

# Study on ATM Performance Assessment in Japan

NOV. 5-9. 2007

Presented by  
The Civil Aviation Bureau, Japan

## ATM Performance

The diagram illustrates the components of ATM Performance. On the left, a list of evaluation criteria is shown: Safety, Punctuality (On-time), and Efficiency. A stick figure is depicted holding a magnifying glass over a desk where two people are reviewing documents. A large arrow points from this scene towards a central box labeled 'Various Elements'. This box contains several icons representing different aspects of air traffic management: a cockpit, a pilot in a cabin, a stack of books, an airplane, a globe with an airplane, a ground control tower, a pilot wearing a headset, and a radar display.

- ✓ Safety
- ✓ Punctuality (On-time)
- ✓ Efficiency

Various Elements

## Current Situation in Japanese ATM

- ◆ Improvement on Each Elements for the ATM Community
  - Validation for Each Elements
- ◆ Study on Total ATM System Performance
  - Indexes for evaluate the Total ATM System is Required
  - Started the Study since FY2006 in ENRI

## Hierarchical ATM Performance

Level 1 : Political and socio-economic requirements  
safety, security, environmental efficiency, costs, etc.

Level 2 : Required ATM system performance  
safety, throughput, delay, predictability, flexibility, etc.

Level 3 : Required total system performance  
on operational functions/entities set of characteristics

Level 4 : System Requirements  
for an airspace and/or type of users sets of consistent enabler requirements, e.g. RNP, RCP, etc.

Level 5 : Standards & specifications  
tech SARPS, MOPS, standards, IOS90xy, etc.

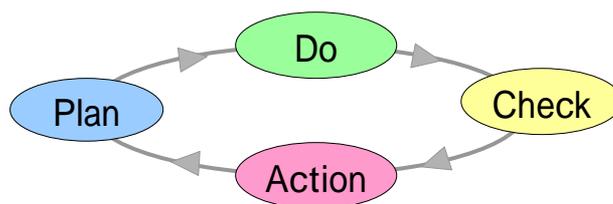
## Key Performance Area

- ◆ Safety
- ◆ Security
- ◆ Environmental Sustainability
- ◆ Cost Effectiveness
- ◆ Capacity
- ◆ Efficiency
- ◆ Flexibility
- ◆ Predictability
- ◆ Access and Equity
- ◆ Participation by the ATM community
- ◆ Global Interoperability

ICAO OCD Doc 9854

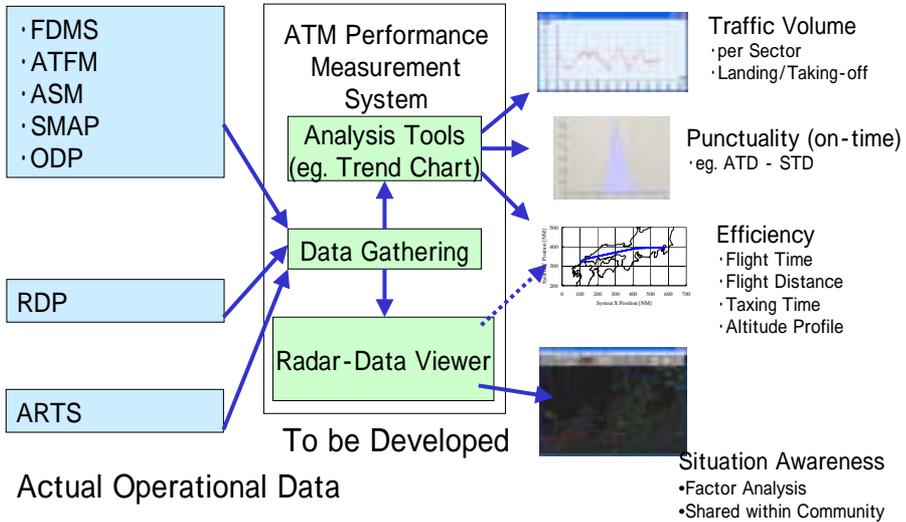
## Usage of Performance Data

- ◆ PDCA Cycle
  - To Coordinate Continuous Improvement Efforts



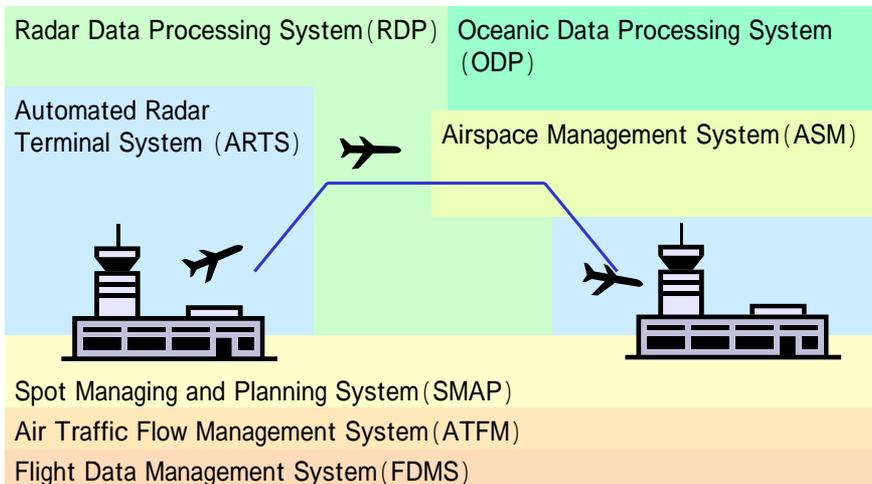
Performance Data: Indicator in the Cycle

# Performance Measurement System

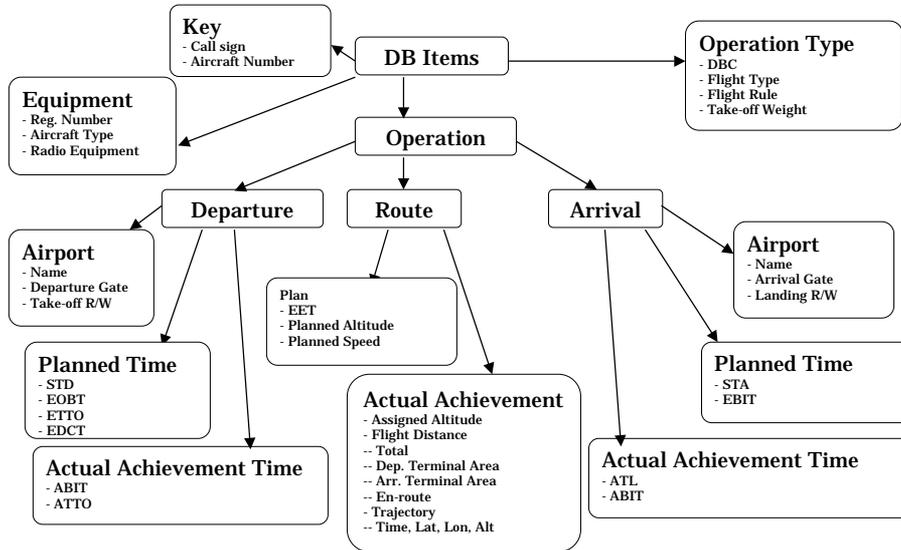


# Data Collection Function

◆ Collect various operational data



# Database Items



# Data Analysis Function

## ◆ Analysis Items

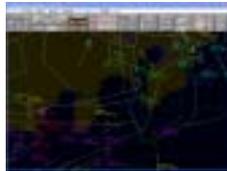
- Traffic Volume (Total, Sector, Airport, etc.)
- Punctuality (Delay, etc.)
- Efficiency (Flight Distance, Alt. Profile, etc.)
- Safety (Passing Frequency, etc.)

## ◆ Analysis Methods

- Trend Analysis
- Cause and Effect Analysis

## Design of the Radar-Data Viewer

- ◆ Purpose:
  - Flow and Trajectory Presentation
  - Analysis of the Trajectory Data
- ◆ Runs on Microsoft-Windows and other OS
- ◆ High Speed Animation Combined with Map and Weather Information



## Summary

- ◆ JCAB have started ATM total performance assessment in Japan.
- ◆ ENRI has been developing a prototype of ATM actual operation database in cooperation with JCAB.
- ◆ Performance analysis is carried out for continuous ATM improvement.