

PROBLEM MANAGEMENT PROCESS

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DOCUMENT CHANGE HISTORY

Version	Date	Editor	Description of Change
0.1		Rhys Williams	Initial outline document

CONTRIBUTORS

Name	Role	Author / Review / Approve

TABLE OF CONTENTS

- 1 PROCESS OVERVIEW 4**
 - 1.1 Description 4
 - 1.2 Objectives 4
 - 1.3 Critical Success Factors 4

- 2 PROCESS FLOWCHART 5**

- 3 PROCESS DESCRIPTION 6**

- 4 ROLES AND RESPONSIBILITIES 12**

- 5 SUPPORTING DOCUMENTS 14**

- 6 GLOSSARY 15**

1 PROCESS OVERVIEW

1.1 Description

The Problem Management process deals with the underlying causes of incidents. Effective problem management reduces the impact to the business of reduced service quality and enables the business to continue to realise the benefits of enabling ICT technologies. The functionality of problem records should be similar to those needed for incident records and also allow for multiple incidents to be matched against a single problem record. This process includes the following steps in the problem management lifecycle:

1. Problem Identification
2. Problem Logging
3. Problem Investigation and Diagnosis
4. Problem Closure
5. Problem Review and Reporting

1.2 Objectives

The key objectives of the Problem Management process are to:

- Prevent problems from occurring.
- Eliminate recurring incidents.
- Minimise the impact of incidents that cannot be prevented.
- Identify and implement permanent fixes for problems where possible and, where this is not possible, make available known errors and workarounds.

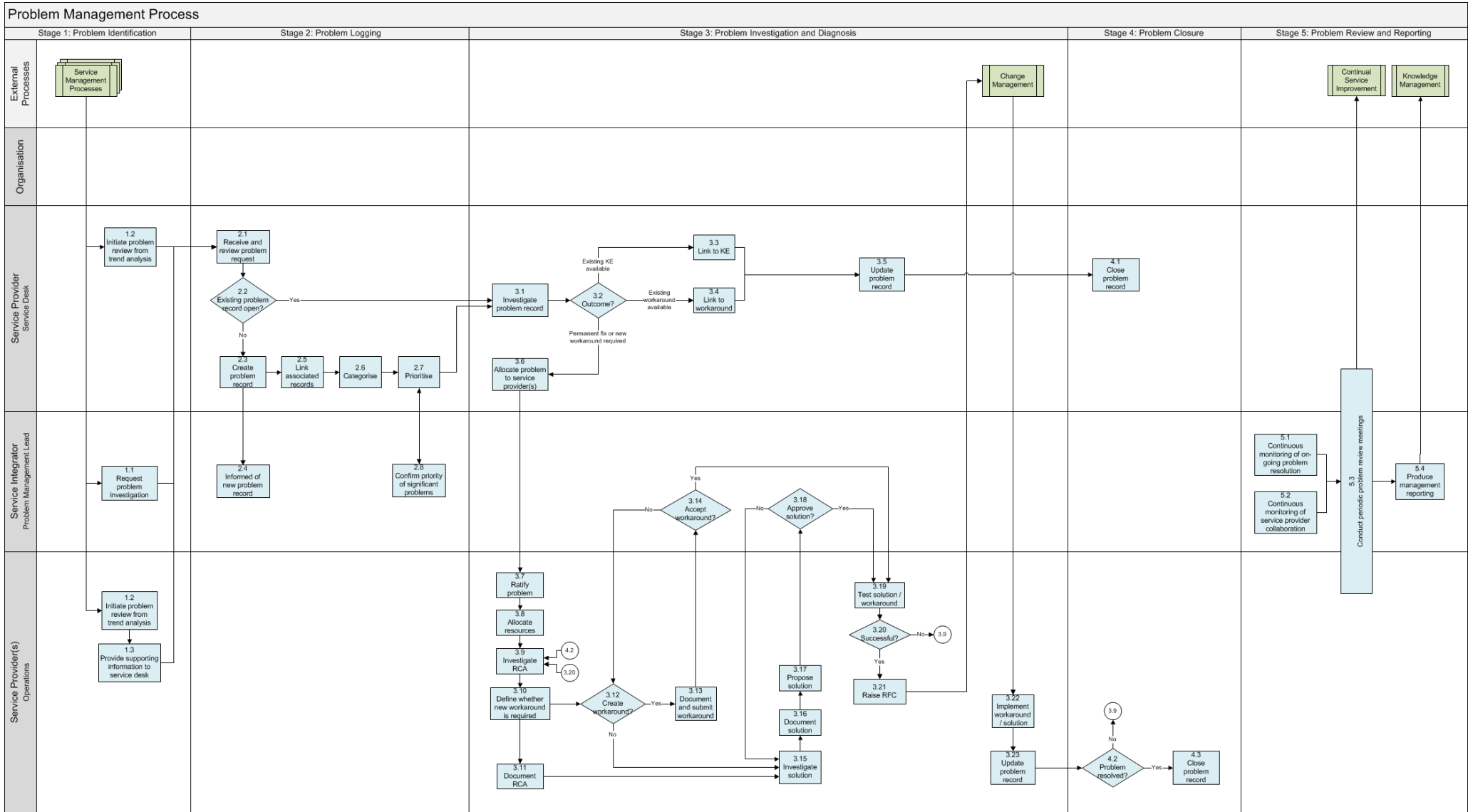
1.3 Critical Success Factors

The critical success factors for problem management are:

- Minimise the impact to the business of incidents that cannot be prevented by providing executable workarounds which can be applied.
- Maintain quality of IT services through elimination of recurring incidents by carrying out root cause analysis to investigate the cause and implementing permanent fixes through change management.
- Ensure that problem investigation priorities are aligned with business priorities, ensuring that the quality of service is maintained.

Problem Management Process

2 PROCESS FLOWCHART



3 PROCESS DESCRIPTION

No.	Activity	Description	Inputs	Outputs	Responsible
Stage 1: Problem Identification					
1.1	Request problem investigation	<p>The SI Problem Management Lead can request a problem investigation. This may be the result of repeated significant issues or a pain point being experienced by the business units.</p> <p>If the Organisation wishes to request a problem investigation, they must go through the SI Problem Management Lead.</p> <p>Other processes, namely Incident Management, Major Incident Management and Event Management may also trigger the request.</p> <p><u>Note:</u> The list of inputs is not an exhaustive list.</p>	<ul style="list-style-type: none"> • Repeated significant issues • Pain points • Incident Management Process (S2) • Major Incident Management Process (S3) • Event Management Process (S4) 	<ul style="list-style-type: none"> • Request for problem investigation 	<ul style="list-style-type: none"> • SI Problem Management Lead
1.2	Initiate problem review from trend analysis	Using trend analysis techniques, the Service Providers and Service Desk identify items that should be investigated as problems.	<ul style="list-style-type: none"> • Trend analysis • Potential problem 	<ul style="list-style-type: none"> • Request for problem investigation 	<ul style="list-style-type: none"> • Service Provider (Service Desk / Operations)
1.3	Provide supporting information to service desk	If the Service Provider (Operations) has identified a potential problem, they must gather all supporting evidence and provide this to the Service Desk along with the problem investigation request.	<ul style="list-style-type: none"> • Trend analysis • Potential problem 	<ul style="list-style-type: none"> • Request for problem investigation • Supporting information 	<ul style="list-style-type: none"> • Service Provider (Operations)
Stage 2: Problem Logging					
2.1	Receive and review problem request	<p>The Service Desk receives the problem request and identifies if an existing problem record is open that fulfils the requirement of the RCA investigation defined.</p> <p>If no existing problem record is available, they will need to create one.</p>	<ul style="list-style-type: none"> • Request for problem investigation • Supporting information 	<ul style="list-style-type: none"> • New Problem Record (S1) required OR • Existing Problem Record (S1) 	<ul style="list-style-type: none"> • Service Provider (Service Desk)
2.2	Existing problem record open?	If an existing problem record is open, go to activity 3.1. If not, go to activity 2.3.	n/a	n/a	n/a
2.3	Create problem record	The Service Desk creates a problem record in the service management tool.	<ul style="list-style-type: none"> • New Problem Record (S1) required 	<ul style="list-style-type: none"> • Problem Record (S1) - created 	<ul style="list-style-type: none"> • Service Provider (Service Desk)
2.4	Informed of new problem record	<p>The SI Problem Management Lead receives an alert in the service management tool whenever a new problem record is created.</p> <p>Furthermore, the SI Problem Management Lead will receive further alerts whenever the status of the problem record changes - this allows them to monitor progress and to intervene at any time if any issues arise during the lifecycle of the problem.</p> <p>The alerts will be via email to specific individuals including the SI Problem Management Lead.</p>	<ul style="list-style-type: none"> • Problem Record (S1) - created 	<ul style="list-style-type: none"> • Informed of new problem / problem status change 	<ul style="list-style-type: none"> • SI Problem Management Lead

Problem Management Process

No.	Activity	Description	Inputs	Outputs	Responsible
2.5	Link associated records	The Service Desk links all associated incidents, problems, changes, releases, known errors, event records, SKMS articles and CIs to the problem record.	<ul style="list-style-type: none"> Problem Record (S1) - created 	<ul style="list-style-type: none"> Problem Record (S1) - associated links 	<ul style="list-style-type: none"> Service Provider (Service Desk)
2.6	Categorise	The Service Desk categorises the problem record, as per the categorisation matrix in the service management tool.	<ul style="list-style-type: none"> Problem Record (S1) - associated links 	<ul style="list-style-type: none"> Problem Record (S1) - categorised 	<ul style="list-style-type: none"> Service Provider (Service Desk)
2.7	Prioritise	The Service Desk prioritises the problem record, as per the priority matrix in the service management tool.	<ul style="list-style-type: none"> Problem Record (S1) - categorised 	<ul style="list-style-type: none"> Problem Record (S1) - prioritised 	<ul style="list-style-type: none"> Service Provider (Service Desk)
2.8	Confirm priority of significant problems	The priority can be confirmed by the SI Problem Management Lead but will also be linked to incident priority unless deemed different by SI Problem Management Lead.	<ul style="list-style-type: none"> Problem Record (S1) - prioritised 	<ul style="list-style-type: none"> Problem Record (S1) - confirmed 	<ul style="list-style-type: none"> SI Problem Management Lead
Stage 3: Problem Investigation and Diagnosis					
3.1	Investigate problem record	<p>The Service Desk investigates all problem records to decide on the best way to handle them.</p> <p>The Service Desk searches the service management tool to see if an existing Known Error (KE), applicable to the problem, is available and being investigated, whether an existing workaround is open that fulfils the solution of the problem defined or if a permanent fix or new workaround is required.</p>	<ul style="list-style-type: none"> Existing Problem Record (S1) OR <ul style="list-style-type: none"> Problem Record (S1) - prioritised 	<ul style="list-style-type: none"> Problem Record (S1) AND Existing Known Error (S6) OR <ul style="list-style-type: none"> Existing Workaround (S7) OR <ul style="list-style-type: none"> Permanent fix or new workaround required 	<ul style="list-style-type: none"> Service Provider (Service Desk)
3.2	Outcome?	<p>If an existing known error is available, go to activity 3.3.</p> <p>If an existing workaround is open, go to activity 3.4.</p> <p>If a permanent fix or new workaround is required, go to activity 3.6.</p>	n/a	n/a	n/a
3.3	Link to KE	The Service Desk links the problem to the existing known error.	<ul style="list-style-type: none"> Problem Record (S1) Existing Known Error (S6) 	<ul style="list-style-type: none"> Problem Record (S1) - linked to existing Known Error (S6) 	<ul style="list-style-type: none"> Service Provider (Service Desk)
3.4	Link to workaround	The Service Desk links the problem to the existing workaround.	<ul style="list-style-type: none"> Problem Record (S1) Existing Workaround (S7) 	<ul style="list-style-type: none"> Problem Record (S1) - linked to existing Workaround (S7) 	<ul style="list-style-type: none"> Service Provider (Service Desk)
3.5	Update problem record	If the problem is linked to an existing known error or workaround, the Service Desk updates the problem record accordingly.	<ul style="list-style-type: none"> Problem Record (S1) - linked to existing Known Error (S6) or Workaround (S7) 	<ul style="list-style-type: none"> Problem Record (S1) - updated 	<ul style="list-style-type: none"> Service Provider (Service Desk)
3.6	Allocate problem to service provider(s)	The Service Desk allocates the problem record to the relevant Service Provider, based on the information gathered to-date and the call routing matrix within the service management tool.	<ul style="list-style-type: none"> Problem Record (S1) Permanent fix or new workaround required 	<ul style="list-style-type: none"> Problem Record (S1) - allocated 	<ul style="list-style-type: none"> Service Provider (Service Desk)

Problem Management Process

No.	Activity	Description	Inputs	Outputs	Responsible
		In some instances, different tasks in the problem record may be allocated to different service providers. It is their responsibility to ensure that they collaborate to resolve the problem.			
3.7	Ratify problem	The Service Provider (Operations) ratifies the problem and reviews the priority and category to determine the urgency of allocating the correct resources.	<ul style="list-style-type: none"> Problem Record (S1) - allocated 	<ul style="list-style-type: none"> Problem Record (S1) - ratified 	<ul style="list-style-type: none"> Service Provider (Operations)
3.8	Allocate resources	<p>The Service Provider (Operations) allocates the problem investigation to the relevant resources. This may include allocation to other service providers and 3rd party suppliers, if required.</p> <p>When multiple service providers are involved in resolving a problem, they must collaborate to ensure that the problem has a clear owner to ensure traction. If agreement cannot be reached amongst the service providers, the SI Problem Management Lead will intervene and decide who is the owner.</p>	<ul style="list-style-type: none"> Problem Record (S1) - ratified 	<ul style="list-style-type: none"> Problem Record (S1) - allocated to relevant resources 	<ul style="list-style-type: none"> Service Provider (Operations)
3.9	Investigate RCA	The Service Provider (Operations) performs Root Cause Analysis (RCA), using appropriate and agreed techniques.	<ul style="list-style-type: none"> Problem Record (S1) - allocated to relevant resources <p>OR</p> <ul style="list-style-type: none"> Solution (S9) / Workaround (S7) - tested unsuccessfully 	<ul style="list-style-type: none"> RCA performed 	<ul style="list-style-type: none"> Service Provider (Operations)
3.10	Define whether new workaround is required	The Service Provider (Operations) defines whether a new workaround is required.	<ul style="list-style-type: none"> Problem Record (S1) RCA performed 	<ul style="list-style-type: none"> Decision on whether workaround is required 	<ul style="list-style-type: none"> Service Provider (Operations)
3.11	Document RCA	The detailed RCA is fully documented by the Service Provider (Operations). The RCA will include the underlying or original cause of the problem.	<ul style="list-style-type: none"> Problem Record (S1) 	<ul style="list-style-type: none"> Problem Record (S1) RCA (S8) - documented 	<ul style="list-style-type: none"> Service Provider (Operations)
3.12	Create workaround?	<p>If a new workaround is required, go to activity 3.13.</p> <p>If not, go to activity 3.15.</p>	n/a	n/a	n/a
3.13	Document and submit workaround	<p>The newly identified workaround is documented by the Service Provider (Operations) and includes, as a minimum:</p> <ul style="list-style-type: none"> Solution Risks Implementation instructions and plan CIs affected Changes required <p>The workaround is submitted to the SI Problem Management Lead for review and evaluation. If the risks can be mitigated and the solution is acceptable, the workaround is accepted.</p>	<ul style="list-style-type: none"> Problem Record (S1) New workaround required 	<ul style="list-style-type: none"> Problem Record (S1) <p>AND</p> <ul style="list-style-type: none"> Workaround (S7) - accepted <p>OR</p> <ul style="list-style-type: none"> Workaround (S7) - not accepted 	<ul style="list-style-type: none"> Service Provider (Operations)

Problem Management Process

No.	Activity	Description	Inputs	Outputs	Responsible
3.14	Accept workaround?	If the workaround is accepted, go to activity 3.19. If not, go back to activity 3.12.	n/a	n/a	n/a
3.15	Investigate solution	Following the detailed RCA, the Service Provider (Operations) investigates potential solutions and assesses their suitability.	<ul style="list-style-type: none"> • Problem Record (S1) • RCA (S8) documented AND <ul style="list-style-type: none"> • New workaround not required OR <ul style="list-style-type: none"> • Solution - not approved 	<ul style="list-style-type: none"> • Solution investigated 	<ul style="list-style-type: none"> • Service Provider (Operations)
3.16	Document solution	The potential solutions are fully documented by the Service Provider (Operations), evidencing the considerations, benefits and drawbacks of each suggested solution.	<ul style="list-style-type: none"> • Solution investigated 	<ul style="list-style-type: none"> • Potential solutions (S9) documented 	<ul style="list-style-type: none"> • Service Provider (Operations)
3.17	Propose solution	<p>The Service Provider (Operations) proposes the primary solutions to the SI Problem Management Lead.</p> <p>The SI Problem Management Lead, in consultation with the Service Provider (Operations), reviews the proposed solutions and approves the most suitable solution that provides the greatest cost benefit and resumption of successful service.</p> <p>If none of the proposed solutions are deemed suitable, approval will not be given and further investigations will be required.</p>	<ul style="list-style-type: none"> • Potential solutions (S9) documented • Problem Record (S1) 	<ul style="list-style-type: none"> • Solution (S9) - approved OR <ul style="list-style-type: none"> • Solution (S9) - not approved 	<ul style="list-style-type: none"> • Service Provider (Operations)
3.18	Approve solution?	If the solution is approved, go to activity 3.19. If not, go back to activity 3.15.	n/a	n/a	n/a
3.19	Test solution / workaround	The solution / workaround approved by the SI Problem Management Lead is tested by the Service Provider (Operations). Where applicable and possible, the solution / workaround will be deployed in a test or pilot rollout (although this will require an RFC).	<ul style="list-style-type: none"> • Solution (S9) / Workaround (S7) - approved • Problem Record (S1) 	<ul style="list-style-type: none"> • Solution (S9) / Workaround (S7) - tested 	<ul style="list-style-type: none"> • Service Provider (Operations)
3.20	Successful?	If the solution / workaround is tested successfully, go to activity 3.21. If not, go back to activity 3.9.	n/a	n/a	n/a
3.21	Raise change request	As a change will be required to action the workaround or to implement the problem resolution, the Service Provider (Operations) raises an RFC and submits to the Change Management Process.	<ul style="list-style-type: none"> • RFC Template (S10) • Solution (S9) / Workaround (S7) - tested successfully • Problem Record (S1) 	<ul style="list-style-type: none"> • RFC (S11) - completed and submitted • Change Management Process (S12) 	<ul style="list-style-type: none"> • Service Provider (Operations)

Problem Management Process

No.	Activity	Description	Inputs	Outputs	Responsible
3.22	Implement workaround / solution	The Service Provider (Operations) implements the workaround or solution, as per the approved RFC and problem record.	<ul style="list-style-type: none"> Change Management Process (S12) RFC (S11) - approved Problem Record (S1) Solution (S9) / Workaround (S7) - tested successfully 	<ul style="list-style-type: none"> Solution (S9) - implemented OR <ul style="list-style-type: none"> Workaround (S7) - implemented 	<ul style="list-style-type: none"> Service Provider (Operations)
3.23	Update problem record	The Service Provider (Operations) updates the problem record with resolution details.	<ul style="list-style-type: none"> Problem Record (S1) Solution (S9) - implemented OR <ul style="list-style-type: none"> Workaround (S7) - implemented 	<ul style="list-style-type: none"> Problem Record (S1) - updated / resolved OR <ul style="list-style-type: none"> Problem Record (S1) - updated / not resolved 	<ul style="list-style-type: none"> Service Provider (Operations)
Stage 4: Problem Closure					
4.1	Close problem record	Once confirmed that the problem is resolved or is no longer valid, the Service Desk closes the Problem Record.	<ul style="list-style-type: none"> Problem Record (S1) - resolved 	<ul style="list-style-type: none"> Problem Record (S1) - closed 	<ul style="list-style-type: none"> Service Provider (Service Desk)
4.2	Problem resolved?	If the problem has been resolved, go to activity 4.3. If unresolved, go back to activity 3.9.	n/a	n/a	n/a
4.3	Close problem record	Once confirmed that the problem is resolved or is no longer valid, the Service Provider (Operations) closes the Problem Record.	<ul style="list-style-type: none"> Problem Record (S1) - resolved 	<ul style="list-style-type: none"> Problem Record (S1) - closed 	<ul style="list-style-type: none"> Service Provider (Operations)
Stage 5: Problem Review and Reporting					
5.1	Continuous monitoring of on-going problem resolution	The continuous monitoring of the on-going problem resolution is performed using different approaches, for example: <ul style="list-style-type: none"> Check open problems in periodic time slots to verify status. Evaluate impact of any unforeseen difficulties on problem resolution. Regularly check if SLAs / OLAs are about to fail. Regularly check known error and workaround database. 	<ul style="list-style-type: none"> Problem Records (S2) Problem status information SLA / OLAs (S11) Known errors Workarounds 	<ul style="list-style-type: none"> Performed monitoring Analysed problem resolution 	<ul style="list-style-type: none"> SI Problem Management Lead
5.2	Continuous monitoring of provider collaboration	The continuous monitoring of on-going provider collaboration is performed using different approaches, for example: <ul style="list-style-type: none"> Check problem records on number of requests for re-assignment, re-prioritisation and verification of problem record. Evaluate impact of any unforeseen difficulties or problems that occurred during resolution activities. 	<ul style="list-style-type: none"> Problem Records (S2) 	<ul style="list-style-type: none"> Performed monitoring Analysed provider collaboration 	<ul style="list-style-type: none"> SI Problem Management Lead
5.3	Conduct problem review meeting	The SI Problem Management Lead coordinates the problem review meetings, which are arranged at regular intervals.	<ul style="list-style-type: none"> Outstanding Problem Records Problem Review 	<ul style="list-style-type: none"> Problem Review Meeting Minutes (S14) Continual Service 	<ul style="list-style-type: none"> All

Problem Management Process

No.	Activity	Description	Inputs	Outputs	Responsible
		<p>Attendees include, but are not limited to:</p> <ul style="list-style-type: none"> • SI Problem Management Lead • Service Provider (Operations) representatives • Service Provider (Service Desk) representatives • Organisation representatives <p>The meeting will cover topics such as:</p> <ul style="list-style-type: none"> • Service Provider collaboration • Review of open problem records • Review of resolved problems • Potential improvements to process / working practices • Review of outstanding issues <p>During the meeting, the SI Problem Management Lead moderates the session, ensuring fair and productive feedback and a focus on issue resolution.</p> <p>Any recommendations made by the attendees on how to prevent re-occurrence of problems, or relating to improvements that can be made to the service environment, will be captured during this meeting and fed into the Continual Service Improvement process.</p> <p>If there are any issues between various Service Providers that need to be handled, these will be discussed at the meeting.</p> <p>The SI Problem Management Lead documents the problem review meeting minutes and distributes to all attendees / relevant stakeholders.</p>	<p>Meeting Agenda (S13)</p>	<p>Improvement Process (S16)</p> <ul style="list-style-type: none"> • CSI Recommendations (S17) 	
5.4	Produce management reporting	<p>The SI Problem Management Lead produces any relevant reporting to management and also produces minutes from the problem review meeting.</p> <p>These reports and minutes are distributed to all relevant stakeholders.</p> <p>All reports / minutes produced should be loaded into the service knowledge management system, via the Knowledge Management Process.</p>	<ul style="list-style-type: none"> • Problem Records (S1) • CSI Recommendations (S17) • Problem Review Meeting Minutes (S14) 	<ul style="list-style-type: none"> • Problem Management Reports (S15) • Knowledge Management Process (S18) 	<ul style="list-style-type: none"> • Service Provider (Service Desk)

4 ROLES AND RESPONSIBILITIES

Activity		Service Integrator Problem Management Lead	Service Provider Service Desk	Service Provider(s) Operations
Stage 1: Problem Identification				
1.1	Request problem investigation	R / A	I	
1.2	Initiate problem review from trend analysis		R / A	R / A
1.3	Provide supporting information to service desk		I	R / A
Stage 2: Problem Logging				
2.1	Receive and review problem request		R / A	
2.3	Create problem record	I	R / A	
2.4	Informed of new problem record	I	R / A	
2.5	Link associated records	I	R / A	C
2.6	Categorise	C	R / A	C
2.7	Prioritise	C	R / A	C
2.8	Confirm priority of significant problems	R / A	I	
Stage 3: Problem Investigation and Diagnosis				
3.1	Investigate problem record		R / A	
3.2	Link to KE	I	R / A	I
3.3	Link to workaround	I	R / A	I
3.5	Update problem record	I	R / A	
3.6	Allocate problem to service provider(s)	C	R / A	I
3.7	Ratify problem			R / A
3.8	Allocate resources			R / A
3.9	Investigate RCA			R / A
3.10	Define whether new workaround is required	C		R / A
3.11	Document RCA	I		R / A
3.13	Document and submit workaround	C / I		R / A

Problem Management Process

Activity		Service Integrator Problem Management Lead	Service Provider Service Desk	Service Provider(s) Operations
3.15	Investigate solution			R / A
3.16	Document solution	I		R / A
3.17	Propose solution	C / I		R / A
3.19	Test solution / workaround	I		R / A
3.21	Raise change request	I	I	R / A
3.22	Implement workaround / solution	I	I	R / A
3.23	Update problem record	I	I	R / A
Stage 4: Problem Closure				
4.1	Close problem record	I	R / A	
4.3	Close problem record	I	I	R / A
Stage 5: Problem Review and Reporting				
5.1	Continuous monitoring of on-going problem resolution	R / A	C	C
5.2	Continuous monitoring of provider collaboration	R / A	C	C
5.3	Conduct problem review meeting	R / A	R	R
5.4	Produce management reporting	R / A	I	I

Key to RACI Chart:

- Responsible **(R)** : The person / group who has to perform the task
- Accountable **(A)** : The person / group who is accountable for the deliverables of the task
- Consulted **(C)** : Persons who must always be consulted before a decision / action is taken
- Informed **(I)** : Persons who must always be informed after a decision / action is taken

5 SUPPORTING DOCUMENTS

No.	Document Name	Owner	Location
S1	Problem Record	SI Problem Management Lead	Service Management Tool
S2	Incident Management Process	SI Incident Management Lead	Service Knowledge Management System
S3	Major Incident Management Process	SI Major Incident Management Lead	Service Knowledge Management System
S4	Event Management Process	SI Incident Management Lead	Service Knowledge Management System
S5	Release and Deployment Management Process	SI Release Management Lead	Service Knowledge Management System
S6	Known Errors	SI Problem Management Lead	Service Management Tool
S7	Documented Workaround	SI Problem Management Lead	Service Management Tool
S8	Documented RCA	SI Problem Management Lead	Service Management Tool
S9	Documented Solution	SI Problem Management Lead	Service Management Tool
S10	RFC Template	SI Change Management Lead	Service Management Tool
S11	RFC	SI Change Management Lead	Service Management Tool
S12	Change Management Process	SI Change Management Lead	Service Knowledge Management System
S13	Problem Review Meeting Agenda	SI Problem Management Lead	Service Knowledge Management System
S14	Problem Review Meeting Minutes	SI Problem Management Lead	Service Knowledge Management System
S15	Problem Management Report	SI Problem Management Lead	Service Knowledge Management System
S16	Continual Service Improvement Process	SI Continual Service Improvement Management Lead	Service Knowledge Management System
S17	CSI Recommendations	SI Continual Service Improvement Management Lead	Service Knowledge Management System
S18	Knowledge Management Process	SI Knowledge Management Lead	Service Knowledge Management System

6 GLOSSARY

CI	Configuration Item
CSI	Continual Service Improvement
ICT	Information and Communications Technology
ITIL	IT Infrastructure Library
KE	Known Error
OLA	Operational Level Agreement
Problem	"A cause of one or more incidents. The cause is not usually known at the time a problem record is created, and the problem management process is responsible for further investigation." <i>(ITIL definition)</i>
Problem Record	"A record containing the details of a problem. Each problem record documents the lifecycle of a single problem." <i>(ITIL definition)</i>
RCA	Root Cause Analysis
RFC	Request for Change
SI	Service Integrator
SKMS	Service Knowledge Management System
SLA	Service Level Agreement