ICAO UNITING AVIATION

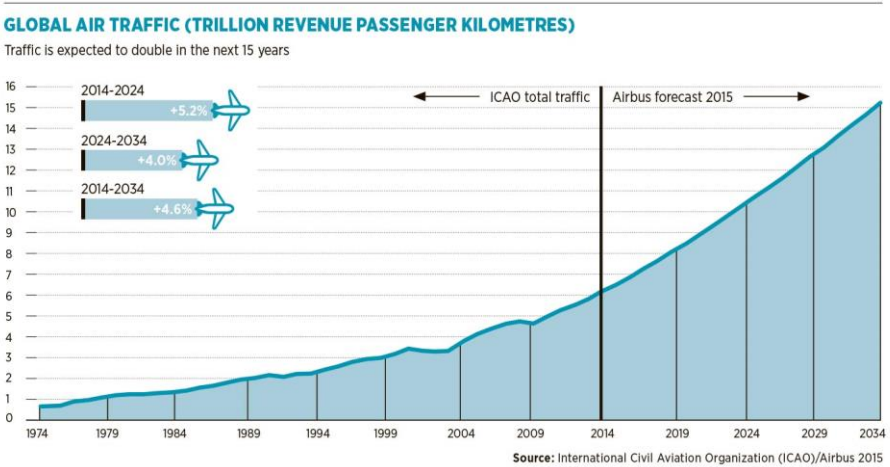
THE GANP
PERFORMANCE MANAGEMENT PROCESS

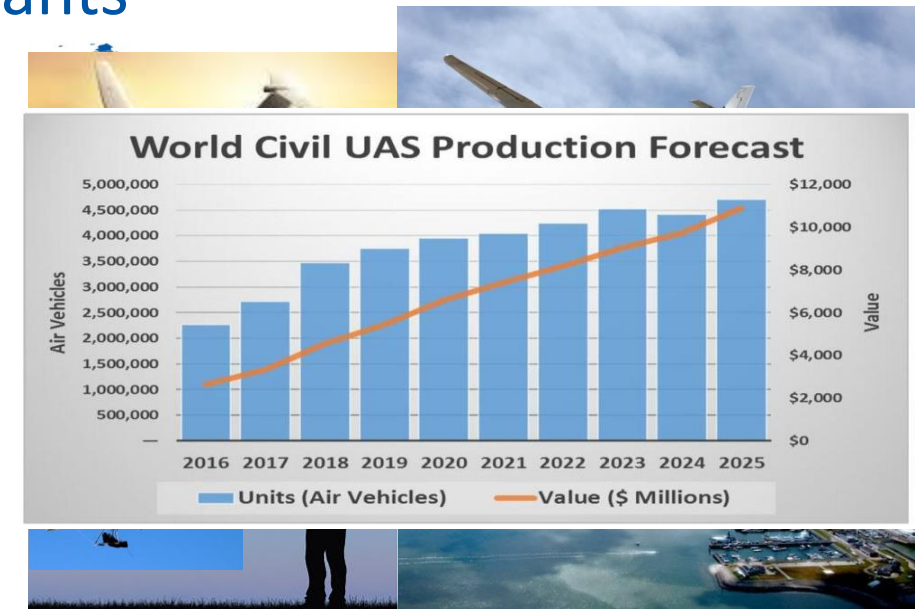
Olga de Frutos

Air Navigation Bureau
International Civil Aviation Organization (ICAO)

A NEW ERA IN AVIATION

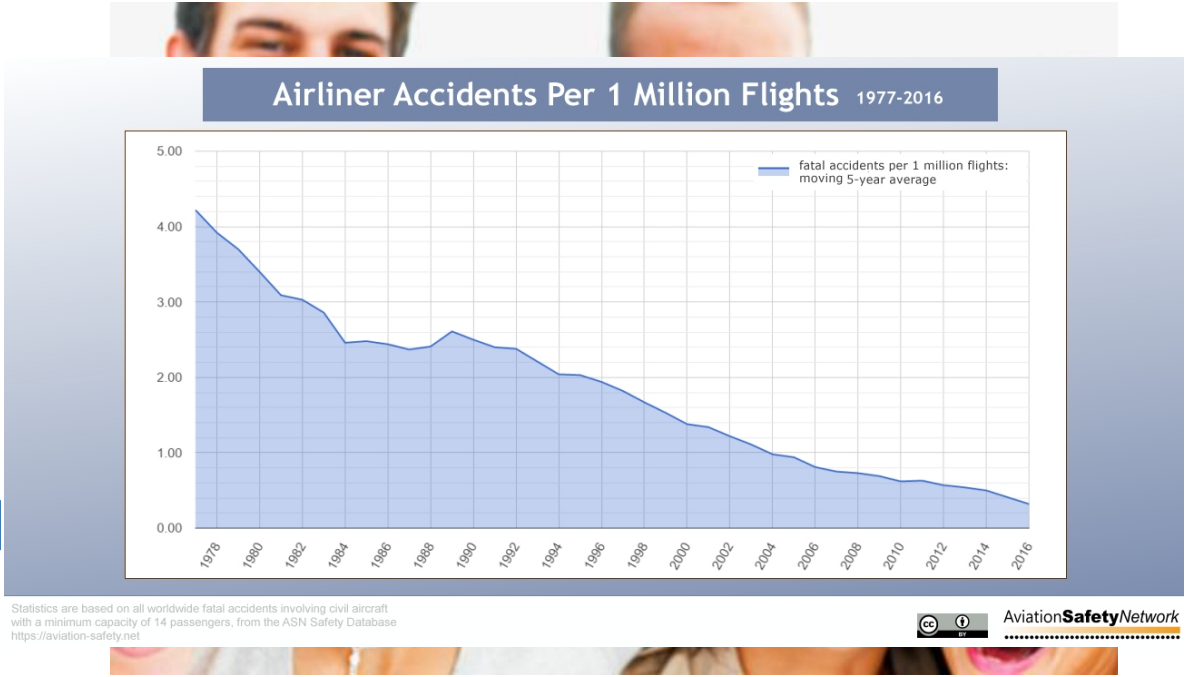
Demand, including new entrants





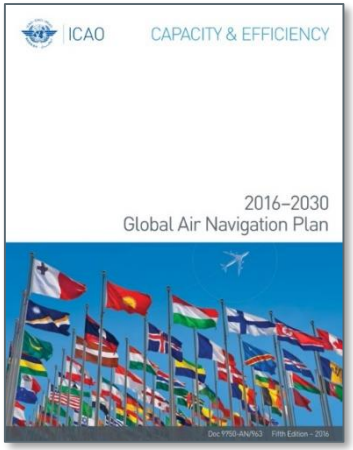
SOCIAL WELLBEING ALL PEOPLES OF THE WORLD

- More quiet
- Cleaner
- Safer
- More resilient
- More profitabl



DRAFT GANP 2019

MULTILAYER STRUCTURE



https://www4.icao.int/ganpportal

Front door for all stakeholders to ICAO

Document endorsed at highest political level

Written in executive language

Contents derived from underlying ICAO Regional Air Navigation Plans

Performance-based decision-making method for defining implementation strategies

Global Performance Ambitions

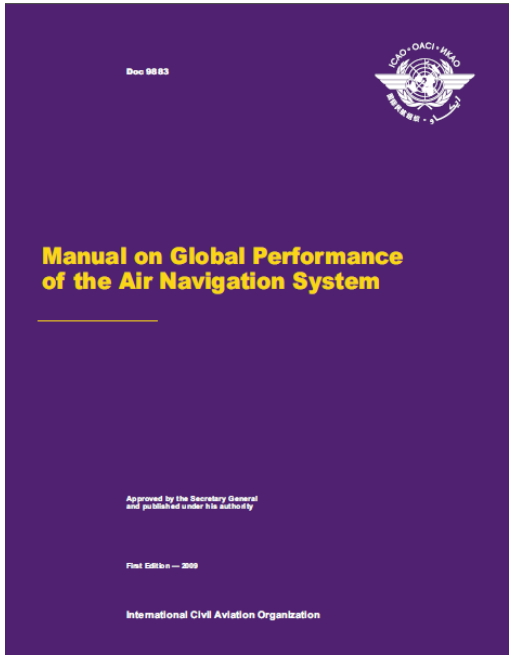
KPIs Catalogue

MAIN GOALS of the 2019 GANP

- **Evolution of the global air navigation system**
  - Promote investment in **innovation** through research and development activities **AND** Align Regional **Research and Development Programmes**

- **Support implementation → GLOBAL TECHNICAL LEVEL**
  - Ensure the **pillars** of a robust **air navigation system - BBBs**
  - Facilitate a **transformational change - ASBU framework**
  - Optimize **allocation and use of resources** for air navigation - **Performance-based** decision making method

PERFORMANCE-BASED APPROACH



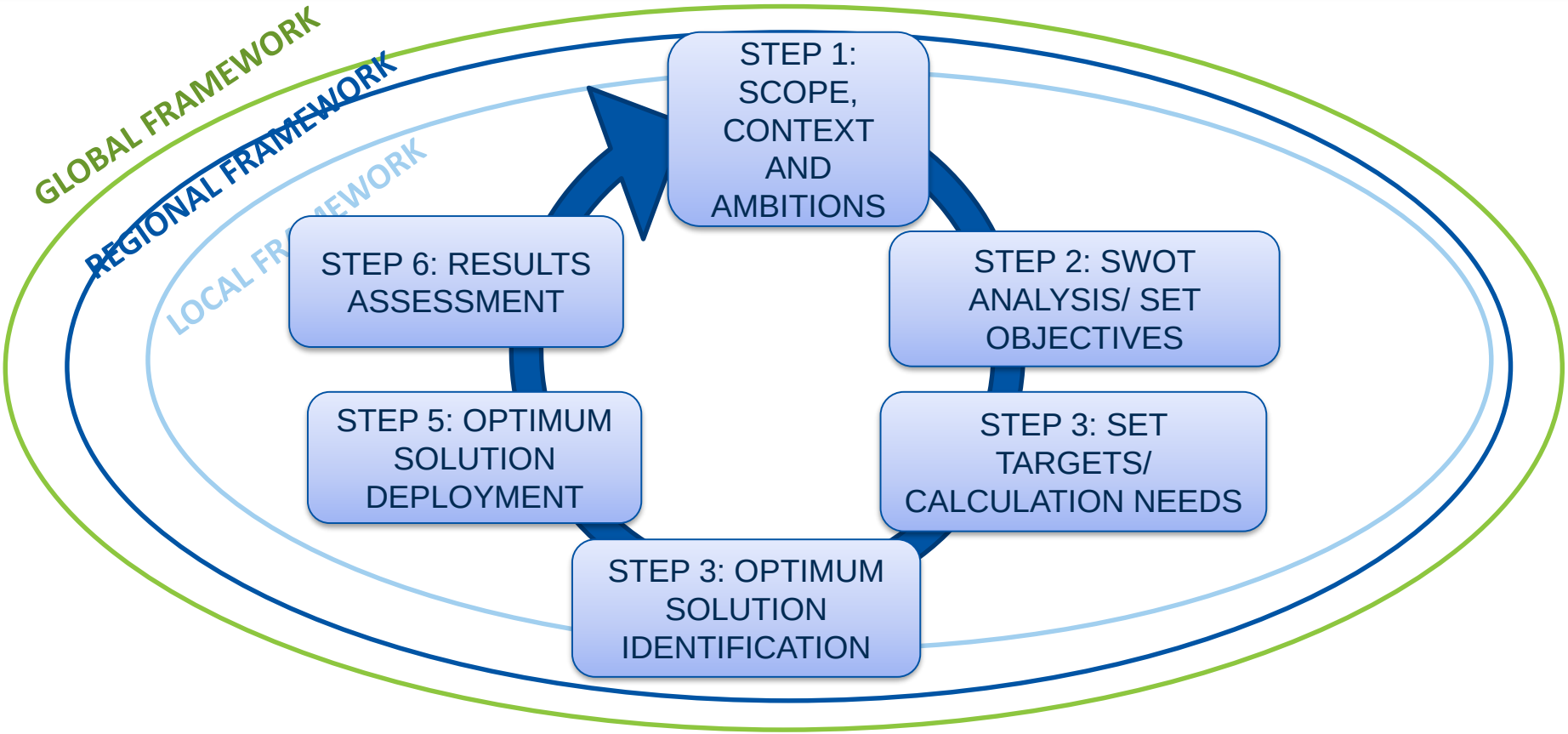
Principles:

- Strong focus on desired/required results
- Reliance on facts and data for decision making
- Collaborative justified decision-making

*"Fall in love with the **problem**, not with the solution"*

Six steps Method

- STEP 1: Scope, Context & General Ambitions and expectations
- STEP 2: SWOT Analysis/ set objectives
- STEP 3: Set of targets/ Calculation of needs
- STEP 4: Optimum solution identification
- STEP 5: Optimum solution deployment
- STEP 6: Results assessment


GLOBAL FRAMEWORK
REGIONAL FRAMEWORK
LOCAL FRAMEWORK
STEP 1: SCOPE, CONTEXT AND AMBITIONS
STEP 2: SWOT ANALYSIS/ SET OBJECTIVES
STEP 3: SET TARGETS/ CALCULATION NEEDS
STEP 3: OPTIMUM SOLUTION IDENTIFICATION
STEP 5: OPTIMUM SOLUTION DEPLOYMENT
STEP 6: RESULTS ASSESSMENT

STEP 1: SCOPE, CONTEXT & AMBITIONS

- Context
  - 2019 Global Air Navigation Plan
    - Global Strategic Level: Performance Ambitions
      - Objective
      - ICAO KPAs
      - Design criteria
    - Global Technical Level: Performance Objectives
  - Regional Air Navigation Plan
    - ANP Vol III
    - Specific Performance Objectives based on regional requirements

STEP 1: SCOPE, CONTEXT & AMBITIONS

- Scope
  - National Air Navigation Plan
    - Performance Targets: who, when and where
    - Make clear assumptions on what is “surrounding” it
  - National Development Plan

STEP 2: SWOT Analysis/ set objectives

- Operational analysis (baseline performance)
  - Data collection, process and analyze
  - Monitor current operations
    - KPIs (GANP 2016)
  - Traffic forecast
- SWOT Analysis
  - Strengths, Weaknesses, Opportunities and Threats

→Performance objectives

STEP 2: SWOT Analysis/ set objectives

- National level
  - National Performance Framework
    - Performance Objective
    - High level SWOT analysis
- Local Level
  - KPIs
    - National Performance Framework
    - Specific
  - Detailed SWOT analysis

STEP 3: TARGETS & NEEDS

- Agree & Prioritize performance objectives
  - Focus area within KPAs

  →Performance objectives
  - Prioritization

STEP 3: TARGETS & NEEDS

- **SMART** Objectives
  - **S**pecific
  - **M**easurable
  - **A**chievable
  - **R**elevant
  - **T**ime-bounded

STEP 3: TARGETS & NEEDS

- **SMART** Objectives
  - **S**pecific
  - **M**easurable

  } PERFORMANCE INDICATORS → ***ICAO KPIs Catalogue***

  - Achievable
  - Relevant
  - Time-bounded

STEP 3: TARGETS & NEEDS

- **SMART** Objectives
  - **S**pecific
  - **M**easurable
  - **A**chievable
  - **R**elevant
  - **T**ime-bounded

PERFORMANCE INDICATORS

VALUE= f(baseline)

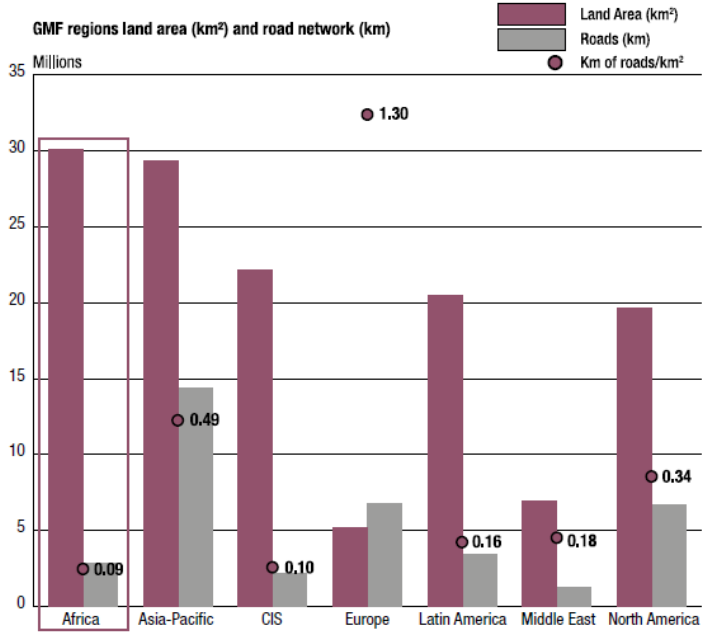
SPEED PROGRESS

PERFORMANCE TARGETS = **PERFORMANCE BASELINE** = **PERFORMANCE NEEDS**

Africa

- **Aviation essential for further development**

- **Challenges**
  - Nature: desserts, forest, ocean,…
  - Slow liberalization
  - Limited resources
  - Security



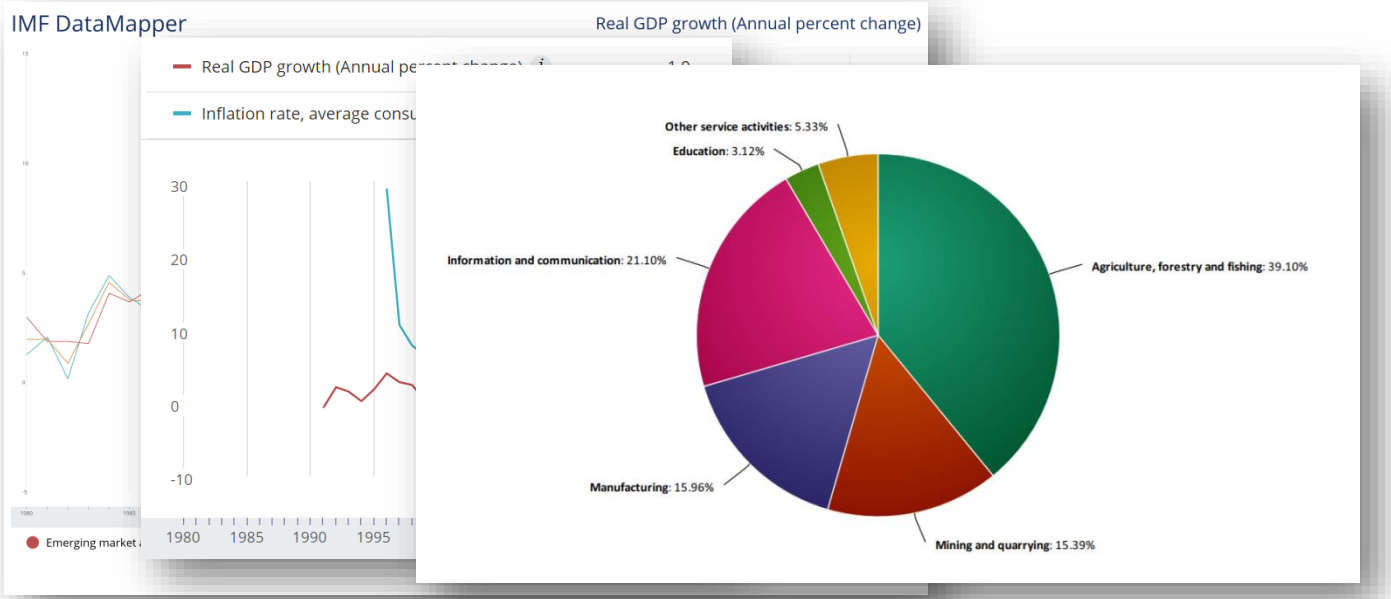
Source: IRF, The World Bank, Airbus GMF 2017

Africa

- **Traffic statistics: Average annual growth 2016-2036**

Segment	Boeing
Africa -Africa	6.5%
Africa - Europe	4.7%
Africa - Middle East	7.6%
Africa - North America	5.9%
Africa - Southeast Asia	5.7%

Nigeria



Source: NIGERIAN NATIONAL BUREAU OF STATISTICS

Nigeria

- **FIR: Kano**
  - Sectors: Kano and Lagos
- **Several TMAs**
- **30 aerodromes, 9 international aerodromes**

YEAR 2016	Abuja	Calabar	Enugu	Kaduna	Kano	Lagos	Maiduguri	Port Harcourt	Sokoto
Passengers	936,814	199,880	353,972	129,804	413,906	2,984,829	10,0928	1,041,821	96,358
Cargo (kg)	3,313,209	2,587	-	-	6,930	175,740,101	-	5,532,259	-
Operations	12,730	3,129	5,394	2,407	4,666,520	28,307	4,411	19,848	1,966

Based on this data…

- How is the system performing?
- Do we have delays?
- Are we punctual?
- Are we accommodating our demand?

Nigeria

		Abuja	Kano	Lagos	Port Harcourt
KPI01	DEPARTURE PUNCTUALITY (10 MIN)	10%	63%	63%	7%
KPI02	TAXI-OUT ADDITIONAL TIME (MIN)	5 over 7min	3*	3*	6 over 6min
KPI 09	AIRPORT PEAK ARRIVAL CAPACITY (RADAR)	30	30	45	30
KPI 09	AIRPORT PEAK ARRIVAL CAPACITY (NO RADAR)	12	15		15
KPI 10	AIRPORT PEAK ARRIVAL THROUGHPUT	28	28	42	28
KPI 11	AIRPORT ARRIVAL CAPACITY UTILIZATION	75%	75%	67%	75%
KPI 13	TAXI-IN ADDITIONAL TIME (MIN)	3 over 7min	3	5	5 over 5min
KPI 14	ARRIVAL PUNCTUALITY	15%	7%	1%	15%

So let's me ask again, based on this data…

- How is the system performing?
- Do we have delays?
- Are we punctual?
- Are we accommodating our demand?

STEP 4: IDENTIFICATION OPT. SOLUTION

- Assessment of the SWOT analysis
  - Dominant factors:

    main constraints/opportunities

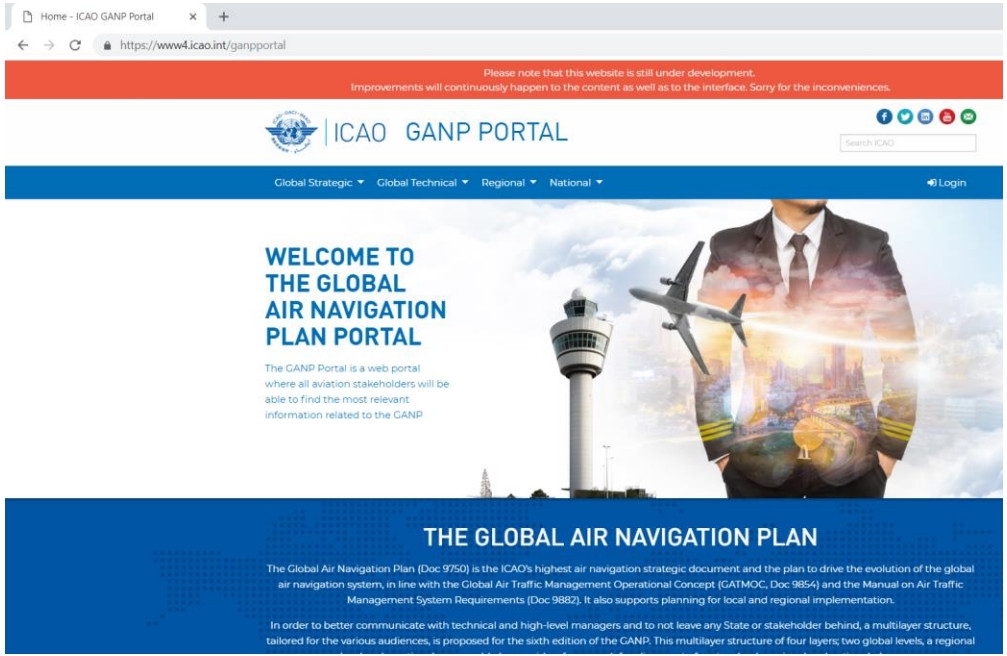
  → selection and prioritization of opportunities and issues

STEP 4: IDENTIFICATION OPT. SOLUTION

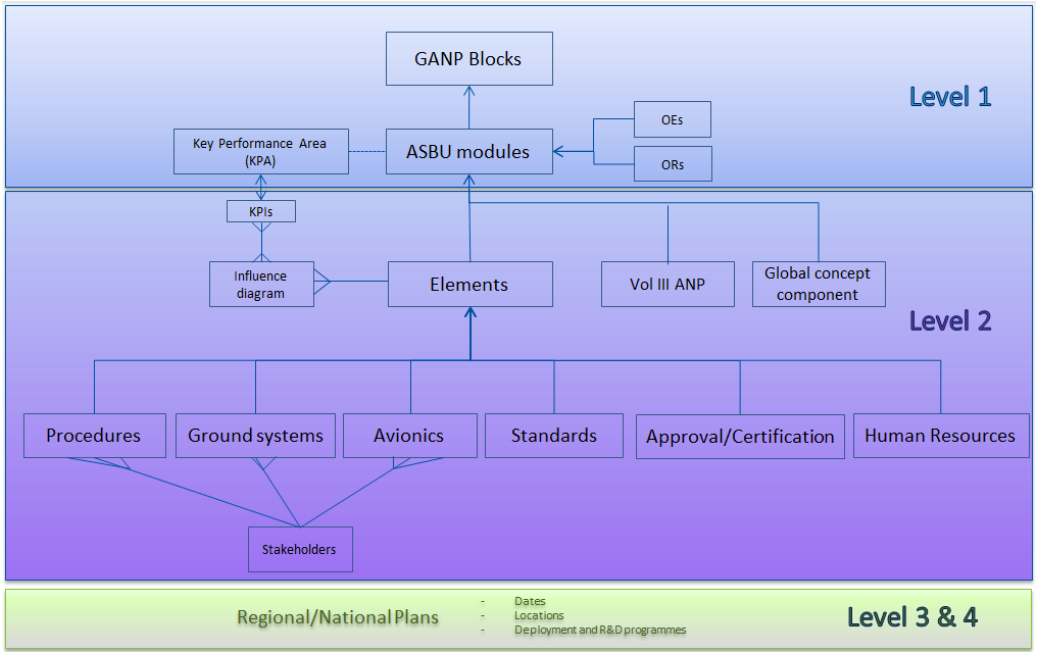
- List of options
  - High-level strategy
  - Operational concept
  - Technical enablers
  - Baseline
  - Availability
  - Safety Assessment
  - Human Factors Assessment
  - Assessment of expected performance

ASBU Framework

Digital ASBU framework



STEP 4: IDENTIFICATION OPT. SOLUTION



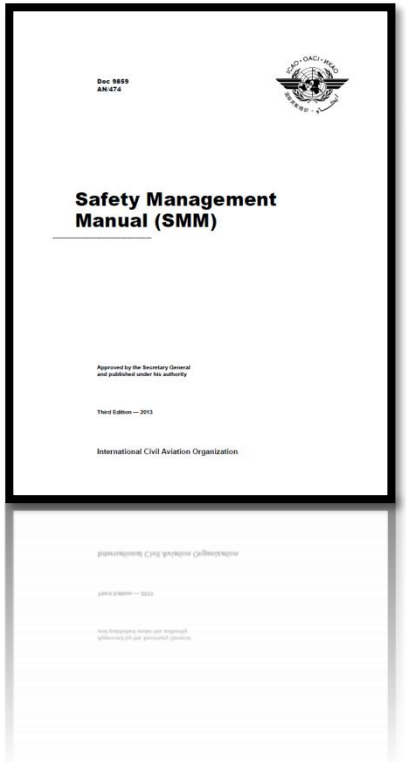
STEP 4: IDENTIFICATION OPT. SOLUTION

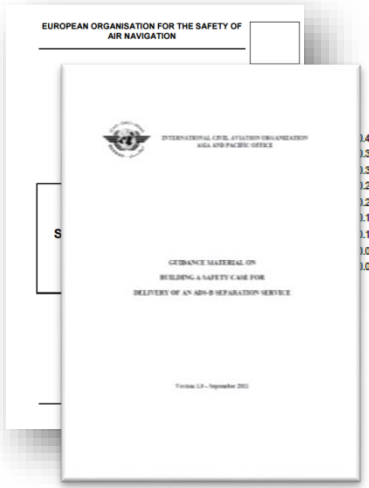
- Make decisions
  - Information available
    - Scope
    - Performance objectives and targets
    - Assessment of SWOT analysis
    - List of solutions (ASBUs)

Plus…

- Associated Safety Assessment
- Associated Human Factors Assessment
- Associated Environmental Impact Assessment
- Associated Cost-benefits analysis

Safety assessment guidance





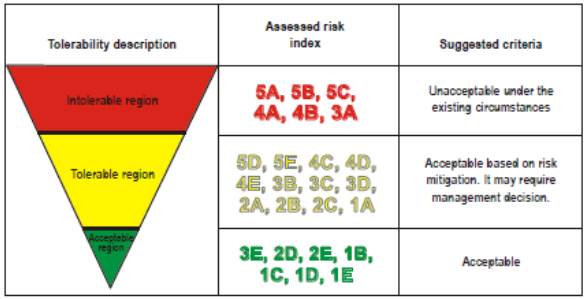
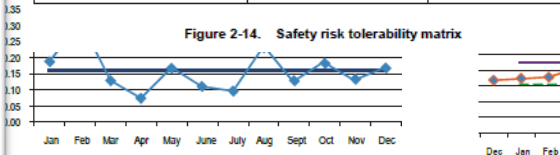
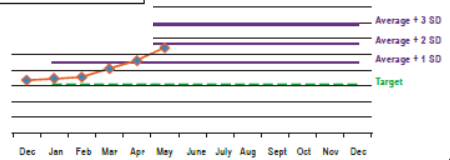
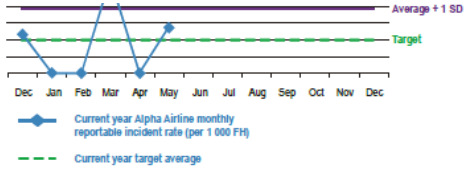


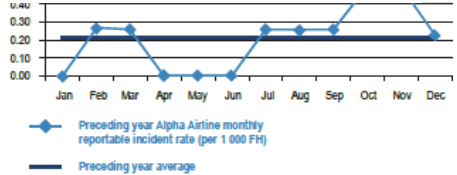
Figure 2-14. Safety risk tolerability matrix

Risk severity				
Catastrophic A	Hazardous B	Major C	Minor D	Negligible E
5A	5B	5C	5D	5E
4A	4B	4C	4D	4E
3A	3B	3C	3D	3E
2A	2B	2C	2D	2E
1A	1B	1C	1D	1E

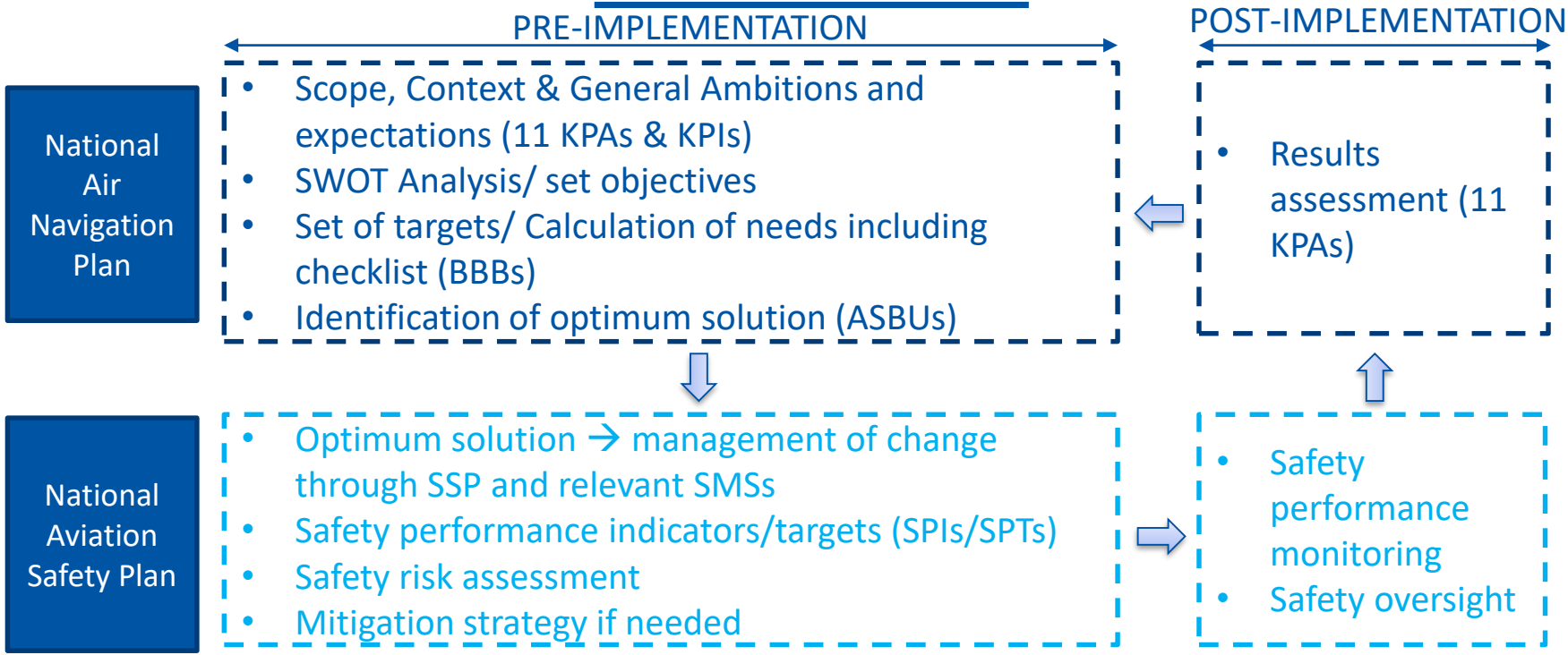




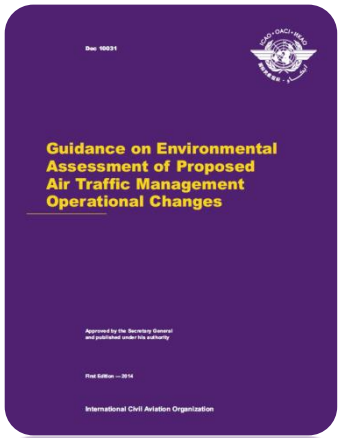


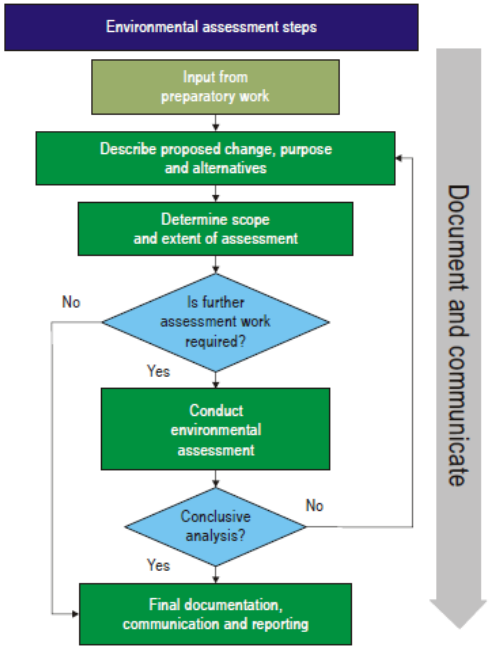


GANP & GASP TECHNICAL ALIGNMENT

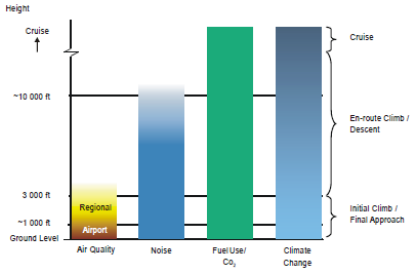


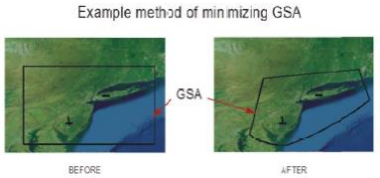
Environmental impact assessment guidance



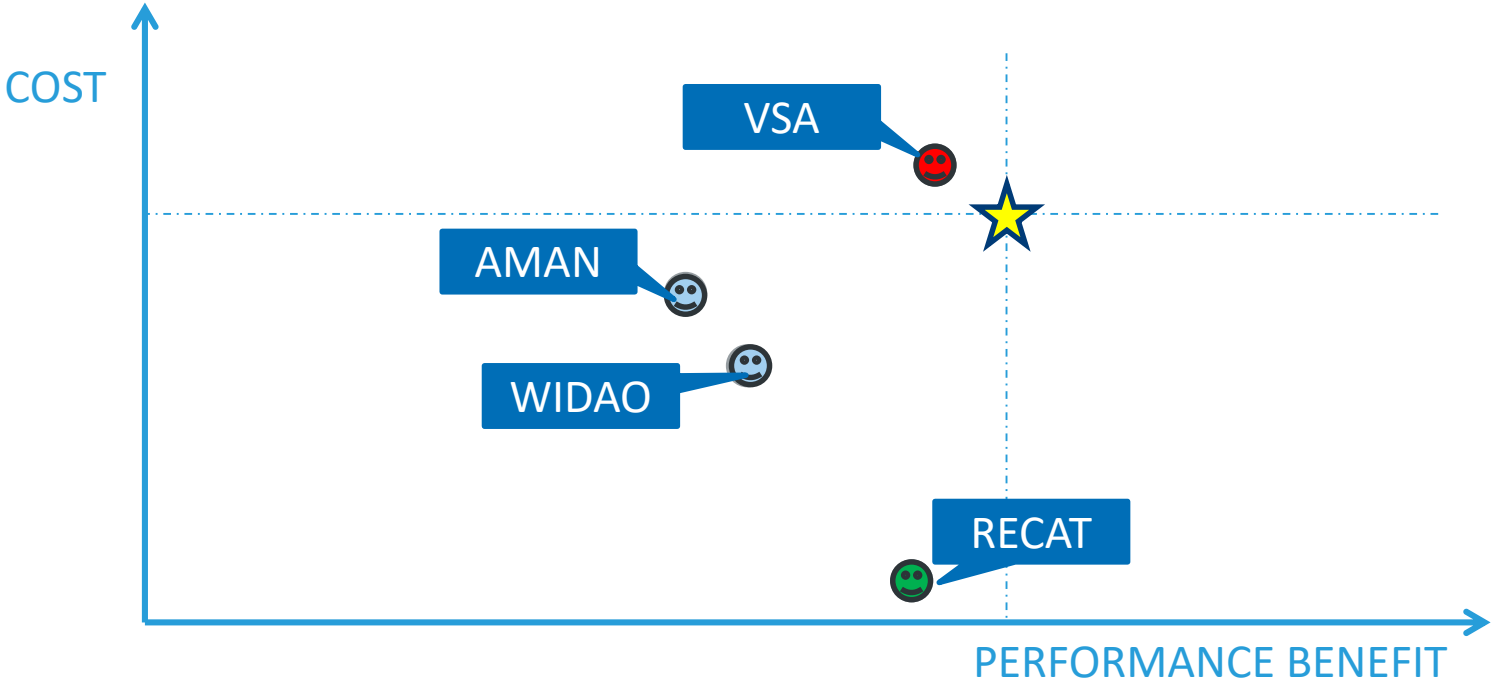


Impact \ Height AGL	Below 1 000 ft (300 m)	1 000-3 000 ft (300-900 m)	3 000-10 000 ft (900-3 000 m)	Above 10 000 ft (3 000 m)
Air quality (e.g. NOx, PM, etc.)	Most relevant	Relevant (Note 1)	Less relevant	Less relevant
Noise	Potentially (Note 2)	Relevant	Relevant	Potentially (Note 3)
Fuel use / CO_2	Relevant	Relevant	Most relevant (Note 4)	Most relevant (Note 4)
Climate change	Relevant	Relevant	Most relevant (Note 5)	Most relevant (Note 5)

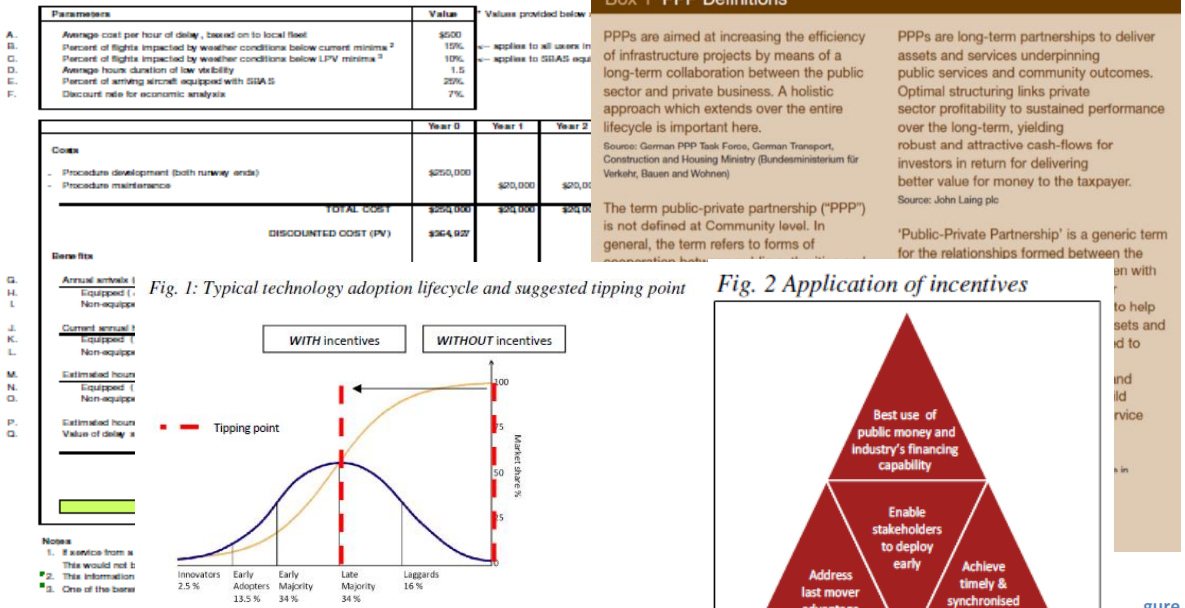




CBA



Cost-Benefits Analysis guidance



Parameters	Value
Average cost per hour of delay, based on to local fleet	$500
Percent of flights impacted by weather conditions below current minima [2]	15%
Percent of flights impacted by weather conditions below LPV minima [3]	10%
Average hours duration of low visibility	1.5
Percent of arriving aircraft equipped with SBAS	25%
Discount rate for economic analysis	7%

Costs	Year 0	Year 1	Year 2
- Procedure development (both runway ends)	$250,000		
- Procedure maintenance		$20,000	$20,00
TOTAL COST	$254,000	$24,000	$24,0
DISCOUNTED COST (PV)	$354,927		

Benefits

Notes
1. If service from a
This would not b
2. This information
3. One of the benef

Fig. 1: Typical technology adoption lifecycle and suggested tipping point

Source: Everett Rogers, Diffusion of Innovations (5th edition), WG1 analysis

Box 1 PPP Definitions

PPPs are aimed at increasing the efficiency of infrastructure projects by means of a long-term collaboration between the public sector and private business. A holistic approach which extends over the entire lifecycle is important here.

Source: German PPP Task Force, German Transport, Construction and Housing Ministry (Bundesministerium für Verkehr, Bauen und Wohnen)

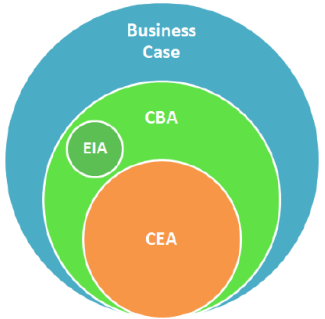
The term public-private partnership ("PPP") is not defined at Community level. In general, the term refers to forms of

PPPs are long-term partnerships to deliver assets and services underpinning public services and community outcomes. Optimal structuring links private sector profitability to sustained performance over the long-term, yielding robust and attractive cash-flows for investors in return for delivering better value for money to the taxpayer.

Source: John Laing plc

'Public-Private Partnership' is a generic term for the relationships formed between the

Fig. 2 Application of incentives



gure 1 – Relationship between business case, CBA, CEA and EIA

STEP 4: IDENTIFICATION OPT. SOLUTION

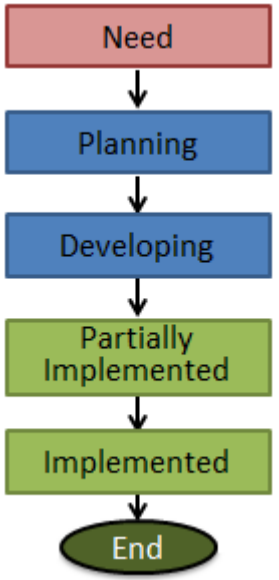
- Make decisions
  - Information available
    - Scope
    - Performance objectives and targets
    - Assessment of SWOT analysis
    - List of solutions (ASBUs)
    - Safety Assessment, HP Assessment, CBA and Environment Impact Assessment
  - Single optimum solution or a roadmap of optimum solutions

STEP 5: DEPLOYMENT OF THE SOLUTION

- Execution phase
  - Planning
  - Implementation
    - National mechanism

    for tracking the implementation

    of the elements
  - Benefits



STEP 6: ASSESSMENT OF RESULTS

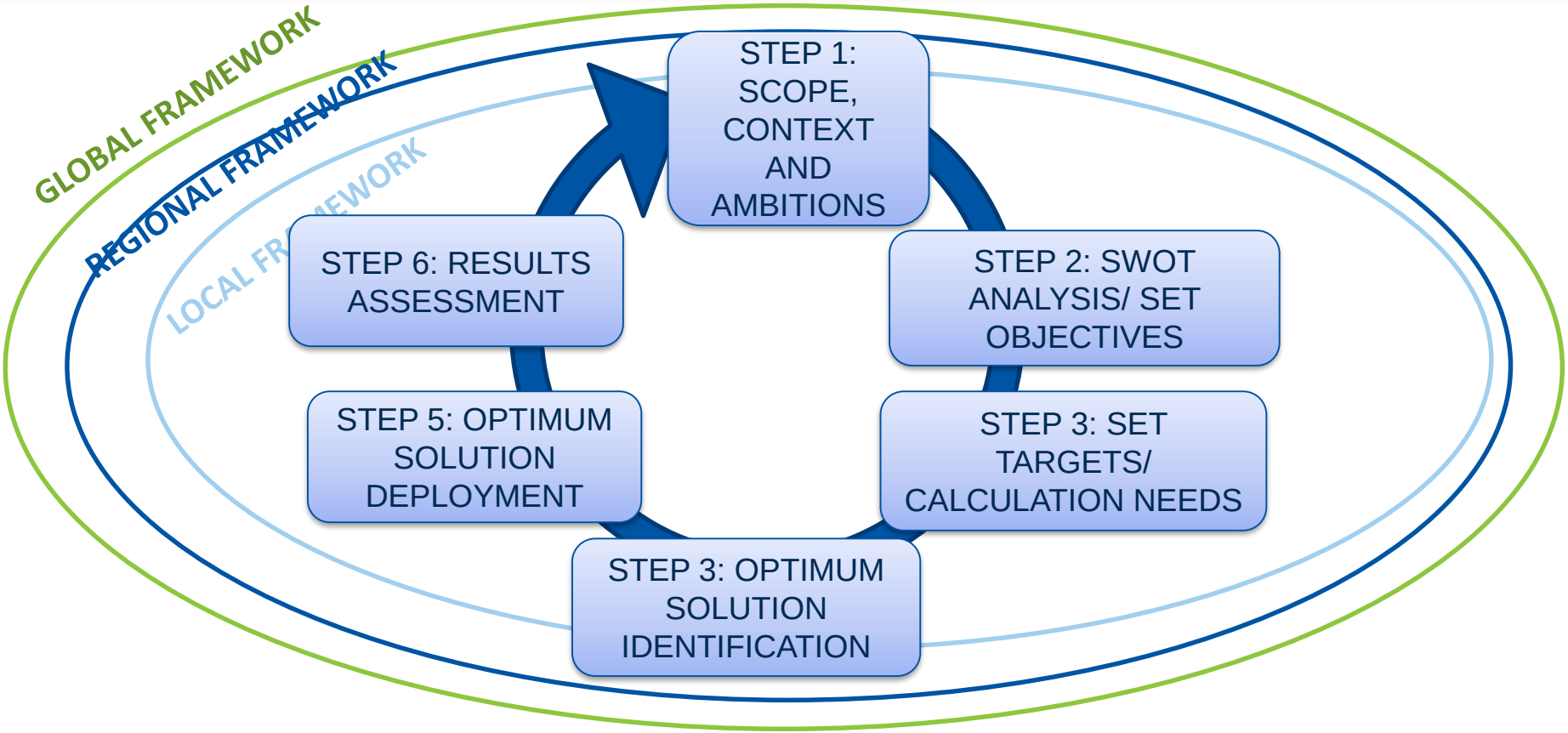
- Continuously assess performance
- Monitor progress of implementation
- Review actually achieved performance
  - Update performance gaps

→ +(Step 1&2)=

PERFORMANCE MONITORING AND REVIEW

STEP 6: ASSESSMENT OF RESULTS

- Tasks in the PMR:
  - Data collection
  - Data publication
  - Data analysis
  - Formulation of conclusions; and
  - Formulation of recommendations.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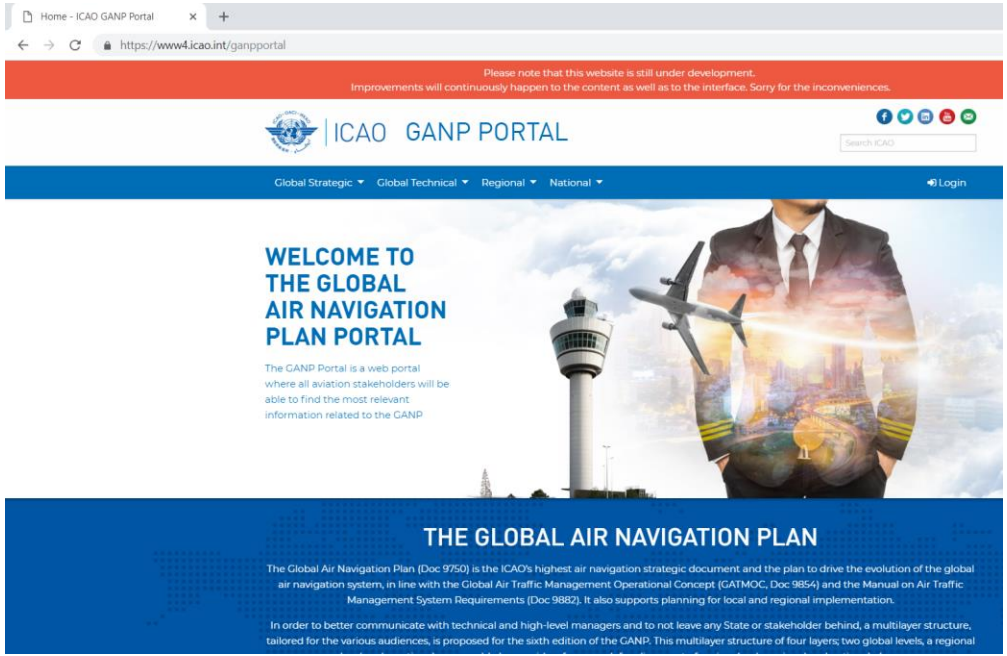
ICAO'S support

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THANK YOU!