

# GACA-ANS Safety Management System Overview

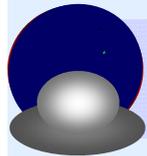
Kuwait, 25 May 2015

By Thamer AL-SRISRI

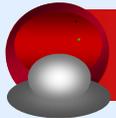
Director, Safety & Quality Dept.



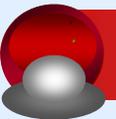
# GACA-ANS Safety Management System Overview



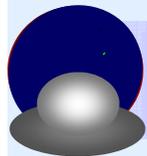
Part 1 – GACA-ANS SMS Planning, Development & Revision



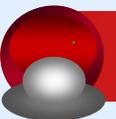
Work-Package development Approach



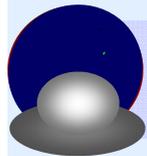
Main Work-Package & Deliverables



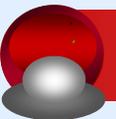
Part 2 – Safety Assurance – Implementation Case



Technical Occurrence - Study Case



Part 3 – Evolvment of GACA-ANS Safety Management



*iSMS – Integrated Safety Management System*



# Part 1 – GACA-ANS SMS

## Planning, Development & Revision



# Work package development Approach applied by GACA-ANS (1/2)

Three phases

## Definition and Drafting of the Work Package

- ◆ Set up of Ad-hoc taskforce involving all ANS concerned department
- ◆ Drafting & secretariat (SQA technical Staff)
- ◆ Based on SMS international best practices
- ◆ Documentation based on quality assurance processes

## Coordination / Review Verification / Validation

- ◆ All drafted material is submitted to the ANS concerned department for comments and views
- ◆ Meetings for the final review and validation
- ◆ All activities shall be within the timeframe allocation
- ◆ Drafted material is submitted to ICAO – ANB for comments (When possible)

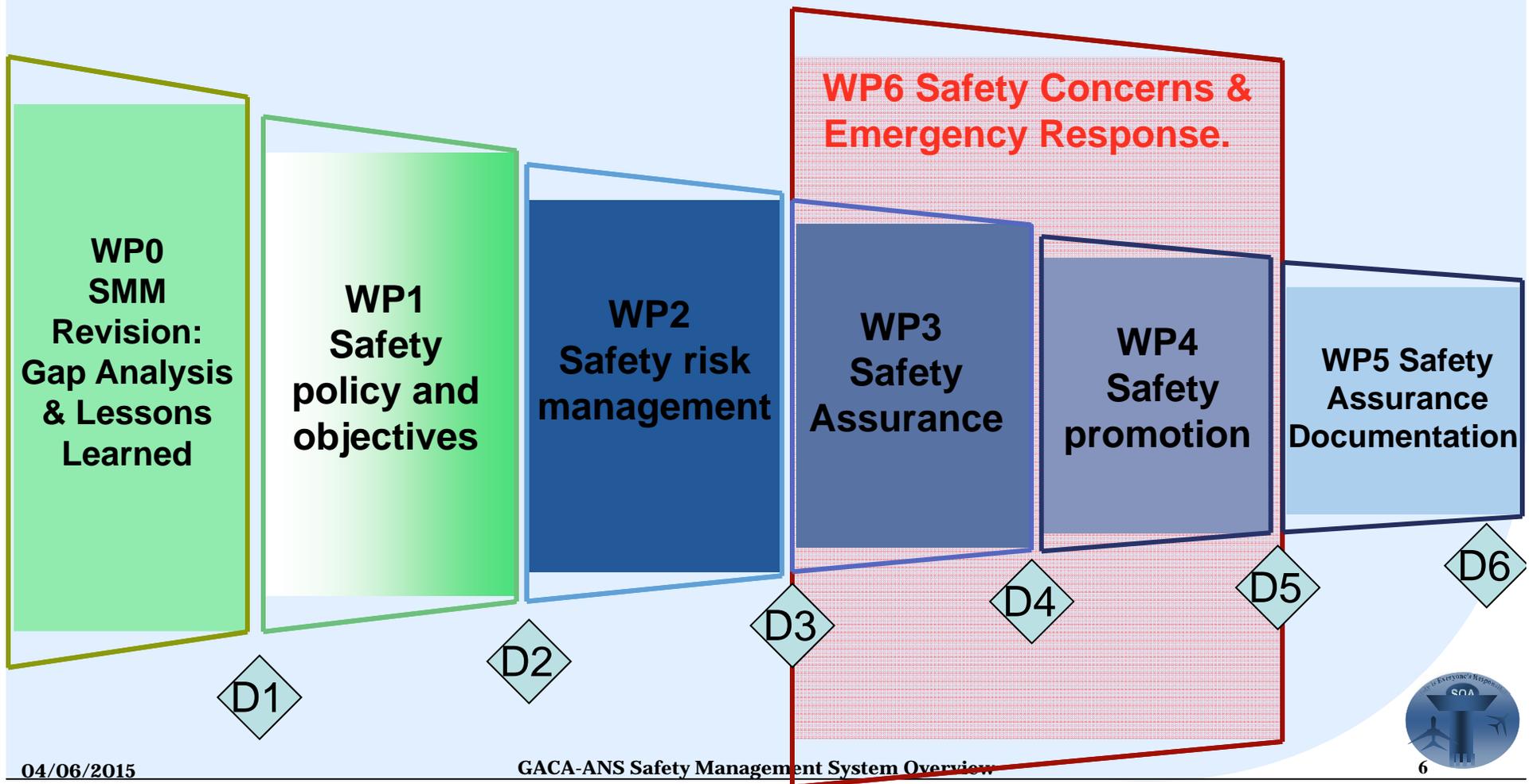
## Approval Implementation / Survey / Evaluation

- ◆ Requirements approval from the GACA-ANS
- ◆ Guidance material approval from the ANS VP. The SQA is supporting the implementation process
- ◆ Inspections, audits and surveys are organized after an agreed transition period
- ◆ All SMS procedures and processes are subject of an external assessment when possible
- ◆ All approved SMS documentation is distributed.





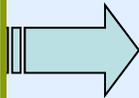
# Main Work Package and Deliverables



# WP0 – SMM Revision: Gap Analysis & Lessons Learned (1/2)



**WP0  
SMM  
Revision:  
Gap Analysis  
& Lessons  
Learned**



## Main tasks

- ▶ Conduct a large consultation within ANS to identify all required changes to SMM (Content & Formatting)
- ▶ Identify new national and International ANS Safety requirements
- ▶ Identify new SM trends & International ANS Best Practices

## Objectives

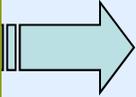
- ▶ identify new components, elements and best practices that could be used in the revision and implementation of the SMS system.
- ▶ identify ANS Safety requirements that should be considered (Based on ICAO & other international requirements (FAA, Eurocontrol...))



The SQA has drafted a Gap analysis & lessons learned Report that has been considered in the SMM Revision.



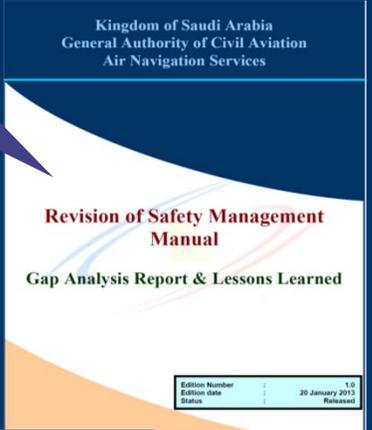
**WPO  
SMM  
Revision:  
Gap Analysis  
& Lessons  
Learned**



## Way of performing

- ▶ Identify all required References & Material
- ▶ Designation of focal point for each concerned department
- ▶ Collection of views, comments & observations
- ▶ Meetings with the concerned ANS departments
- ▶ Set up ad-hoc taskforce with the involvement of Staff from the concerned ANS departments

## Output



Kingdom of Saudi Arabia  
General Authority of Civil Aviation  
Air Navigation Services

**Revision of Safety Management Manual**  
Gap Analysis Report & Lessons Learned

Edition Number : 1.0  
Edition date : 20 January 2013  
Status : Released



International Standards and Recommended Practices

Annex 1.8  
to the Convention on International Civil Aviation

**Safety Management Manual (SMM)**

The first edition of Annex 1.8 was adopted by the Council on 10 February 2011 and became applicable on 10 November 2012.

This Amendment, applying the applicability, the Annex to the International Convention, will replace 2 and the Foreword.

First Edition  
July 2013

International Civil Aviation Organization

2013

International Civil Aviation Organization



# GACA-ANS – Safety Management Manual

**General Authority of Civil Aviation  
Air Navigation Services**

## Safety Management Manual

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**March 2013**

Air Navigation Services	Safety Management Manual	Date: 26/03/2013
Safety & Quality Assurance Department	Safety Management Manual Chapters	ANS-SQA-SMM-GEN-01 Edition: 2.0 Revision: 01

### Safety Management Manual Chapters

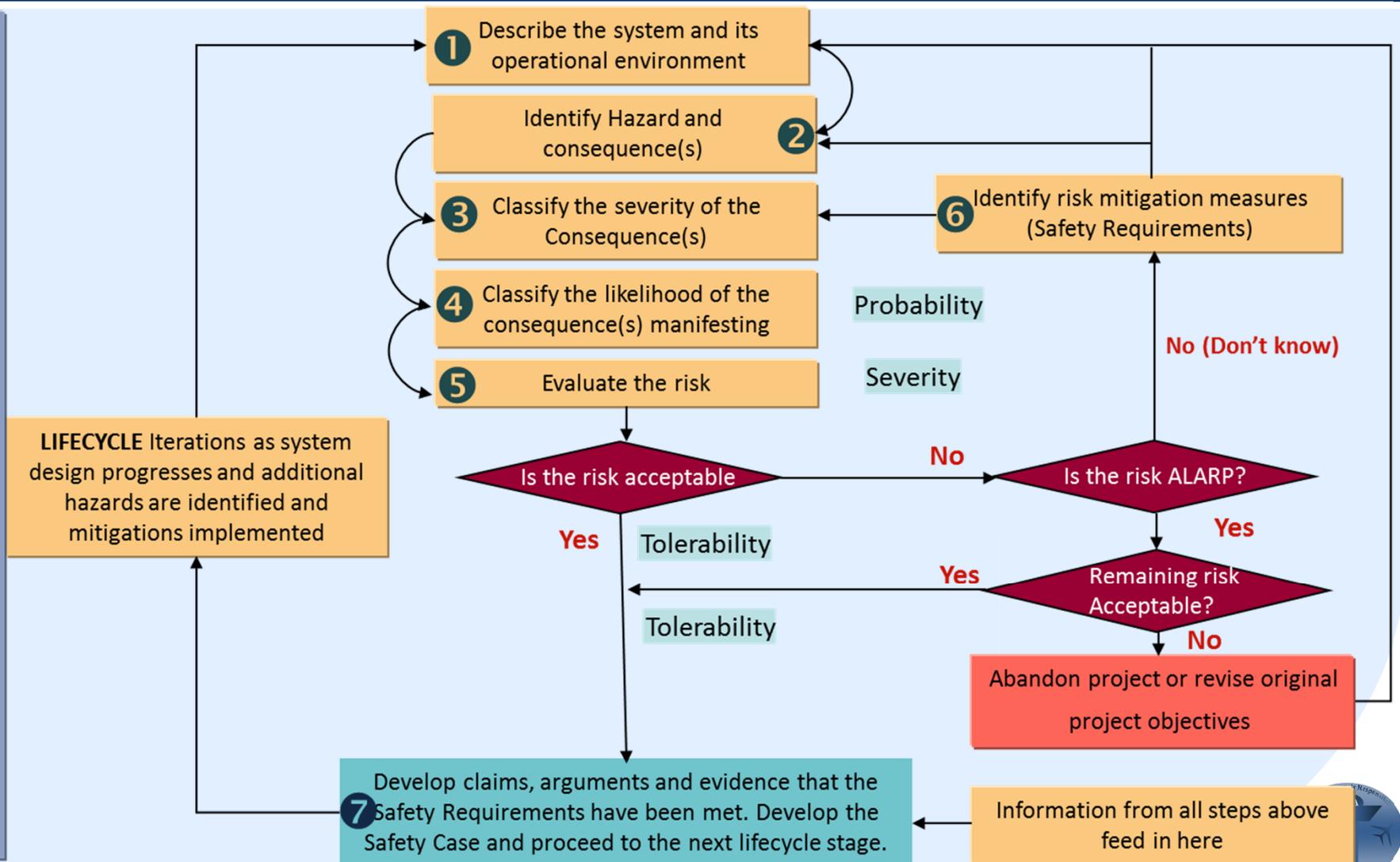
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Edition 2.0  
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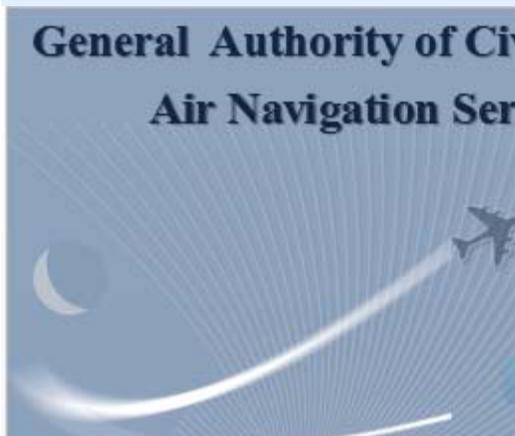
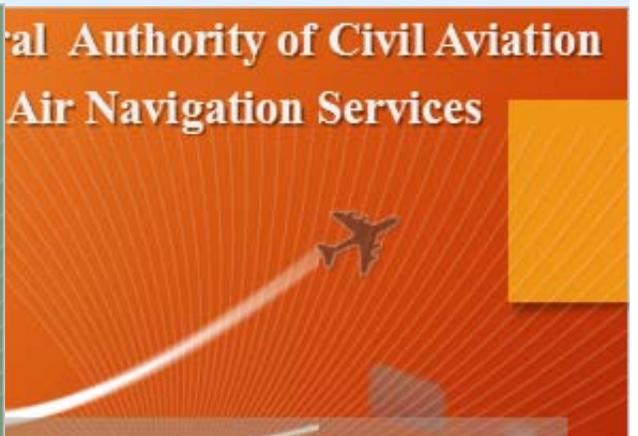
Gen 1

# GACA-ANS – Safety Assessment Methodology

## SEVEN STEPS



# GACA-ANS – Safety Assessment Deliverables (Samples)

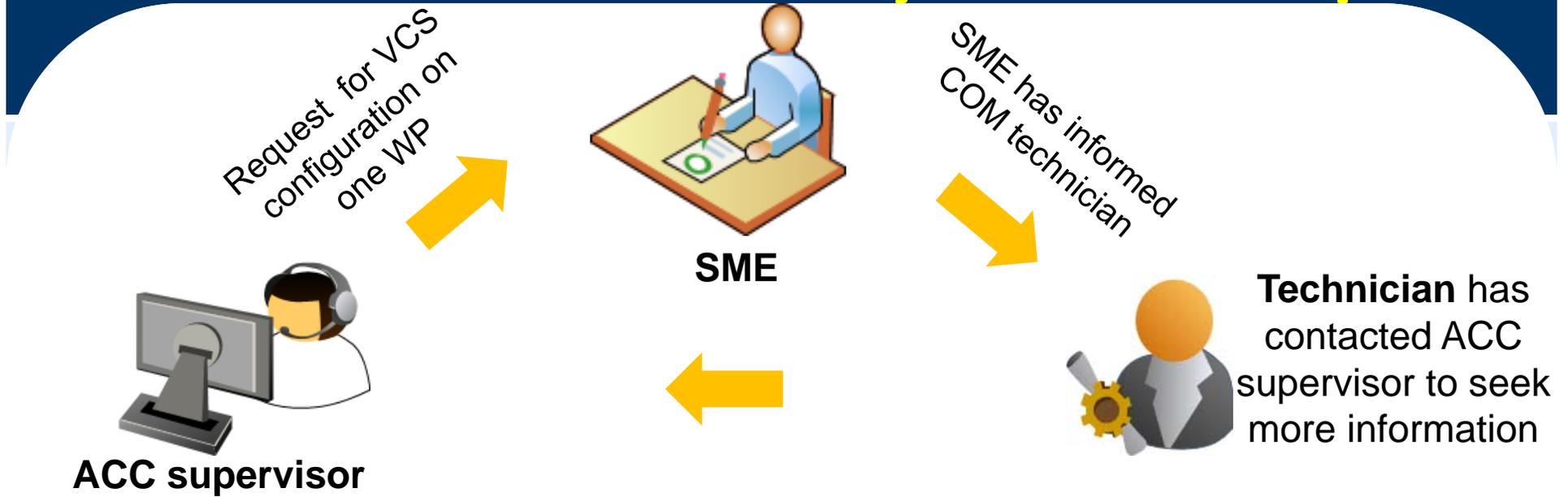
<p><b>General Authority of Civil Aviation</b> <b>Air Navigation Services</b></p>  <p><b>Safety Assessment for Realignment of Jeddah and Bahrain FIRs</b></p> <p>© GACA-ANS/SQA – 2013 – All right reserved - All information contained in this document remains the sole and exclusive property of GACA-ANS. No part of it may be copied, or disclosed by the recipient to third persons, without the prior written consent of GACA-ANS .</p> <p>For additional information, Please visit GACA-ANS Web-Site: <a href="http://www.ans.gov.sa">www.ans.gov.sa</a> or contact – GACA-ANS – Safety &amp; Quality Assurance Department Tel + 966 2 6717 717 – Ext 1900 - 1905 Fax +966 2 6717 717 – Ext 1903</p>	<p><b>General Authority of Civil Aviation</b> <b>Air Navigation Services</b></p>  <p><b>MSTs/PRISMA (New ATM System) Safety Assessment</b></p> <p>© GACA-ANS/SQA – 2014 – All right reserved - All information contained in this document remains the sole and exclusive property of GACA-ANS. No part of it may be copied, or disclosed by the recipient to third persons, without the prior written consent of GACA-ANS .</p> <p>For additional information, Please visit GACA-ANS Web-Site: <a href="http://www.ans.gov.sa">www.ans.gov.sa</a> or contact – GACA-ANS – Safety &amp; Quality Assurance Department Tel + 966 12 6717 717 – Ext 1900 - 1905 Fax +966 12 6717 717 – Ext 1903</p> <p><b>September 2014</b></p>	<p><b>General Authority of Civil Aviation</b> <b>Air Navigation Services</b></p>  <p><b>Safety Assessment of the transition for the Realignment between Jeddah and Bahrain FIRs</b></p> <p>© GACA-ANS/SQA – 2013 – All right reserved - All information contained in this document remains the sole and exclusive property of GACA-ANS. No part of it may be copied, or disclosed by the recipient to third persons, without the prior written consent of GACA-ANS .</p> <p>For additional information, Please visit GACA-ANS Web-Site: <a href="http://www.ans.gov.sa">www.ans.gov.sa</a> or contact – GACA-ANS – Safety &amp; Quality Assurance Department Tel + 966 2 6717 717 – Ext 1900 - 1905 Fax +966 2 6717 717 – Ext 1903</p> <p><b>December 2013</b></p>
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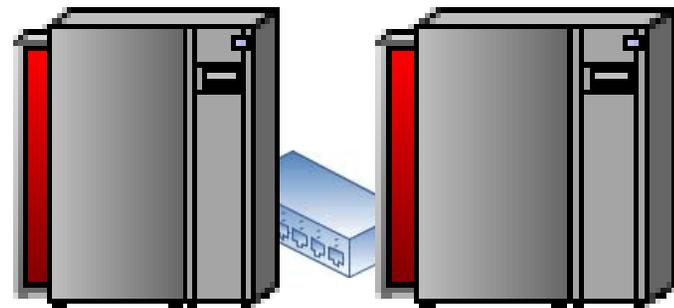
# Part 2 – Occurrence Reporting – Implementation Case



# Study case description



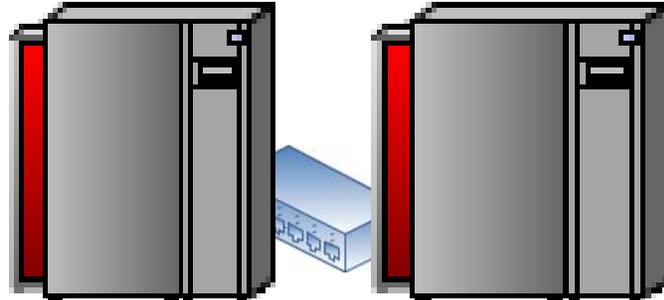
## Technical rooms



Configuration Management of Voice Communication System - Access to modify setting of one Frequency on one working position

The global map of all working positions re-configured by mistake – Loading of wrong VCS mapping for A/G and G/G for 22 ATC working Positions.

# Study case description cont'd



The global map of all working positions re-configured accidentally – Loading of wrong VCS mapping for A/G and G/G.

**ACC**



**APP**



**TWR**



## Loss of G/G & A/G Communications

**ACC**

ACC (5 sectors in service) –  
Fail to activate EVCS –  
External Assistance – EVCS  
configured on Riyadh RTF &  
G/G – Transfer of ATC  
functions for 3 sectors – Air  
to Air COM (West & south)



**APP**



Activation of backup Equipment

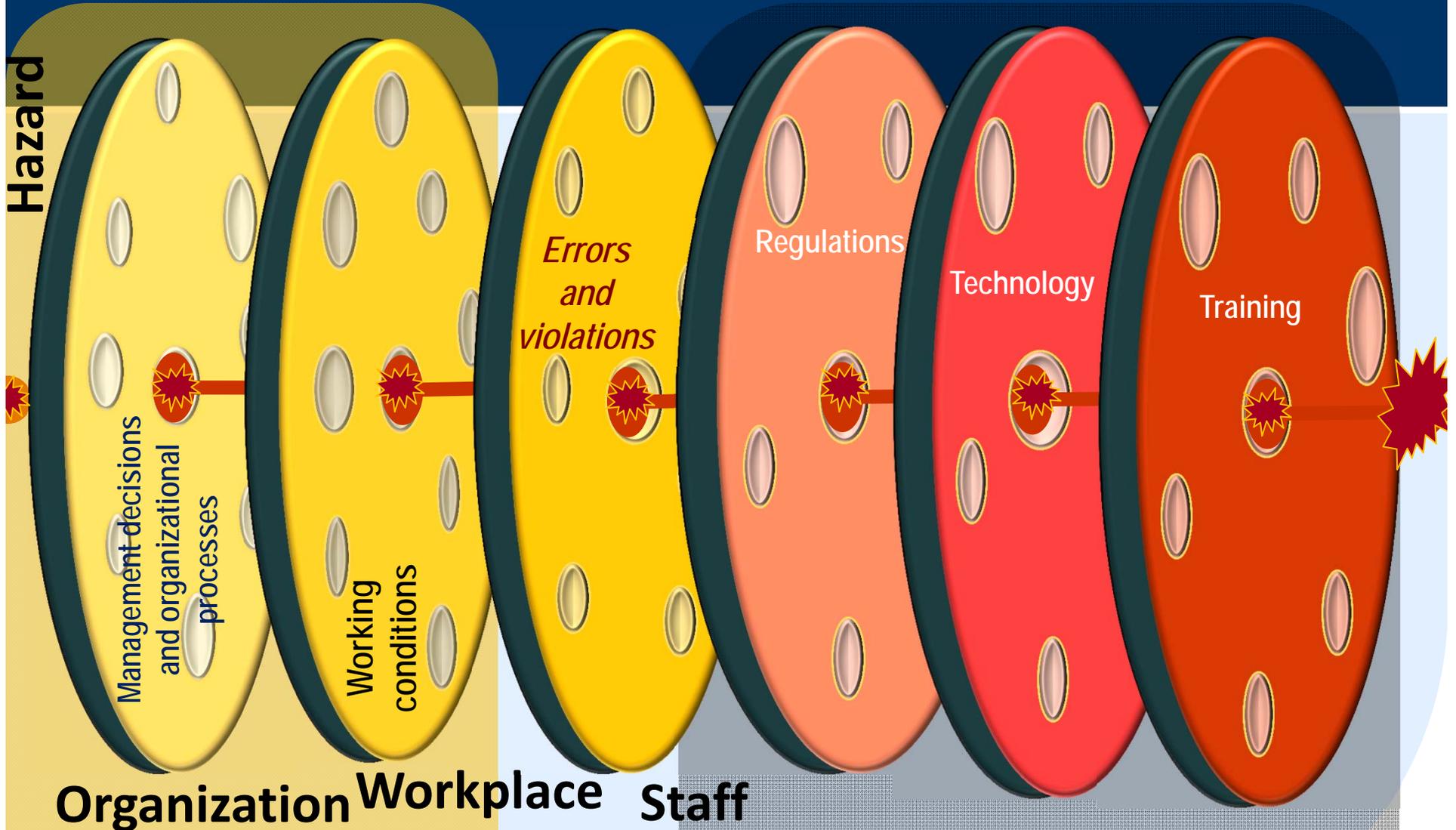
**TWR**



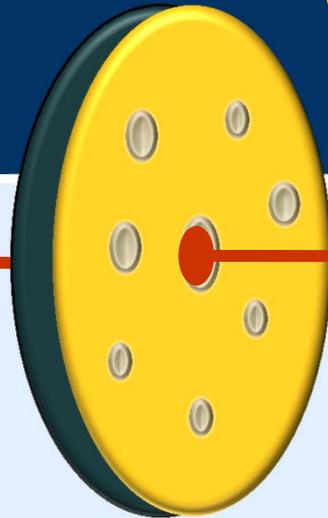
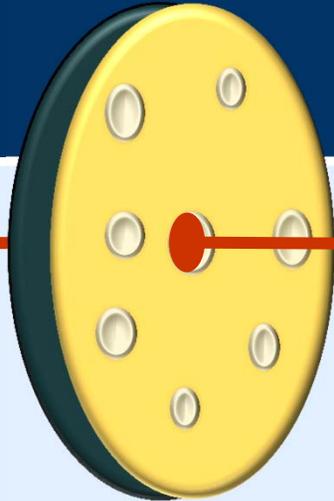
APP smooth transition to  
use backup radios  
(transceivers)

TWR ATCOs have asked  
COM section support to use  
portable radios

# Technical Occurrence causation model



# Study case analysis



## Organizational factors

- 🔥 **No Implementation of ANS Policy on COM systems OJT**
- 🔥 **Limited Contingency measures to handle abnormal situations**
- 🔥 **No Maintenance Policy on critical functions and configuration management**

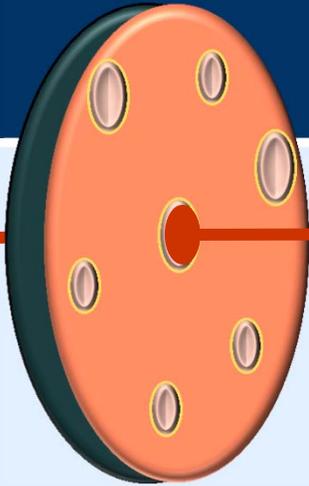
## Workplace factors

- 🔥 **Open Access to configuration management features.**
- 🔥 **No warning signs on system configuration changes effects.**

## Active failures

- 🔥 **Initiation of configuration management change without appropriate skills / knowledge**
- 🔥 **Poor judgment.**

# Occurrence Analysis



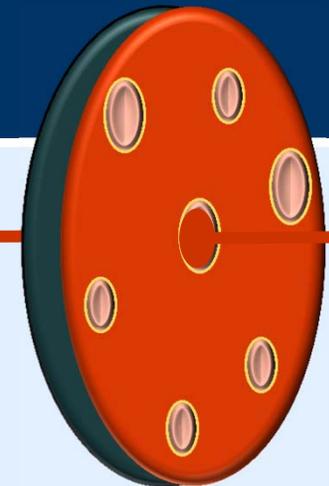
## Regulation defense

- ◆ **No** Maintenance Procedures for configuration management
- ◆ **No** Requirements on critical function changes
- ◆ **No** Requirements on technician skills for system setting and configuration
- ◆ **Insufficient** Requirements on Contingency measures



## Technology defense

- ◆ Limited Control of user's actions on critical setting and configuration management
- ◆ Weak control of privileges access for critical changes
- ◆ Weak capabilities for automatic system restoring



## Training defense

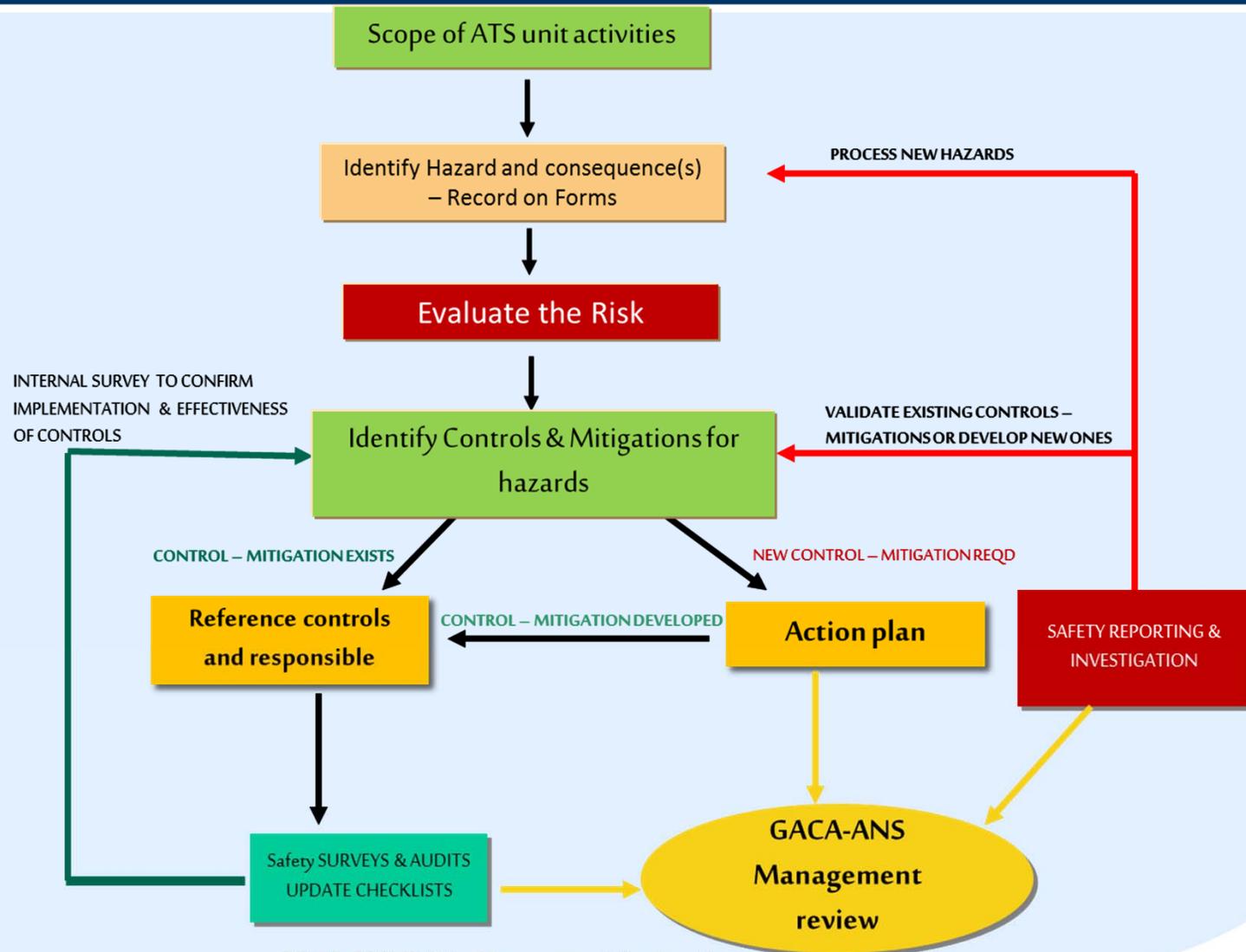
- ◆ Weak skills and knowledge on system configuration management
- ◆ Weak training on contingency measures
- ◆ No training on maintenance procedures and human performance.

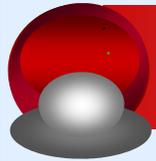
# Part 3 – GACA-ANS | Next Steps

## Integrated Safety Management System

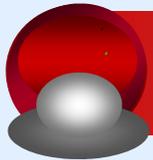


# GACA-ANS – Unit Safety Case

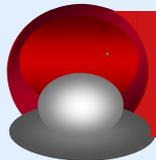




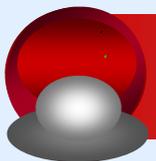
iSMS will consider the various activities and tasks of each ATS Unit



iSMS will be driven by Operational & Technical activities



Direct link between ATC Front line & Maintenance & Controls



Direct link between Recovery activities & Mitigations



