

Summary of the Root Causes Subgroup challenges and Proposed actions

No	Challenge	Specific Challenges and Case Study	Root cause	Proposed Recommendation/Best practice
1.	Limited Technical Capacity and Human Resources Shortage of qualified personnel in airspace design, PBN implementation, and aerodrome operations and high turnover of trained personnel and inadequate retention strategies.	Specific Challenge: States continue to face shortages of qualified airspace designers, AIS/AIM specialists, and aerodrome inspectors. Case Study – PBN Procedure Development Delays During AAO/SG-9 discussions, several States reported delays in implementing PBN procedures due to lack of in-house procedure design expertise. In one ESAF State, reliance on external consultants resulted in procedural backlogs and delayed validation flights, affecting operational efficiency at major international aerodromes.	Systemic Capacity Gaps Insufficient training programs and lack of regional centres of excellence and Limited knowledge transfer and succession planning.	Strengthening Human Capacity - Establish regional training programs and certification schemes for airspace and aerodrome specialists. - Promote staff retention through incentives and career development frameworks. - Enhance ICAO and RSOO -supported capacity-building initiatives.
2.	Inadequate Infrastructure and Technology Obsolete CNS/ATM systems limiting implementation of modern airspace concepts together with insufficient aerodrome infrastructure to meet ICAO standards (e.g., runway safety areas, lighting systems).	Specific Challenge: Outdated CNS/ATM infrastructure and aerodrome facilities remain a constraint. Case Study – Aerodrome Lighting Deficiencies A number of States highlighted challenges in upgrading aerodrome lighting systems to meet ICAO Annex 14 requirements. One case involved a primary international aerodrome operating with partially unserviceable approach lighting systems, leading to operational	Economic Constraints Competing national priorities reduce allocation to aviation sector development and weak cost-recovery mechanisms in aerodrome and air navigation services.	Enhancing Infrastructure and Technology - Encourage adoption of cost-effective CNS/ATM solutions (e.g., ADS-B, satellite-based navigation). - Prioritize infrastructure upgrades through phased implementation plans. - Promote public-private partnerships (PPPs) in aerodrome development.

		restrictions during low visibility conditions.		
3.	Funding Constraints Limited national budgets for aviation development and dependence on external donor funding, often with conditionalities and delays.	Specific Challenge: Financial limitations hinder implementation of infrastructure and safety improvements. Case Study – Delayed Aerodrome Certification In one AFI State, aerodrome certification timelines were significantly delayed due to inability to finance required upgrades (runway strip compliance, RESA, fencing). The project depended heavily on external funding, which was subject to lengthy approval processes.	Economic Constraints Competing national priorities reduce allocation to aviation sector development and weak cost-recovery mechanisms in aerodrome and air navigation services.	Improving Funding Mechanisms • Develop sustainable financing models, including user charges and cost recovery systems. • Facilitate access to international funding institutions (World Bank, AfDB). • Strengthen financial planning within CAAs and ANSPs.
4.	Weak Regulatory Oversight and Institutional Frameworks Incomplete or outdated regulatory frameworks aligned with ICAO SARPs and limited autonomy and effectiveness of civil aviation authorities in some States.	Specific Challenge: Incomplete regulatory frameworks and limited oversight capacity. Case Study – Oversight Gaps in Aerodrome Certification Previous AAOSG Meeting discussions have noted that in some States, aerodrome certification processes were ongoing for several years due to limited inspector capacity and lack of updated regulations aligned with ICAO SARPs. This resulted in extended issuance of temporary approvals instead of full certification.	Governance and Policy Limitations Lack of political commitment at national level and Weak implementation of regional and international obligations.	Strengthening Regulatory Frameworks • Accelerate harmonization of national regulations with ICAO SARPs. • Improve autonomy and capacity of civil aviation authorities. • Enhance safety oversight systems through ICAO USOAP corrective actions.
5.	Low Level of Data Sharing and Regional Coordination Inconsistent reporting of safety and operational data across	Specific Challenge: Inconsistent reporting and weak cross-border collaboration.	Fragmented Regional Approach	Promoting Regional Collaboration • Strengthen data-sharing platforms and regional safety databases.

	States together with Weak mechanisms for cross-border collaboration and harmonization	Case Study – Cross-Border Airspace Coordination Issues States reported coordination challenges in implementing seamless PBN routes across FIR boundaries. One example involved misaligned implementation timelines between adjacent States, leading to inefficiencies in route structures and increased controller workload.	- Limited coordination among AFI States on common objectives. - Absence of standardized implementation timelines and monitoring mechanisms.	- Enhance coordination through AASPG, AFCAC, and RECs. - Develop joint implementation projects and regional airspace plans.
6.	Slow Implementation of Regional Projects Delays in implementation of AFI Air Navigation Deficiency Databases (AANDD) and fragmented approach to regional initiatives such as PBN implementation	Specific Challenge: Regional initiatives experience delays. Case Study – AFI ANDD Implementation Delays Progress reports highlighted that several Air Navigation Deficiencies CAP actions related to airspace restructuring remained incomplete due to lack of ownership at national level and insufficient follow-up mechanisms.	Fragmented Regional Approach - Limited coordination among AFI States on common objectives. - Absence of standardized implementation timelines and monitoring mechanisms.	Accelerating Implementation of Regional Initiatives - Establish clear timelines and accountability frameworks for AN-DIP actions. - Monitor progress through regular reporting and performance dashboards. - Deploy expert task forces to support lagging States.
7.	Resistance to Change and Lack of Stakeholder Engagement Limited buy-in from key stakeholders including ANSPs, aerodrome operators, and airlines and cultural and institutional resistance to new procedures and technologies.	Specific Challenge Limited stakeholders buy-in affects implementation. Case Study – Resistance to Airspace Modernization In one State, implementation of redesigned airspace structures faced resistance from operators due to concerns over increased track miles and fuel costs, highlighting the need for better consultation and cost-benefit communication.	Inefficiencies in Project Execution Poor project management capacity. Delayed procurement processes and administrative bottlenecks	Increasing Stakeholder Engagement - Enhance communication and awareness programs for stakeholders. - Foster collaboration between regulators, service providers, and operators. Promote change management practices and stakeholder consultation.

PROPOSED STAKEHOLDER ENGAGEMENT APPROACH

No	Approach	Methodology
1.	Institutionalizing Structured Engagement Mechanisms	- Establish national airspace and aerodrome stakeholder forums involving CAAs, ANSPs, aerodrome operators, airlines, and military authorities. - Formalize regular consultation cycles (e.g., quarterly) aligned with project milestones. - Integrate stakeholder engagement into national aviation strategic plans and regulatory processes
2.	Early and Continuous Stakeholder Involvement	- Involve key stakeholders at the design phase of airspace and aerodrome projects to ensure operational feasibility and acceptance. - Adopt a lifecycle engagement approach covering planning, implementation, validation, and post-implementation review. - Ensure user groups (e.g., airlines, general aviation) contribute to operational impact assessments.
3.	Strengthening Communication and Transparency	- Develop clear communication strategies outlining objectives, benefits, timelines, and expected impacts of initiatives. - Publish accessible materials such as concept of operations (CONOPS), project briefs, and procedural changes. - Use digital platforms (portals, dashboards) to share real-time updates on implementation progress
4.	Enhancing Capacity of Stakeholders	- Conduct targeted training and awareness workshops for stakeholders on: - PBN operations - Airspace changes - Aerodrome certification requirements - Develop user guidance materials to facilitate smooth transition to new procedures. - Encourage exchange programs and regional knowledge-sharing forums.
5.	Promoting Collaborative Decision-Making	- Apply Collaborative Decision-Making (CDM) principles in: - Airspace design - Slot allocation - Aerodrome operations (A-CDM where feasible) - Encourage joint problem-solving platforms to address operational constraints. - Establish multi-stakeholder technical working groups for complex projects.
6.	Addressing Stakeholder Concerns and Resistance	- Conduct cost-benefit analyses and openly communicate findings to stakeholders. - Identify potential operational or financial impacts early and develop mitigation measures. - Implement structured feedback and grievance mechanisms.

7.	Leveraging Regional and International Partnerships	• Engage regional organizations (ICAO, AFCAC, ACI Africa, IATA) to support stakeholder dialogue. • Promote cross-border stakeholder coordination for harmonized airspace implementation. • Share lessons learned and best practices across AFI States
8.	Monitoring and Evaluation of Engagement Effectiveness	• Develop KPIs for stakeholder engagement, such as: ○ Level of participation ○ Implementation acceptance rates ○ Reduction in operational complaints • Conduct periodic stakeholder satisfaction surveys. • Incorporate feedback into continuous improvement frameworks