IMPLEMENTATION ISSUES, CHALLENGES, LESSONS LEARNED FOR DATA LINK MONITORING

OPERATIONAL DATA LINK WORKSHOP

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Accra

Josiah BACKOBI

Regional Manager Safety & Flight Operations

AGENDA

↗ **Regional Challenges**

↗ **Implementation Process**

↗ **Post-Implementation programmes**

Objectives

↗ **Continuous Efforts to address persistent Challenges**

↗ **Comply with the Implementation Process and involving users at early stage**

↗ **Set up Post-Implementation programmes**

Regional Challenges

↗ Ground-Ground Co-ordination

↗ ATS-DS

- ↗ Ground-Ground ATM voice systems are still based on analogue technology;
- ↗ Network Interoperability and Capability issues to fulfill operational and Technical requirements as per ASBU Block Modules (e.g. B0-FIFE);
  - ➔ **Master Plan and Roadmap development specifying Satellite Technology Changes necessary to deliver the Essential Operational Changes.**

↗ AFTN

- ↗ Loss of Flight Plans
- ↗ Operation of AIDC through AFTN
  - ➔ **Expedite the implementation of AMHS. However, interoperability during transition must be ensured by interconnecting legacy AFTN terminals to the AMHS.**

Regional Challenges

↗ Air/Ground Communications

↗ **Voice communications**

- ↗ High numbers of UCRs are related to VHF/HF communication deficiencies;

- ↗ Performance improvement regarding service provision and enhancement of VHF coverage

- ↗ VHF Congestions some areas.
  - ↗ Development of the Corrective Action Plans (CAP) with each FIR in order to solve all deficiencies identified.
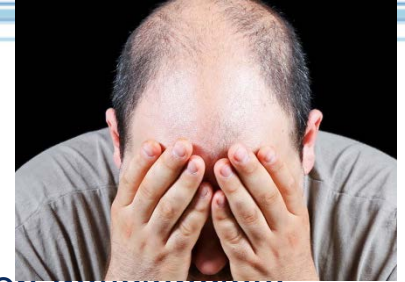
↗ **CPDLC**

- ↗ Unavailability of the service communication, utilization of free text;

- ↗ Any case of automatic transfer to the next ACC has been reported.
  - ↗ Standardized steps have to be followed by ANSP seeking to implement improvements.
    - » **MOPS DO-306/ED -122 SAFETY AND PERFORMANCE STANDARD FOR AIR TRAFFIC DATA LINK SERVICES IN OCEANIC AND REMOTE AIRSPACE (OCEANIC SPR STANDARD)**
  - ↗ Expedite the implementation of AIDC which is the service that provides the capability to automatically exchange data between ATS units for notification, coordination and transfer of aircraft between flight information regions (FIRs).
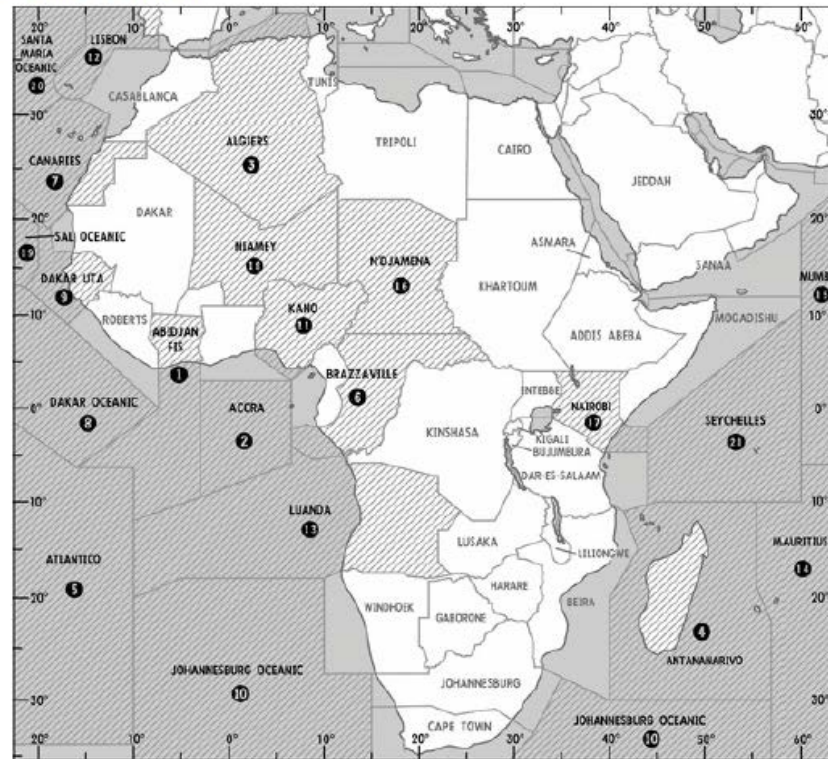
Implementation Process

↗ IATA Position

    ↗ Support CPDLC as the primary means of communication in oceanic and remote airspace where the quality of voice communications is often poor.

    ↗ At the same time, CPDLC should be considered for implementation in appropriate en-route airspace in order to relieve congestion on voice channels.

    ↗ Controller Pilot Datalink Communications (CPDLC) shall be the primary means of **routine communication** while maintaining the requirement for voice communications for non-routine, tactical communications and as a backup.

Implementation Process

CPDLC Coverage - Africa

CPDLC OVERVIEW

Implementation Process

↗ Considerations for implementation

↗ The implementation requires good synchronization of airborne and ground deployment to generate significant benefits. To be noted that a minimum proportion of flights in the airspace should be suitably equipped.

Implementation Process

STATE

- PBCS Policies, Objectives for safety oversight applicable to ANSP and Operators
- RSP/RCP prescription in the AIP

Implementation Process

ANSP

- Establish a Project Team
- Identify Key Target dates for implementation and relevant ATM Operations
- Identify RCP/RSP specifications for ATM Operations
- Conduct ADS-C/CPDLC awareness
- Develop the operational Concepts
- Implement ATC automation Changes to use FPL RCP/RSP indicators on eligible aircraft
- Implement automation means for processing CPDLC/ADS-C messages and displayed to the relevant ATC unit.
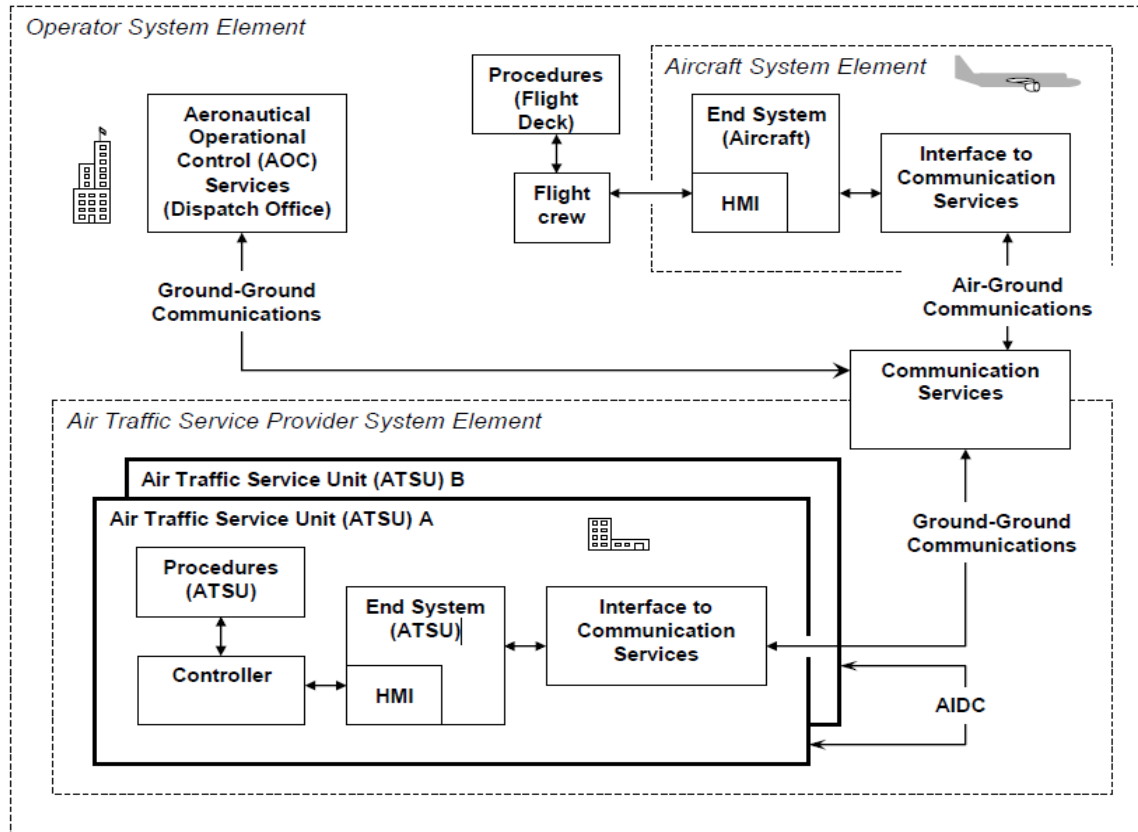- Set up a local post-implementation monitoring capability.
- Prior to operational implementation, confirm that CPDLC/ADS-C comply with RCP/RSP specifications.
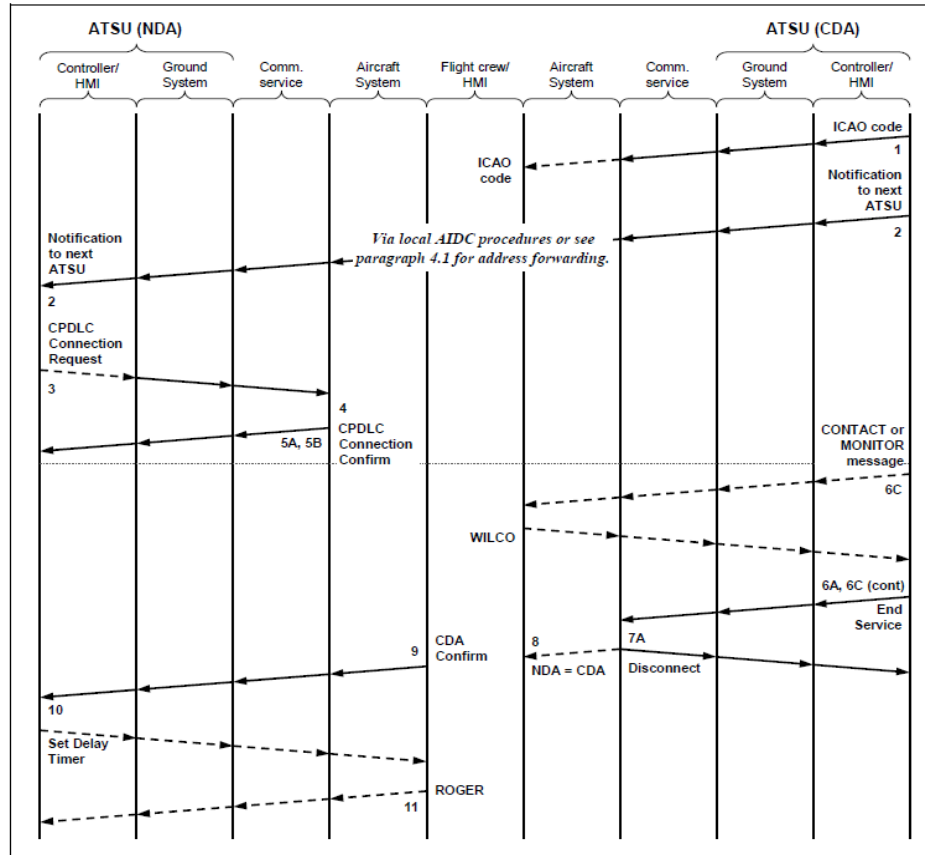- Controllers must be trained to use data link rather than radio.

Implementation Process

Users

- Satisfy eligibility requirements for PBCS operations that are established by the state of the operator.
- Confirm CPDLC/ADS-C aircraft equipment and operator capability comply with RCP/RSP specifications, prior to operational approval.
- Set up on-going post-implementation data collection, monitoring, problem reporting and tracking, analysis and corrective action

Implementation Process

Implementation Process

Operating Method for TC

Implementation Process

↗ **Avionics Survey Tool**

↗ **Publication of information Regarding the Trials and the future CPDLC/ADS-C operation.**

Implementation Process

Post-Implementation Programmes

For the AFI Region, PBCS monitoring shall include:

↗ ANSP Local PBCS monitoring programme;

↗ Regional PBCS monitoring programme; and

↗ Global exchange of monitoring information.

Post-Implementation Programmes

State should ensure that ANSP established means to:

assess the actual performance of communication and surveillance;
assess the risk of any non-compliance with the RCP/RSP specification;

notify the operator and the State its registration when the performance of the operator's fleet does not comply with the RCP/RSP specification;
notify and mitigate identified failure conditions including failure conditions within its ATM system, CSP taking into account local factors and other mitigating circumstances

State of the operator should ensure that the a/c operator has established means to:

assess the actual performance of its fleet;

determine compliance with the RCP/RSP specification prescribed,

Post-Implementation Programmes

ANSP should establish procedures to restore operations after a failure condition has been rectified

ANSP should ensure that its air traffic controllers and aeronautical station operators receive appropriate training in accordance with ICAO SARPs

ANSP should ensure that contracted service, such as with CSPs is bound by contractual arrangements stipulating the RCP/RSP allocations, including any monitoring or recording requirements

ANSP should establish LPMP and RPMP, subject to a bilateral, multilateral or regional air navigation agreement, if applicable:

Post-Implementation Programmes

ANSP should notify requirements for aircraft system and capability and flight plan filing requirements in the AIP of PBCS operations , as a minimum,

Aircraft operator should ensure that RCP/RSP filing capabilities will comply with regulations, policies and procedures in control areas for the flight, as published by the applicable States in AIP.
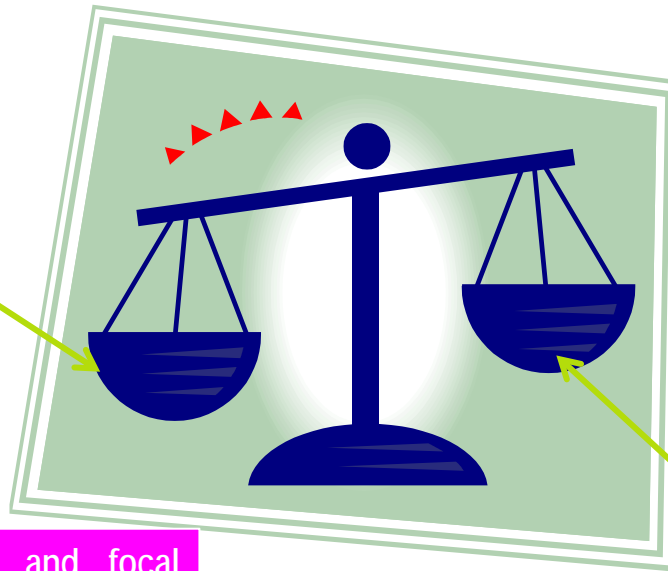
CSP should record and retain C&S data and provide them to ANSP and regional PBCS monitoring programmes upon request, when authorized by appropriate parties, in accordance with the contractual arrangements with the ANSP or aircraft operator

The inclusion of PBCS capability in the filed flight plan indicates that the relevant aircraft equipment comprising the aircraft system is approved and serviceable, and that the operator is eligible (e.g. flight crew training and qualification) to use the equipment for PBCS operations. If these conditions are not met then PBCS capability should not be included in the flight plan.

Post-Implementation Programmes

↗ Local PBCS Monitoring Programme

Actual Performance

ANSPs should take into account other monitoring programmes, particularly those established on the basis of a bilateral, multilateral or regional air navigation agreement, such as for monitoring RVSM, performance-based horizontal separation minima, and safety of ATM operations

ANSPs should identify the <u>entity and focal point(s)</u> for administering the regional PBCS monitoring programme to manage a regional problem reporting system and provide regional-level analysis and reporting of ANSP-monitored performance.

Operational criteria provided

Post-Implementation Programmes

↗LPMP Tasks

1 Monitor ACP communications transactions and ASP for surveillance data delivery for the concerned airspace and performance analysis of service availability

2 Define formats and intervals of monitored data and reports to be delivered

3 Develop and establish means of collecting and maintain operational performance data in the standardized format defined/agreed.

4 Perform local analysis for identifying problems and taking corrective action.

5 Report to RPMP any problem that may have regional or global impact.

Post-Implementation Programmes

↗ RPMP Tasks

   ↗ Ensure centralized support to accommodate specific local, regional and global needs.

   ↗ Manage resources and any contracts, fund and recover costs and secure access to the services and information.

   ↗ establish a process that authorizes users such as ANSPs, aircraft operators, CSPs, aircraft manufacturers, equipment suppliers and other participants to submit or access information.

   ↗ Should validate submitted data before importing it into a secure centralized database;

   ↗ Maintain relational data, such as related to the ANSP, CSP, aircraft type and aircraft operator,

Post-Implementation Programmes

↗ RPMP Tasks

  ↗ Provide a forum for users to develop and share tools to facilitate the conduct of specific analysis on selected data or to automatically query a database and send non-compliance and corrective action notices to appropriate parties.

  ↗ Support participating ANSPs in the analysis and reporting of the operational data, including ACP, ASP and availability data, at the regional level.

  ↗ Coordinate, as necessary, with other regional monitoring programmes such as those established for monitoring RVSM (e.g. ARMA & SATMA);

Post-Implementation Programmes

↗ **RPMP Tasks**

  ↗ Notify appropriate parties when the operational system does not meet the RCP/RSP specification;

  ↗ provide means to receive , track, manage problem reports (e.g. web-based service);

  ↗ request data from relevant sources;

  ↗ coordinate the problem investigation and assign appropriate entities to assist in the analysis;

  ↗ provide a diagnosis of the problem and recommend resolutions; and

  ↗ inform the originator of the problem report of status and closure of the problem.

Post-Implementation Programmes

↗ **Exchange of Monitoring Information**

    ↗ **RPMP should exchange the following information with LPMP and other regional PBCS monitoring programme in other regions:**

        ↗ lessons learned from PBCS implementation and operations;

        ↗ analytical tools that can be shared for conducting analysis of ACP and ASP;

        ↗ a list of aircraft operators that are filing RCP/RSP designators in their flight plan; and

        ↗ a list of known problems, including those with particular networks, components of a network, aircraft types/systems, or aircraft operators, and associated resolutions.

Thank you
backobij@iata.org
sfoafi@iata.org