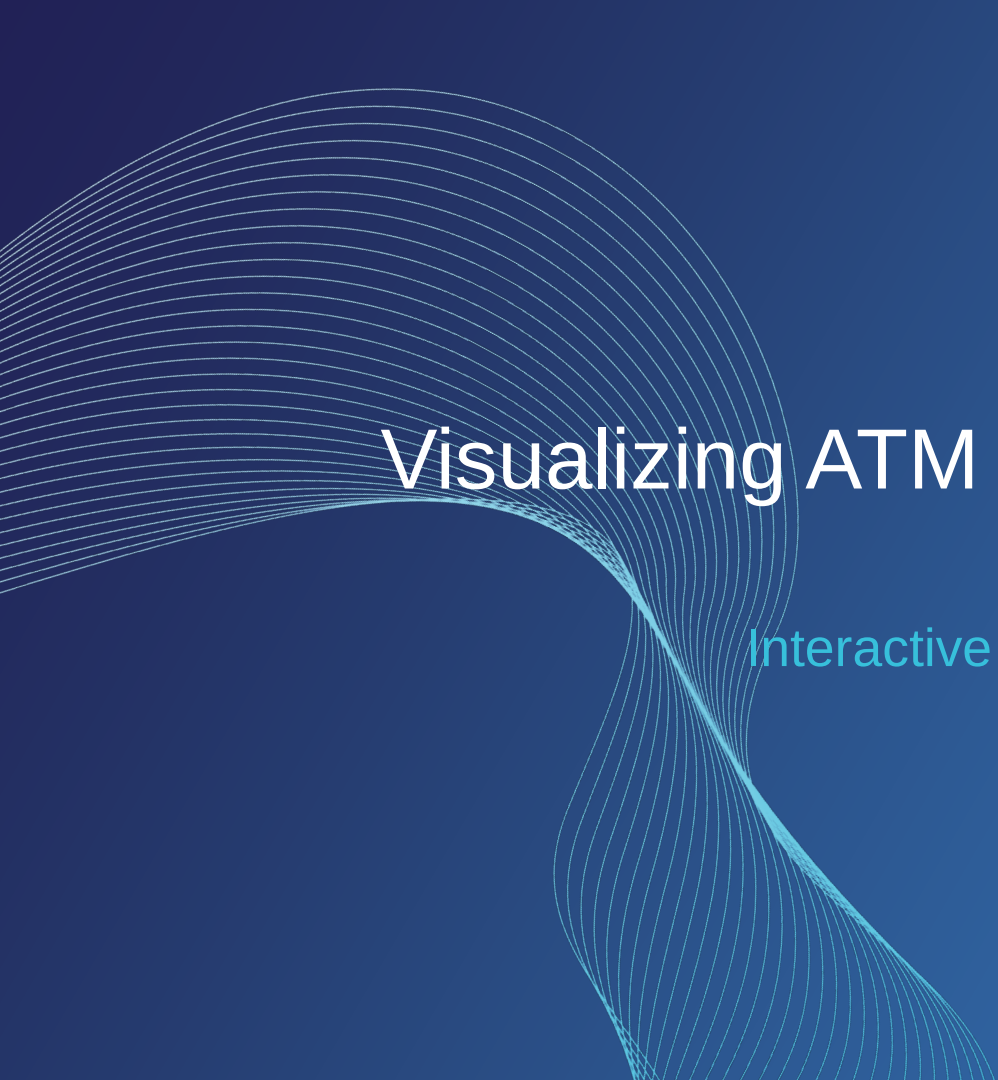




EUROPE<sup>FOR</sup> AVIATION

# Visualizing ATM performance across Europe

Interactive online performance dashboards

Denis Huet  
Head of Economic Performance Review Unit, EUROCONTROL



# Objective of online interactive dashboards

- Make best use of EUROCONTROL aviation-related data.
- Be customer focus.
- Provide regularly updated reference information to our stakeholders and to the public.
- Use today's technologies:
  - Interactive.
  - Intuitive.
  - Fast.
  - Works on multiple devices.
- Cross different types of data (economic, operational, etc...).

# How best to display this data?

- **Very different users and needs:**
  - CEO view.
  - Operational view.
  - Economic view.
  - Analyst view.
- **What to display for a specific indicator:**
  - Absolute values vs. evolution (% or  $\Delta$ ).
  - Monthly, weekly, annual, year to date, etc...
  - Geographical breakdown.
  - Evolution over time.
  - Breakdown by entities.

# How best to interact with this data?

- **How to navigate within the multidimensional data:**
  - Click to filter data (vertical move).
  - Click to follow a dimension (horizontal view).
- **Which experience to the users:**
  - Interactive.
  - Intuitive.
  - Fast.
- **Two examples:**
  - Service Units Dashboard: [www.eurocontrol.int/ServiceUnits/Dashboard](http://www.eurocontrol.int/ServiceUnits/Dashboard)
  - ATM Cost Effectiveness Dashboard: [www.eurocontrol.int/ACE](http://www.eurocontrol.int/ACE)

- EUROCONTROL web tool to visualize and analyse the monthly evolution of service units (i.e. ANSP revenues from ANS charges)

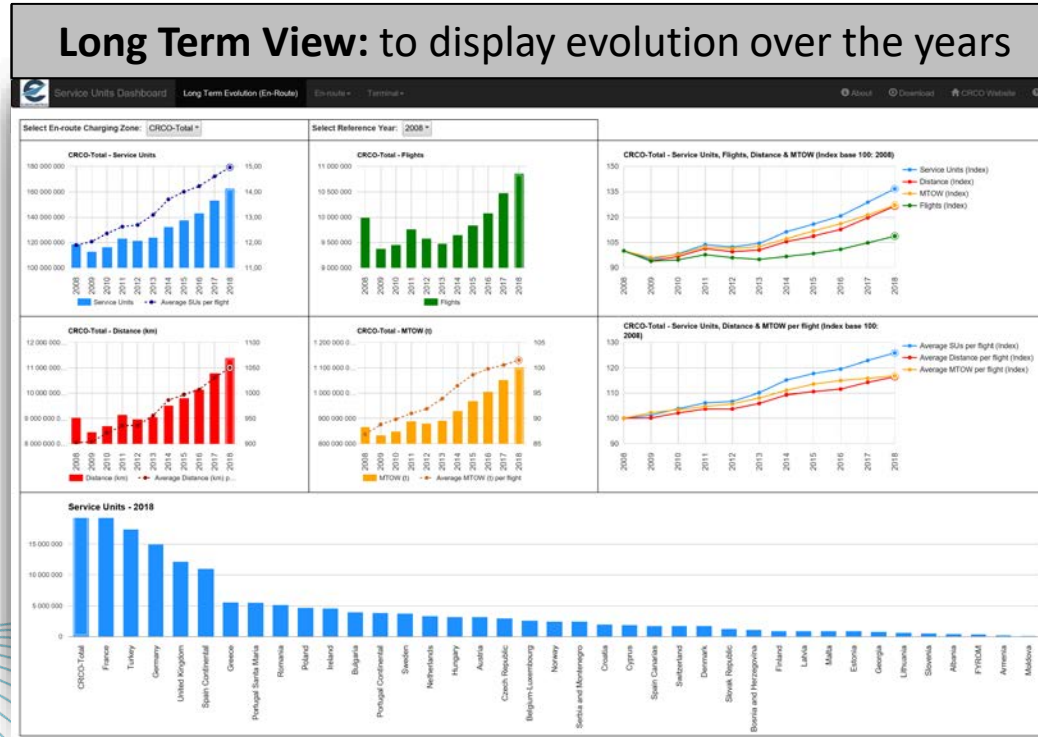
- Updated every month since 2015.

- Easily accessible at: [www.eurocontrol.int/ServiceUnits/Dashboard/](http://www.eurocontrol.int/ServiceUnits/Dashboard/)



# Structure of the Service Units Dashboard

- Structured around 7 main views for en-route and 2 for terminal:





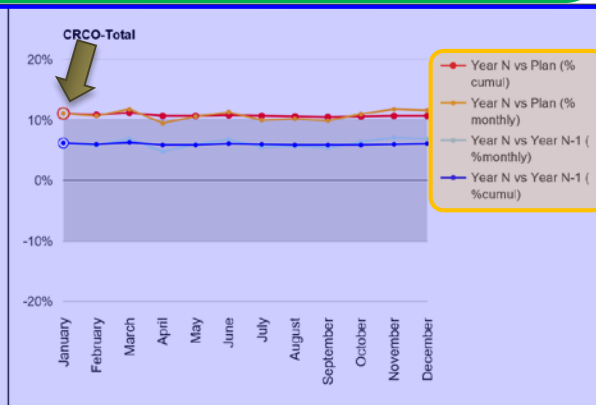
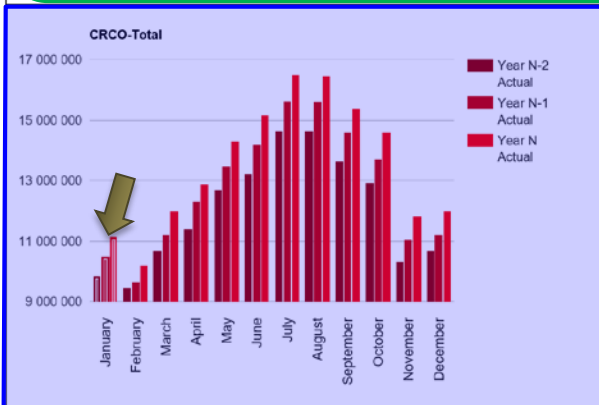
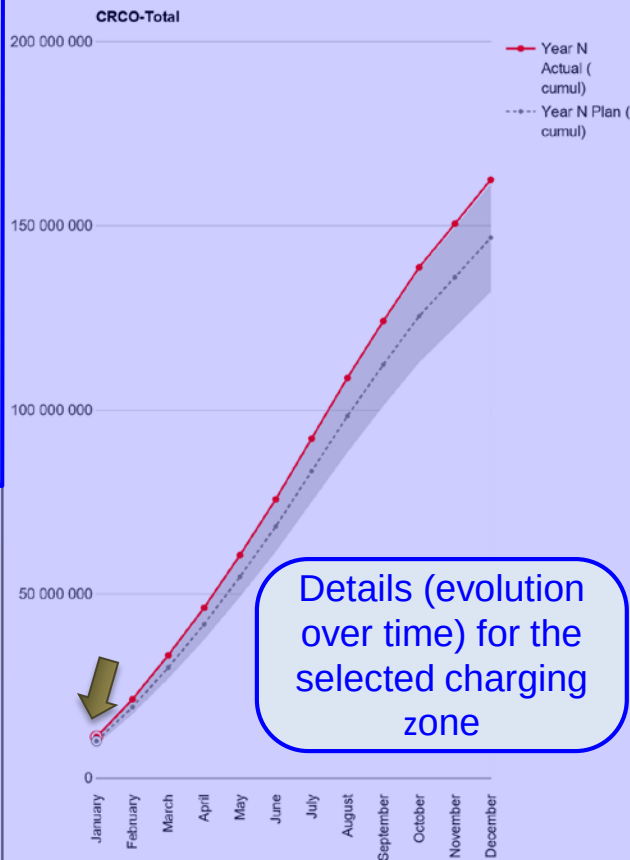
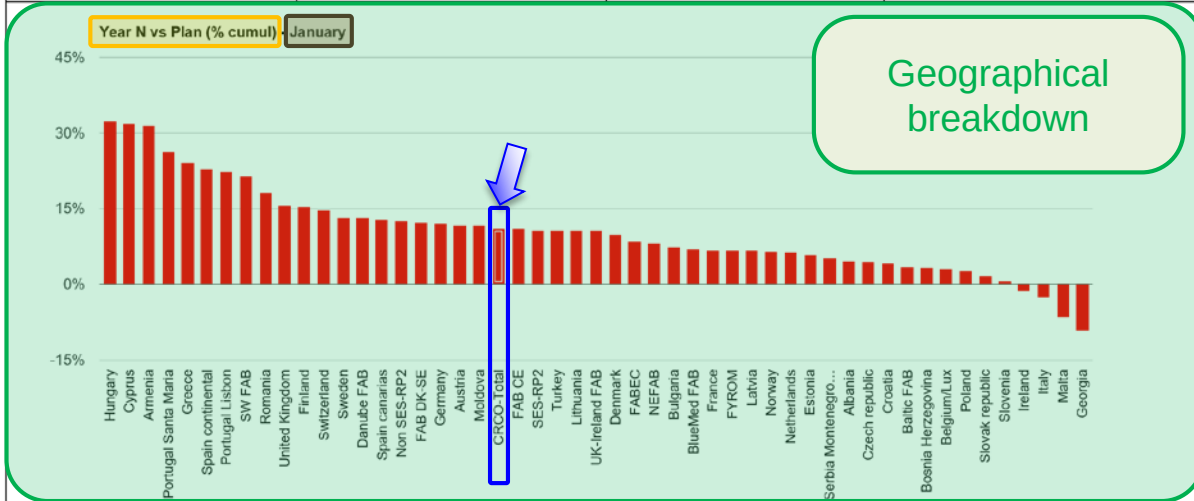
Reference Year (N): 2018

Metric: Year N vs Plan (cumul)

Percent or Absolute: Percent

En-route Charging Zone: CRCO-Total

Home





Reference Year (N): 2018 ▾

Lin  
▾

Y-axis: Indicator 2

Year N vs. Plan (Cumul)

Color: Indicator 3

Color

Year N vs.  
Year N-1  
(Cumul)0.2  
0Bubble size:  
Indicator 4

Size

Year N  
(monthly)

2300000

Select

Deselect all

- ☐ Albania
- ☒ Armenia
- ☐ Austria
- ☐ Belgium
- ☐ Bosnia-Herz.
- ☐ Bulgaria
- ☐ Croatia
- ☒ Cyprus
- ☐ Czech Republic
- ☐ Denmark
- ☐ Estonia
- ☐ FYROM
- ☐ Finland
- ☐ France
- ☒ Georgia
- ☐ Germany
- ☐ Greece
- ☒ Hungary
- ☒ Ireland
- ☒ Italy
- ☐ Latvia
- ☐ Lithuania
- ☒ Malta
- ☐ Netherlands
- ☐ Trails

Time

X-axis: Indicator 1

Year N vs. Year N-1 (monthly)

1/1/18

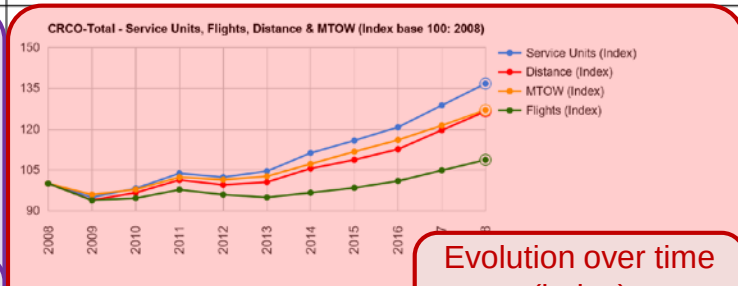
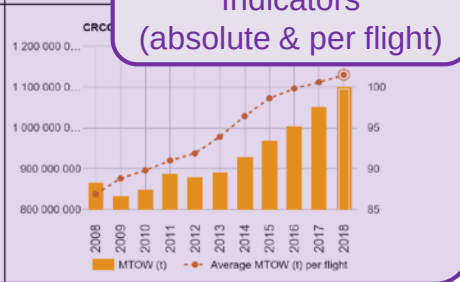
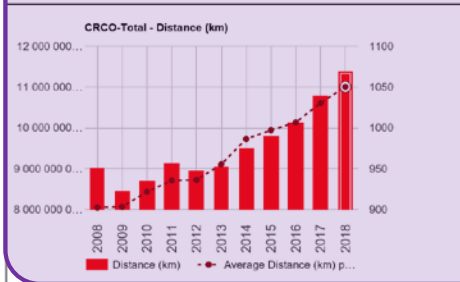
Lin ▾

Select En-route Charging Zone: CRCO-Total

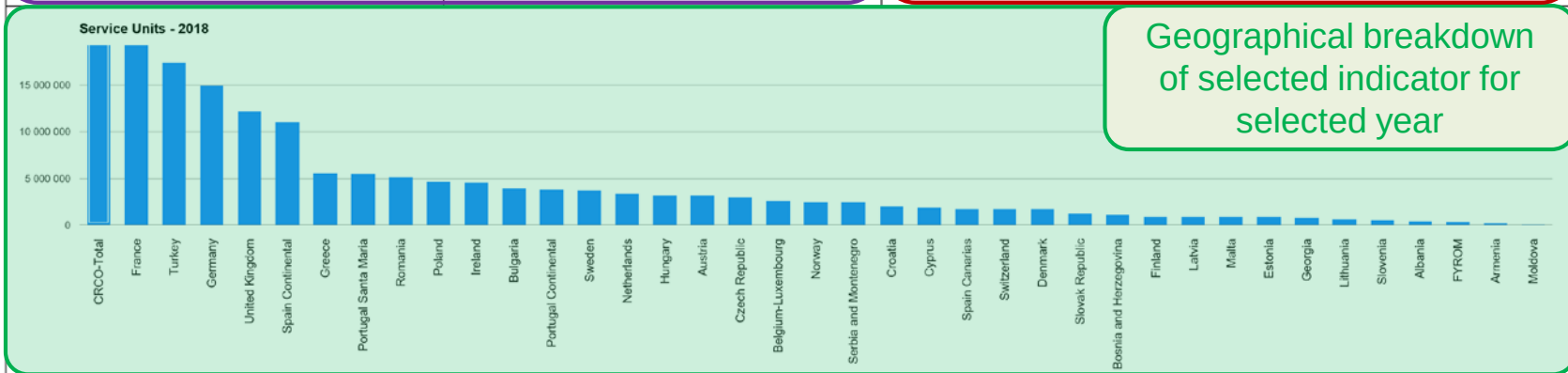
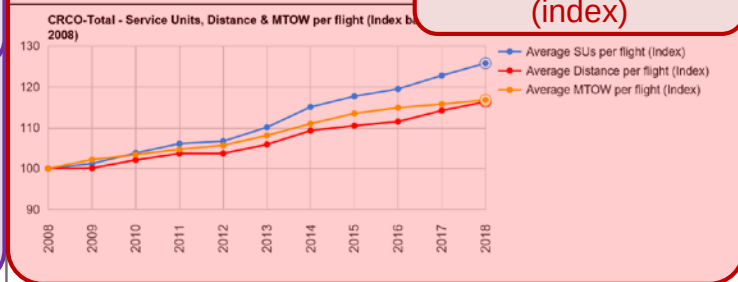
Select Reference Year: 2008



Indicators  
(absolute & per flight)



Evolution over time  
(index)

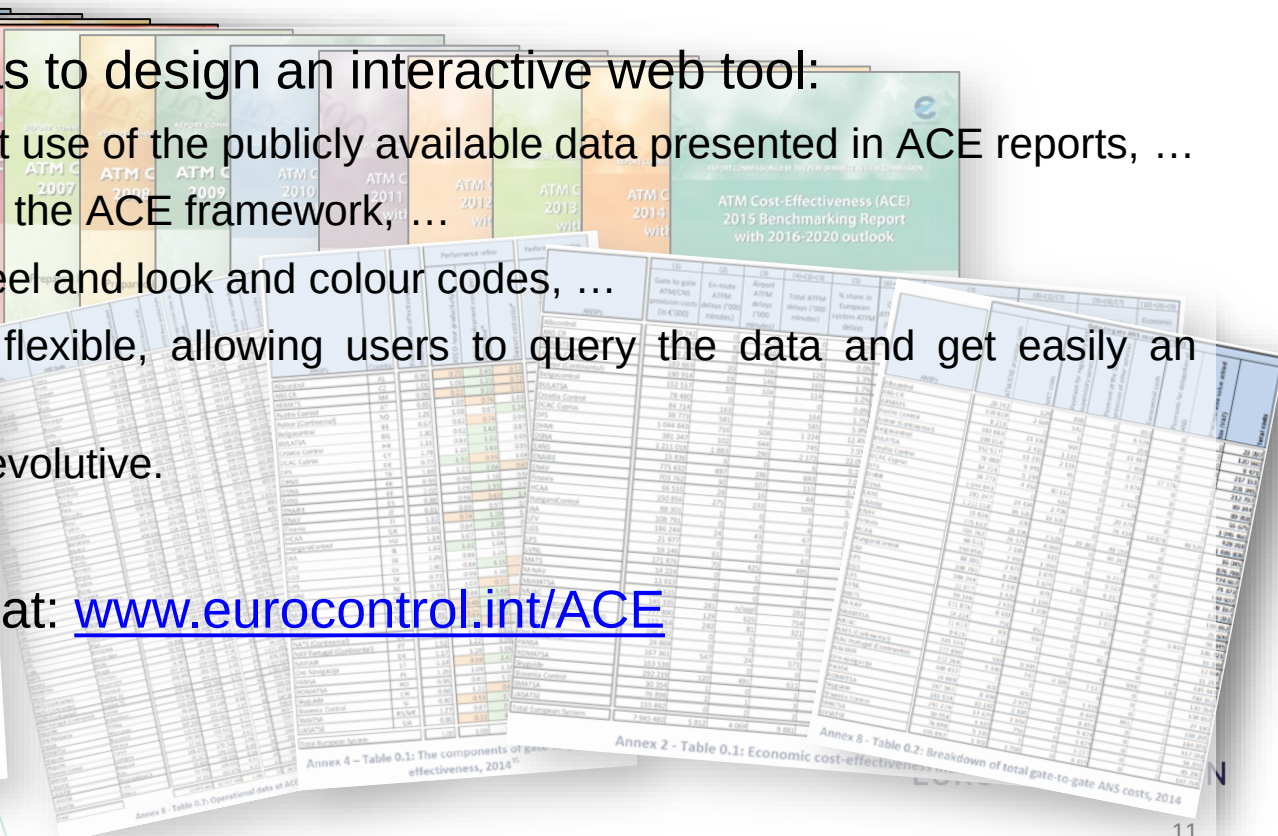
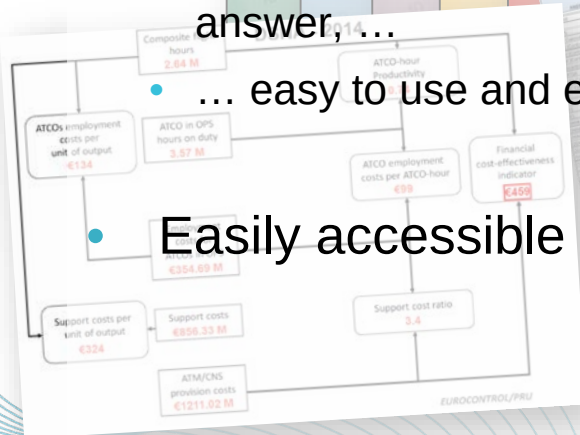


Geographical breakdown  
of selected indicator for  
selected year

# Introduction to the ATM Cost Effectiveness Dashboard

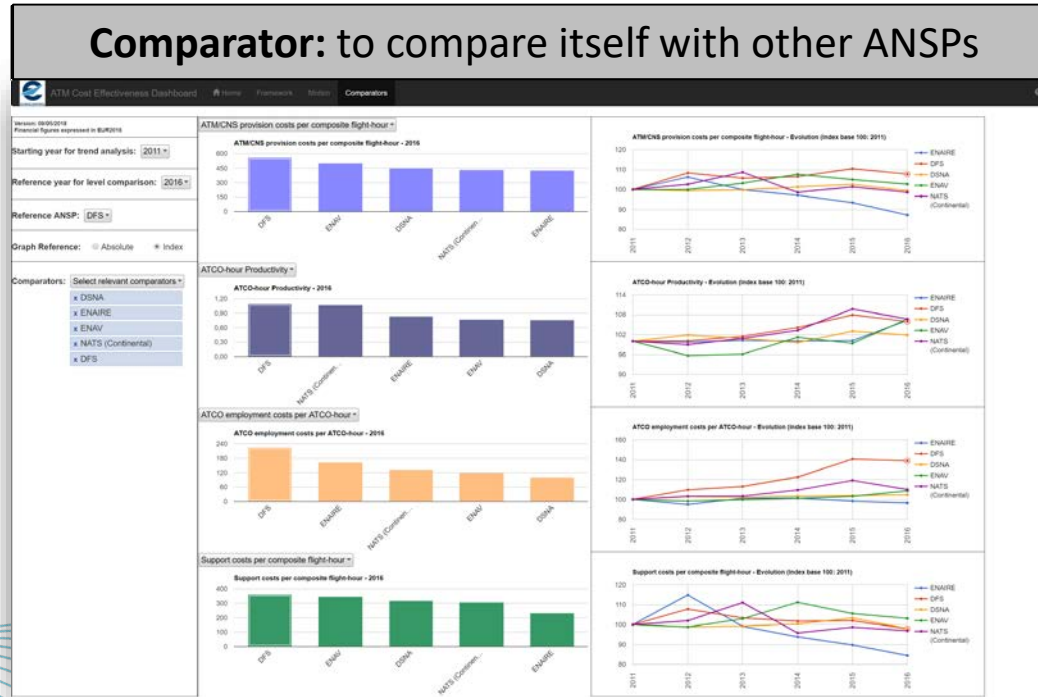
- Main objective was to design an interactive web tool:
  - ... which makes best use of the publicly available data presented in ACE reports, ...
  - ... organised around the ACE framework, ...
  - ... using the same feel and look and colour codes, ...
  - ... informative and flexible, allowing users to query the data and get easily an answer, ...
  - ... easy to use and evolutive.

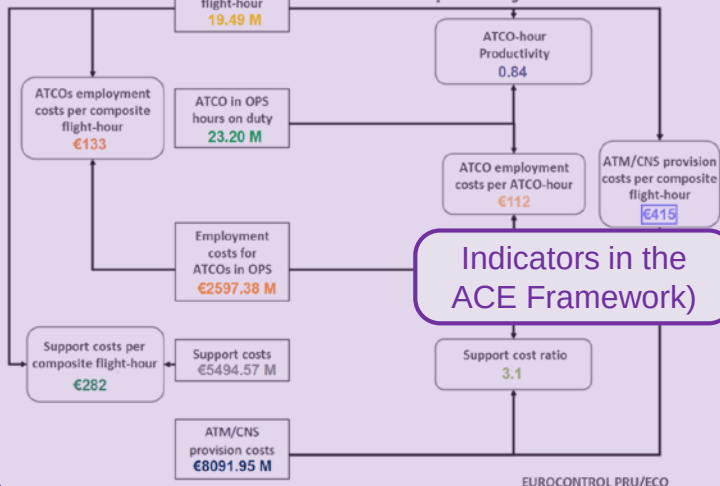
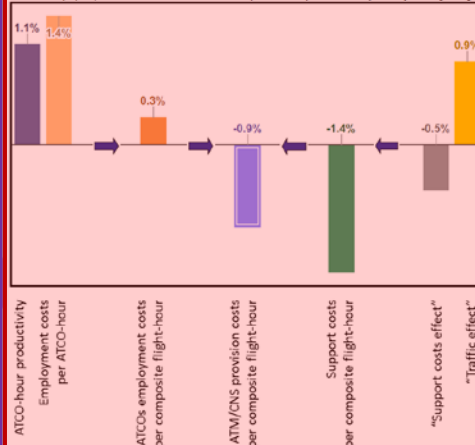
- Easily accessible at: [www.eurocontrol.int/ACE](http://www.eurocontrol.int/ACE)



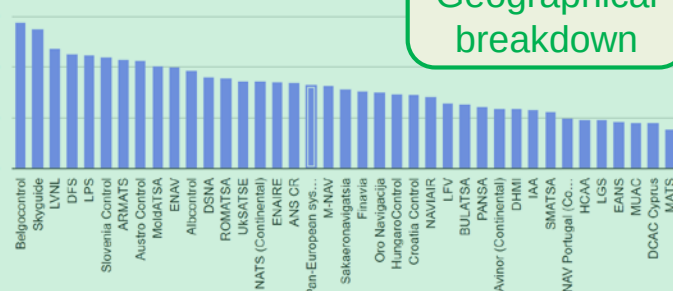
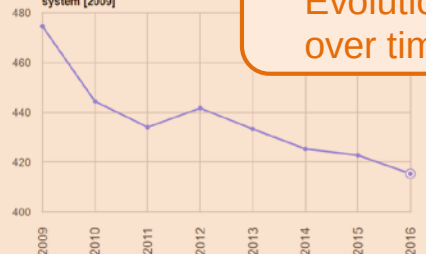
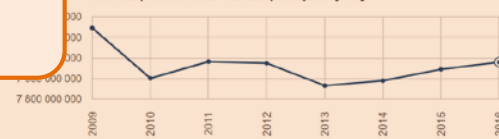
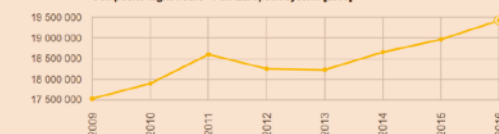
# Structure of the ATM Cost effectiveness Dashboard

- Structured around 4 main views :



Select ANSP: **Pan-European system**☐ Show 2011 ValuesVersion: 09/05/2018  
Financial figures expressed in EUR2016Select Year **2011** Percentage computed: ☒ per annum ☐ over the period**Pan-European system - 2016****Variation (%p.a.) financial cost-effectiveness (2011-2016) - Pan-European system [2009]****Comparison between two years**

| Pan-European system                                 |        |        |       |
|-----------------------------------------------------|--------|--------|-------|
|                                                     | 2011   | 2016   | %p.a. |
| Gate-to-gate ANS revenues (in € M)                  | 9182.7 | 9374.7 | 0.4%  |
| Gate-to-gate ATM/CNS provision costs (in € M):      |        |        |       |
| Staff costs                                         | 8073.2 | 8091.9 | -0.6% |
| Non-staff operating costs                           | 1423.0 | 1297.1 | -1.9% |
| Depreciation costs                                  | 944.5  | 943.3  | -0.1% |
| Cost of capital                                     | 550.9  | 524.9  | -2.2% |
| Exceptional items                                   | 55.5   | 87.6   | 4.0%  |
| Gate-to-gate ANS staff:                             | 57986  | 55915  | -1.0% |
| ATCOs in OPS                                        | 17227  | 17688  | 0.7%  |
| NBV of gate-to-gate fixed assets (in € M):          | 7776.0 | 7289.2 | -1.4% |
| NBV of gate-to-gate fixed assets in operation       | 6225.9 | 6030.6 | -0.7% |
| NBV of gate-to-gate fixed assets under construction | 1550.1 | 1258.6 | -4.2% |
| Gate-to-gate capex (in € M)                         | 1040.7 | 1107.9 | 1.0%  |
| Outputs (in M)                                      |        |        |       |
| Total flight-hours controlled                       | 14.5   | 15.4   | 1.1%  |
| IFR airport movements controlled                    | 15.4   | 15.4   | -0.0% |
| Gate-to-gate ATFM delays ('000 min.)                | 17823  | 15364  | -2.9% |

**ATM/CNS provision costs per composite flight-hour - 2016****Geographical breakdown****ATM/CNS provision costs per composite flight-hour - Pan-European system [2009]****Evolution over time****ATM/CNS provision costs - Pan-European system [2009]****Composite flight-hours - Pan-European system [2009]**

# Next steps

- Cover other key operational areas (traffic, safety, capacity, environment...).
- Continue updating existing economic dashboards.
- Develop other economic dashboards (Costs, unit rates, economic plus...).
- Develop various views for different stakeholders and different usage.
- Structure these dashboards around a high level balance scorecard view for European managers.



# Links

## Interactive Dashboards:

- Service Units Dashboard: [www.eurocontrol.int/ServiceUnits/Dashboard](http://www.eurocontrol.int/ServiceUnits/Dashboard)
- ATM Cost Effectiveness Dashboard: [www.eurocontrol.int/ACE](http://www.eurocontrol.int/ACE)
- ... more to come...

## Other interesting PRU Dashboards:

- SES Performance: [www.eurocontrol.int/prudata/dashboard/vis/2018/](http://www.eurocontrol.int/prudata/dashboard/vis/2018/)
- PRU Data Portal: <http://ansperformance.eu/>