



Introduction to Air Traffic Flow Management (ATFM)



Traffic Management Vision



The FAA and ATCSCC are strategically positioned to serve as leaders in the ATFM arena

- This is based, in part, on our
 - Experience
 - Technology
 - Stakeholder participation

Traffic Management Vision



- Opportunity to share experiences to help India develop a ATFM system. Provide harmonized processes in response to global impacts (Volcanic Ash, satellite launches and reentries, International traffic flow).
- The opportunities have been generated by
 - Increased international traffic demand
 - Growing interest in the FAA's model of ATFM and in our lessons learned

Traffic Management Vision



- The ATFM model the FAA is promoting includes the elements of:
 - An operating philosophy
 - Communications
 - Technology

ATO's Mission Statement



- Deliver the value and high quality services that our customers want.
- Provide safe, secure, and cost effective Air Traffic services.
- Create a professional workplace for our employees to excel and be innovative, fostering enthusiasm and pride for our vision and the services we provide.
- Be accountable for our performance in providing Air Traffic services, with clear and specific goals.

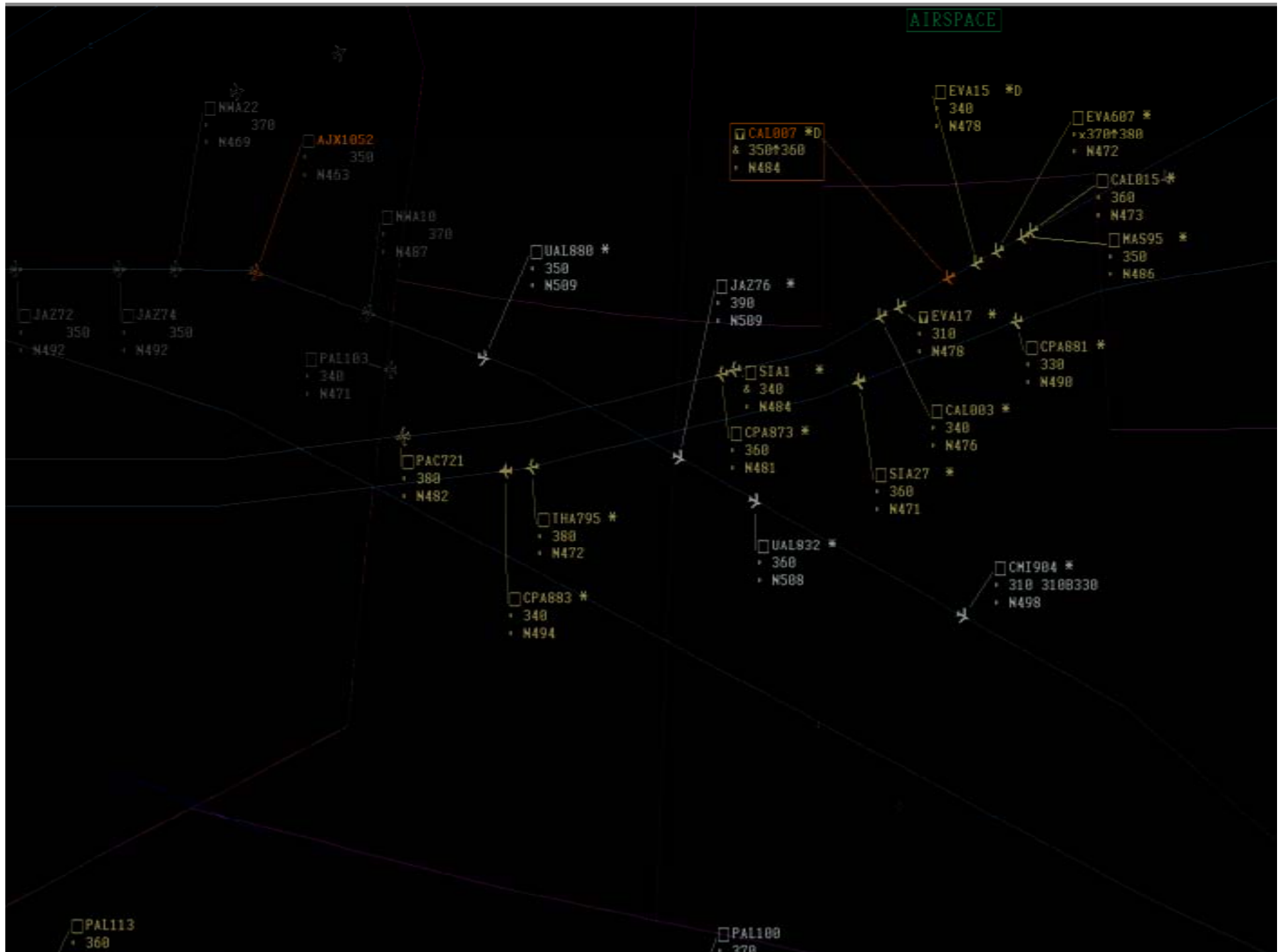
Is This TFM?



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AIRLINERS.NET

AIRSPACE

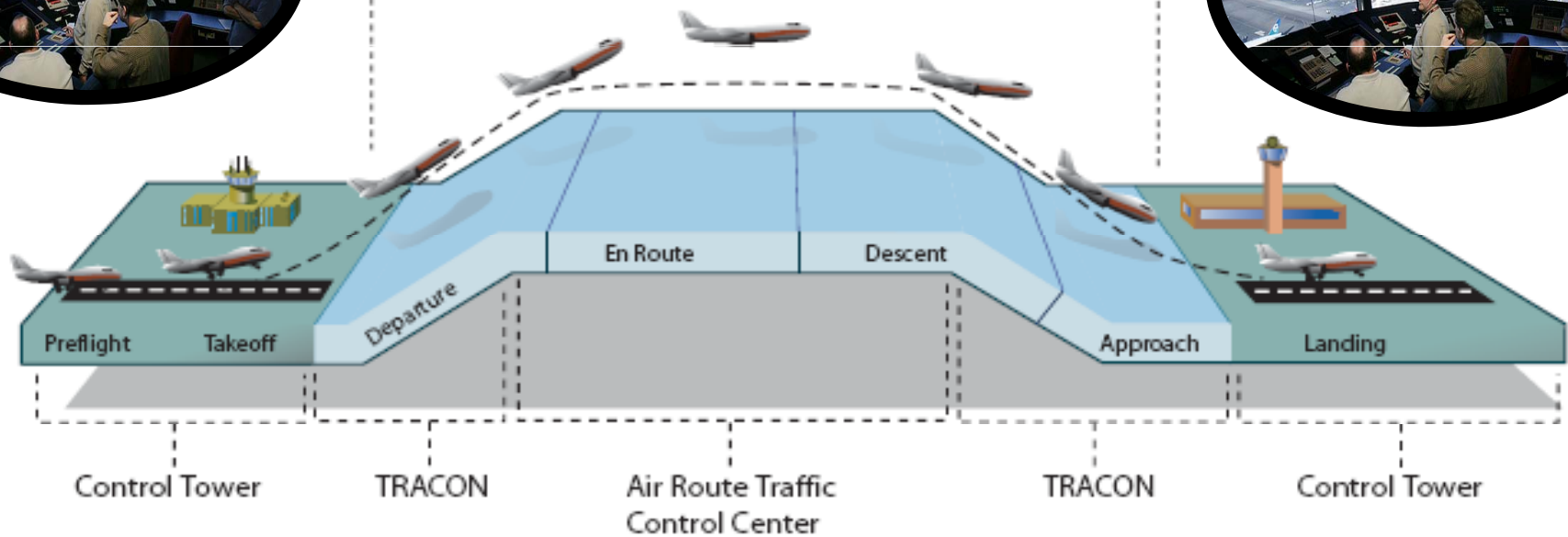




FAA
Air Traffic Organization

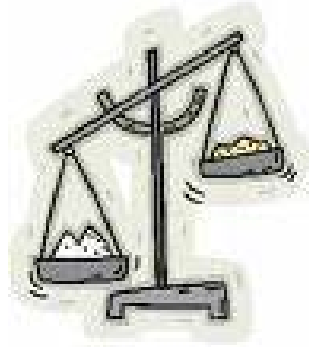


ATC Safe Orderly & Expeditious



Where does TFM Fit?

TFM is embedded in our AT System to Balance Demand with Capacity



ICAO Doc 4444

ATC capacity should be expressed as the maximum number of aircraft that can be accepted over a given period of time within the airspace or at the aerodrome concerned.

to ensure the maximum efficient utilization of the National Airspace System (NAS)

Analysis



ATC Safe Orderly & Expeditious

- Aircraft Requests \leq System Capacity = Safe/Orderly/Expeditious

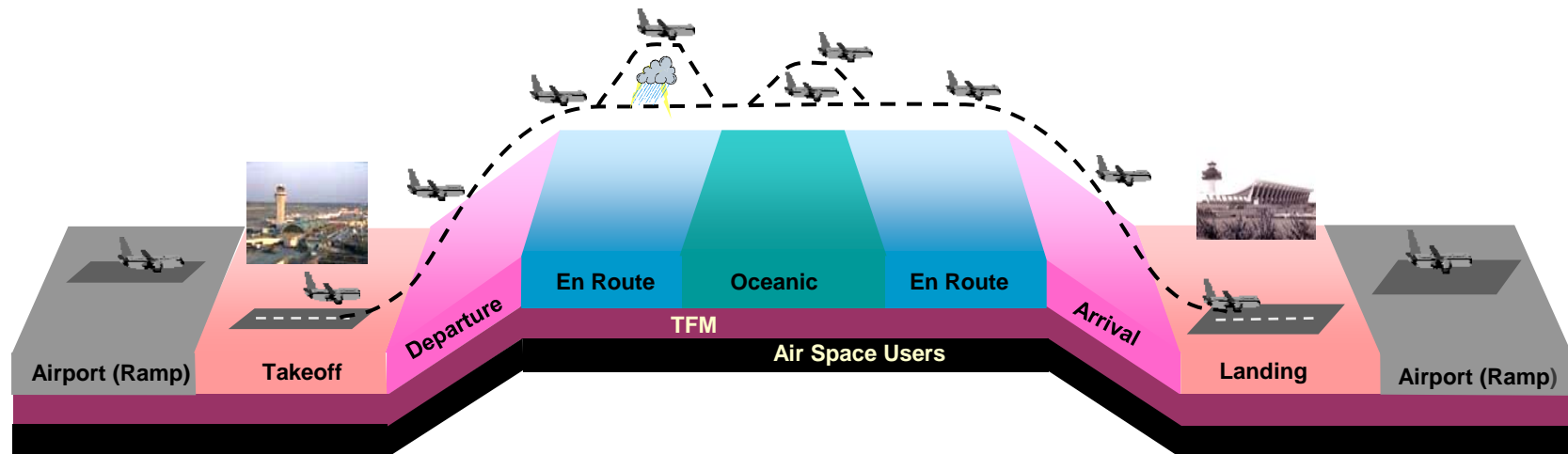
Without TFM

- Aircraft Requests $>$ System Capacity = Safe/Orderly/Expeditious

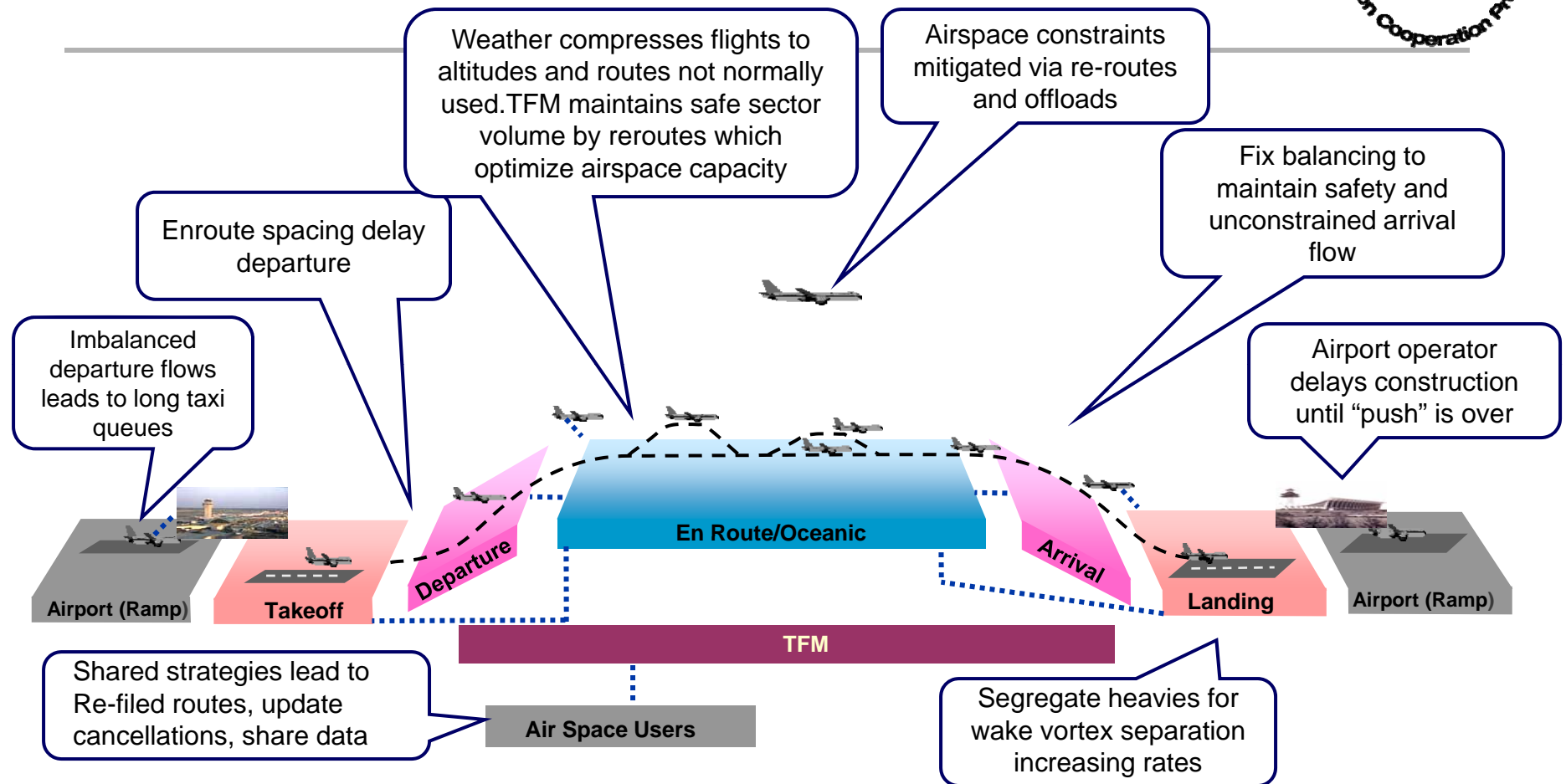
With TFM

- Aircraft Requests $>$ System Capacity = Safe/Orderly/Expeditious

How does TFM optimize CAPACITY and control DEMAND



TFM & Common Situational Awareness



TFM monitors system limitations and optimizes airspace utilization to maintain a balance by elevating capacity and controlling demand

So what is the difference between AT flows & ATFM ?



The Differences :

- Scope
- Time parameters
- Tools & equipment
- The communication processes

Scope



- Local
- Regional
- National
- International

Time Parameters



- Tactical
- Pre Tactical
- Strategic

Tools & Equipment



- Radar Data
- Airline Data
- Weather Data
- TFM equipment to model and forecast
- Common situational awareness
- Internet connectivity
- Telcons to connect all experts and stakeholders

Communications



- Collaborative
- Transparent
- Across all lines of business

Why is Collaboration Essential?



ATC

Goals

Managing
the ATC
System

Stakeholder

Goals

Managing
the
Business

Each makes autonomous strategic and tactical decisions to achieve their individual goals

Sometimes these decisions run counter to each other's decisions
...Affecting the entire system in ways not known to ATC/Stakeholders

ATC Goals



- Safe Separation
- Maximum Throughput
- Efficient use of Capacity
- Controller Workload Managed
- Equitable service
- CO2 Emissions

Stakeholder Goals



Each stakeholder may have different views and varying capabilities

- Safe Flight
- On-time arrivals, Mission objective accomplished
- minimal delay
- Passenger Connections
- Crew Connections
- Aircraft Connections
- Fuel Savings
- Make Money

Are they so different?



ATC Goals

- Safe Separation
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Stakeholders Goals

- Safe Flight
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Collaboration can provide Shared Situational Awareness and Collaborative Resolutions for Win-Win Solutions for both ATC and Stakeholders

Why TFM efficiencies are needed



The air transportation industry is essential for future economic growth and development

- **Today it provides 32 million direct, indirect, and induced jobs worldwide.**
- **Aircraft carry approximately 40% of the value of all world trade.**

Why TFM efficiencies are needed




- In 2007, more travelers than ever before, over 2.2 billion people flew on the world's scheduled air carriers, with predictions of 9 billion passengers by 2025.
- In the Asia Pacific region, the rapid movement of people and materials provided by aviation will be crucial to continued economic growth and development over the next couple of decades.

Economics



Approximately 10 percent of U.S. GDP is related to transportation activity. In 2006, 19 billion tons of freight valued at \$13 trillion was carried within the United States. Air Transportation was second only to trucking and was significantly ahead of rail and water in freight hauled.



Airlines carry more than just passengers. They also transport mail, human organs, car parts, checks, computers, office supplies, etc

Economics



New York

The Aviation industry contributes \$67.2 billion to the gross domestic product (GDP).

663,800 people are employed by the Aviation industry.



Georgia

The Aviation industry contributes \$29.6 billion to the gross domestic product (GDP).

301,900 people are employed by the Aviation industry.



Texas

The Aviation industry contributes \$64.9 billion to the gross domestic product (GDP).

800,200 people are employed by the Aviation industry.



California

The Aviation industry contributes \$128.5 billion to the gross domestic product (GDP).

1,505,000 people are employed by the Aviation industry.

Impacts of a 25% reduction in operations due to a disruption in air service



New York

\$45.9 million per day in gross domestic product (GDP)
\$13.5 million per day in personal earnings
1.3 million man-hours per day in employment productivity

Georgia

\$20.3 million per day in gross domestic product (GDP)
\$5.4 million per day in personal earnings
604,000 man-hours per day in employment productivity

Texas

\$44.4 million per day in gross domestic product (GDP)
\$11.9 million per day in personal earnings
1.6 million man-hours per day in employment productivity

California

\$87.8 million per day in gross domestic product (GDP)
\$25.9 million per day in personal earnings
3.01 million man-hours per day in employment productivity

India Facts



Indira Gandhi International Airport (IGI) serves as the main gateway for the city's domestic and international civilian air traffic:

- In 2006–07, the airport recorded a traffic of more than 23 million passengers making it one of the busiest airports in South Asia.
- Terminal 3 is currently under construction and will handle an additional 34 million passengers annually by 2010.
- Further expansion programs will allow the airport to handle more than 100 million passengers per annum by 2020

Airports Authority of India



- Frontline, reports that India's civil aviation sector is booming with more than **20 %** growth in the number of air passengers each year. To support and sustain this growth, the Government is improving air traffic services and is proposing to invest \$9 billion by 2010 as part of its aviation infrastructure modernization plan.
- The Union Minister for Civil Aviation, Praful Patel, has said that the number of air travelers is only about 0.8 per cent of the population and by the time 10 per cent of the population is flying, India will need around 5,000 aircraft. This means that by 2020, Indian airports will handle around 100 million passengers, including 60 million domestic passengers. In addition, cargo handling is expected to rise significantly.

Need to cut jet fuel prices, says Praful

Saurabh Sinha | TNN

New Delhi: The number of people taking domestic flights has fallen by 18.5%. This September's low is the straight fourth month in a row that domestic fliers have kept away compared to last year.

When airfares started going up earlier this year with rise in jet fuel prices, small town fliers were the first to shy away from flying. So places like Goa, Patna, Thiruvananthapuram, Guwahati, Calicut, Srinagar and Udaipur started seeing domestic passengers opting for cheaper ways of travelling. But now the negative trend is visible in most cities, big and small. The number of domestic fliers this July fell to 58.51 lakh compared to 68.77 lakh last July, a fall of -14.9%.

The combined impact of high fuel prices and an economic slowdown has meant that as airlines raised fares, lesser and lesser number of people could afford to fly. With passenger numbers falling, airlines are now slashing capacity by withdrawing flights and returning excess planes. Despite reducing flights by 20 to 25%, airlines are still flying with nearly 40% seats unsold.

Many airlines reported their lowest seat factor in September, with the figure ranging from 64% for Jet to 50.5% for SpiceJet. Clearly, low cost carriers have lost their sheen due to constant fare hikes now as many of their patrons have gone back to trains and buses.

SEPTEMBER: A NEW LOW

Total domestic passengers carried in September

Sept 08	Sept 07	Fall
27.19	33.38	18.5%

Airlines recorded lowest load factor in Sept 08 so far this year

Airline	Load factor
AI (dom)	53.3%
Jet	64%
JetLite	58.8%
Kingfisher	56.7%
Kingfisher Red	51.7%
IndiGo	56%
SpiceJet	50.5%

JULY'S FREE FALL

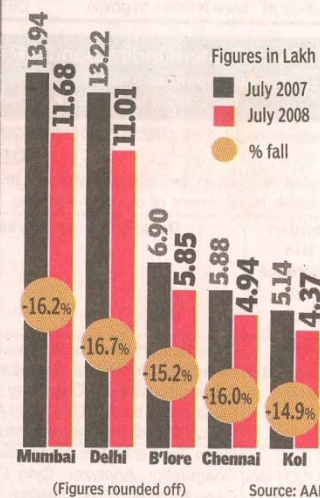
- Majority of domestic airports showed a fall ranging from **56.1%** in Jodhpur, **44.5%** in Jammu to **1.4%** in Tirupati in July '08 over same period last year
- Domestic aircraft movement was **85,780** vs **85,940** last time, a fall of **0.2%**.
- Major domestic flight movement decline in July was at: Chennai | **6.2%**,

Analysing the sharp fall in number of fliers, aviation minister Praful Patel said, "Jet fuel in India is about 60% to 70% more expensive than other parts of the world. This difference translates into higher fares for passengers and an extra cost of Rs 8,000-9,000 crore for air-

DOMESTIC FLIERS GROUNDED



All 25 international airports in India, barring Port Blair and Lucknow, showed a fall in domestic passengers in July '08 vs July '07. High fares clipped the wings of people living in both small towns and the big metros



Mumbai | **5.6%** and Delhi | **4%**

- However, international traffic grew with **22,443** aircraft movement over **19,721** earlier, a **13.8%** increase. International passengers grew from **23.73** lakh to **25.95** lakh, a **9.4%** increase
- Despite rise in international passengers, overall (domestic and international) fliers fell sharply from **92.51** lakh in July 07 to **84.47** lakh in July 08, a fall of **8.7%**

lines, roughly the loss the latter expect to incur this year. Income levels have not gone up 70% and so people who had started flying after the advent of low cost carriers now don't have the ability to pay these higher fares."

Patel warned that unless the

base price of jet fuel and taxes on it were not rationalised, some airlines may have no option but to close down. "As a result of more people flying, the growth in past four years led to creation of lakhs of jobs. The issue is whether we'll be able to create more jobs as aviation

sector has hit a tough time now," he said while referring to recent lay-off plans by some airlines. Incidentally, Patel's advice to Kingfisher not to lay off people worked as the airline sharply reduced salaries of some co-pilots but did not fire them.



Thank You

