

Air Carriers

Chapter 7

















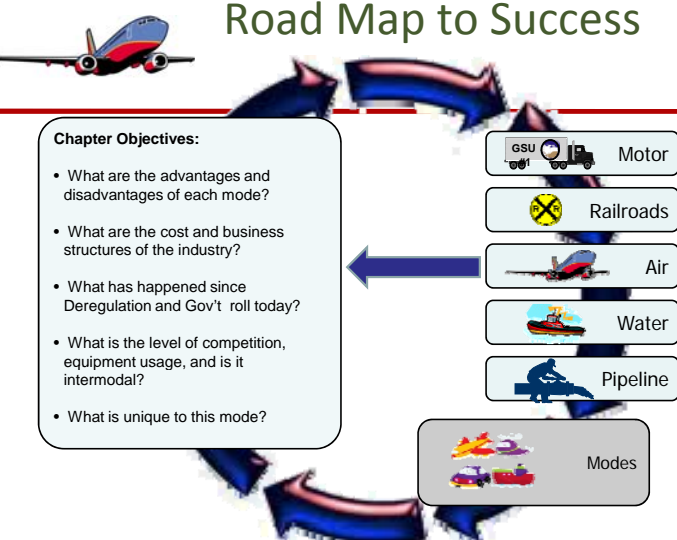


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Road Map to Success


Chapter Objectives:

- What are the advantages and disadvantages of each mode?
- What are the cost and business structures of the industry?
- What has happened since Deregulation and Gov't roll today?
- What is the level of competition, equipment usage, and is it intermodal?
- What is unique to this mode?



Industry Overview (2010)

- Key statistics for domestic market
 - 20.1 Million Pounds of Air Cargo
 - % FedEx 2004: \$24.7B
 - % UPS
 - % Abx Air
 - Erratic annual growth





What do you think has happened since the recession?



Source: BTS Statistics: www.transtats.bts.gov/OneWay.asp?Display_Flag=0&Percent_Flag=0


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Key Participants in the Air Industry


- Airlines
- Air cargo companies
- Freight forwarders
- Customers
- Government agencies
 - Federal (FAA, NTSB)
 - State
 - Local (airport authorities)




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Passenger Traffic

- Passenger Traffic accounts for 83% of the industry's revenue







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Types of Carriers


- Ownership
 - Private
 - For-hire
- Types of service
 - Passenger
 - Air freight
 - Combination
- Frequency of service
 - Scheduled
 - On-demand




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Airline Industry Classes


- Mainline
 - 33 air carriers that use large passenger jets (more than 90 seats)
 - Seven mainline carriers known as network carriers
 - Use a "hub" system
 - Fly internationally
 - Seven low-cost carriers
 - Don't use "hub" system – point-to-point
 - Only offer flights in a limited number of cities
 - Leisure passengers on routes less than 400 miles away
- Regional
 - 81 air carriers that use smaller piston and aircraft (up to 90 seats)
 - Short haul and medium haul scheduled airline service
 - Emphasize on connecting smaller communities with larger cities and hubs
- Air Cargo
 - 25 all-cargo carriers
 - Carry cargo on holds of passenger airlines or aircrafts that are designed only for freight
 - Provide only air transport from cargo origin to airport near cargo destination



Major Air Carriers (2009)

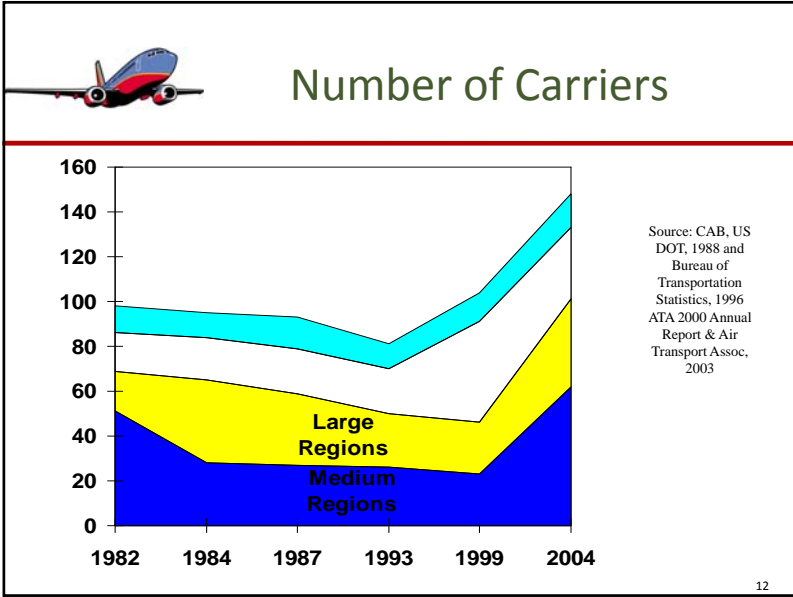
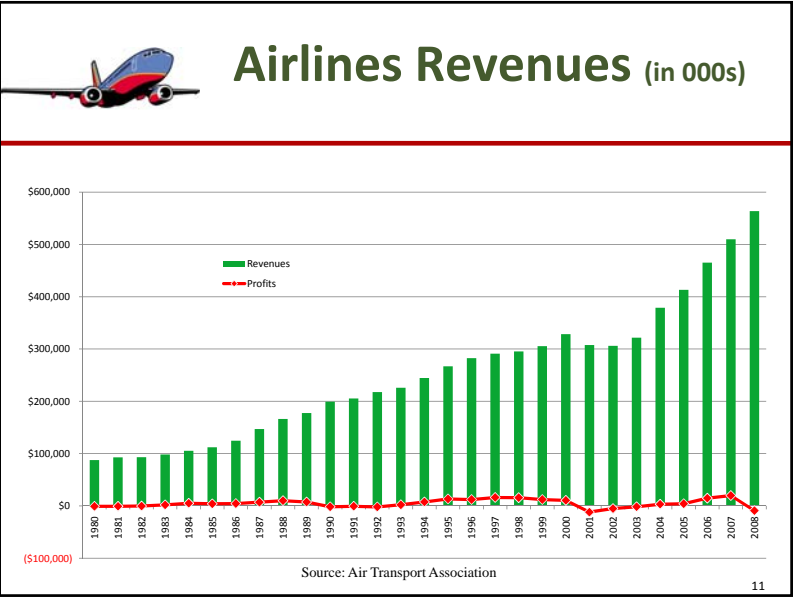
Top 10 Firms account for over 70% of the total riders

Rank	Airline	Passengers
1		101,338,000
2		85,720,000
3		67,745,000
4		56,025,000
5	US Airways	50,975,000
6	Continental	43,946,000
7	Northwest	40,865,000
8	AirTran	23,968,000
9	JetBlue	22,378,000
10	Skywest	21,246,000



Source: Bureau of Transportation Statistics, 2009

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Number of Carriers

- Little change in the number
- Change in who are the Majors
- Bankrupt Majors
 - Braniff, National, Eastern, Pan Am, Continental, TWA
- New Majors
 - Southwest, Northwest, US Airways
- Foreign Carriers
 - British Airways with US Airways, then American
 - Lufthansa

Logos: National Airlines, B1, Southwest, Pan Am

Passenger Carriers: Types and Services

- Types
 - Private - small aircraft used for hobby and travel
 - For-hire- classes based on revenue
 - Major: over \$ billion
 - National: between \$ mil and \$ bil
 - Regional - under \$ million
- Services
 - Passenger - airlines' main mission
 - Cargo - specialize in air freight
 - Commuter - get passengers into system
 - Charter - provides dedicated service

Logos: National Airlines, B1, Southwest, Pan Am

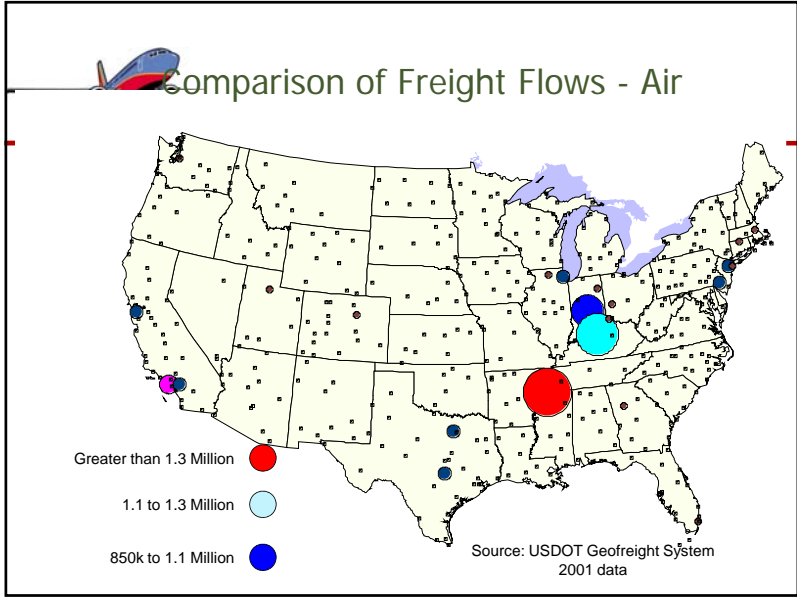
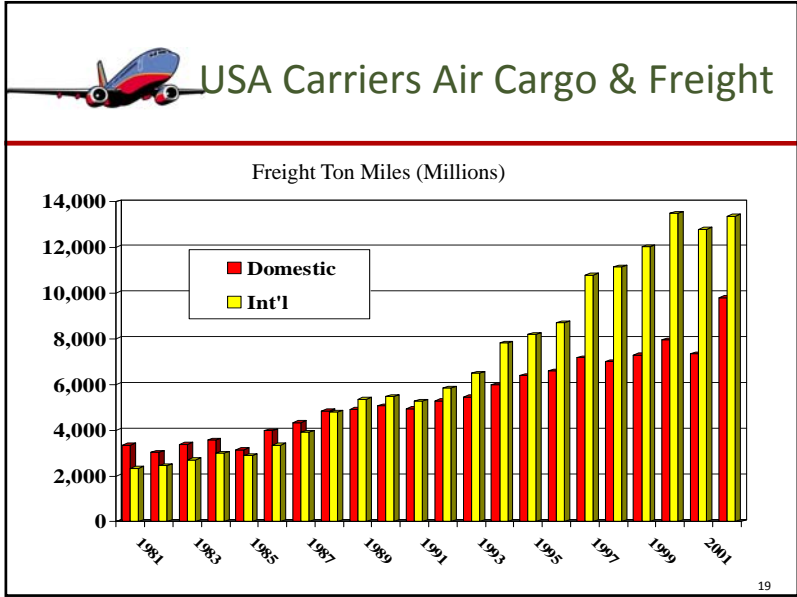
Air Cargo Carriers


Thousands of Tons in 2008

Rank	Airline	Tons	Rank	Airline	Tons
1.		1,891	11.	Air France	786
2.		1,603	12.	European Air Transport	733
3.		1,438	13.	British Airways	708
4.		1,382	14.	EVA Air	681
5.		1,339	15.	Japan Airlines	679
6.	Singapore Airlines	1,274	16.	Asiana	672
7.	United Airlines	1,257	17.	KLM	604
8.	Lufthansa	1,157	18.	Thai Airways	536
9.	China Airlines	1,086	19.	LAN	503
10.	Cargolux	794	20.	Malaysia Airlines	468

Source: Freight Transportation: Global Highlights, 2010 (U.S. Dept. of Transportation)

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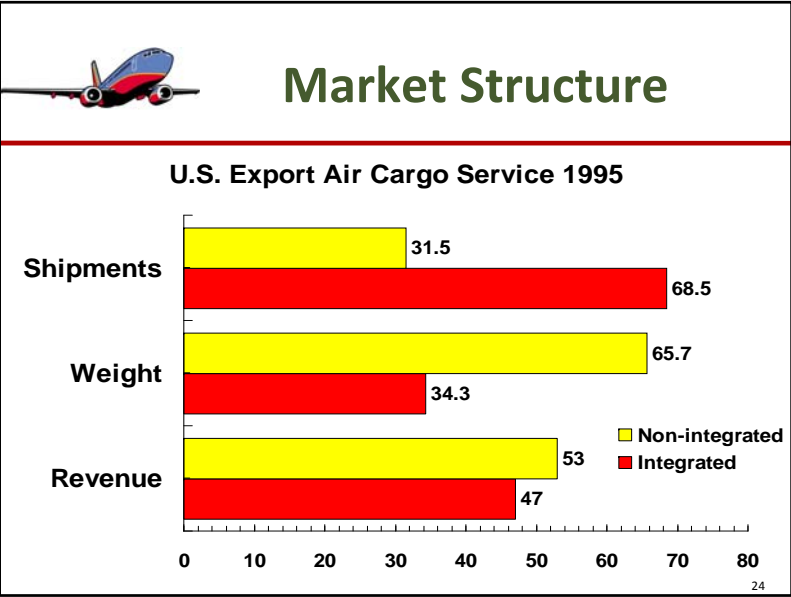
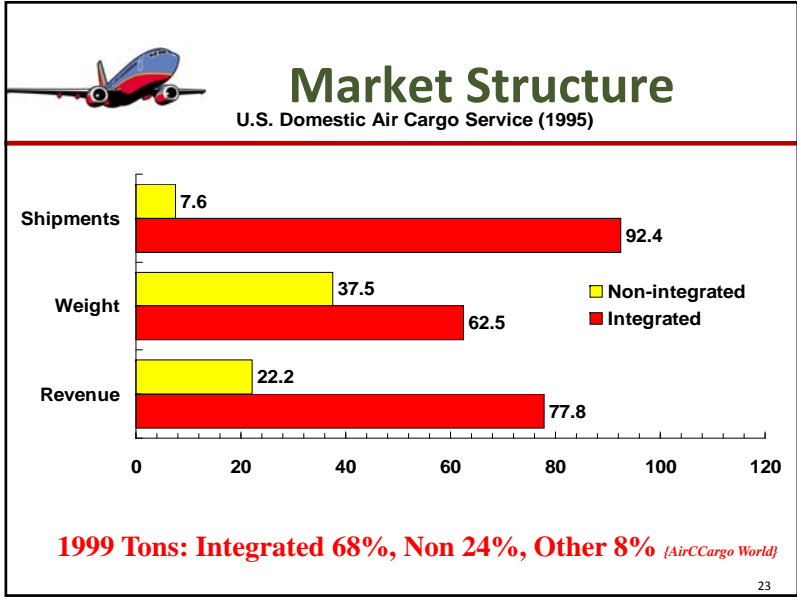





Types of Cargo Carriers

- Scope of operations
 - Integrated services
 - Provide air and ground services
 - Examples: Fedex, UPS, airborne
 - Air only services
 - Rely on freight forwarders to provide pickup and delivery services
 - Examples: united, polar air cargo

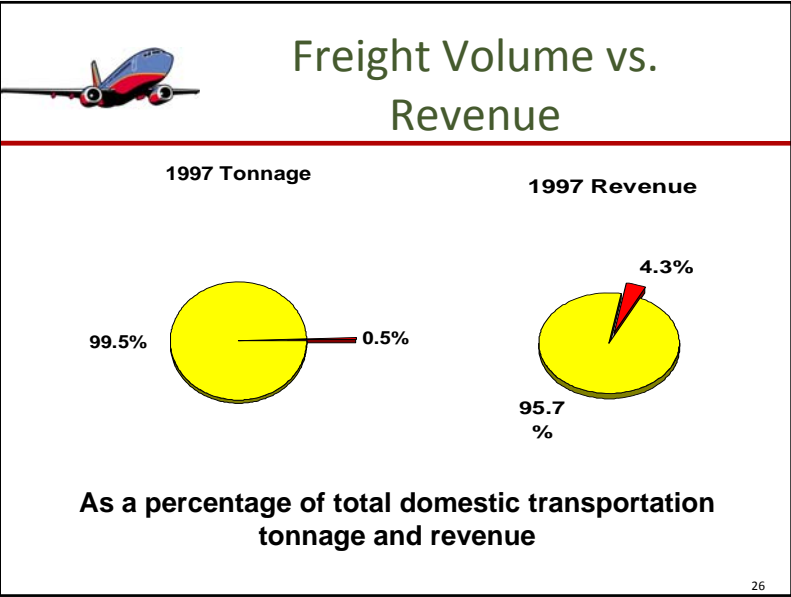
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Air Industry Characteristics

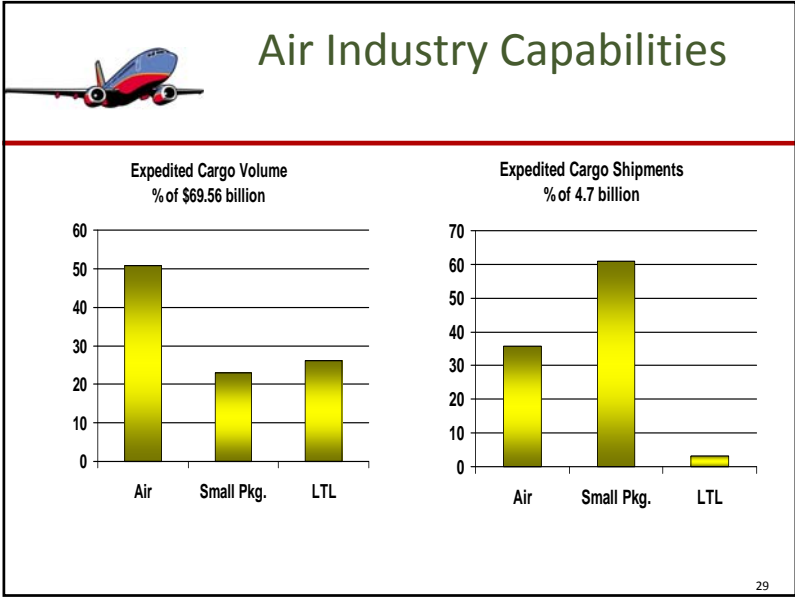
- Small number of large carriers
 - Majors Currently Fly 82% Of Commercial Planes
 - Growing Number Of Smaller Carriers
- Average Shipment Size Is Small
 - Air Cargo Shipments Average Less Than 500 Pounds
 - Expedited Shipments Average 12.2 Pounds
- Average Length Of Haul Is Very Long
 - Nearly 1400 Miles

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- Air Industry Characteristics**
- Value of freight is very high
 - Time sensitive, perishable, expensive
 - Freight breakdown
 - By weight
 - Computers, electronics, automobiles, machinery
 - By proportion shipped
 - Periodicals, ophthalmic goods, computers
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- Air Industry Capabilities**
- Service
 - Excellent customer service
 - Flexible capabilities when combined with truck
 - Speed
 - Very fast for linehaul
 - 410 mph average
 - Consistent performance
 - Only barrier is bad weather
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Air Industry Capabilities

- Carrying capacity
 - tons On All Cargo Jets
 - tons On Combination Jets
- Cargo Safety
 - Very Low Damage Rates
 - Low Claims Ratios



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Air Cargo Equipment

- Airplanes
 - Antonov AN 225
 - KLM 747-400ER
 - MD-11






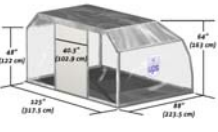
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Air Cargo Equipment

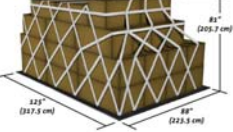
- Containers
 - Lightweight
 - Shaped to fit fuselage



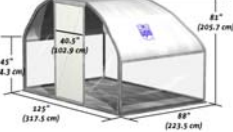
L9N CONTAINER



A2N PALLET



A2N CONTAINER

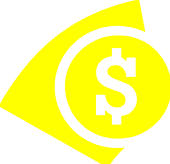


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Air Industry Economic Characteristics and Issues

- Variable
 - % approx.
 - Labor - high per worker costs
 - Pilots, attendants, gate agents
 - Mechanics, baggage handlers
 - Fuel - much higher than gas
 - Very volatile market
 - 1 cent cost over \$1 billion

- Fixed
 - About %
 - Equipment
 - Aircraft #1 - long life and lease
 - Ground - facilities and machinery
 - Gate fees




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Strengths and Weaknesses

- Advantages
 - High
 - Very long haul length
 - Able to span obstacles
 - Low to cargo (packaging)
 - Very reliable based on time

- Disadvantages
 - High of service
 - Small capacity per aircraft
 - Accessibility is decreasing
 - Congestion at major




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Air Industry Economic Characteristics and Issues

- Key performance measurements
 - Load factor
 - Total weight/available capacity x 100
 - On-time performance
 - Customer complaints
 - Lost/damaged/delayed freight




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Air Industry Economic Characteristics and Issues

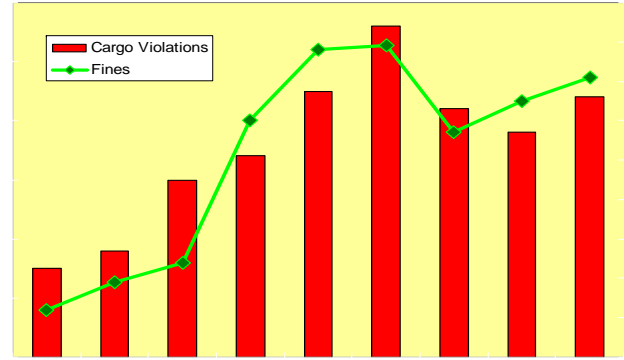
- Economies of scale
 - Exist in the short run on an equipment basis
 - Do not exist in the long run for the industry
- Infrastructure
 - Provided by government
- Market orientation
 - Competition is increasing




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Hazardous Cargos
Hazardous materials cases
investigated by the Federal
Aviation Administration annually.

Hazardous Fines
Federal Aviation Administration fines
collected annually for hazardous
materials violations.
(in \$millions)



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Major Air Terminals: Passenger (2008)

Source: ACI


Rank	Airport	Passengers	Change
1		90 039 280	0.7
2		69 353 876	(9.0)
3		67 056 379	(1.5)
4		66 754 829	(0.2)
5	PARIS (CDG)	60 874 681	1.6
6	LOS ANGELES CA (LAX)	59 497 539	(4.7)
7	DALLAS/FORT WORTH TX (DFW)	57 093 187	(4.5)
8	BEIJING (PEK)	55 937 289	4.4
9	FRANKFURT (FRA)	53 467 450	(1.3)
10	DENVER CO (DEN)	51 245 334	2.8
11	MADRID (MAD)	50 824 435	(2.4)
12	HONG KONG (HKG)	47 857 746	1.7
13	NEW YORK NY (JFK)	47 807 816	0.2
14	AMSTERDAM (AMS)	47 430 019	(0.8)
15	LAS VEGAS NV (LAS)	43 208 724	(8.0)






Major Air Terminals: Cargo (2008)

Source: ACI

Rank	Airport	Cargo (metric tons)	% Change
1		3 695 438	(3.8)
2		3 660 901	(3.0)
3		2 602 916	1.7
4		2 423 717	(5.2)
5		2 339 831	(17.2)
6	PARIS (CDG)	2 280 050	(0.8)
7	FRANKFURT (FRA)	2 111 031	(2.7)
8	TOKYO (NRT)	2 100 448	(6.8)
9	LOUISVILLE KY (SDF)	1 974 276	(5.0)
10	SINGAPORE (SIN)	1 883 894	(1.8)
11	DUBAI (DXB)	1 824 992	9.4
12	MIAMI FL (MIA)	1 806 770	(6.0)
13	LOS ANGELES CA (LAX)	1 629 525	(11.9)
14	AMSTERDAM (AMS)	1 602 585	(3.0)
15	TAIPEI (TPE)	1 493 120	(7.0)

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- ### Air Industry Future Issues
- Dramatic changes in govt. role
 - End of FAA's dual role
 - Productivity and safety issues
 - Industry operating costs
 - Dominance of integrated carriers
 - Profitability of international cargo
 - Ability of UPS and fedex to operate globally
 - Reliability of freight forwarders
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- ### Air Transportation
- Airline cargo, passenger traffic falling worldwide, industry reports.
 - Passenger traffic fell 5.6 percent while air cargo shipments plunged 23.2 percent compared to January 2008.
 - Fifth consecutive monthly drop in passenger traffic and the eighth straight monthly decline for cargo.
- 



Aircraft Industry

How airlines cut costs:



- Airlines have disposed of older airplanes to curb fuel costs, labor costs, maintenance costs and fuel-related emissions. At key hubs, airlines continue to streamline schedules while simultaneously increasing their global presence both through their own flights and via expanded worldwide alliance arrangements.



Barbara Kelley


Government Intervention's effect:

- Today, airlines constitute about two-thirds of FAA-controlled flights. However airlines pay more than 90 percent of the bill. In return, the airlines are stuck using a 1950s ground-based, radar-dependent navigation system with legacy facilities and processes. This results in unnecessary delays to airlines and their customers, which consume more fuel, crew time and other resources.

Airline Innovations

- U.S. Airlines have begun testing and offering in-flight WiFi service
- JetBlue's "BetaBlue" equipped with narrowband service, plans to expand to A320 fleet this year
- Allows travelers to e-mail and instant message
- Most airlines will charge a fee for this service





Airbus A380 Freighter





Capacity: 10,410 km
 Hold Volume: 1,134 cubic meters
 Bulk Hold: 20 cubic meters
 Upper Deck: 17 Pallets
 Main Deck: 28 Pallets
 Lower Deck: 13 Pallets


Range:



Airline Innovations


- The A380, the largest passenger jet in the world, entered commercial service in 2007
- The double-deck, wide-body, four-engine airliner manufactured by the Airbus seats 525 passengers
- The A380 was design to fit a large number of passengers and sufficiently fly long distances such as from Boston to Hong Kong at a cruising speed of 560 mph
- The A380 has set the standards for luxurious air transportation around the world





Smart Skies

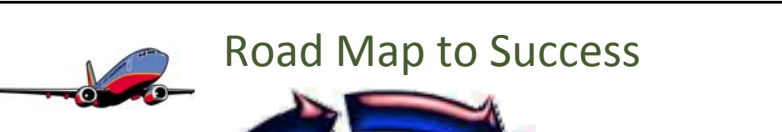
- Smart Skies has successfully created a system that can predict and help prevent aircraft collisions.
- An initial round of tests were performed on March 12, 2009, and deemed a success.
- The program successfully separated many different simulated aircraft and an unmanned helicopter that were on a sure route to a collision.




Boeing Aircraft

- New models of 787 and 747-8 are cleaner, quieter, and more efficient.
- 787 Has 20% reduction in fuel and CO2.
- 28% Less than 2008 requirement for Nox.
- 60% Smaller noise footprint.

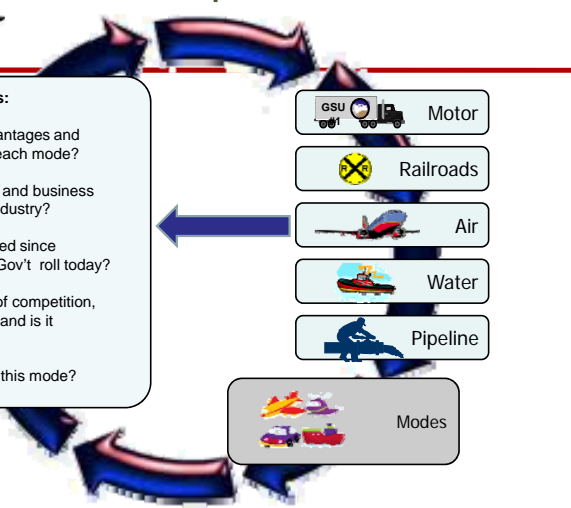




Road Map to Success

Chapter Objectives:

- What are the advantages and disadvantages of each mode?
- What are the cost and business structures of the industry?
- What has happened since Deregulation and Gov't roll today?
- What is the level of competition, equipment usage, and is it intermodal?
- What is unique to this mode?



Motor

Railroads

Air

Water

Pipeline

Modes