

Root Cause Analysis (RCA)

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Introduction

This document describes the trigger and process for performing a Root Cause Analysis. It is intended to be a policy of the Scientific Facilities Quadrant. Similar processes are executed elsewhere in the Computing Division, but we find no explicit documented descriptions.

Definition of Root Cause Analysis:

An RCA is distinct from incident or problem resolution. Various definitions are available, but these three seem most appropriate:

- An Activity that defines the underlying or original cause of an Incident or Problem. (OGC: ITIL Service Operation)
- A technique used to identify the conditions that initiate the occurrence of an undesired activity or state. (<http://www.gao.gov/special.pubs/bprag/bprgloss.htm>)
- A process improvement and error or defect prevention tool that examines the individual processes within a system, identifies the control or decision points, and uses a series of why? questions to determine the reasons for variations in the process paths. (<http://www.bridgefieldgroup.com/bridgefieldgroup/glos8.htm>)

Why:

- To identify and determine the cause of underlying failures that lead to significant service degradation or outages
- To identify and determine the cause of recurring problems
- To estimate the resources and activities needed to provide solutions to root cause issues

When:

An RCA can be triggered by any of the following situations:

- In case of a major incident without a known cause (following a reasonable period of investigation), or
- In case of a major incident where the discovered explanation indicates a potential for more incidents, or
- When the view is that a recurring problem has the potential for causing future major incidents but is not being adequately addressed, or

- When there is recognition of an underlying problem resulting in otherwise disparate incidents, or
- When requested by a major stakeholder.

Given one of the previous triggers, an RCA shall be performed given the consensus of quadrant or department leadership.

The expectation is that there will be a small number of RCAs necessary per year for the quadrant.

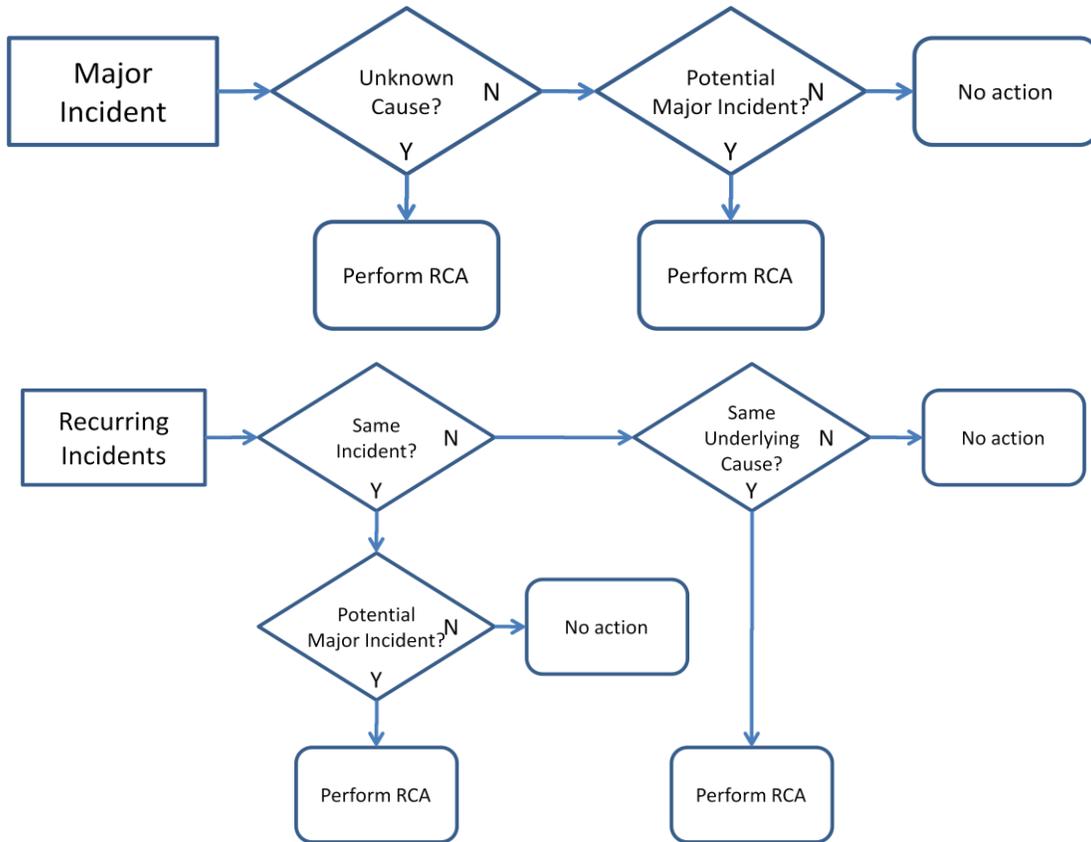
How:

- A Department Head, Group Leader, or delegate shall draft an RCA charge, with Quadrant leadership guidance as needed. The charge should include recommendations for:
 - RCA lead
 - RCA membership, to include topic expert, service stakeholder, individuals significant to any incidents, and department level management relevant to the topic
 - timescale for RCA report
- The RCA team shall follow "Kepner and Tregoe" method¹ of problem analysis:
 - Define the problem
 - Describe the problem in terms of identity, location, time, and service impact
 - Establish possible causes
 - Test the most probable cause (either actual or gedanken experiment)
 - Verify the true cause
- The RCA lead investigator shall produce a succinct RCA memo to:
 - Give a concise description of the initiating incident(s)
 - Summarize the analysis steps
 - Describe the desired change
 - Propose a course of action and schedule
 - Note the consequences of inaction or alternative workarounds
- The RCA report shall be sent to quadrant and department leadership and involved parties as appropriate.
- The RCA report shall be published (DocDB). Personnel, vendor sensitive or similar issues may be inappropriate for DocDB; such references should be sanitized in the published version.
- RCAs currently in progress and associated action items shall be reviewed during quadrant/department meetings.

¹ For example, see <http://www.itsmsolutions.com/newsletters/DITYvol2iss24.htm>

Process Flow Charts:

Decision Process:



RCA Process:

