



ICAO MID



RANP/NANP TF/1-WP/xx
2/12/24

First Meeting of the NANP/RANP Task force (MIDANPIRG Decision 20/12)

Ref. Agenda item 6:
Performance-Based Approach
MID ANP Volume III
Development of National Air Navigation Plans (NANP)

Cairo, Egypt 19-22 February 2024
ICAO MID Office

Presented by





ICAO MID



SNAP

A large white commercial airplane is shown flying through the letters of 'SNAP'. The plane's wings and engines are visible, and it appears to be flying from left to right. The letters are a light blue color with a white outline.

Saudi National Air Navigation Plan

Executive View





Preliminary statements

What is the SNAP?



- **The Masterplan** for ANS planning, development, and deployment of innovative operational concepts and technological solutions in the period until 2040
- A **“living” document** intended to ensure that the development and deployment activities remain strongly connected to KSA strategic priorities

Why is the SNAP particularly needed in Saudi Arabia?



- To meet the **KSA air traffic volumes** increase forecasts
- To ensure timely and orderly integration of **new entrants and airspace users**
- To facilitate **integration and interoperability** between ANS providers and stakeholders
- To tackle **environmental concerns**

What are the main reference documents to draft the SNAP?



In the process of drafting the SNAP, the project team ensures the maximum **compliance with ICAO guidelines** for developing a National Air Navigation Plan (NANP), by linking SNAP to the main ICAO reference documents: *Global Air Navigation Plan (GANP)*, *Global Aviation Safety Plan (GASP)*, *Global Aviation Security Plan (GASeP)*, *Mid Region Air Navigation Strategy (MIDAN Strategy)*, *ICAO MID electronic Air Navigation Plan (MID eANP Volume III)*, *Manual on Global Performance of the Air Navigation System*, etc.



The SNAP compliance with the PBA approach

In the process of SNAP drafting, the PBA approach described in *ICAO Doc 9883* is being followed.

1 DEFINITION OF SCOPE, CONTEXT, AMBITIONS AND EXPECTATIONS

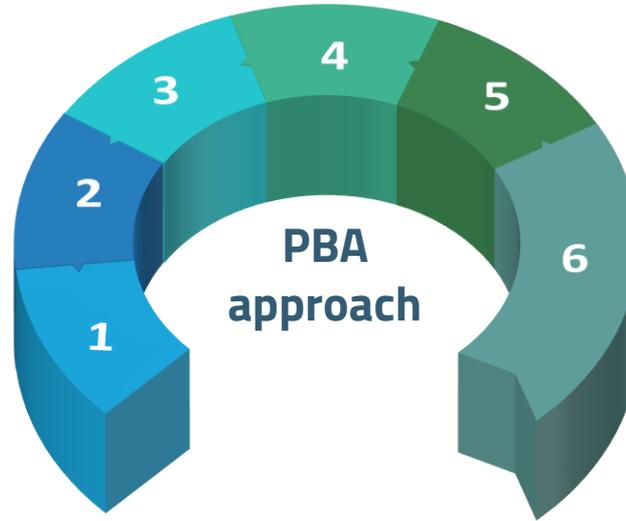
Definition of the SNAP scope and context and of the KSA ANS Strategy & Policy as well as preliminary identification of performance ambitions and expectations through input data analysis and first round of Stakeholder Consultation

2 IDENTIFICATION OF OPPORTUNITIES, ISSUES AND OBJECTIVES SETTING

Recognition of strengths, weaknesses, issues and opportunities for ANS modernization and initial identification of implementation objectives through a SWOT analysis

3 QUANTIFICATION OF OBJECTIVES

Analysis of the expected benefits to be delivered by through the identified implementation objectives taking into account ICAO KPAs and KPIs



SELECTION OF SOLUTIONS 4

Identification of the most suitable deployment scenarios that ensure the achievement of the performance ambitions and expectations

IMPLEMENTATION OF SOLUTIONS 5

Definition of roadmaps by aggregating deployment scenarios for each Stakeholder category

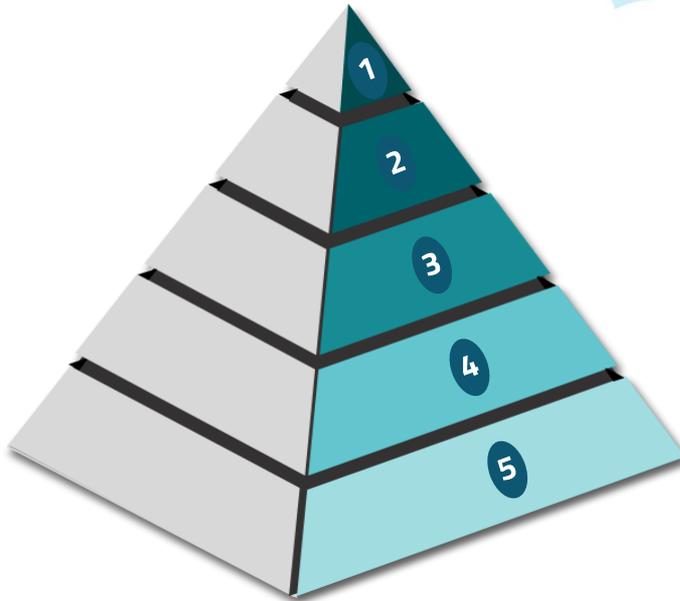
REVIEW AND ASSESSMENT ON THE ACHIEVEMENT OF THE OBJECTIVES 6

Definition of methodology and process for monitoring and reporting on SNAP implementation and performance



SNAP Multilayered Structure

The SNAP project team created a multilayered structure for SNAP, based on the 5 levels outlined below.



Strategy, policy, objectives and governance

ANS modernization

Deployment roadmaps

Performance monitoring and reporting

Annexes & Appendixes

SNAP Layer 1 - Strategy, policy, objectives and governance

Layer 1 aims at providing key elements in terms of scope and context in which the SNAP is developed, along with strategy, policy and performance ambitions in ANS and governance structure.

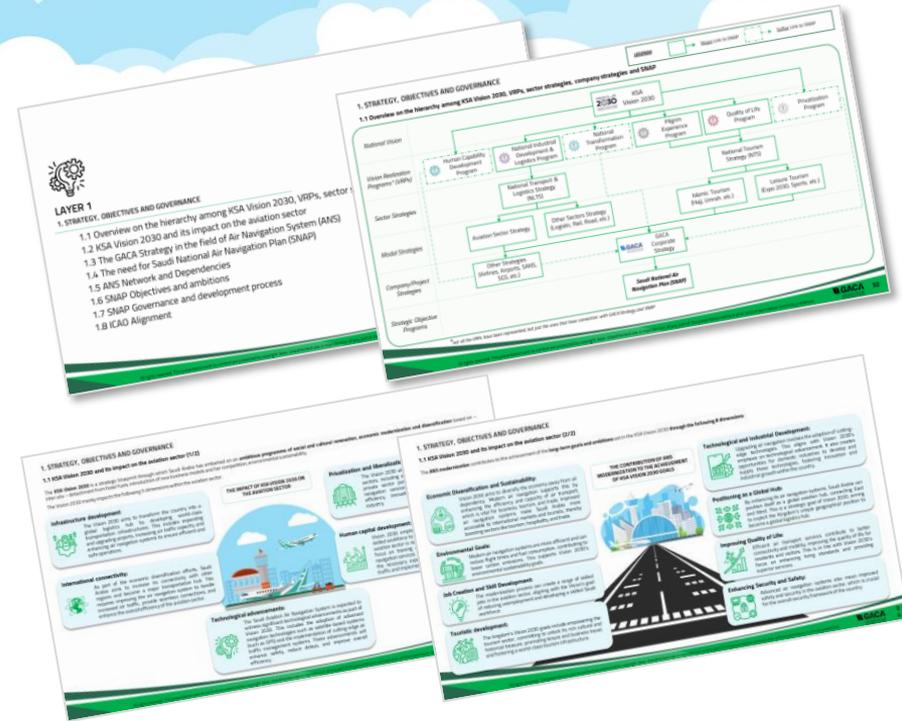
The **SCOPE** and the **CONTEXT** encompasses the following key information:

- The **KSA Vision 2030 impact on the civil aviation sector**
- The **SNAP contribution to the achievement of KSA Vision 2030 goals**
- The **GACA Civil Aviation Strategy & Policy (Key Pillars)**

With reference to **STRATEGY, POLICY & PERFORMANCE AMBITIONS**, Layer 1 includes:

- **High-level policy statements** that work as guiding principles to support the law/regulation-making process
- **The response to the existing challenges** for ANS in Saudi Arabia
- A preliminary identification of **performance ambitions**
- **ANS Network strengthening guidelines** and related advantages

Finally, Layer 1 defines the **SNAP GOVERNANCE**, the methodology for **SNAP development and validation** (with a clear identification of roles & responsibilities, processes and formal check-points to discuss, review and approve contents) and the **methodology through which Stakeholders are engaged and consulted**.



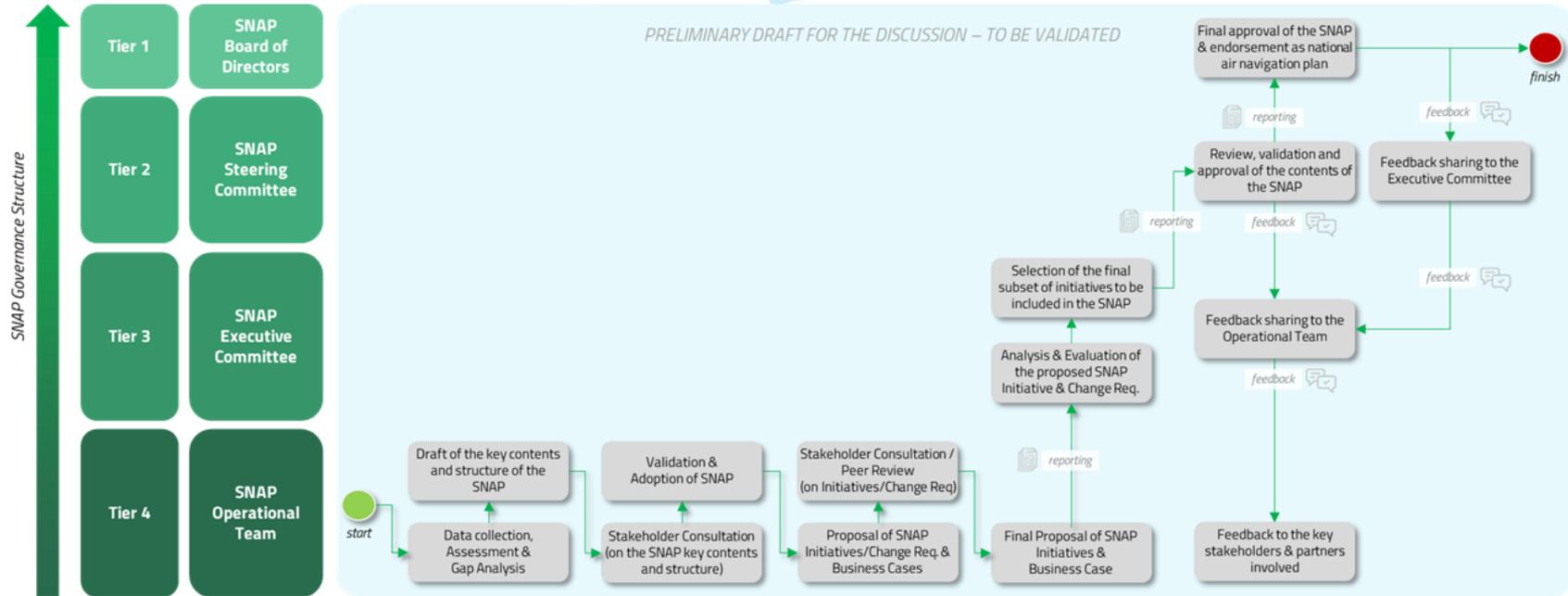
SNAP Layer 1 - SNAP Governance 1/2

The methodology for SNAP development and validation (with a clear identification of roles and responsibilities, processes, and formal checkpoints to discuss, review and approve contents) and the methodology through which Stakeholders are engaged and consulted.

SNAP Governance Structure		Members	Description
Tier 1	SNAP Board of Directors	GACA Chairman (Chair) GACA Board of Directors	This is the higher level of the Governance structure. Its responsibilities can be summed up as follows: <ul style="list-style-type: none"> i) Endorsing the contents of the SNAP and its updates, promoting its adoption as national air navigation plan. ii) Communicating top-down any change in the strategic priorities.
Tier 2	SNAP Steering Committee	GACA President (Chair) <i>Reports to:</i> SNAP Board of Directors	This is the second level of the Governance structure. Its responsibilities can be summed up as follows: <ul style="list-style-type: none"> i) Validating and approving the contents of the SNAP, before to be shared and agreed with the Board of Directors. ii) Validating and approving any update of the SNAP, emerging from a change request approved by the GACA Executive Committee. iii) Reporting, at least yearly and on-demand, to the Min. of Transportation about the overall SNAP implementation progress. iv) Informing the SNAP Governance regarding any strategic guideline to be applied top-down to the SNAP (i.e. due to changes in strategic priorities coming from the Ministry of Transportation or the evolution of regulations & policies).
Tier 3	SNAP Executive Committee	GACA Executive VP (Chair) Service Providers (ANSPs) and Stakeholders Repres. <i>Reports to:</i> SNAP Steering Committee	This is the third level of the Governance structure. Its responsibilities can be summed up as follows: <ul style="list-style-type: none"> i) Selecting the final subset of Projects to be included in the SNAP, among those proposed by the SNAP Operational Committee. This will be achieved evaluating the contents of the Business Case. ii) Overseeing the overall SNAP implementation plan and the supporting internal processes and tools to monitor risks, issues, mitigation actions, policy and regulatory evolutions/amendments. iii) Reporting, at least quarterly and on-demand, to the SNAP Steering Committee about the overall SNAP implementation progress.
Tier 4	SNAP Operational Team	GACA head of Dept. Service Providers (ANSPs), and Stakeholder Repres. <i>Reports to:</i> SNAP Executive Committee	This is the lower level of the Governance structure. Its responsibilities can be summed up as follows: <ul style="list-style-type: none"> i) Collecting the Projects to be proposed to the Executive Committee for the inclusion in the SNAP, supported by a Business Case evaluating different scenarios and described following a pre-defined set of information (i.e. project name & description, OIS and technical enablers, ASBU Thread & Elements, benefits, KPIs, key activities, timeline, risks & mitigation actions, interrelation, etc.). ii) Orchestrating a "peer review" on each change request proposed by the stakeholders, to validate the data provided. iii) Collecting the request for changes to the SNAP, to be detailed, validated, and presented to the Executive Committee for approval. iv) Reporting, monthly, to the Executive Committee on the implementation of the subset of Projects approved by the Steering Committee and formally included in the SNAP, presenting updated data regarding the progress of initiatives and projects.

SNAP Layer 1 - SNAP Governance 2/2

The methodology for SNAP development and validation (with a clear identification of roles and responsibilities, processes, and formal checkpoints to discuss, review and approve contents) and the methodology through which Stakeholders are engaged and consulted.





SNAP Layer 2 - ANS modernization (1/2)

Layer 2 aims at highlighting issues and opportunities for ANS modernization and identifying solutions to be implemented in the KSA by 2040.

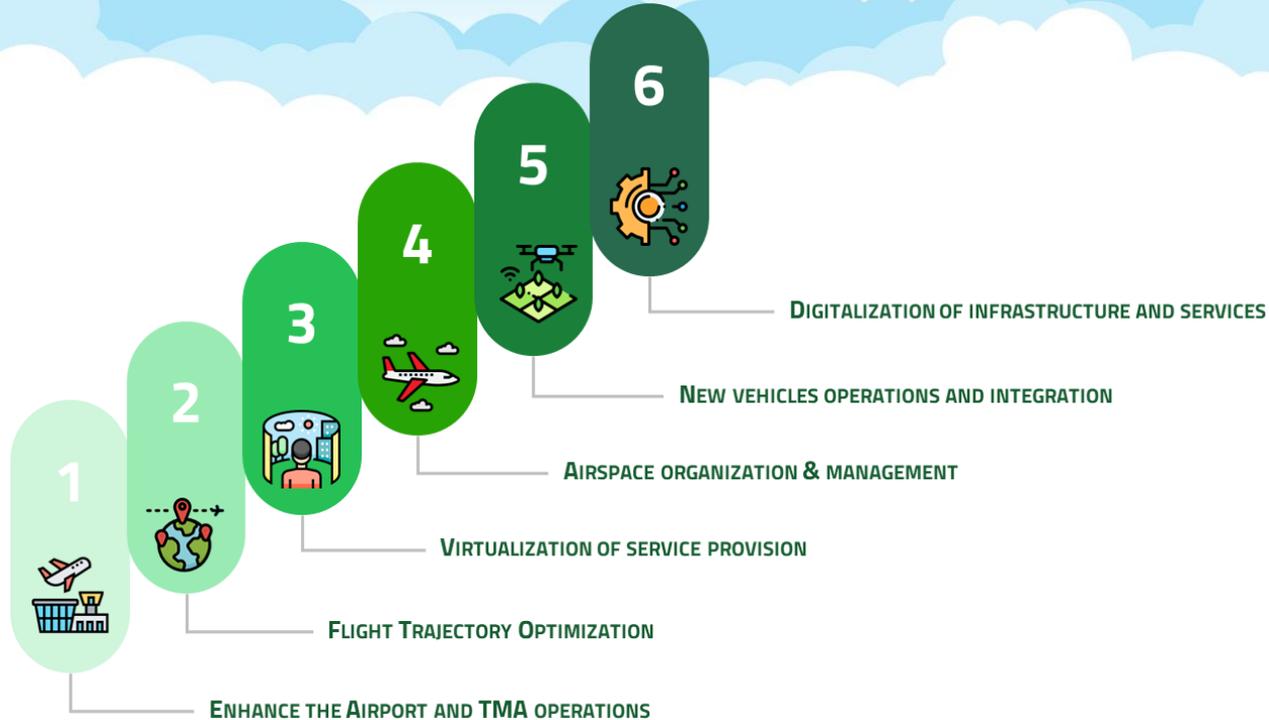
Layer 2 illustrates the main outcomes of the SWOT Analysis executed on KSA current Air Navigation System components*. The analysis provides a foundational understanding of the **ISSUES** and **OPPORTUNITIES** for each of ANS components, its **strengths, inefficiencies** as well as its main **future challenges**, against which **key recommendations** are put forward to support decision-making.

The **integration of emerging technologies** (e.g. Artificial Intelligence & Machine Learning) and the **strengthening of cybersecurity** are seen as two unparalleled opportunities for ANS modernization. On the other side, the establishment of a **coordination mechanism between SNAP and the National Safety Aviation Plan (NASP)** is deemed as an issue to be promptly tackled.



(*) The SWOT analysis covers 7 components: Air Navigation Services Operations, Airspace and Instrument Flight Procedure Design Assessment; Aeronautical Information Management and Meteorological Services; ATM & Flexible Use of Airspace; Search and Rescue Operations; Human Resources; Technologies

SNAP Layer 2 - Initiatives Overview





SNAP Layer 2 - Projects Overview

1



ENHANCE THE AIRPORT AND TMA OPERATIONS

- A-CDM
- A-SMGCS
- TBS
- RECAT
- AMAN-DMAN

2



FLIGHT TRAJECTORY OPTIMIZATION

- TBO
- ATFM
- PBN
- Parallel Approaches – Simultaneous Departures

3



VIRTUALIZATION OF SERVICE PROVISION

- Remote Towers
- Remote Towers Centre
- Virtual and remote ATS facilities

4



AIRSPACE ORGANIZATION & MANAGEMENT

- MSP
- Dynamic sectorization
- Free Route
- FUA
- FIC

5



NEW VEHICLES OPERATIONS AND INTEGRATION

- Very Low-Level Operations (UTM and UAM)
- High Airspace Ops (HAO)
- RPAS

6



DIGITALISATION OF INFRASTRUCTURE AND SERVICES

- Tools based on artificial intelligence
- Conflict Resolution Assistant
- Data Link
- SWIM
- Digital AIS and MET
- Enhanced Surveillance
- SATCOM



SNAP Layer 3 - Deployment roadmaps

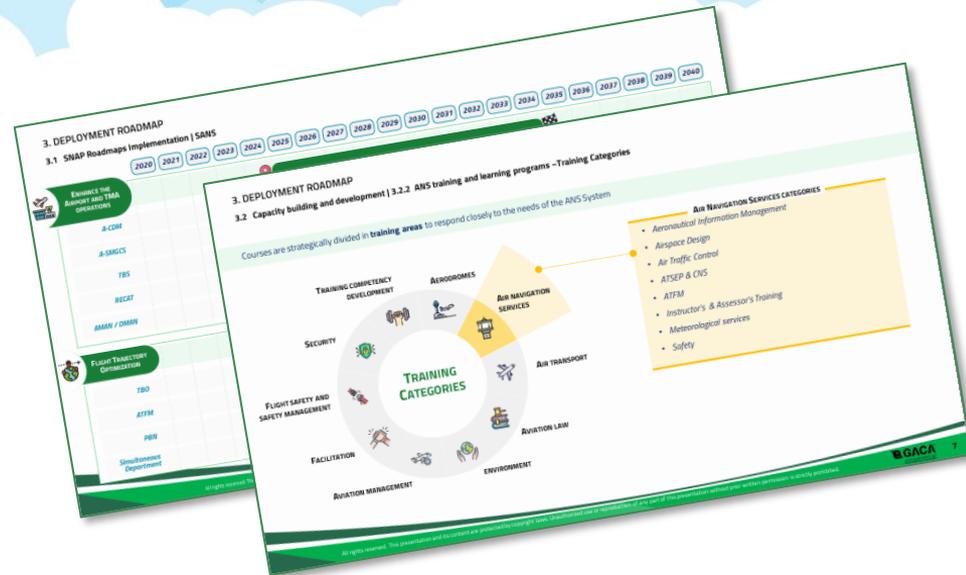
Layer 3 aims at providing deployment roadmaps for each Stakeholder category and highlighting Capacity Building needs and strategies to enable the effective implementation of the SNAP.

Layer 3 is where Implementation Objectives/Projects are organized into **deployment roadmaps**. Deployment roadmaps are generated by aggregating the selected deployment scenarios per Stakeholder category. Deployment Roadmaps, therefore, provide detailed strategies and plans for **SOLUTIONS' IMPLEMENTATION** from a Stakeholder category perspective.

Moreover, Layer 3 provides a focus on **Capacity Building & Development** in SNAP. It is based on **Training Needs Assessments (TNAs)**, and it is structured into 3 phases:

- *Preparation*
- *Implementation*
- *Evaluation*

Capacity building is organized into **4 clusters of activities** (Recruiting, Training, Licensing and Monitoring) and it is focused on **Air Navigation Services** training programs, such as AIM, ATFM, ATSEP & CNS.



SNAP Layer 4 - Performance monitoring and reporting

Layer 4 aims at defining methodologies and processes to enable the effective performance monitoring and reporting cycle.

Layer 4 provides a comprehensive view of the **KSA 2040 performance ambitions** for each Key Performance Area (KPA) and selected Key Performance Indicators (KPIs).

It also includes **Safety Management considerations** and a focus on the **Safety Performance Monitoring**.

Finally, Layer 4 defines methodologies, processes and KPIs for **MONITORING & REPORTING ACTIVITIES** on SNAP overall implementation and on Projects' performance.

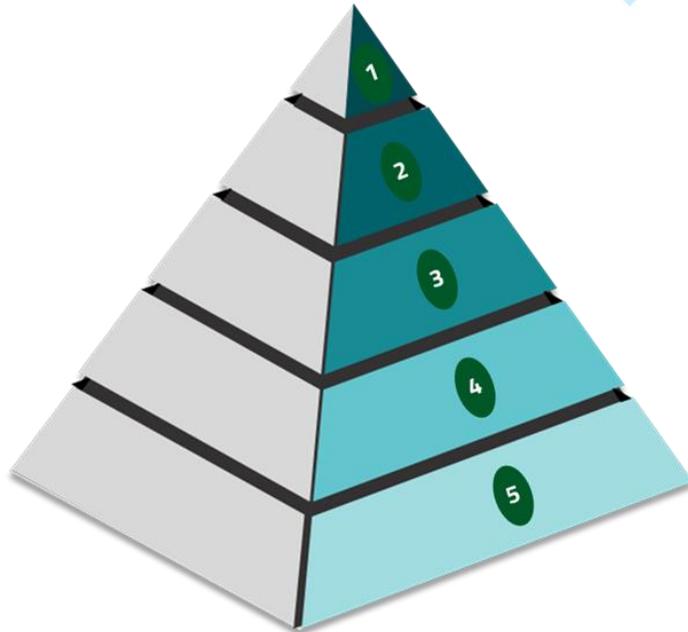
The SNAP implementation and performance Monitoring and Reporting is supported by a **Web-based Portal** as per ICAO recommendation.

The collage displays three overlapping pages from the SNAP Layer 4 manual. The top page is titled '4. PERFORMANCE MONITORING AND REPORTING' and '4.5 SNAP Performance & Implementation Monitoring | Monitoring and Control Process key elements (1/2)'. It defines a Monitoring and Control (M&C) process and lists implementation objects: Planning Baseline, Actual Planning, Planned Progress, Actual Progress, and Decision 5. The middle page is titled '4. PERFORMANCE MONITORING AND REPORTING' and '4.5 SNAP Performance & Implementation Monitoring | Monitoring and Control Process key elements (2/2)'. It details the 'WHEN' section, describing continuous monitoring and recurrent gates monitoring. The bottom page is titled 'HOW' and describes the M&C process support, listing tools like the Project Portfolio Management Tool, SNAP Web App, and the Project Manager. It also mentions the SNAP Operational Team's role in updating aggregated data.



SNAP Layer 5 - Annexes and Appendixes

Layer 5 includes all the relevant annexes and appendixes aimed at complementing the information reported in the SNAP and deep-diving specific topics which might be relevant to the stakeholders to clarify the contents of the SNAP (e.g., mapping of the ANS modernization initiatives proposed in the KSA with the contents/guidelines of the GANP published by ICAO).



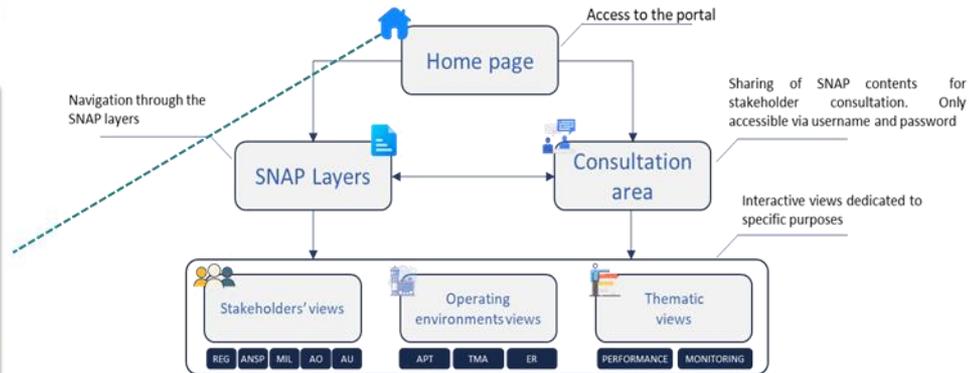
Annexes & Appendixes

This layer will include all the relevant annexes and appendixes, aimed at complementing the information reported in the SNAP and deep-diving specific topics which might be relevant to the stakeholders in order to clarify the contents of the SNAP (e.g. mapping of the ANS modernization initiatives proposed in the KSA with the contents/guidelines of the GANP published by ICAO).



SNAP Web Portal

The home page represents the access point to the key portal areas. Each element within the Homepage is interactive, allowing access to the related web pages. For instance, the pyramid is clickable in all its layers, leading the user to the related SNAP contents.





Actions for the Task Force

The RANP/NANP Taskforce is invited to:

- a) Read the information provided in the PPT and the methodology followed by Saudi Arabia;
- b) Attend the consultation session that Saudi Arabia will hold during this meeting;
- c) Provide your feedback and thoughts on the content, structure and methodology followed by Saudi Arabia to enhance its NANP (SNAP).