures for the service(s) for which he/she acts as the availability manager. Updates the design of the existing service infrastructures for which he/she acts as the availability manager, to ensure that the existing SLOs will be met after a change has been implemented, or to ensure that the new SLRs will be met if this is (one of) the objective(s) of the change. Tracks the availability and reliability for the service(s) for which he/she acts as the availability manager. Publishes the updated availability tracking overview of the service(s) for which he/she acts as the availability manager at the end of every availability tracking period. Registers problems when the availability and/or reliability objectives of the service(s) for which he/she acts as the availability manager have been, or are in danger of becoming, violated.	

Key Performance Indicators

The table below presents the key performance indicator (KPI) that has been selected for tracking the success of the Availability Management process.

KPI	Definition	Frequency	Unit
Availability or reliability violations	The number of SLAs for which the availability and/or reliability objective has been violated, divided by the total number of active SLAs.	Monthly	%

Beneficiaries

The roles that rely on the Availability Management process are listed in the table below, along with their respective requirements for the Availability Management process.

Beneficiary	Requirement
Problem managers	Information about problems that have been identified within the availability tracking procedure, so that they can be processed efficiently through the Problem Management process.
Service desk agents	Information regarding the problems that affect the availability of services provided by the organization for which they provide the customer interface.
Service level administrators	The SLO values that are to be specified in new SLAs or updates of existing SLAs.
Service level managers	Information regarding the SLOs that the availability manager proposed, taking into consideration the specified SLRs and the proposed service infrastructure design. Availability and reliability tracking information for the SLAs between the service provider organization and its customers.

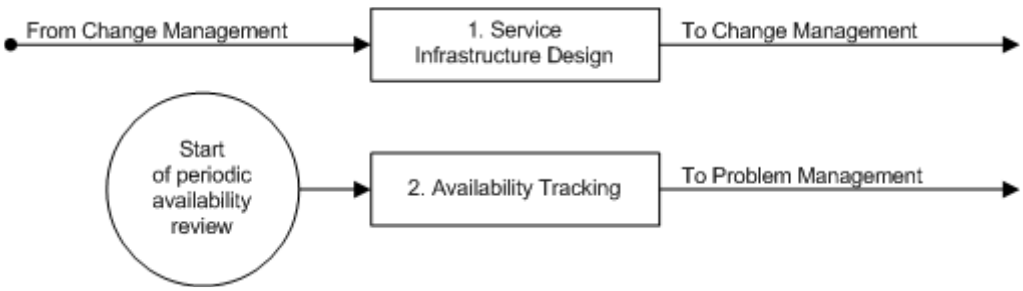
Service providers	Information regarding the SLOs that can be committed to with proposed service infrastructure designs.
Specialists	Information regarding problems that have been identified within the availability tracking procedure, and that have been assigned to specialists for analysis.

Owner

The owner of the Availability Management process is the Service Management CAB.

This CAB is responsible for reviewing, and subsequently approving or rejecting, requests for improvement of the Availability Management process and its supporting functionality in the service management application.

Process



Procedure 1, Service Infrastructure Design

A change coordinator assigns a risk & impact analysis work order for the design of a new service infrastructure when he/she is planning a change to build a new service infrastructure. Similarly, a change coordinator assigns a work order for the adjustment of an existing service infrastructure design when he/she believes that an adjustment might be necessary to satisfy the requirements for which he/she is planning the change. These work orders are assigned to the availability manager who is responsible for the availability of the service for which the change was requested.

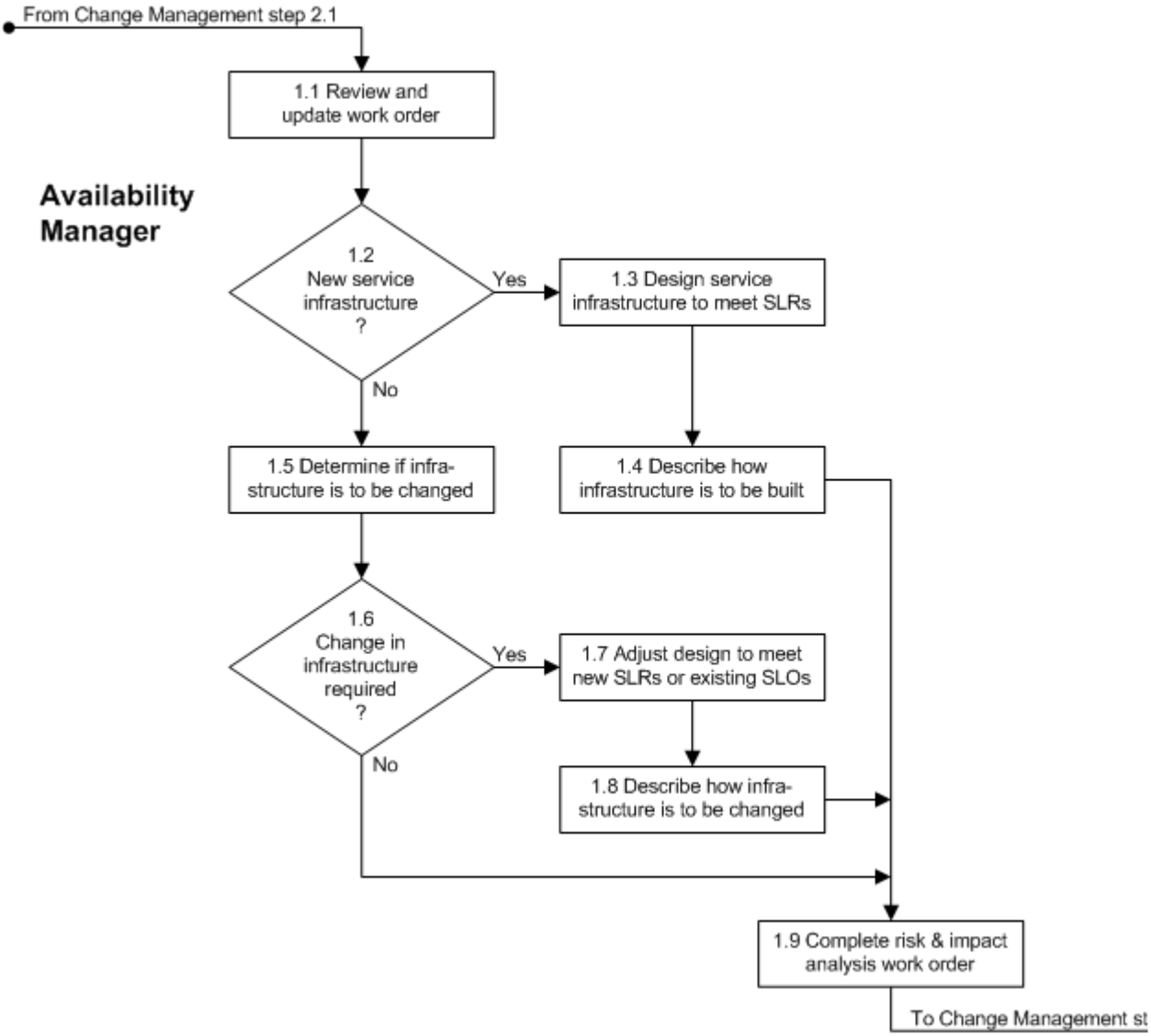
The work order is subsequently reviewed by the availability manager who determines if a new service infrastructure is to be built or if an existing service infrastructure needs to be altered.

If a new service infrastructure is to be built, the availability manager designs it in such a way that it will be capable of meeting the SLRs set by the service level manager. The availability manager specifies the SLOs that the proposed service infrastructure will be able to meet.

If an existing service infrastructure needs to be altered, the availability manager adjusts the design of the existing service infrastructure in such a way that the existing SLOs of the service will be met after the change has been implemented and the service infrastructure has been adjusted. However, if (one of) the objective(s) of the change is to adjust the existing SLOs, the availability manager adjusts the existing design of the service infrastructure to ensure that it will be capable of meeting the new SLRs.

After the new design has been created, the availability manager describes in the risk & impact analysis work order how it is to be implemented, before completing the work order.

Procedure 1, Service Infrastructure Design



Work Instructions

Procedure Step	Work Instructions for Availability Managers
1.1 Review and update work order	1.1.1 When the value in the Status field of your work order has changed from "Registered" to "Assigned", open it and read the instructions in the Information field. 1.1.2 Set the Status field of the work order to "Accepted" if you are not yet ready to start working on it. 1.1.3 As soon as you are ready to work on the work order, set its Status field to "In Progress".

Work Instructions

Procedure Step	Work Instructions for Availability Managers
	1.2.1 If the work order requests the design of a new service infrastructure, continue with 1.3.1. Otherwise go to 1.5.1.

Work Instructions

Procedure Step	Work Instructions for Availability Managers
1.3 Design service infrastructure to meet SLRs	1.3.1 Create a design for the new service infrastructure that will be capable of meeting the SLRs. Note: The SLRs have been set for the new service infrastructure by the service level manager to ensure that the customer's business requirements will be met. 1.3.2 After the design of the service infrastructure has been completed, describe it in the Information update field of the work order. 1.3.3 Attach a drawing of the design to the work order to help other people (specifically the change coordinator) understand it. Specify the name of the drawing in the Information update field. 1.3.4 Also specify in the Information update field the SLO values that can be committed to with the proposed service infrastructure. The following SLOs are important to stipulate: Availability (%) Reliability Continuity Performance Maximum risk of data loss (hrs) Restore (hrs) Offline backup Please refer to the field utilization guidelines of the Service Level Agreement form for information about these SLOs.

Work Instructions

Procedure Step	Work Instructions for Availability Managers
1.4 Describe how infrastructure is to be built	1.4.1 Describe in the Information update field of the work order how the new service infrastructure is to be built. Do this in a step-by-step manner that is easy to understand. If it is easier to describe the steps in a separate document, attach this document to the work order and specify the name of the document in the Information update field. Note: This information will be used by the change coordinator to develop an implementation plan for the change.

Work Instructions

Procedure Step	Work Instructions for Availability Managers
1.5 Determine if infra-structure is to be changed	1.5.1 Read through the details of the change to which the work order is linked. Also read through the support requests and/or problems that are related to the change. Do this to find out whether or not the service infrastructure needs to be adjusted in order to meet the existing SLOs after the change has been implemented, or to meet the new SLRs if this is (one of) the objective(s) of the change.

Work Instructions

Procedure Step	Work Instructions for Availability Managers
	1.6.1 If the existing service infrastructure needs to be adjusted when the change is implemented, continue with 1.7.1. Otherwise go to 1.9.1.

Work Instructions

Procedure Step	Work Instructions for Availability Managers
1.7 Adjust design to meet new SLRs or existing SLOs	1.7.1 Adjust the design of the existing service infrastructure. Do this in such a way that the existing SLOs of the service will be met after the change has been implemented and the service infrastructure has been adjusted. However, if (one of) the objective(s) of the change is to adjust the existing SLOs, modify the design of the service infrastructure to ensure that it will be capable of meeting the new SLRs. Note: The new SLRs have been set by the service level manger to ensure that the new business requirements, of the customer organization(s) that are (going to be) using the service infrastructure, will be met. 1.7.2 After the design of the existing service infrastructure has been adjusted, describe it in the Information update field of the work order. 1.7.3 Attach a drawing of the design to the work order to help other people (specifically the change coordinator) understand it. Specify the name of the drawing in the Information update field. 1.7.4 If (one of) the objective(s) of the change is to adjust the existing SLOs, specify in the Information update field the new SLO values that can be committed to after the proposed modifications have been made to the existing service infrastructure. The following SLOs are important to stipulate even if some of them will not change: Availability (%) Reliability Continuity

	Performance Maximum risk of data loss (hrs) Restore (hrs) Offline backup Please refer to the field utilization guidelines of the Service Level Agreement form for information about these SLOs.

Work Instructions

Procedure Step	Work Instructions for Availability Managers
1.8 Describe how infra-structure is to be changed	1.8.1 Describe in the Information update field of the work order how the existing service infrastructure is to be modified. Do this in a step-by-step manner that is easy to understand. If it is easier to describe the steps in a separate document, attach this document to the work order and specify the name of the document in the Information update field. Note: This information will be used by the change coordinator to develop an implementation plan for the change.

Work Instructions

Procedure Step	Work Instructions for Availability Managers
1.9 Complete risk & impact analysis work order	1.9.1 Summarize in the Result field of the work order how the service infrastructure is to be built (if it concerns a new service infrastructure), or how the service infrastructure is to be altered (in case of an existing service infrastructure). Note: If the change concerns an existing service infrastructure, and you determined in step 1.5.1 that it does not need to be modified, specify in the Result field of the work order why this is not required. 1.9.2 Set the Status field of the work order to "Completed".

Procedure 2, Availability Tracking

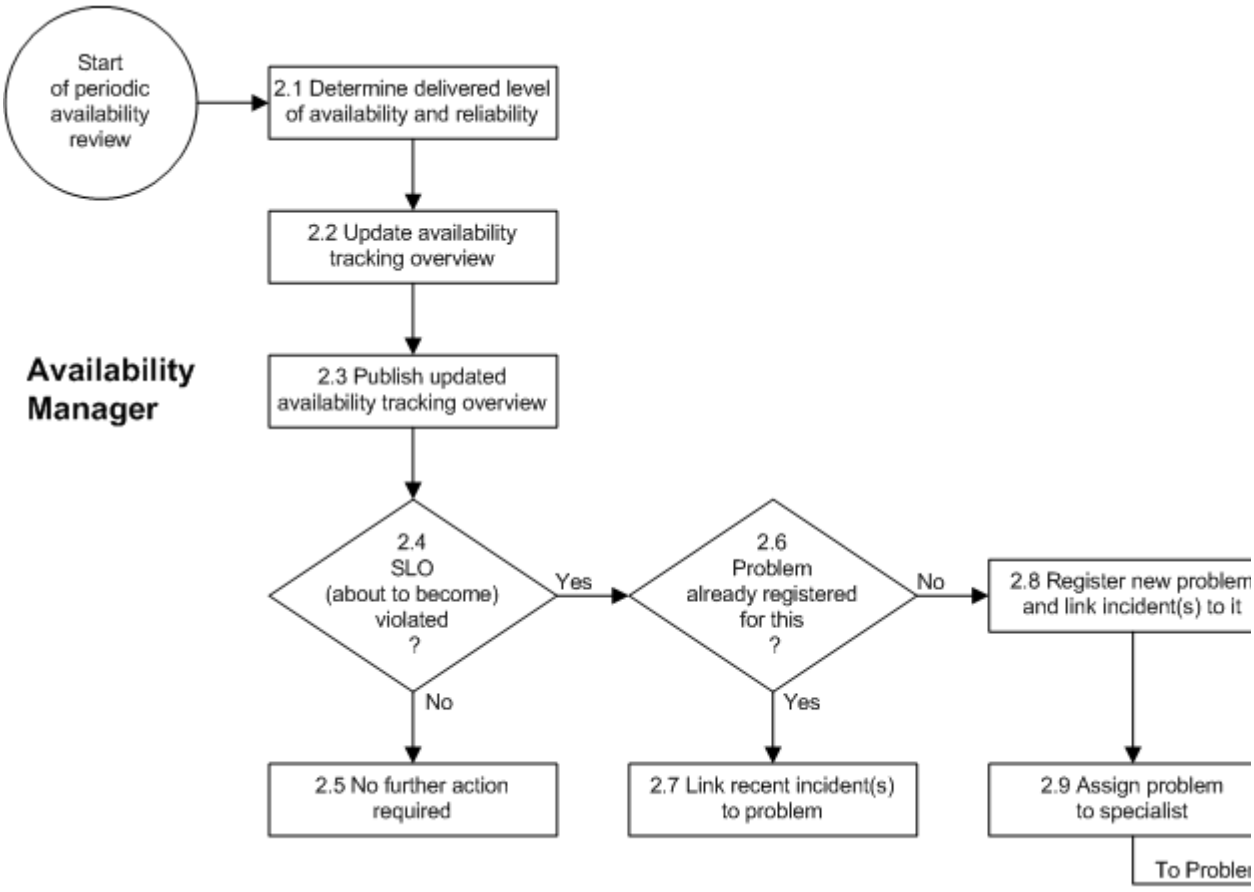
At the end of an availability tracking period, the availability manager finds out what the availability and reliability has been over the past period. He/she does this for every SLA that has been signed, and is still active, for the service(s) which availability he/she is responsible for. The availability manager then updates and publishes the availability tracking overview(s) of these service(s).

If the availability or reliability objective of one or more SLAs of the service is in danger of being violated, or if it has already been violated, the availability manager checks to find out if a problem has already been registered for this. If this is the case, the availability manager ensures that the support requests that have been caused by this problem during the past availability tracking period are linked to the problem.

If multiple problems have already been registered, because there are several root causes that are causing the availability and/or reliability objectives to be(come) violated, the availability manager links the support requests that appear to have been caused by these problems to the appropriate problem.

If one or more support requests appear to have been caused during the past availability tracking period by a root cause for which a problem has not yet been registered, the availability manager registers a new problem. He/she links the related support request(s) to the new problem and assigns it to the most appropriate specialist (in terms of skills and availability) for an analysis.

Procedure 2, Availability Tracking



Work Instructions

Procedure Step	Work Instructions for Availability Managers
2.1 Determine delivered level of availability and reliability	2.1.1 Generate a support request overview to determine the availability and reliability of the service infrastructure(s) of the service for which you are tracking the availability. Set the following filters to generate the support request overview: The Creation date field contains a value that falls within the past availability tracking period, The Service field contains a value equal to the service for which you are tracking the availability, The Impact field is set to "High - Service Down for Several Users" 2.1.2 Export the overview to a spreadsheet by selecting all support requests in the overview, copying them, and pasting them onto the spreadsheet. 2.1.3 For each support request (there should be very few), determine which SLAs (i.e. which combinations of a service infrastructure and a customer) were affected by the service outage. This information can be found on the SLA Tracking tab page of the Support Request form. Note down the name of these SLAs in the spreadsheet to the right of the support request numbers. Remove any duplicate support requests from the spreadsheet. 2.1.4 For each SLA that was affected by a service outage during the past availability tracking period (i.e. each SLA mentioned in the spreadsheet), determine the number of times that it was affected by a service outage during the past availability tracking period. This determines the reliability of the SLAs for the service for which you are tracking the availability. 2.1.5 Use the value in the Outage duration field of the support requests to determine the total duration of the service outages per SLA. For each SLA that was affected by a service outage during the past availability tracking period, divide the total outage duration during this period by the total number of service hours during the same period. This determines the availability of the SLAs for the service for which you are tracking the availability. Note: The value in the Outage duration field is already specified in service hours. Note: If the service hours of the SLAs that were affected by a specific service outage are not all the same, correct the outage duration for the SLAs with

	different service hours. After this correction, the availability can be calculated for these SLAs using the corrected outage duration and the total number of service hours of these SLAs during the past availability tracking period.

Work Instructions

Procedure Step	Work Instructions for Availability Managers
2.2 Update availability tracking overview	2.2.1 Open the availability tracking overview spreadsheet. Fill out the availability and reliability values for each SLA for the service for which you are tracking the availability. Ensure that the numbers are entered in the column for the past availability tracking period.

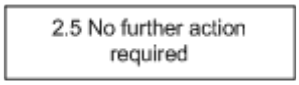
Work Instructions

Procedure Step	Work Instructions for Availability Managers
2.3 Publish updated availability tracking overview	2.3.1 Ensure that the updated availability tracking overview of the service for which you are tracking the availability is published on the service management web site.

Work Instructions

Procedure Step	Work Instructions for Availability Managers
	2.4.1 If the availability or reliability objective of one or more SLAs of the service for which you are tracking the availability is in danger of being violated, or if it has already been violated, go to 2.6.1. Otherwise continue with 2.5.1.

Work Instructions

Procedure Step	Work Instructions for Availability Managers
	2.5.1 Based on the results of the past availability tracking period, there is no need to take any action as the availability and reliability objectives are currently not in danger of being violated.

Work Instructions

Procedure Step	Work Instructions for Availability Managers
	2.6.1 Of the service for which you are tracking the availability, review the list of open and dead-end problems (i.e. problems that have a value in the Status field between "Registered" and "Dead-End"). 2.6.2 Also review the service's problems that have been resolved during the past availability tracking period (i.e. problems that have recently been set to the status "Fixed"). The (impending) availability or reliability issue that you have identified might already have been dealt with. 2.6.3 If one or more problems have already been registered to deal with, or have already dealt with, the (impending) availability or reliability issue, continue with 2.7.1. Otherwise go to 2.8.1.

Work Instructions

Procedure Step	Work Instructions for Availability Managers
2.7 Link recent incident(s) to problem	2.7.1 Review the list of support requests that you generated earlier for the past availability tracking period. Determine which of these support requests appear to have been caused by the problem that was already registered to deal with the (impending) availability or reliability issue of the service for which you are tracking the availability. 2.7.2 Open the problem that was already registered to deal with the (impending) availability or reliability issue. 2.7.3 Click on the Relations tab of the problem. Link the support request(s) that appear to have been caused by this problem, and which have not already been linked, to this problem. Note: If multiple problems have already been registered, because there are several root causes that are causing the availability and/or reliability objectives to be(come) violated, link support requests that appear to have been caused by these problems to the appropriate problem. Note: If the list contains one or more support requests that appear to have been caused by a root cause for which a problem has not yet been registered, continue with 2.8.1.

Work Instructions

Procedure Step	Work Instructions for Availability Managers
2.8 Register new problem and link incident(s) to it	2.8.1 Open a new problem. Leave the Status field of the problem set to "Registered" (its default value). 2.8.2 Ensure that the problem manager of the affected service (i.e. the service for which you are tracking the availability) is selected in the Manager field of the problem. 2.8.3 Select the affected service in the Service field of the problem. 2.8.4 Enter a short description of the problem in the Description field and provide a detailed description of the symptoms of the problem in the Information update field.

	2.8.5 If already known, select the causing CI in the CI field of the problem. 2.8.6 Select the category "Reactive - Existing Problem" in the Category field of the problem. 2.8.7 Select the appropriate severity level in the Severity field of the problem. 2.8.8 Review the list of support requests that you generated earlier for the past availability tracking period. Determine which of these support requests are related to this problem. 2.8.9 Click on the Relations tab of the problem and link the related support request(s) of the list to it. Note: The service management application automatically informs the service desk of the new problem via e-mail when a problem with the category "Reactive - Existing Problem" is saved for the first time.

Work Instructions

Procedure Step	Work Instructions for Availability Managers
2.9 Assign problem to specialist	2.9.1 Determine which specialist is best suited (in terms of skills and availability) to find the root cause of the problem and to propose a structural solution. 2.9.2 Select this specialist in the Member field of the problem. 2.9.3 Set the Status field of the problem to "Assigned".

Problem

The table below lists the fields of the Problem form and provides utilization guidelines for each field.

Page	*Main*	
Field	**Utilization**	
Number	This field contains the unique problem number. This number is automatically generated by the application.	

Status	Use this field to select the appropriate status for the problem from the following list of options: **Registered** — The problem is not yet ready for analysis. **Rejected** — The problem had better be assigned to another group or member. **Assigned** — The analysis of the problem can start. **Accepted** — The analysis of the problem will start as soon as the member to whom the problem has been assigned is ready to start working on it. **In Progress** — The analysis of the problem is currently being worked on. **Known Error** — The underlying cause of the problem has been found. **Waiting for…** — It is temporarily not possible to make any further progress with the analysis of the problem. **Analyzed** — The underlying cause of the problem has been found and a structural solution has been proposed, or it was not possible to propose a practical structural solution. **Change Requested** — The problem has been passed to the Change Management process for the implementation of the proposed structural solution. **Change Pending** — A change has been registered for the implementation of the proposed structural solution. **Change Completed** — The change that was registered for the implementation of the proposed structural solution has been completed. **Dead-End** — It is not possible to fix the problem because either its root cause cannot be found, or it is currently not possible to propose a practical structural solution. **Fixed** — A structural solution for the problem has been implemented.
	Separator
Manager	Use this field to select the problem manager who will assume responsibility for the problem.
Service	Use this field to select the service in which the root cause resides. Select the special service "NORECORD - Service is not registered in database" if the root cause resides in an existing service that has not yet been registered in the application.
CI	Use this field to select the configuration item in which the root cause resides. Select the special CI with the code "NORECORD" if the CI has not yet been registered in the configuration management database (CMDB).
	Separator

Description	Use this field to enter a short description of the symptom(s) that are caused by the problem.
Information	This field shows all information that was entered in the Information update field when the problem was saved. Above each entry, the application indicates who entered the text in the Information update field and when it was saved. Each new entry is inserted at the top of this field.
Information update	Use this field to enter a detailed description of the symptom(s) that result from the problem, to provide any additional information that could prove useful for the analysis of the problem, to describe the root cause of the problem, to provide information about the problem's progress towards a fix, and/or to provide details about how to fix the problem.
	Separator
Folder	This field is automatically set to the folder of the organization to which the person who created the problem belongs.

Page	***Details***
Field	**Utilization**
Category	Use this field to select the problem category from the following list of options: Proactive - Anticipated Problem Reactive - Existing Problem
Severity	Use this field to select the appropriate severity of the problem from the following list of options: For problems that caused, or are expected to cause, one or more non-critical service degradations: Low - Analyze within 28 Days For problems that caused, or are expected to cause, one or more non-critical service outages, or one or more critical service degradations: Medium - Analyze within 7 Days For problems that caused, or are expected to cause, one or more critical service outages: High - Analyze within 2 Days Note that a service is degraded when some of its functionality is not functioning, or when the response time of the service is slow. A service is down when none of its functionality can be accessed.
	Separator
Creation date	This field is automatically set to the date and time at which the problem was created.

Target date	This field is automatically set to the date and time at which the root cause analysis should be completed after the severity has been set.
Completion date	This field is automatically set to the date and time at which the problem status was set to "Dead-End" or "Fixed".
Assignment	Separator
Group	Use this field to select the group to which the problem is to be assigned.
Member	Use this field to select the person to which the problem is to be assigned.
Supplier	Use this field to select the supplier organization that has been asked to assist with the problem.
Reference number	Use this field to enter the unique reference number under which the problem has been registered by the supplier organization.
	Separator
Workaround	Use this field to describe the workaround that should be applied to resolve incidents caused by this problem until a structural solution has been implemented.
Solution	Use this field to describe how the problem has been resolved, i.e. how the root cause has been removed or permanently worked around.
Page	***Relations***
Field	**Utilization**
Relations	Use this field to create a link with support requests that have been caused by this problem (when the problem category is "Reactive - Existing Problem"). Use this field also to create a link with the support requests that have been registered to warn of this potential problem (when the problem category is "Proactive - Anticipated Problem"). This field is also used to create a link with the change that is to fix or prevent the problem.
Page	***History***
Field	**Utilization**
Registration	The application automatically specifies in this field who created the item and when it was created. The application also uses this field to indicate who last updated the item and when this was done.
History	The application automatically creates a line when an audited field is filled out or updated. For each history line the application specifies who caused it to be created and when it was created.