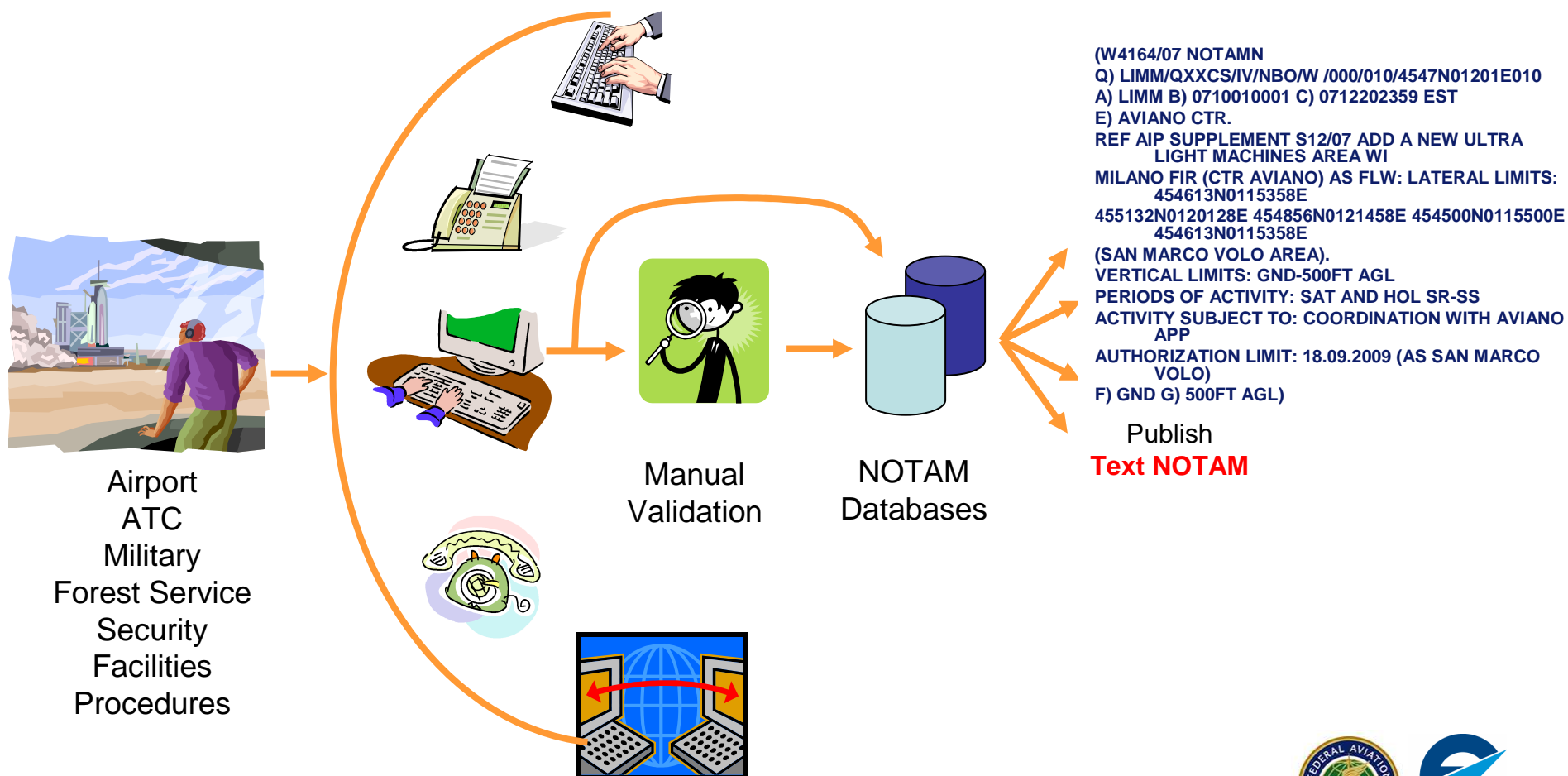




# ***Digital NOTAM (xNOTAM)***

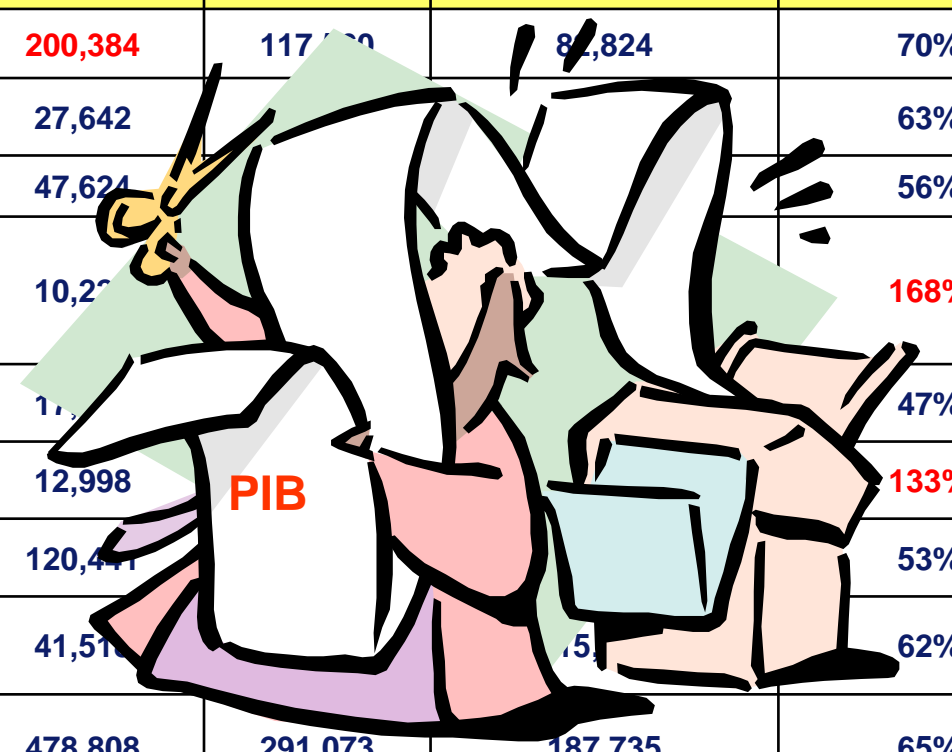
***Eddy Porosnicu (EUROCONTROL)***

***Brett Brunk (FAA)***



# Significant increase in the number of NOTAM

ICAO region	2006	2000	Change in numbers	Change in %
Europe (L+E+B)	200,384	117,000	82,824	70%
Pacific (A+N+Y)	27,642	17,000	10,642	63%
Asia (R+V+W+Z)	47,624	29,800	17,824	56%
Russia + Central Asia (U)90%	10,200	6,000	4,200	168%
Africa (D+F+G+H)	17,000	11,500	5,500	47%
Mid Asia (O)	12,998	8,000	4,998	133%
North America (C+K+P)	120,400	75,000	45,400	53%
South + Central America (M+S+T)	41,500	25,800	15,700	62%
Total	478,808	291,073	187,735	65%



Source: European AIS Database (EAD)

# Impact on pre-flight information

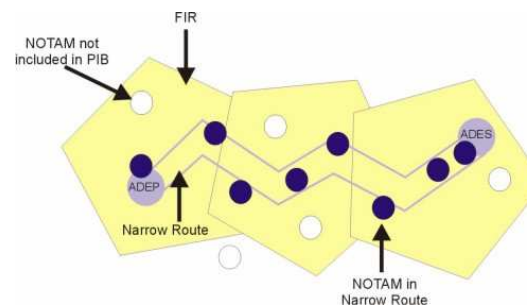
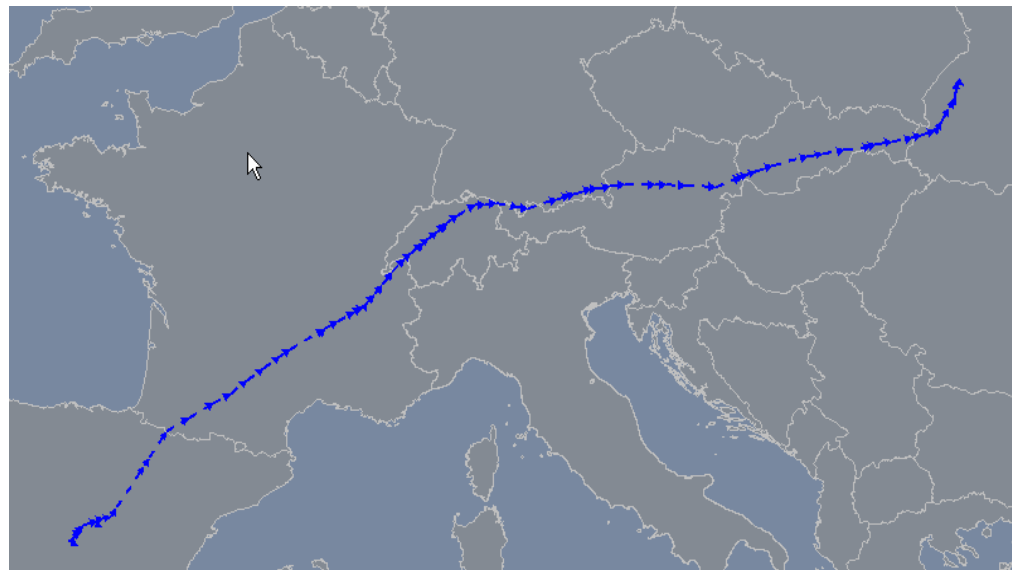
- Madrid/Spain (LEMD) to LVIV/Ukraine (UKLL)

## **Basic PIB**

- ADEP, FIRs, ADES, ALTN
- ❖ **33 pages, 223 NOTAM**

## **Advanced PIB**

- example for 09 June 2008
- narrow route
  - based on NOTAM centre + radius
  - *not using real feature geometry and not using real impact!*
- ❖ **20 pages, 121 NOTAM**





# The risk of information overload



Photo 1. Aircraft approach

(private observer outside the airport premises)

ATC Global – IM Workshop 18 March 2009





***Text NOTAM no longer suitable for a system reliant on computers at every level!***



Copyright AIRBUS - Computer Graphics by IBM



NOTAM System Modernization:  
The Pilots' Perspective

Report summarizing input from the  
to NOTAM System Modernization Working Group

NOTAM System Modernization:  
The Pilots' Perspective

Report summarizing input from the  
Pilot Input to NOTAM System Modernization Working Group

Field Conditions Data:  
The Airline Dispatchers' Perspective

Report summarizing input from the  
Dispatch Aviation Safety Action Program (ASAP)  
Field Conditions (FICON) Working Group

Submitted by:  
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NOTAM System Modernization:  
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\*Kelley Krokos, Ph.D., American Institutes of Research  
Florian Jentsch, Ph.D., University of Central Florida (UCF)





# The solution – Digital NOTAM

## Current NOTAM

(A2018/07 NOTAMN)  
Q) EGPX/QMRLC/IV/NBO/A /000/999/5439N00613W005  
A) EGAA B) 0709011344 C) 0709011344  
E) RWY 07/25 WITHDRAWN FM SER DUE TO ESSENTIAL MAINT.  
BOTH RWY CAN BE MADE AVBL TO FULL OPR CRITERIA WITH 30MIN PPR.  
WIP WILL BE SUSPENDED WHEN THE CLOUD CEILING FALLS TO OR BLW 600FT  
OR VIS FALLS TO OR BLW 5000M.)

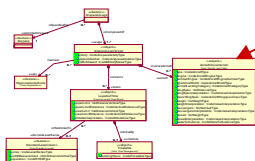
“A **notice** distributed by means of telecommunication containing information concerning the establishment, condition or change in any aeronautical facility, service, procedure or hazard, the timely knowledge of which is essential to personnel concerned with flight operations.”



## Digital NOTAM

```
<?xml version='1.0' encoding='UTF-8'>
<NOTAM xmlns='http://www.eurocontrol.int/NOTAM'>
  <id>A2018/07</id>
  <type>NOTAMN</type>
  <priority>Q</priority>
  <location>EGPX/QMRLC/IV/NBO/A</location>
  <coordinates>000/999/5439N00613W005</coordinates>
  <validity>
    <from>0709011344</from>
    <to>0709011344</to>
  </validity>
  <description>
    <text>RWY 07/25 WITHDRAWN FM SER DUE TO ESSENTIAL MAINT.
    BOTH RWY CAN BE MADE AVBL TO FULL OPR CRITERIA WITH 30MIN PPR.
    WIP WILL BE SUSPENDED WHEN THE CLOUD CEILING FALLS TO OR BLW 600FT
    OR VIS FALLS TO OR BLW 5000M.</text>
  </description>
  <remarks>
    <text>(A2018/07 NOTAMN)</text>
  </remarks>
</NOTAM>
```

“A **data set** made available through digital services containing information concerning the establishment, condition or change in any aeronautical facility, service, procedure or hazard, the timely knowledge of which is essential to systems and automated equipment used by personnel concerned with flight operations.”

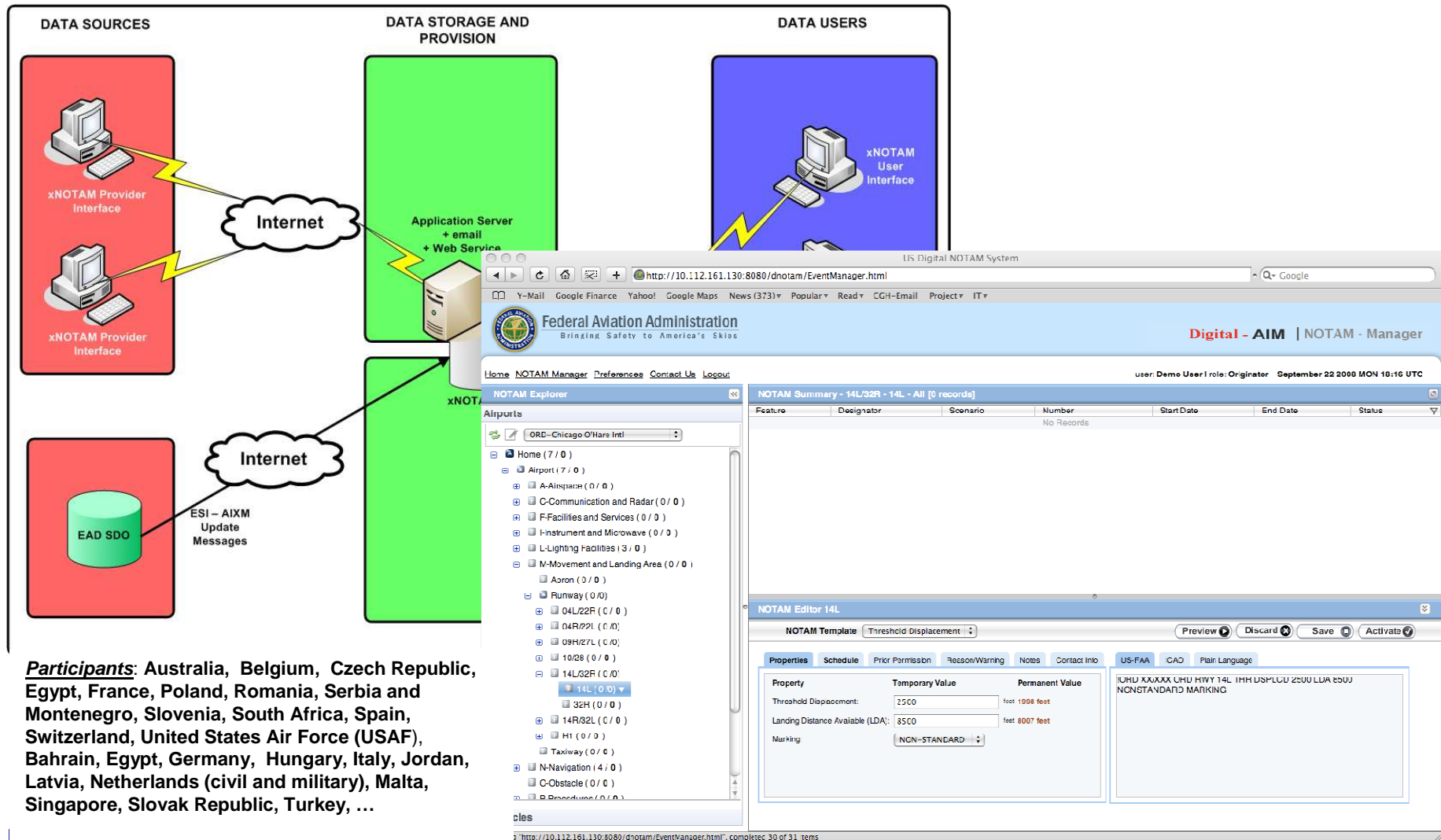


Requires a data model!

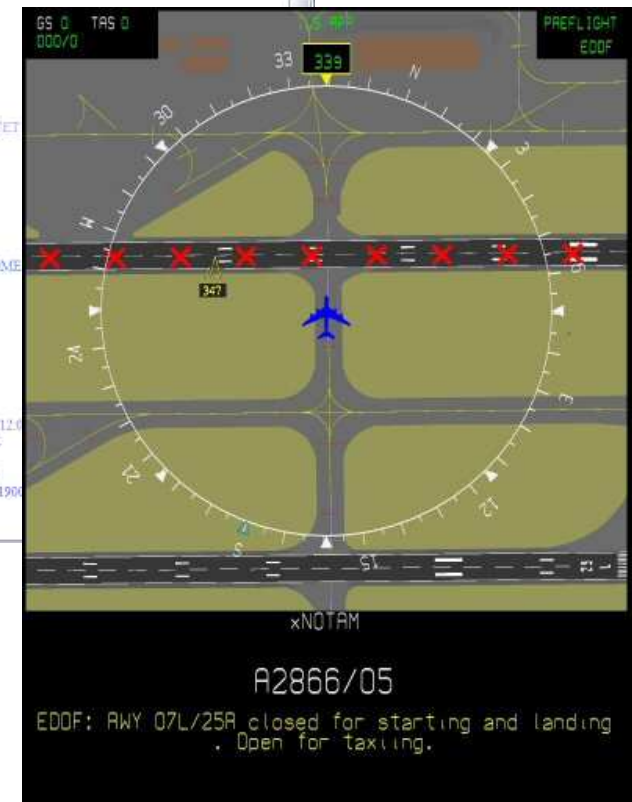
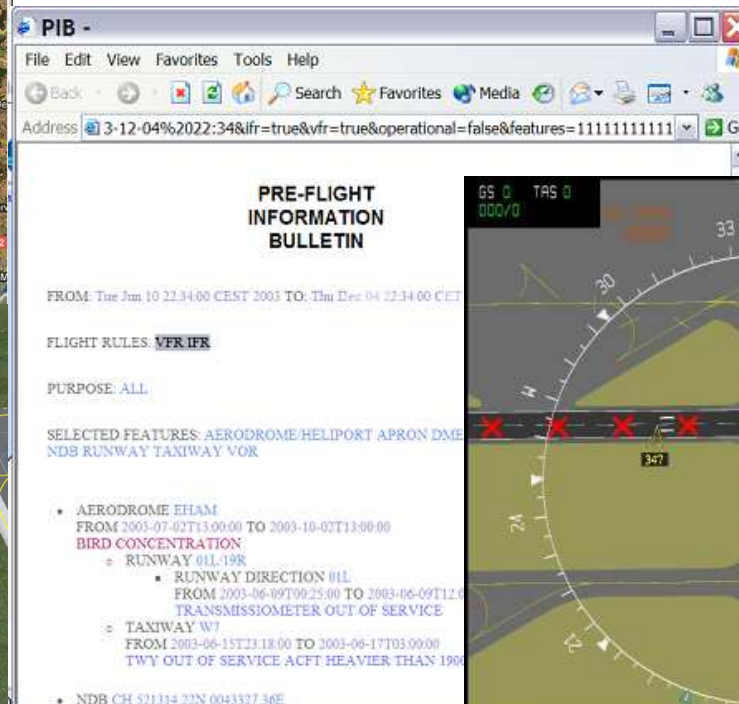
AIXM 5: Joint development EUROCONTROL - FAA



# Digital NOTAM Trials







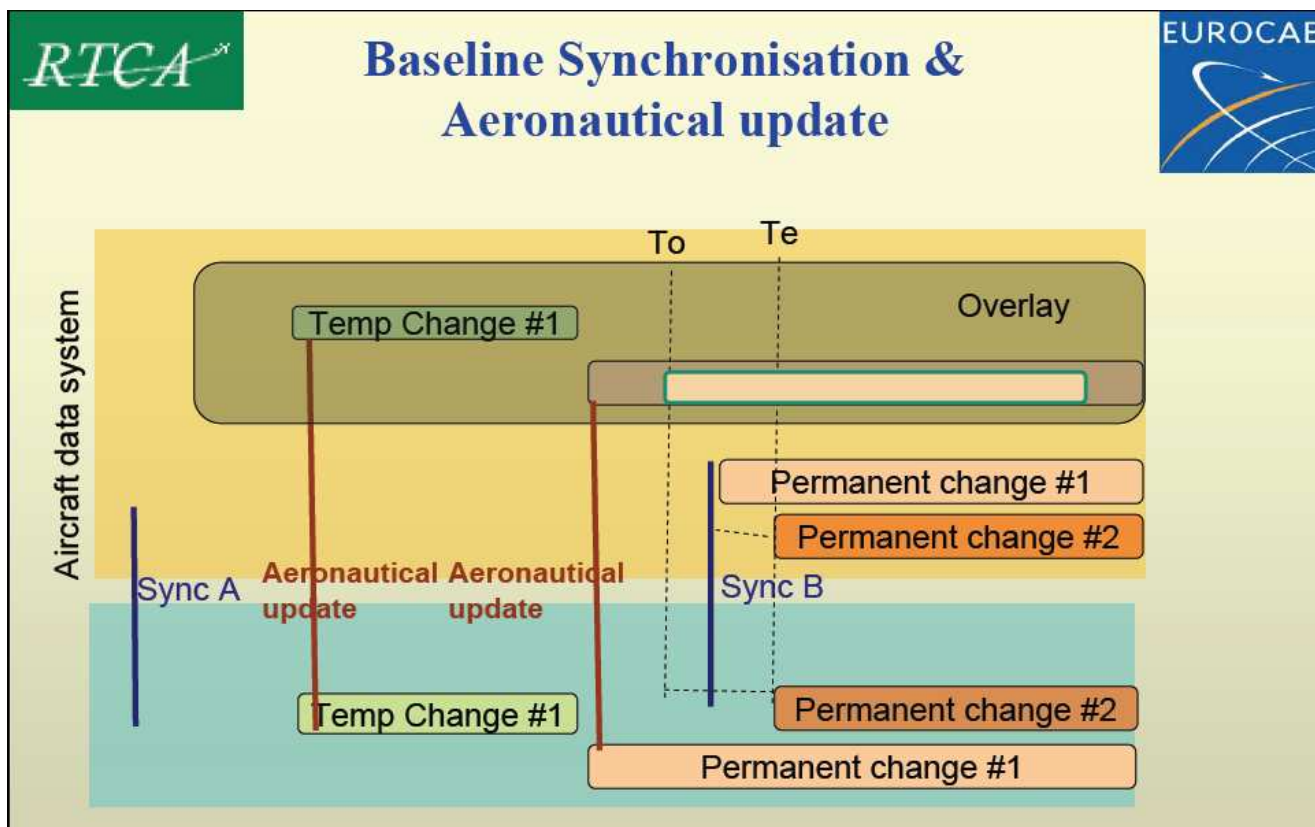


- Timely, accurate and complete aeronautical information benefits flight operations
  - Improvements for controllers and pilot situational awareness
- Decrease in incidents where NOTAMs are a contributing factor
- Decrease data collection and interpretation costs
  - Approximately \$2M annually for major US carriers
- Decrease system operations costs
  - Approximately \$4M annually for US government



# Related specification

- AIS/MET Data Link
  - RTCA SC-206/EUROCAE WG-76







- NOTAM
  - essential to flight safety, but
    - end user needs have evolved
    - technologically outdated
  - need for redesign

Business need

Implementation: 2011-2017

### Digital NOTAM

- solve the NOTAM problems
- enable new applications
- safety increase
- efficiency increase
- capacity gain (enabler)
- jointly developed Eurocontrol-FAA

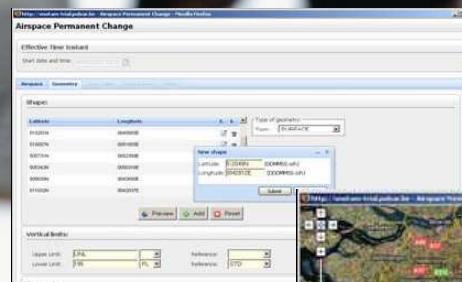
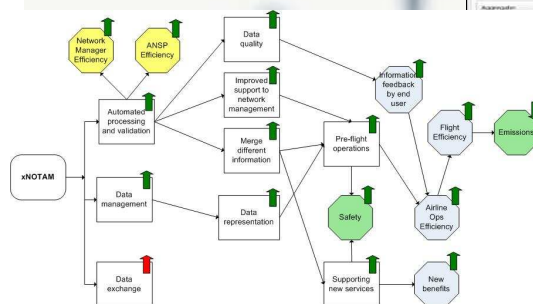
# xNOTAM on the EUROCONTROL stand

Digital NOTAM  
THE DIGITAL AGE

DIGITAL  
**xNOTAM**  
TRIAL

## xNOTAM Workshop

- 9-10 SEP 2009,  
Brussels,  
EUROCONTROL HQ





- EUROCONTROL
  - xNOTAM Web site ([www.eurocontrol.int/aim](http://www.eurocontrol.int/aim))
  - Contacts
    - xNOTAM Project ([Eduard.Porosnicu@eurocontrol.int](mailto:Eduard.Porosnicu@eurocontrol.int))
    - Manager of AIM Unit ([Paul.Bosman@eurocontrol.int](mailto:Paul.Bosman@eurocontrol.int))
- FAA
  - Information on AIM modernization ([Nfdc.faa.gov/aimnews](http://Nfdc.faa.gov/aimnews))
  - Contacts
    - AIM Architecture and Planning ([Brett.Brunk@faa.gov](mailto:Brett.Brunk@faa.gov))
    - Manager of AIM ([Barry.C.Davis@faa.gov](mailto:Barry.C.Davis@faa.gov))