# Single European Sky Initiative and Data Link Services

In Europe, the Single European Sky Initiative began in 2000 and its technological support arm is Single European Sky ATM Research (SESAR). The Single European Sky initiative is similar to NextGen as it standardizes Air Traffic Management (ATM) while improving use of limited airspace with performance-based communication, navigation, and surveillance (CNS). This effort requires new technology, regulations and ATM techniques in order to make air travel more efficient. The implementation of SESAR is in three phases:
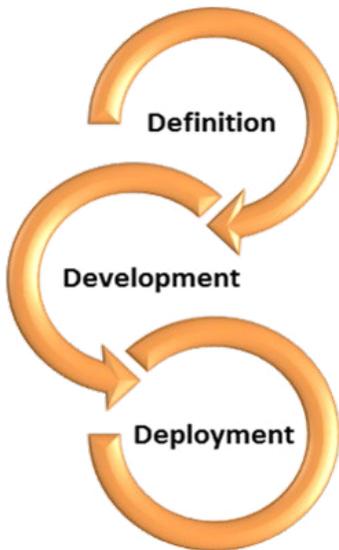
1. **Definition phase (2005-2008):** This was the blue print for the modernization of ATM. It defined a new concept and the enabling systems to achieve the high-level goals;

2. **Development phase (2008-2013):** The SESAR Joint Undertaking (SJU) was responsible for the maintenance and execution of the European ATM masterplan. They managed a large and complex R&D program that identifies and matures "solutions" required by the European ATM masterplan;

3. **Deployment phase (2014-2020 and beyond):** This phase includes the large-scale installation of the new systems and the widespread implementation across Europe.

Data Link in Europe

Early in 2009, the European Commission adopted the Data Link Services Implementing Rule (DLS-IR). This regulation is No 29/2009 and applies to Air Navigation Service Providers (ANSPs) and to aircraft operators. ANSPs are responsible for reporting any disconnect in services known as Provider Aborts (PA) as well as failures to meet acceptable performance.

Data Link Services

Data Link Initiation Capability (DLIC) – DLIC is a data link service derived from the Context Management (CM) application to provide the necessary information to allow data link communications between an ATSU and aircraft. The DLIC service makes it possible to:

- ➢ Associate flight data from the aircraft with flight plan data stored by an Air Traffic Service Unit (ATSU); and
- ➢ Exchange the supported application type, version information, and deliver application address information.

Pilots must execute the DLIC service prior to the first use of the CPDLC application. The DLIC service consists of the logon and contact functions.

- **Air Traffic Control (ATC) Communication Management Service (ACM)** – this service provides automated assistance to flight crew and controllers for the transfer of ATSU communications (voice and CPDLC). ACM enables the:
  - ➢ Initial establishment of CPDLC with an ATSU;
  - ➢ Transfer of CPDLC and voice for a flight from one ATSU to the next ATSU, or the instruction to change voice channels within an ATSU or sector; and
  - ➢ Termination of CPDLC with an ATSU.
    Note: The transfer of CPDLC will coincide with the transfer of voice communications.
- **ATC Clearance Service (ACL)** – this service allows flight crews and controllers to conduct operational exchanges. The ACL service enables:
  - ➢ Flight crews to send requests and reports to controllers; and
  - ➢ Controllers to issue clearances, instructions and notifications to flight crew.
    Note: The ACL service will only be available after successful completion of the ACM service.

  For the purposes of this document, the following are examples of ACL services:
  - ➢ Flight crew request with controller clearance response;
  - ➢ Flight crew request with controller UNABLE response;
  - ➢ Flight crew request with controller STANDBY response;
  - ➢ Controller clearance with flight crew WILCO response;
  - ➢ Controller clearance with flight crew UNABLE response;
  - ➢ Controller clearance with flight crew STANDBY response.
- **ATC Microphone Check Service (AMC)** – this service allows controllers to send an instruction to CPDLC capable aircraft on a given frequency, to instruct flight crews to verify that their voice communication equipment is not blocking the voice channel. Controllers will only issue this instruction to those aircraft under their control.
- **Departure Clearance (DCL)** - this service provides for the automation of requesting and delivering departure clearances to aircraft. At the latest Target Start-up and Approval Time (TSAT), pilots receive an en route clearance without a specific start up request. For clearances via Datalink (DCL) the TSAT will be displayed in the Departure Clearance Uplink Message (CLD).
  Note: European systems use the ACARS ATS DCL application via ARINC 623/European Organization for Civil Aviation Equipment (EUROCAE) ED-85A and not the FANS CPDLC application.

- **Downstream Clearance Service (DSC)** - this service permits flight crews who are unable to request and receive a clearance from their current ATSU by requesting it with an ATSU that are not yet in control of the aircraft. This transfer is accomplished by changing the aircraft/ATSU designators assignment at the ATSU application level.

Links:

- CNS Roadmaps

- NextGen – SESAR State of Harmonization - FAA

- Avionics Requirements for Civil Aircraft – September 2017

- Commission Regulation (EC) No 29/2009 of 16 January 2009

- Commission Implementing Regulation (EU) 2015/310 of 26 February 2015 amending Regulation (EC) No 29/2009 laying down requirements on data link services for the single European sky and repealing Implementing Regulation (EU) No 441/2014