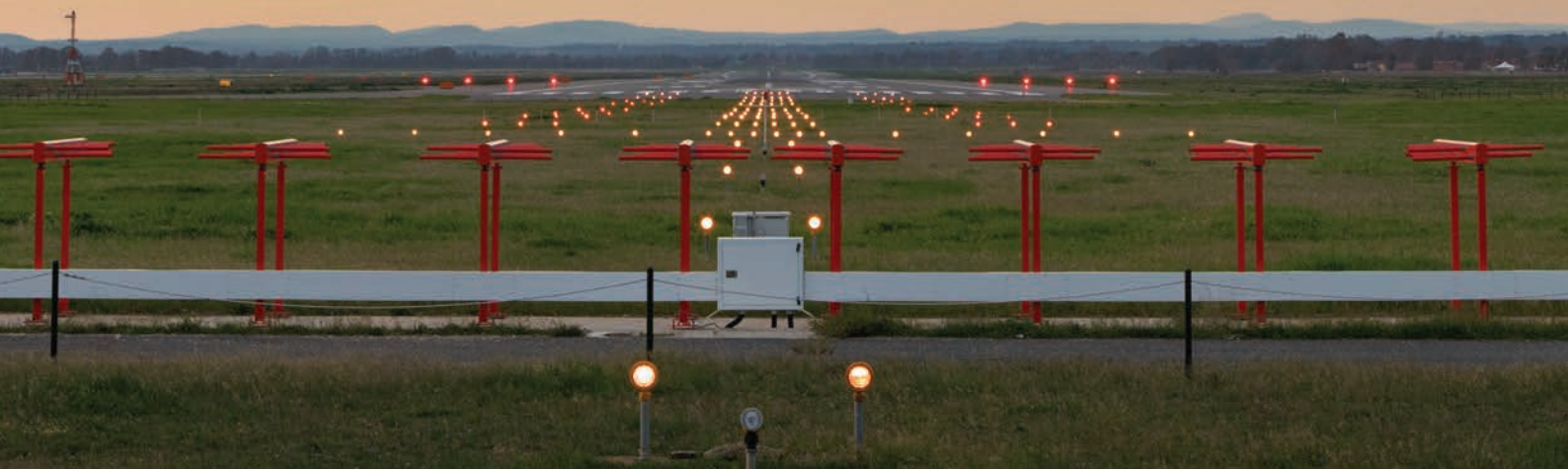


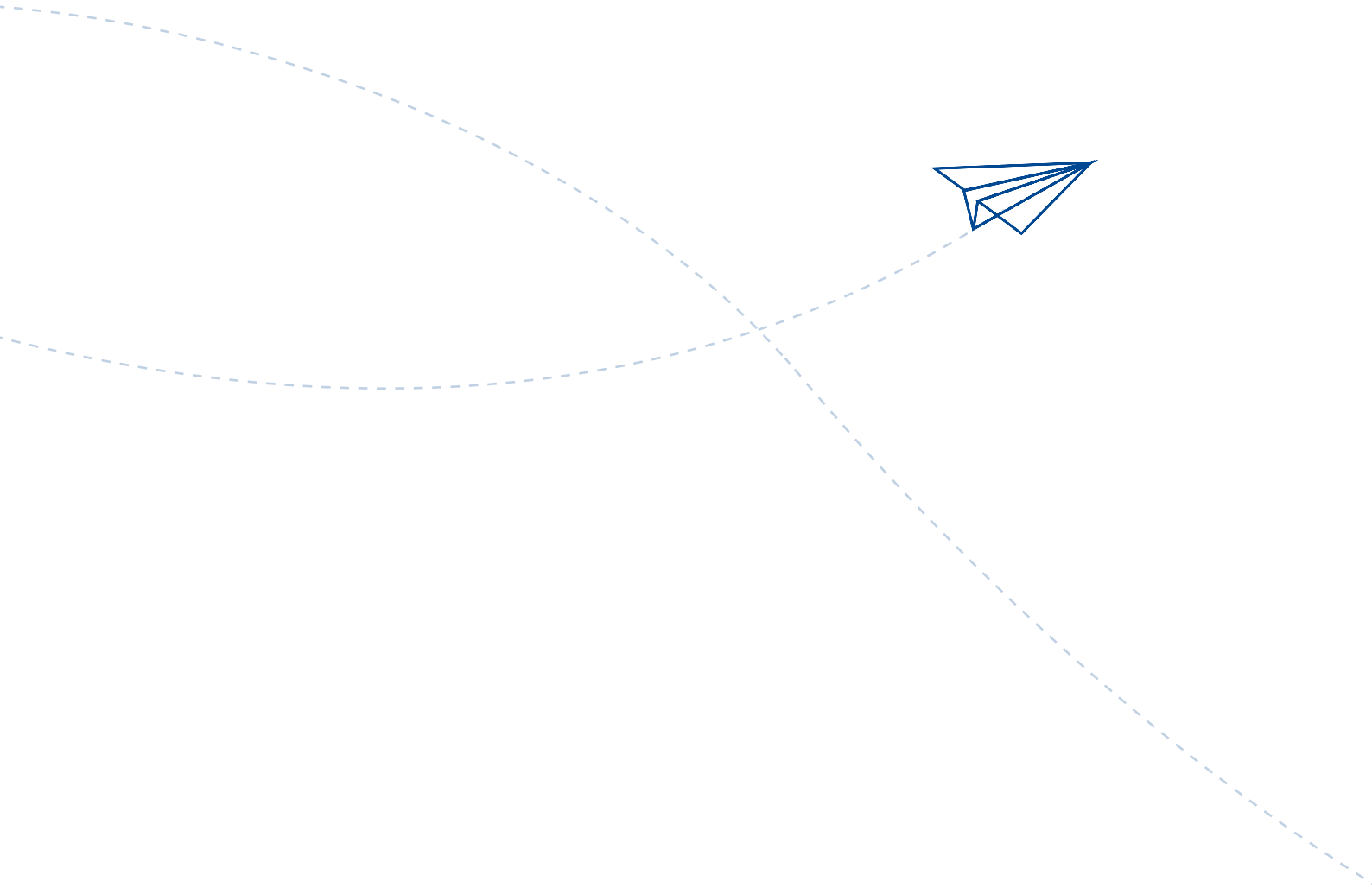
A simple line-art icon of a paper airplane, with a dashed line extending from its tail towards the left, crossing the text.

# FLIGHT PLAN

EFFICIENCY

## 2018





# 10 Years of Flight Efficiency Plan

**E**NAV Flight Efficiency Plan (FEP) aims to contribute proactively to lowering Airspace Users' operating costs, reducing fuel consumption and pollutant emissions related to flight operations. New FEP design measures, supported by investments in technological innovations and translated into daily operations of highly skilled staff, have led to significant upgrades of the airspace infrastructure and, consequently, to noteworthy improvements in Flight Operations.

Over the years, the national airspace has been made more usable and adapted to users' needs in compliance with national and international regulations and standards; This has gradually led to current remarkable implementations such as the Performance Based Navigation (PBN) and the first Italian Free Route Airspace (FRAIT), effective earlier than the terms of the enforcing EC Regulation.

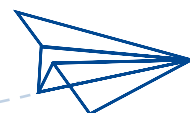
Because of its environmental value the Italian National Supervisory Authority monitors ENAV FEP in the framework of the SES National Performance Plan.

It also contributes to "Italy's Action Plan on CO<sub>2</sub> Emissions Reduction" drawn up by all ICAO States so as to achieve the overall objectives of reducing the aviation environmental impact and contrast climate changes.

Annually, ENAV Customer Care promotes several initiatives to meet Airspace Users' needs. Collaboration and sharing of operative proposals provide valuable feedbacks for new implementations and for the definition of ENAV FEP.

Since its first release in 2008/2009, planned interventions are meant to ensure a greater accessibility of the airspace with more available routes, through a continuous process of refinement and improvement of the air navigation system that contribute to fly further safely and efficiently.

Over the past decade, the implementations allowed considerable savings in terms of fuel consumption and GHG emissions that produced ever increasing positive effects and strived for effective contribution to air transport sustainability.



# EN-ROUTE AIRSPACE DESIGN and NETWORK AVAILABILITY

The Italian airspace and its route system is continuously improved exploiting the area navigation capability mostly within the Blue Med FAB framework.

During these years, ENAV has paid particular attention to the improvement of flight profiles, by gradually making available higher flight levels for most domestic city pairs and cross-border connections.

Hand in hand, the Route Availability Document (RAD) is updated on a regular basis with the aim to both optimise the network and better balance capacity and efficiency.

Now FRAIT operations offer capability for optimal trajectories 24/7 in the Italian airspace above FL335 - and above FL305 as of 24<sup>th</sup> May 2018 - thus delivering better compliance with Airspace Users' needs.



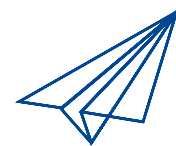
## FRAIT A NEW OPERATING METHOD THAT MEETS AIRSPACE USERS

ENAV implemented the Free Route operations in the Italian airspace (FRAIT) above FL335 on 8<sup>th</sup> December 2016, achieving the third step of a multiannual programme started in 2013. Phase 1, in mid-December 2013, enabled the availability of dedicated direct and near direct routings for overflights operating at night and during the weekends in the Italian airspace above FL335 and the extension of the temporal availability of some ATS routes. Phase 2, in January 2015, lowered the dedicated routing .

Within FRAIT aircraft may freely fly a direct path and an optimal vertical profile between a pair of defined Entry Point and Exit Point, without reference to an ATS Route Network. FRAIT operations are available for overflights as well as for arriving and departing traffic.

Ad hoc continuous training sessions and underlying technological upgrades to ATC systems were performed enabling ATCOs to manage traffic in Free Route airspace.

Positive results and feedbacks received from Airspace Users' who have benefited from FRAIT, confirm the fulfilment of their expectations in terms of flight trajectory optimisation.



# PLAN 2018 - 2020

2020

- Free Route in Italy:
  - FRAIT inferior limit lowering (May 2018)
  - FRAIT Integration with FRA ML and FRA GR
- Review of CDR classification following the implementation of military areas with high flexible use, Third phase: Sardinia area
- Re-classification of military areas above FL335 in AMC manageable and application of AUP/UUP process for Airspace Management
- Coordination with FAB Blue Med Partners to improve both intra-FAB and trans-FAB route network; Implementation of intra-FAB BM DCTs for selected routings
- Network optimisation based on traffic demand and harmonization of new RAD implementations

2018

## ACHIEVEMENTS

2017

- FRAIT from FL335 to FL660
- Review of CDR classification following the implementation of military areas with high flexible use, Ionio and Sicilian areas
- Route availability maintenance and improvements
- Free route in Italy (FRI): first and second phases
- Route realignments, changes in lower/upper limits, or time availability Redesign of the Italian Airspace and ACC Airspace Reorganization
- Improvements in flight profile Italy to/from Tunisia, to/from Spain, to/from France.
- Summer season two more hours clear of RAD constraints every day
- Reorganization of route network for Milan and Rome U/FIRs
- Increase of hourly network availability in Winter seasons
- Reorganization of route network portion over ALG, BZO, FRZ and Verona
- User preferred flight level through raising or removal of level cappings for city pairs
- Dedicated direct routings, available night-time or H24 and improvements from NGT-WE to H24
- Conversion of DCTs into ATS routes and time extension of their availability
- Implementation of new routes, extensions, realignments and direct routings in Italian airspace

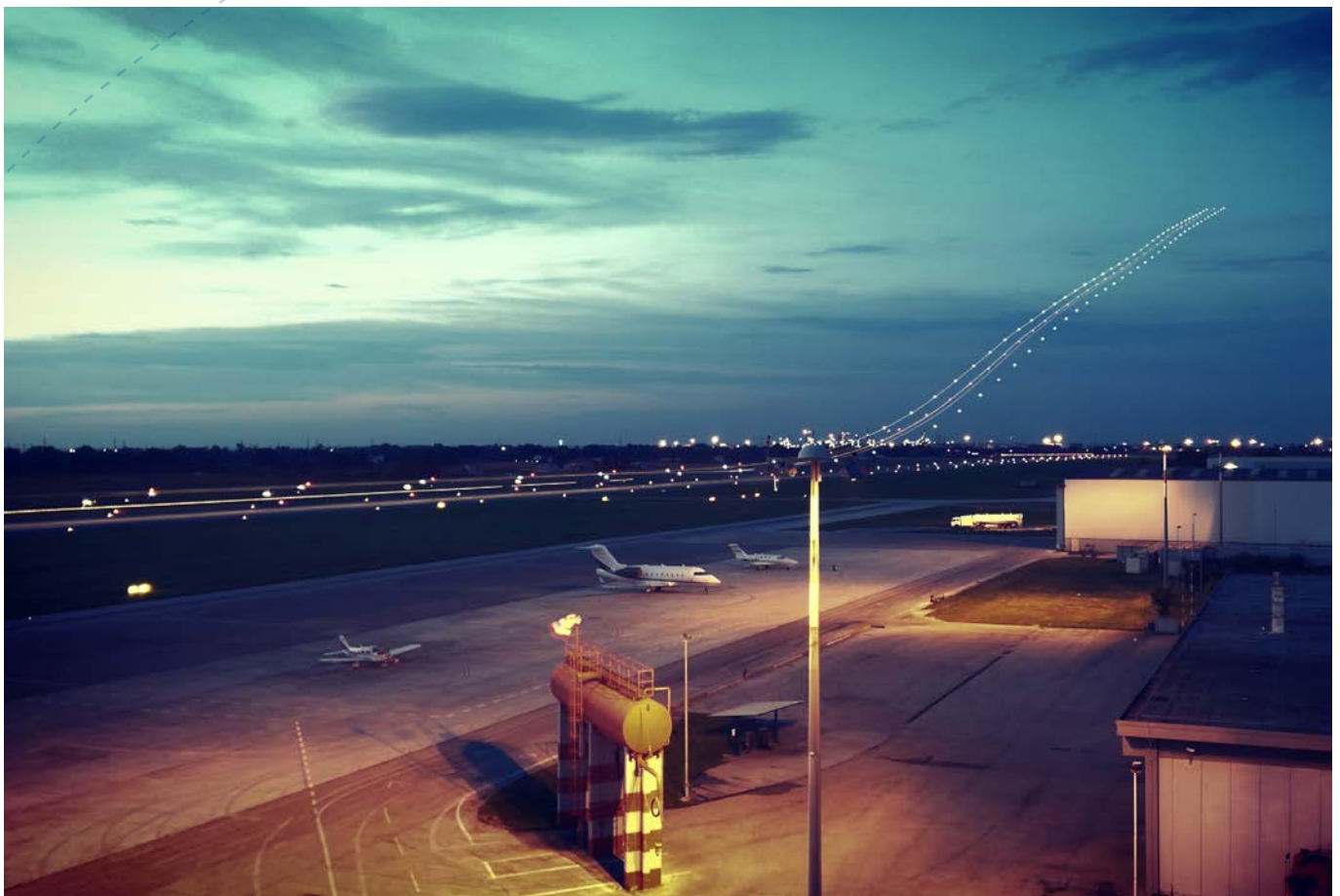
2008

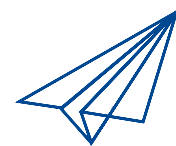
## DESIGN AND USE OF **TERMINAL AREAS**

**T**he optimisation of air traffic management and the reduction of flight distance and time are accomplished through a rational and efficient use of airspace and by means of new Instrument Flight Procedures.

Several link routes and IFP have been updated in the recent years, attaining various goals - among which the reduction of distances - thus meeting customer expectations of mile savings.

New IFP, also enabled by PBN, will be designed with the aim to facilitate Continuous Descent and Climb Operations, whenever feasible.





# PLAN 2018 - 2020

- 2020
  - New P-RNAV SID/STARs : LIEA, LICA, LIRA, LIRN, LIMJ, LIBD, LICJ\_SID
  - Improvements on P-RNAV SID/STARs: LIEO, LIME, LIPZ
  - Implementations of RNP Approach procedure: LICJ, LIRN, LIMJ, LIMF, LICR, LIMZ, LIMP, LIPB, LICA, LIEA, LIPY, LIPE, LIBC, LICG, LIBP, LIPR, LIBG, LIMG, LIBD, LICD, LIRZ, LIPO, LIPQ
  - New implementations STAR TROMBONI P-RNAV: LICJ, LIMC, LIML, LIMF
- 2018

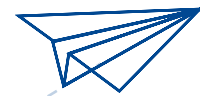
# ACHIEVEMENTS

- 2017
  - Implementation of BRINDISI, MILANO, PADOVA and ROMA CTAs
  - Withdraw of PADOVA and BRINDISI TMAs
  - Review of ROMA and MILANO TMAs
  - New IFPs (SID): LICA, LIBP
  - New IFPs (STAR): LIME, LIMF, LIMZ
  - Implementations of P-RNAV SID/STARs: LIPZ, LIEO, LIPE, LIPX, LICJ, LIRQ
  - Publication of an ad hoc AIC describing the implementation of Continuous Descent Operations
  - New IFPs (STAR or SID or IAP or ICP): LIBC, LIBP, LIPY, LIPO, LIRZ, LIMP, LIMZ, LICA, LIRA, LIRF, LIRQ
  - P-RNAV SID/STARs: LIPX, LIRF, LIMZ
  - New IAC for LIBC
  - New STAR and/or SID for LIMP
  - Reorganization of SID for LIRF and LICJ
  - Review of LIMP and LIPZ Initial Climb Procedures and SID
  - Implementation of RNAV approach procedures for LIEA
  - Reorganization of LICJ, LIPY, LIPE, LIME, and LIRF CTRs and related IFP
- 2008

# AIRPORT OPERATIONS

**E**NAV is leading, in cooperation with airport operators and airspace users, the deployment of A-CDM for the main Italian airports to improve mutual operations efficiency with a view to optimise departure sequences and taxi-times (-in and -out).

Air Traffic Controllers skilled in delivering efficient ground operations along with cutting-edge automation represent enabling factors for the reduction of apron and taxiway congestion while still guaranteeing traffic flows and - more in general - airspace users' needs.



## PLAN 2018 - 2019

2019

Implementation of A-CDM - Local and Full - with SW support for automatic data exchanging among ATC, AOP, Airlines, NMOC and related operational procedures for Napoli e Bergamo.

2018

## ACHIEVEMENTS

2017

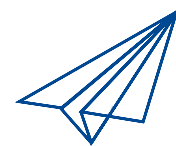
Roma Fiumicino, Milano Malpensa, Venezia and Milano Linate are the four Italian full A-CDM Airports with SW support for automatic data exchanging among ATC, Airport Operators, Airlines, NMOC and related operational procedures.

Optimisation and automation of the apron management of LIMC, LIML, LIME, LIMF, LIPE, LIPZ, LIRN, LICJ, LIEA, LIMJ, LIRQ, LIEO, LIBD, LICC and LICA.

In several other airports, a basic system for automatic data exchange managed by ENAV is available.

2008





# OPERATIONAL STAFF AWARENESS

One of the four cornerstones of the Flight Efficiency Plan is to raise Air Traffic Controllers' awareness since they can give a mighty contribution for fuel savings both to in flight and on ground operations.

The principles of flight efficiency and their environmental implications were planned to be part of all training initiatives and updating for ATCOs ever since ENAV first FEP edition in 2009.

Currently, they are included in both training plans and report cards of ab-initio and advanced courses of ATCO students of ENAV Academy as well as in ATCOs continuous training courses.

The positive achievements in the airport ground operations and in tactical behaviour in every flight phase are the main results of the increased and comprehensive training for operational staff, who are now more focused on efficiency.

## PLAN 2018



2018

Ab initio and advanced ATCO students will follow around 130 hours on flight efficiency. ATCOs continuation training will include around 4,000 hours focused on flight efficiency.

## ACHIEVEMENTS



2017

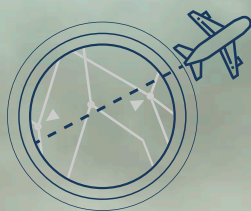
Around 1,000 people - ab initio ATCOs, advanced ATCOs and FISO students - have attended modules on flight efficiency at ENAV Academy

Managerial dedicated workshops for all ENAV ATS Units

44,540 hours on flight efficiency provided to ATCOs during continuous training

2008

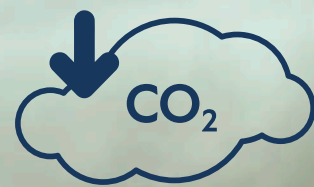
# OUTCOMES 2017



$\Delta$  Km  
-8.6 mln



$\Delta$  Kg Fuel  
-30 mln



$\Delta$  Kg CO<sub>2</sub>  
-95 mln



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