



Washington State Air Cargo Movement Study

Stakeholder Panel

Boeing Field

December 8, 2017



Agenda

- Introductions/Project Purpose
- Review Work Plan and Schedule
- Project Charter
- Air Cargo Background
- Initial Definition of Congestion
- Discussion: Future of air cargo in Washington
- Next Steps

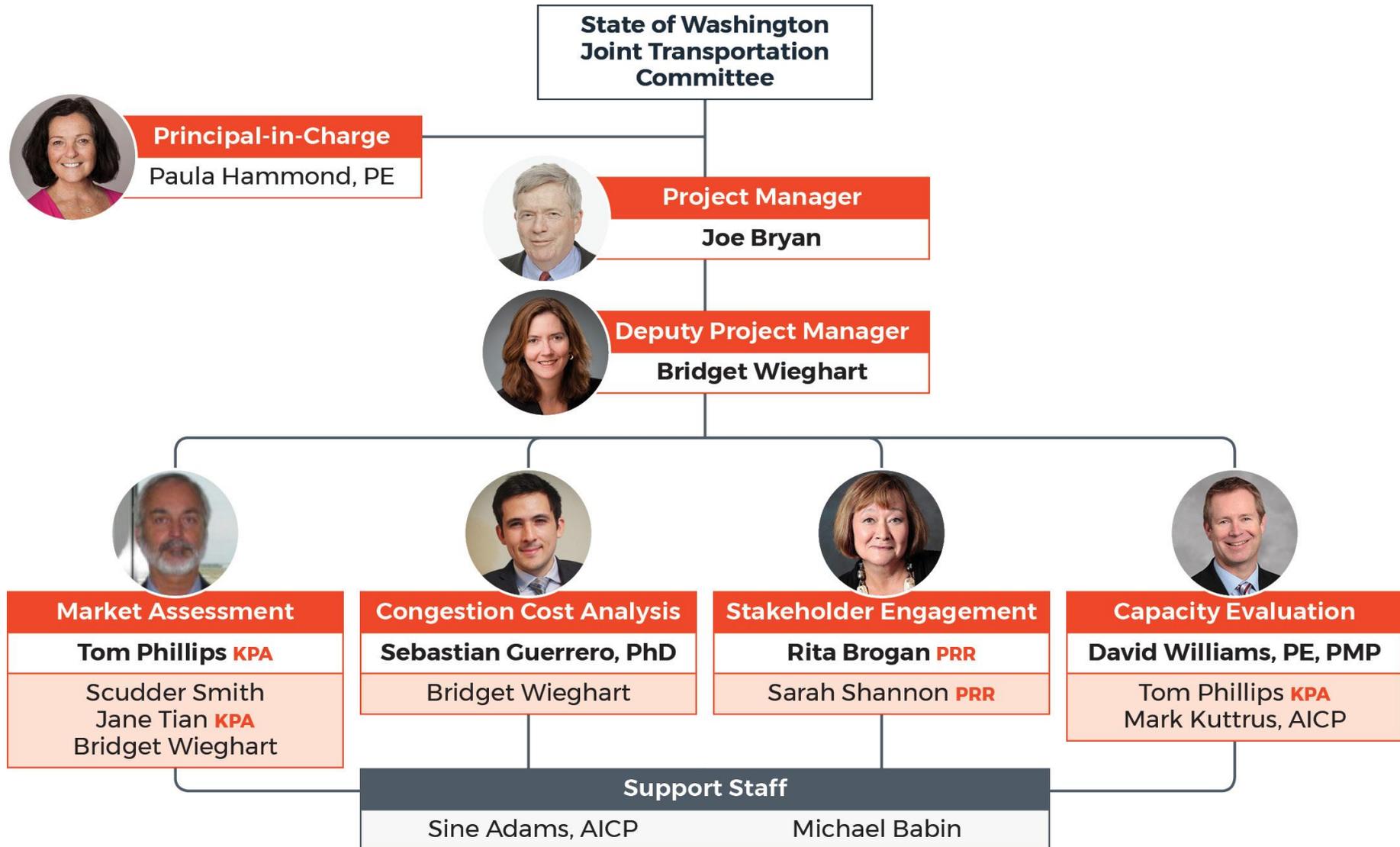
Project Purpose and Objectives

Purpose: Evaluate the current and future capacity of the statewide air cargo system

Objectives:

1. Educate policy makers about air cargo movement at Washington airports;
2. Explore possibilities for accommodating the growing air cargo market at more airports around the state; and,
3. Identify the State's interest and role in addressing issues arising from air cargo.

Organizational Chart



Work Plan and Schedule

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TASK 1: DESCRIBE THE AIR CARGO SYSTEM IN WASHINGTON STATE

Profile the air cargo market and air facilities that make up the air cargo system in Washington

Outcomes:

1. Overview of existing facilities and services
2. Interviews with existing Washington air cargo users
3. Review of global, national, regional and local air cargo flows and types of commodities being moved by air in Washington

TASK 2: AIR CARGO CONGESTION

- Air cargo congestion threatens the competitiveness of important economic sectors
- Washington's airports compete with other airports and modes
- Define and estimate the costs of air cargo congestion

TASK 3: EVALUATE HOW TO USE EXISTING CAPACITY ACROSS WASHINGTON STATE

Site Visits

Review Opportunities and Constraints

Develop criteria to:

- Compare competitive airports to Washington airports
- Evaluate the potential for Washington airports to attract:
 - *Non-integrated all-cargo carriers*
 - *Integrated all-cargo carriers*
 - *International air freighter operators (scheduled and charters)*
 - *Third-party logistics companies*

Evaluate the potential to market State airports to different carrier types based on strengths, weaknesses, opportunities and threats

TASK 4: RECOMMENDATIONS AND IMPLEMENTATION STRATEGIES

Create a vision and strategy for air cargo and logistics services development in Washington

- Provide a list of actions necessary to implement the vision
- Identify priorities and responsibility for each action
- Include performance measures and proposed budget

The Washington State Air Cargo and Logistics Business Development Strategic Plan will include:

- Ways to provide capacity relief for Sea-Tac
- Role of other Washington airports in capacity relief
- Guidance to regional airports for expanding their markets

TASK 5: STAKEHOLDER PANEL AND STAFF WORKGROUP

Staff Workgroup

- Mostly legislative and agency staff members
- Guidance and input to technical methods and results
- Insight into the interests of their agencies/committees
- Review recommendations for the stakeholder panel

Stakeholder Panel

- Legislators, top agency officials and industry representatives
- Review the results and recommendations
- Represent interests of their organization, business or constituency
- Input on recommendations to JTC, the Legislature and the Governor, who will make final decisions

Schedule

Task	2017				2018												
	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J
Task 1: Describe the Air Cargo System in Washington State																	
1.1 Air Cargo Industry Background and Trends	█	█															
1.2 Regional Market Analysis			█	█	█												
1.3 Define Catchment Area and Flow Model				█	█												
1.4 Air Cargo Forecasts				█	█												
1.5 Facility Requirements for Air Cargo				█	█	█											
Task 2: Air Cargo Congestion																	
2.1 Define Air Cargo Congestion		█	█	█													
2.2 Estimate Cost of Congestion					█	█											
2.3 Identification of Air Cargo Interests						█	█										
Task 3: Evaluate How to Use Existing Capacity																	
3.1 Site Visits				█	█	█	█										
3.2 Review Opportunities/Constraints							█	█	█	█							
Task 4: Recommendations and Implementation Strategies										█	█	█					
Task 5: Stakeholder Panel and Staff Workgroup Meetings																	
Project Kick-off Meeting	█																
Staff Workgroup Meetings			█				█			█			█				
Stakeholder Panel Meetings				█				█			█			█			
Task 6: Presentations			█		█					█						█	█
Task 7: Draft and Final Reports																	
Task 8: Project Coordination																	



Stakeholder Panel Charter

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Stakeholder Panel Charter

- Study Purpose and Objectives
- Context
- Decision-making process
- Committee Roles and Principles

Air Cargo Background

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Air Cargo is Big Business

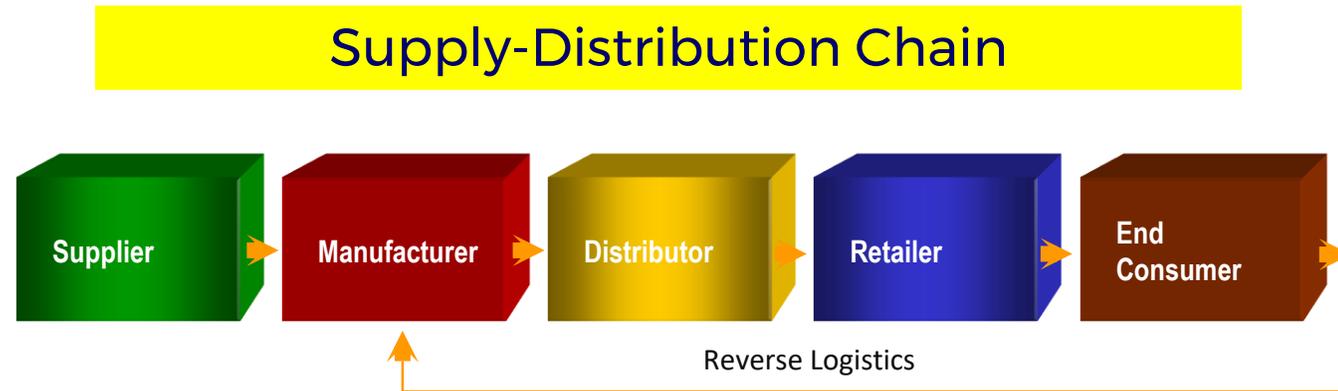
- Over \$67 billion worldwide air freight & express market¹
- Over 52 million metric tons of goods valued at USD 5.6 trillion transported worldwide in 2015
- Freight traffic growing 3-5% per year worldwide
- Market size has doubled every ten years²
- Integrator/express carriers control over 90% of the US domestic cargo market³
- Cargo share of total airline revenues:
 - *5% for US domestic majors*
 - *15% for European majors*
 - *20-50% for Asian majors*

Air cargo forms a small portion of global tonnage...
...but a large part of global trade value



Air cargo is extremely valuable to world trade

Cargo Industry Stakeholders



Air Transportation/Logistics

- Shippers
- Forwarders (3PLs/4PLs)
- Customs brokers
- Consolidators
- Indirect carriers
- General Sales Agents
- Gov. postal authorities
- Motor carriers
- Air carriers
- Airports
- Cargo/Ground handlers
- Federal Inspection Agencies
- Consignees

Two Airline Cargo Business Models

Airport-to-Airport Model

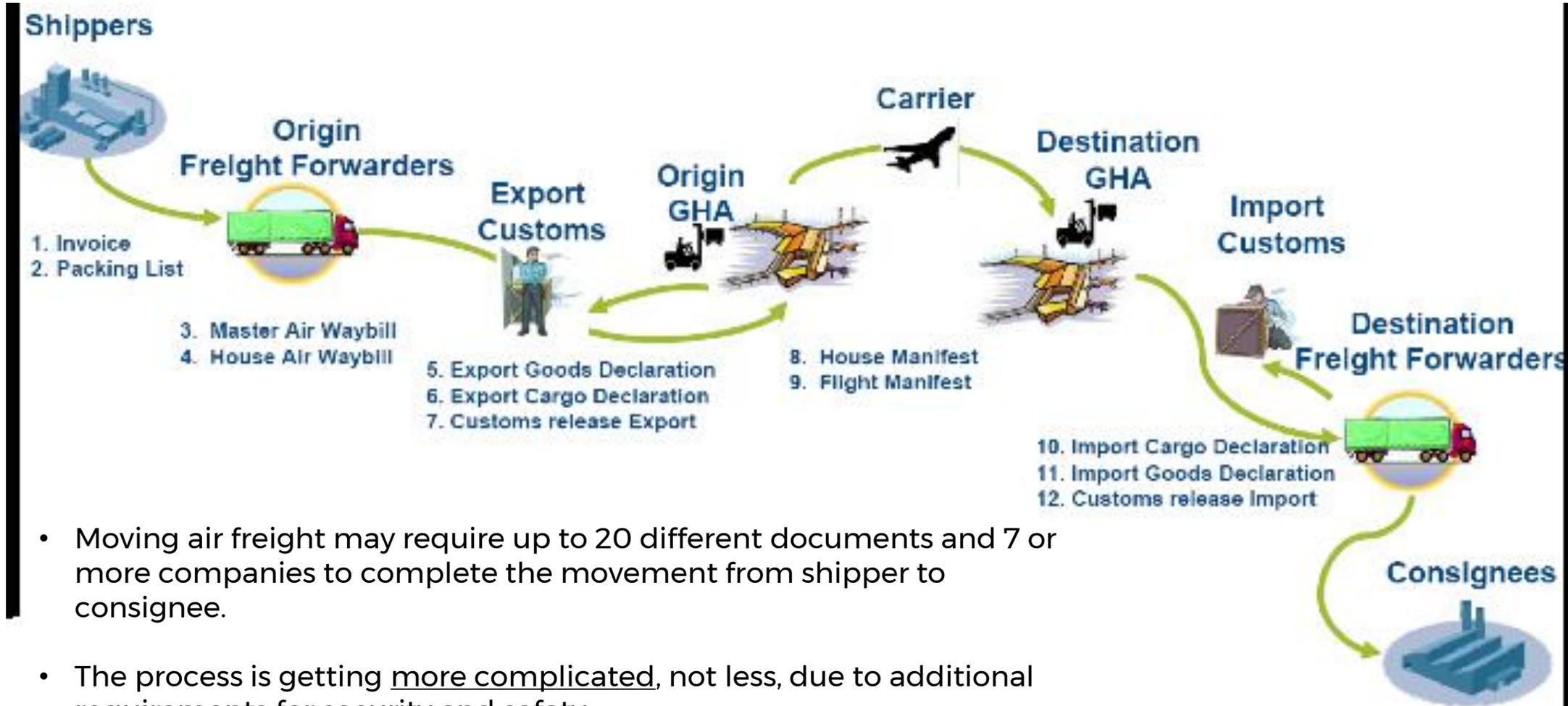
- Business Model Users: belly cargo carriers and line haul freighter operators
- Primary Airline Customer: Freight Forwarders
- Model characteristics: Airlines sell space wholesale to freight forwarders who sell aircraft space and services to shippers at retail price.
- Average shipment time: six days
- Level of custodial control: medium

Door-to-Door Model

- Business Model Users: the integrator/express carriers and the integrator forwarders
- Primary Airline Customer: Shippers (business & consumers)
- Model characteristics: Airlines sell space and services direct to shippers at retail price. Occasionally sell space to forwarders at wholesale.
- Average shipment time: three days
- Level of custodial control: high

Each model requires different airport facility and support services needs

Air Cargo Supply Chain is Complex



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- Moving air freight may require up to 20 different documents and 7 or more companies to complete the movement from shipper to consignee.
- The process is getting more complicated, not less, due to additional requirements for security and safety.

Air Cargo Carriers

● Combination Carriers (airport to airport)

▶ Belly Cargo Carriers:

Alaska, Delta, United, American, Southwest, etc.

▶ Pax Belly Cargo & Freighter Operators:

Korean Air, China Airlines, Air China, EVA, etc.



● All-Cargo Carriers

▶ Integrator / Express (door to door)

FedEx, UPS, SF

▶ Traditional Line Haul (airport to airport)

Kalitta, Cargolux, Polar , Yangtze River Express, etc.



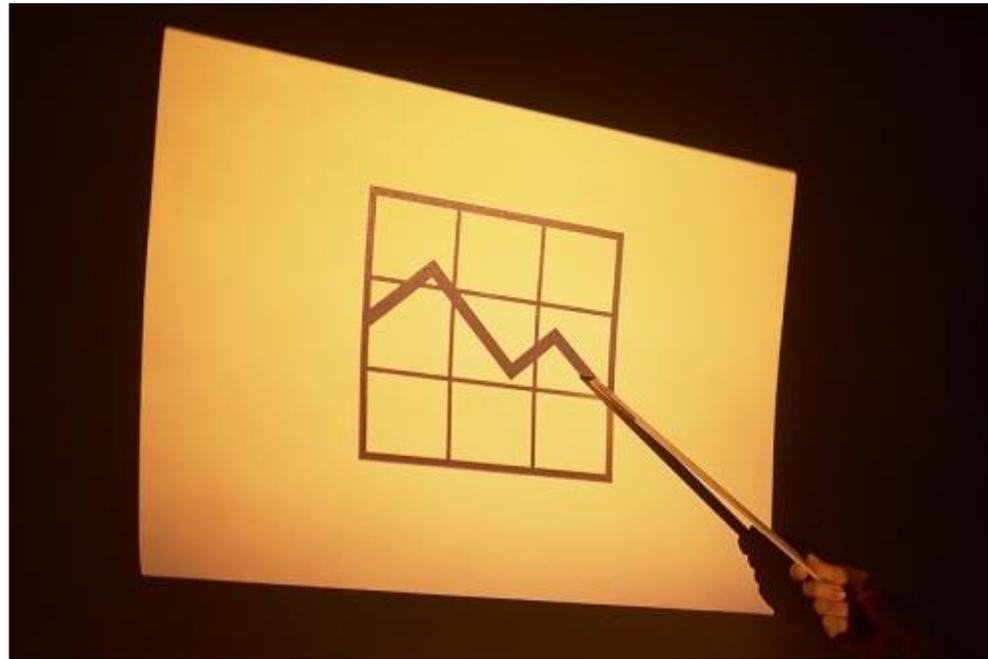
The other air cargo carriers: Road Feeder Service

- What: Regularly scheduled airport-to-airport truck service between North American city pairs allowing airlines to offer service to a city to which it does not fly
- Purpose: To efficiently and effectively expand an airlines air cargo supply chain; to reduce the cost of air shipments; to offset the loss of domestic air capacity that has resulted from reduced fleet size and the shift of widebody airplanes from domestic to international markets; and allows passenger airlines to offer service comparable to that of pure cargo carriers.

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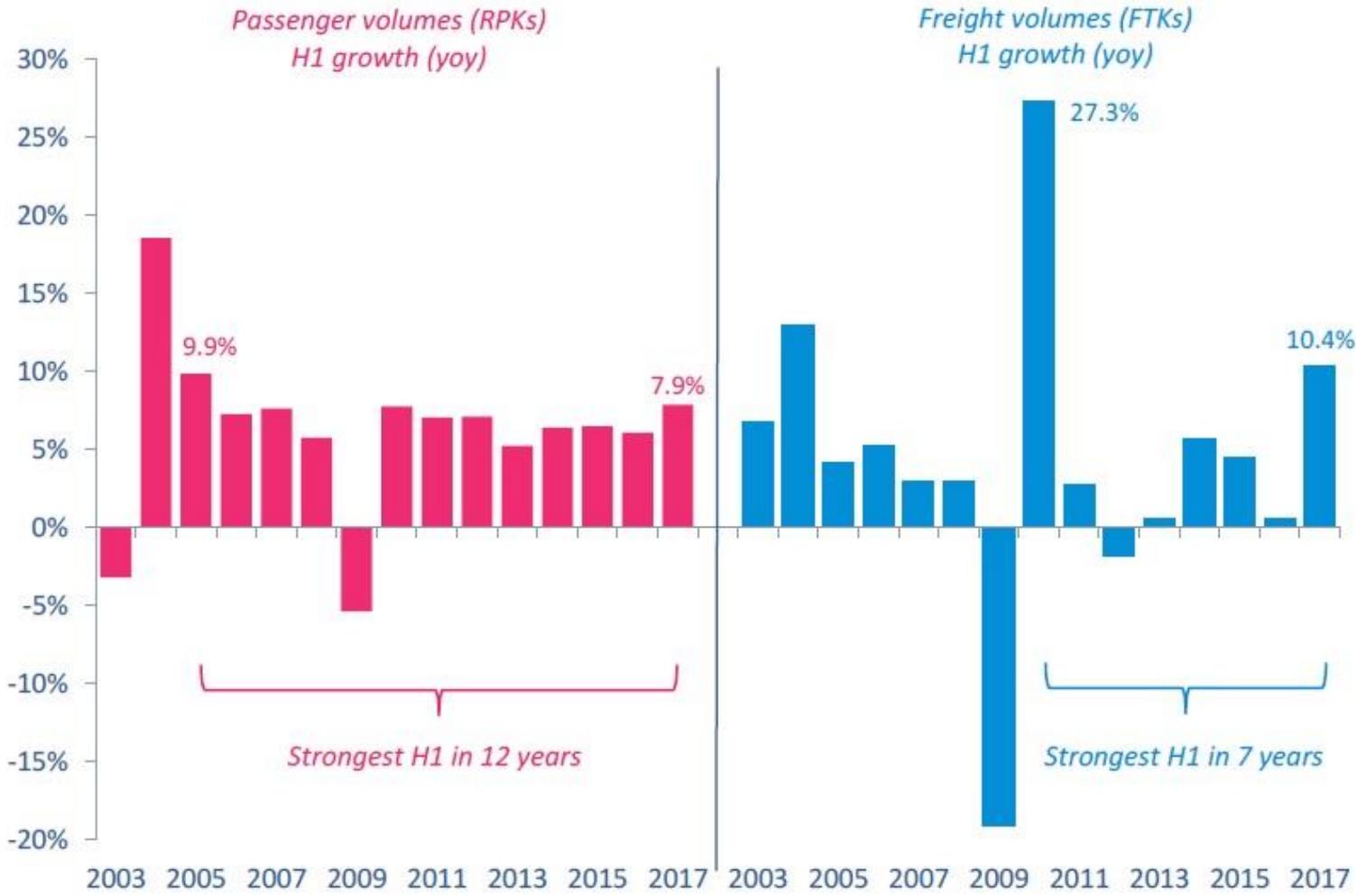


Cargo Industry Status



Cargo growth more variable than passenger but recovering from the Great Recession

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Source: IATA

Air Cargo Performance Has Not Improved Much in Recent Decades

Estimated average end-to-end transportation time since 1980's: ~ 6 days

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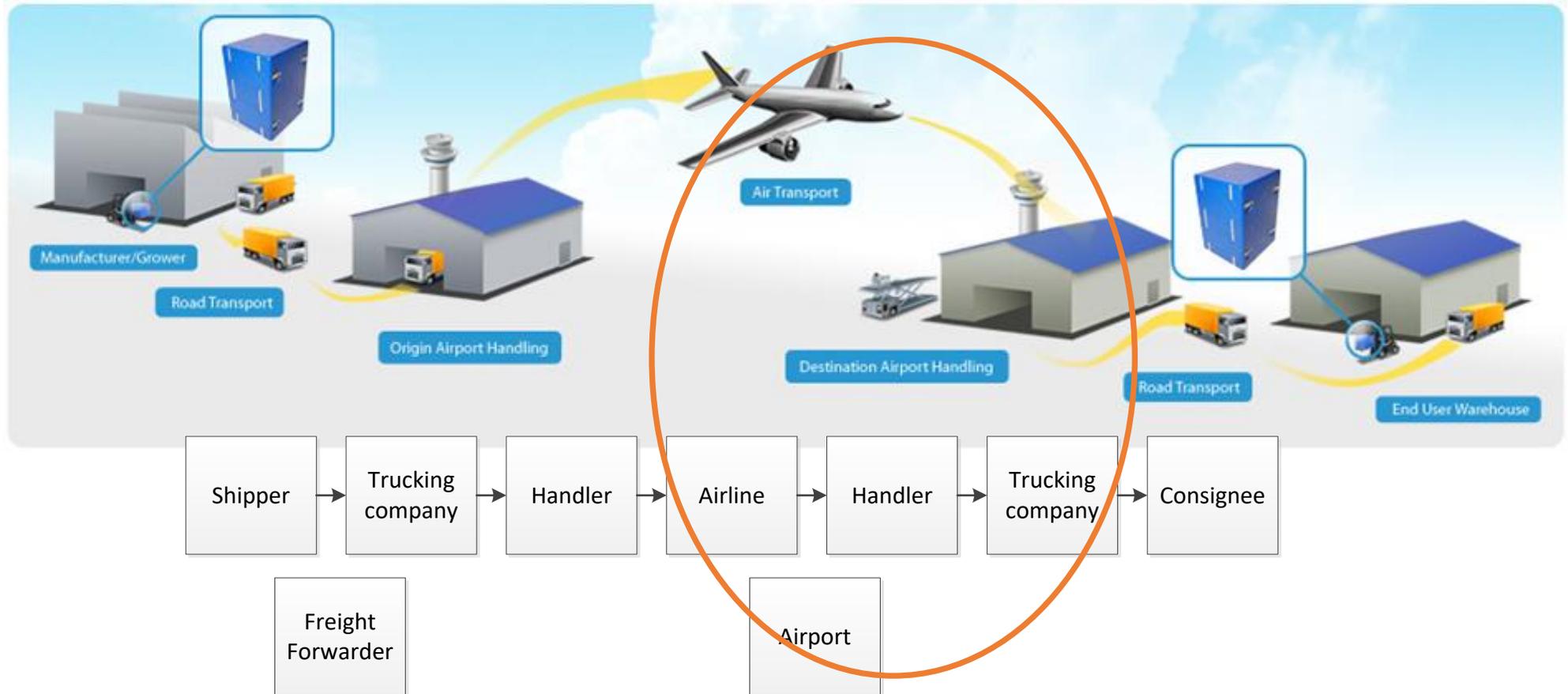


“Ninety per cent of the transit time for air cargo is spent not moving, but waiting to move!”

(Air Cargo News 11.03.2013)

IATA: Reduce the Supply Chain by 48 hours

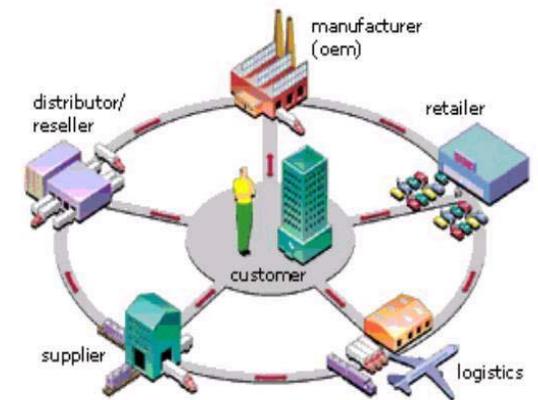
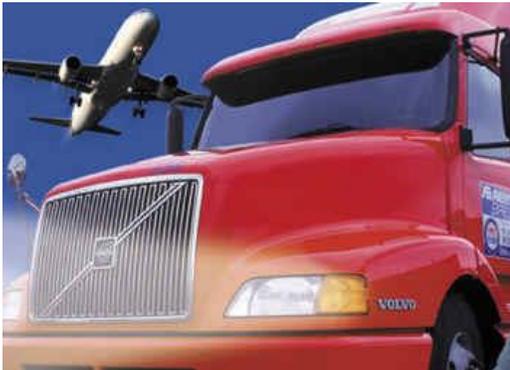
Improvements must be made in the handling and Customs processes



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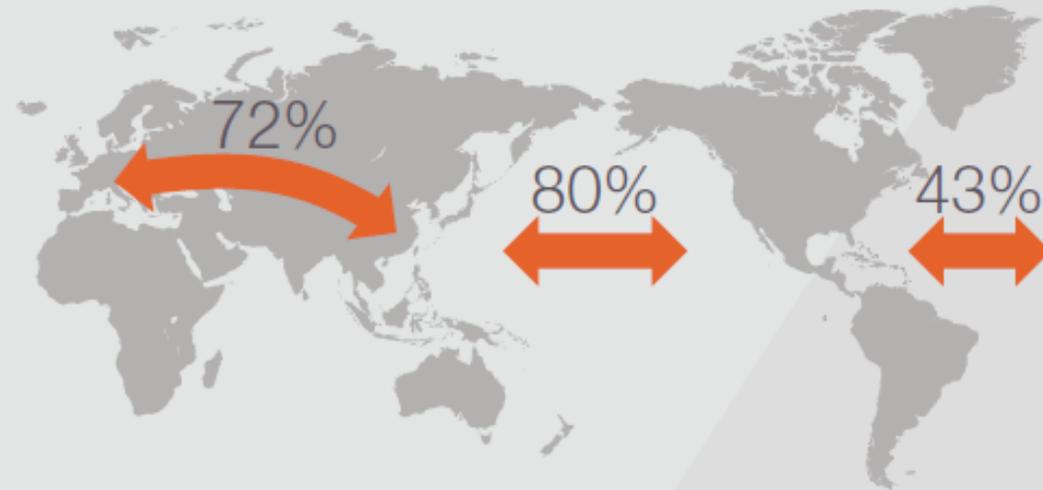
Some Trends of Significance

- Manufacturing moving away from traditional passenger hubs
- E-commerce freight demand growing significantly
- Continuing shift of domestic air cargo to trucks
- Growth of international air cargo volumes
- Continued use of freighters
- Restructuring of airline and forwarder business models
- Increased regulation and security compliance requirements



Freighters will remain the main players

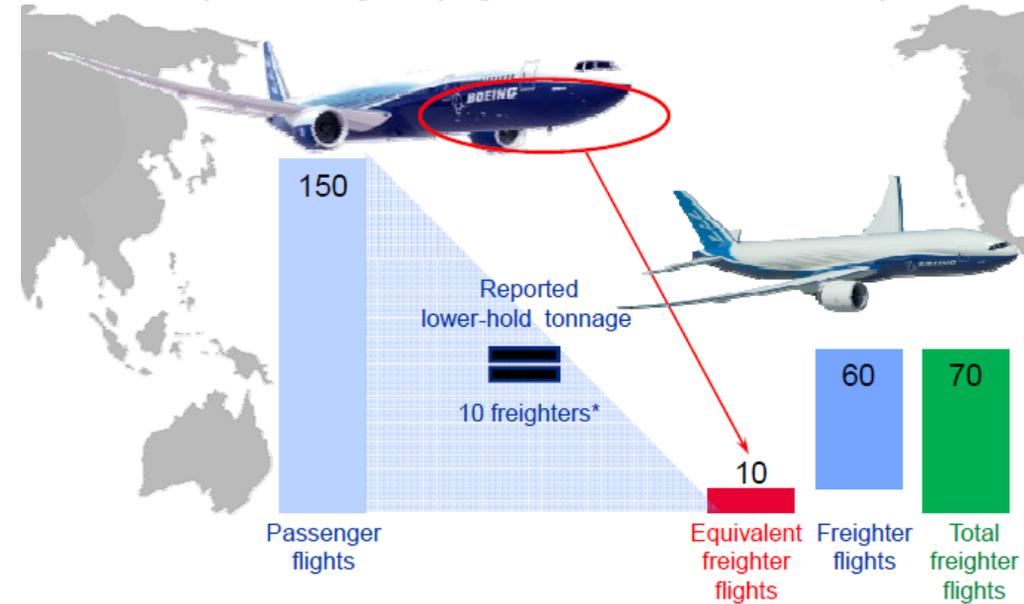
Total air cargo traffic carried by freighters
by percentage



60% of air cargo traffic carried on
freighters

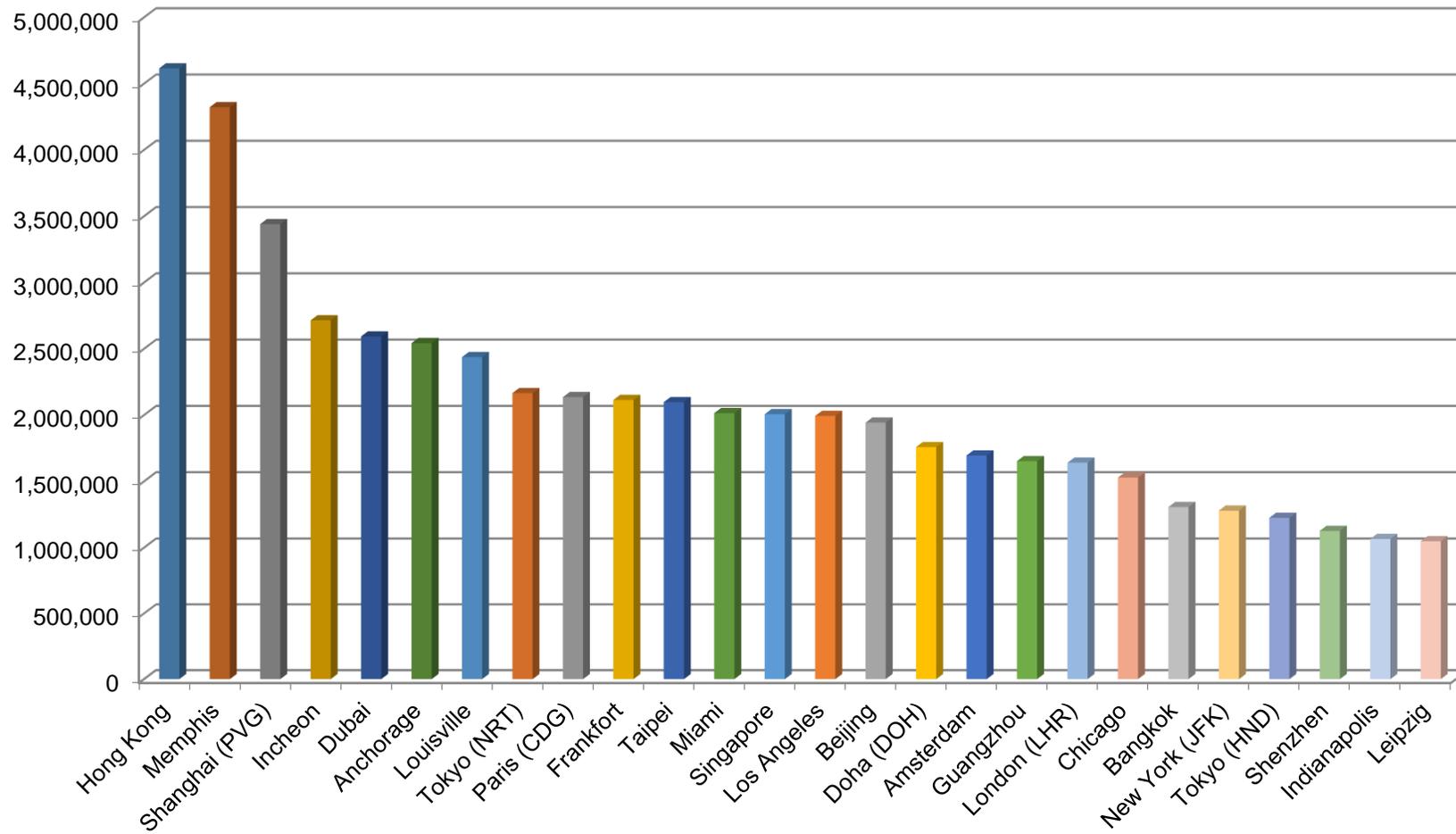
150 transpacific passenger flights carry the
equivalent of only 10 freighter flights

Analysis of average daily flights from Asia to North America, year 2013

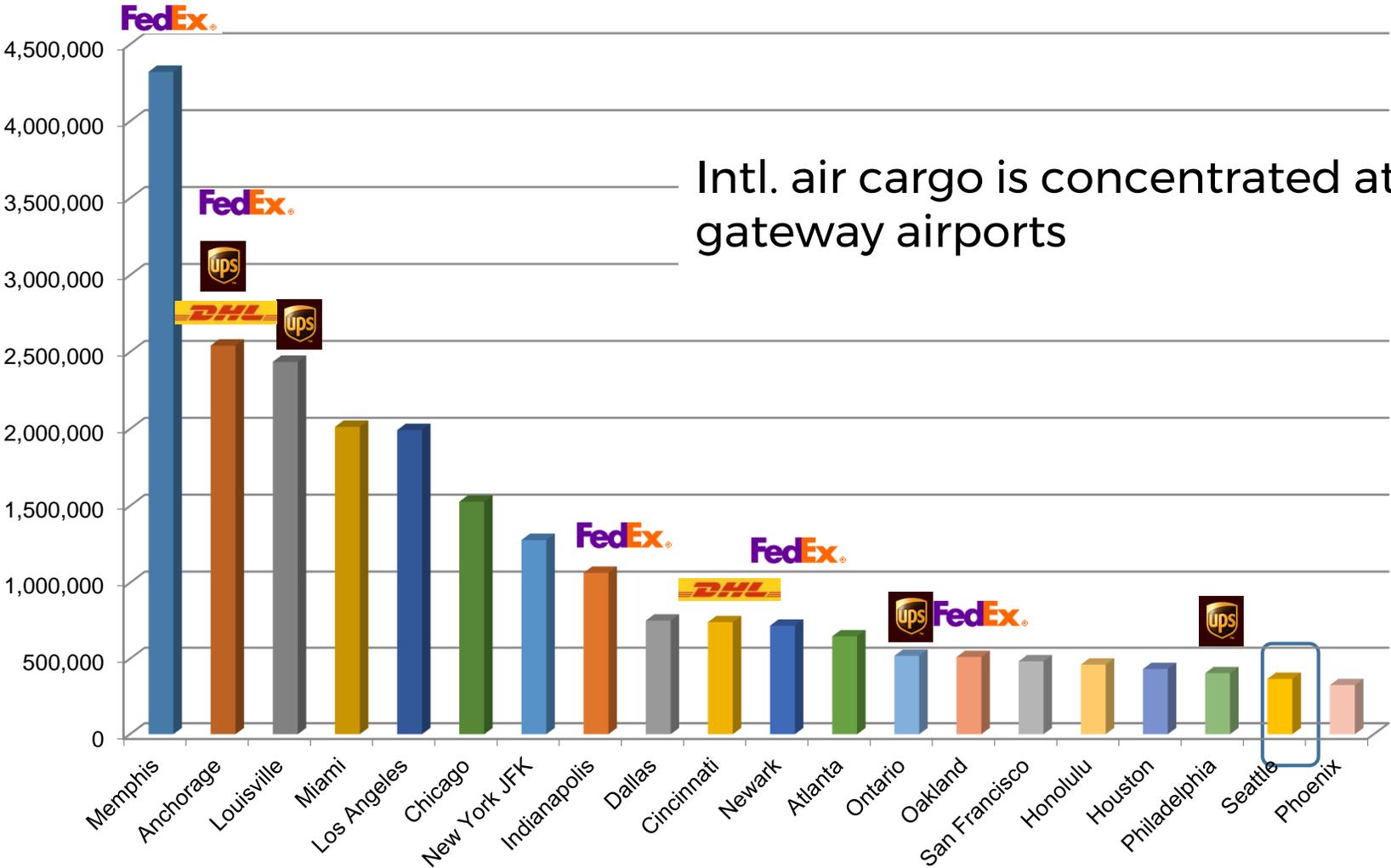


*Conversion takes into account destination, range, and load factor.

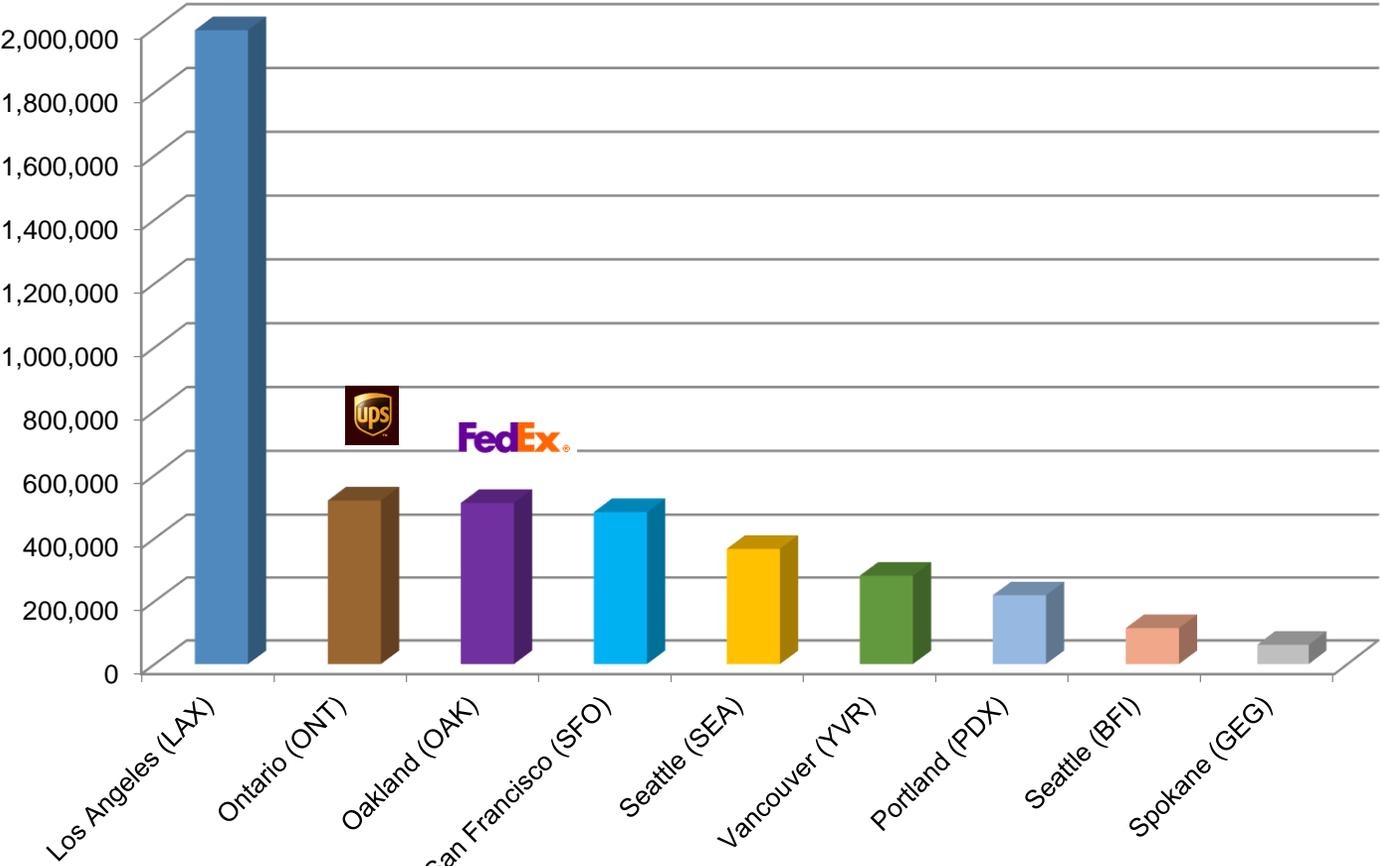
Top World Air Cargo Airports 2016 by weight



Top20 US Air Cargo Airports 2016



Top West Coast Air Cargo Airports 2016

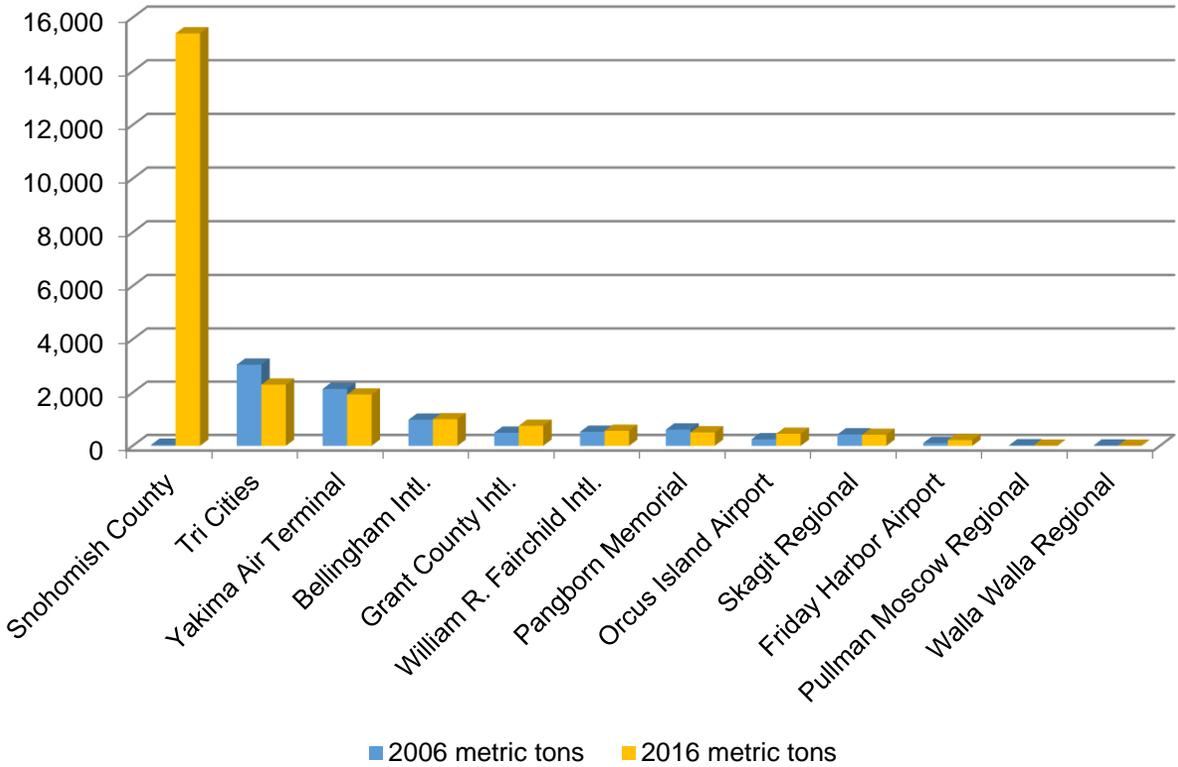
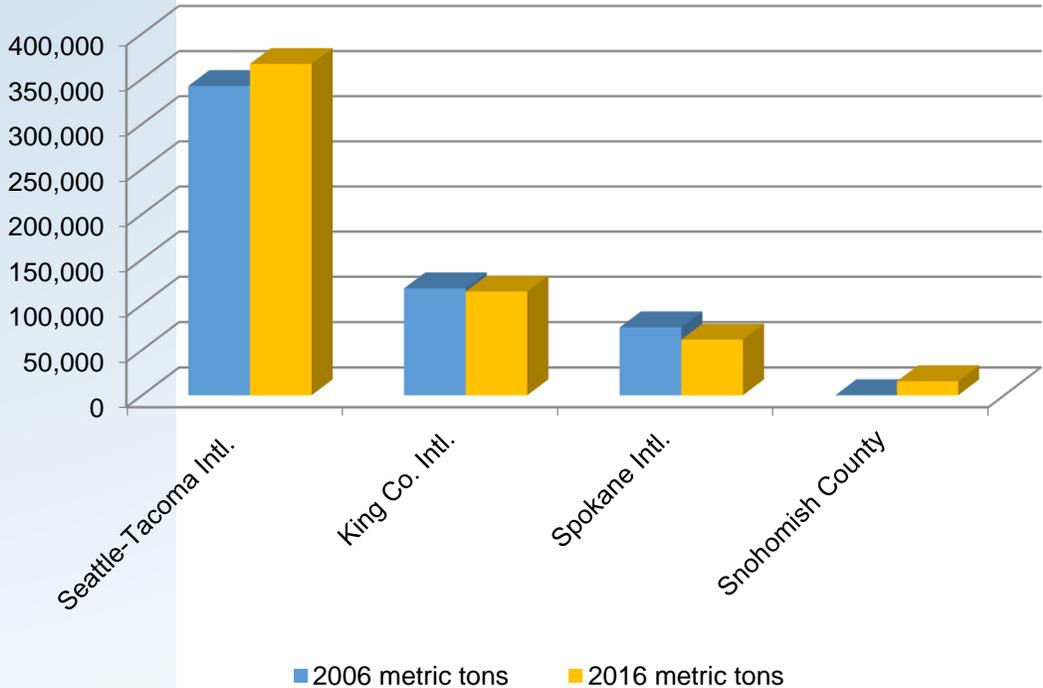


LAX dominates the West Coast in air cargo due to the number of wide-body aircraft, variety of destinations, frequencies and the large network of air freight forwarders

Source: Airports Council International except BFI; BFI data from DOT T-100 market forms

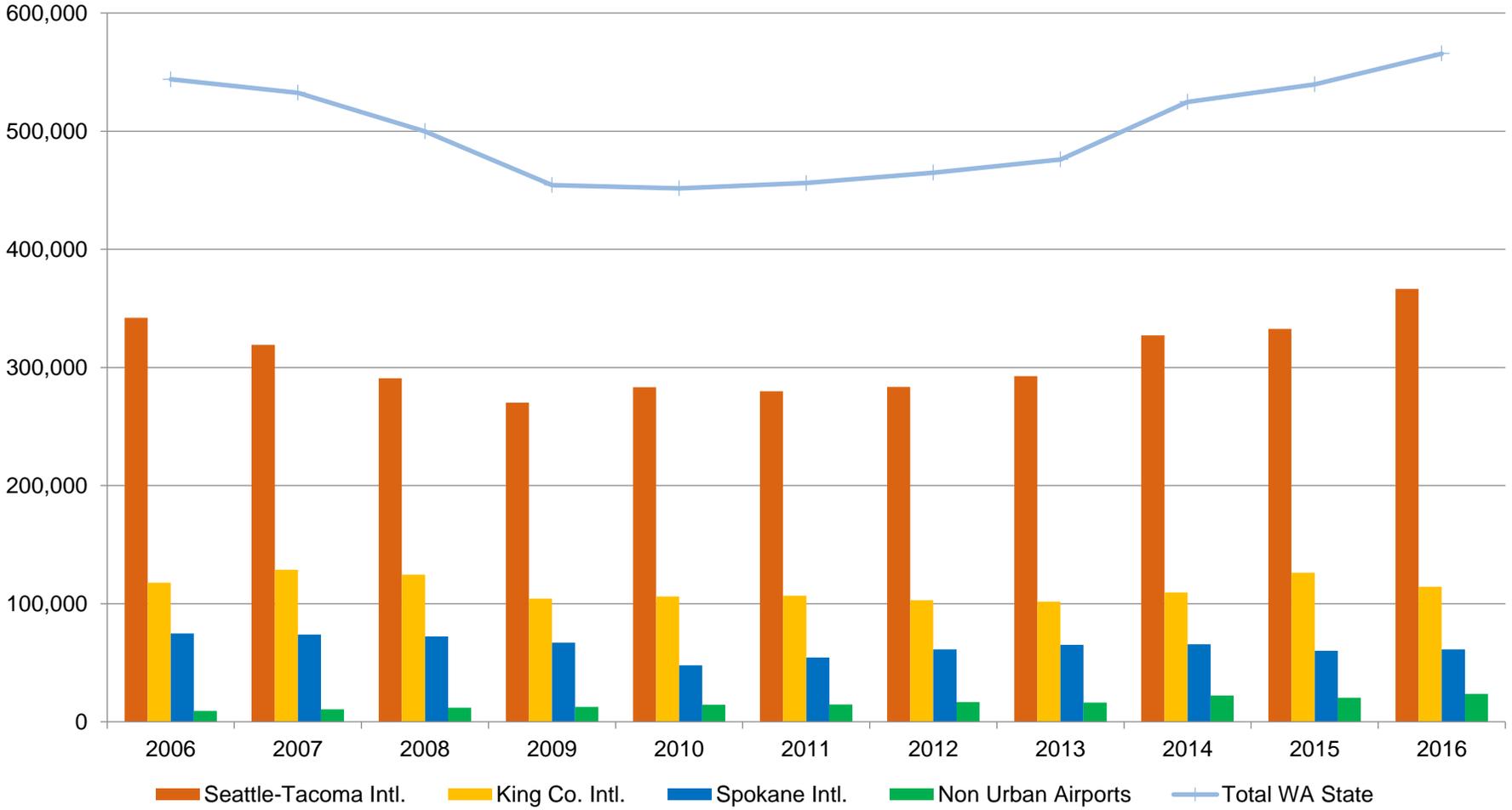
Top WA State Air Cargo Airports 2016

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Source: ACI and KPA analysis

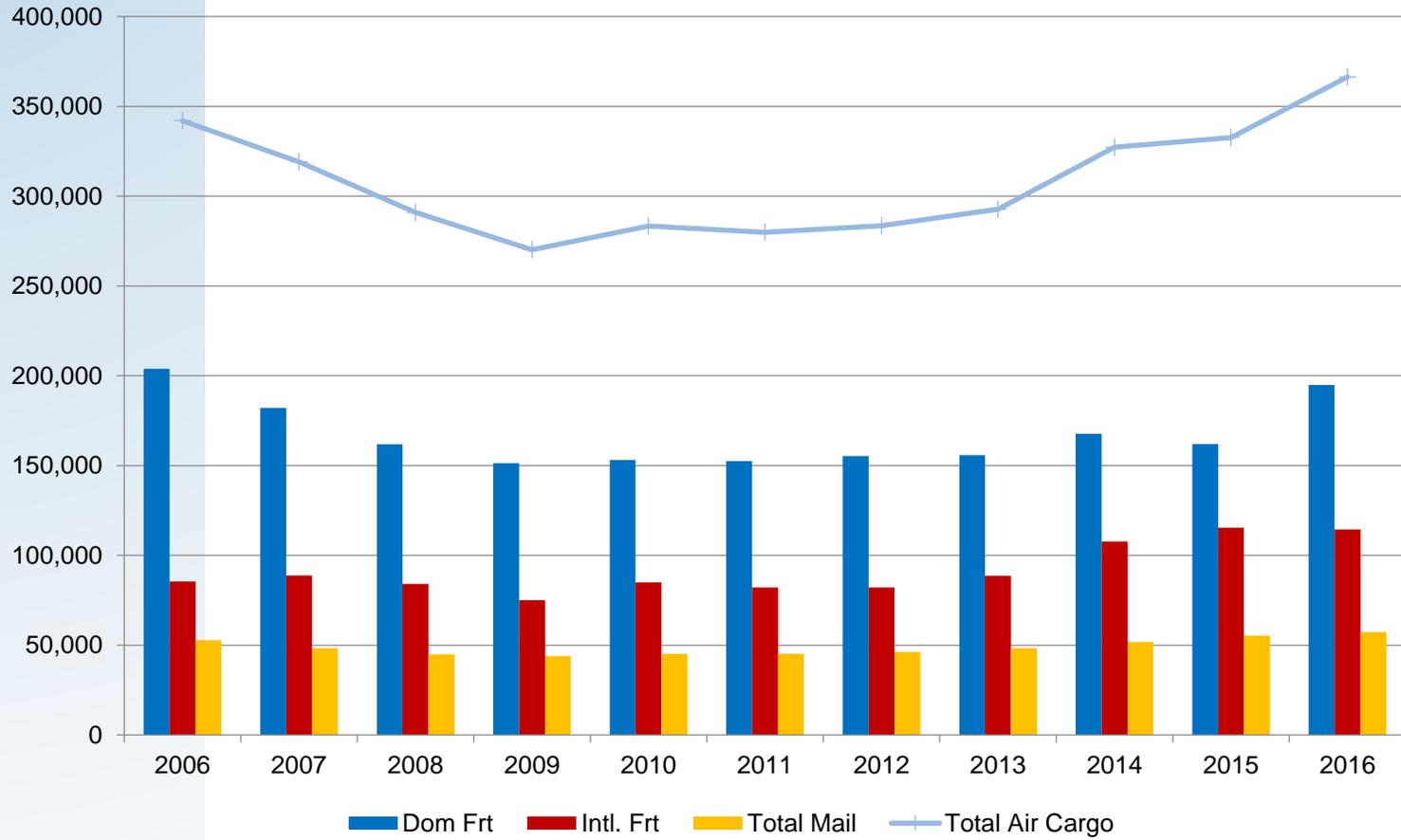
Ten Year Trend of Air Cargo in WA State



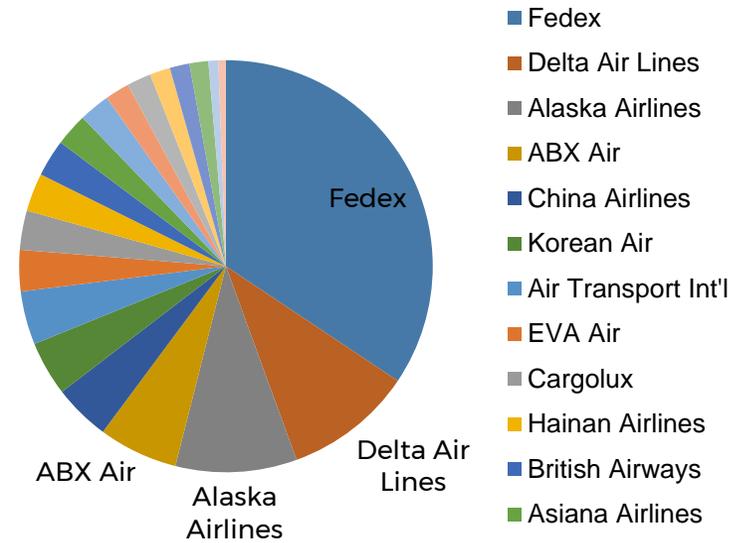
Over the past five years air cargo the air cargo growth rate for WA State has averaged approx. 5% per year. Seattle-Tacoma International Airport and King County International Airport accommodate 85% of the air cargo in WA State.

Air Cargo Trends for Seattle-Tacoma International Airport (SEA)

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Top 15 Air Cargo Airlines at SEA - 2016

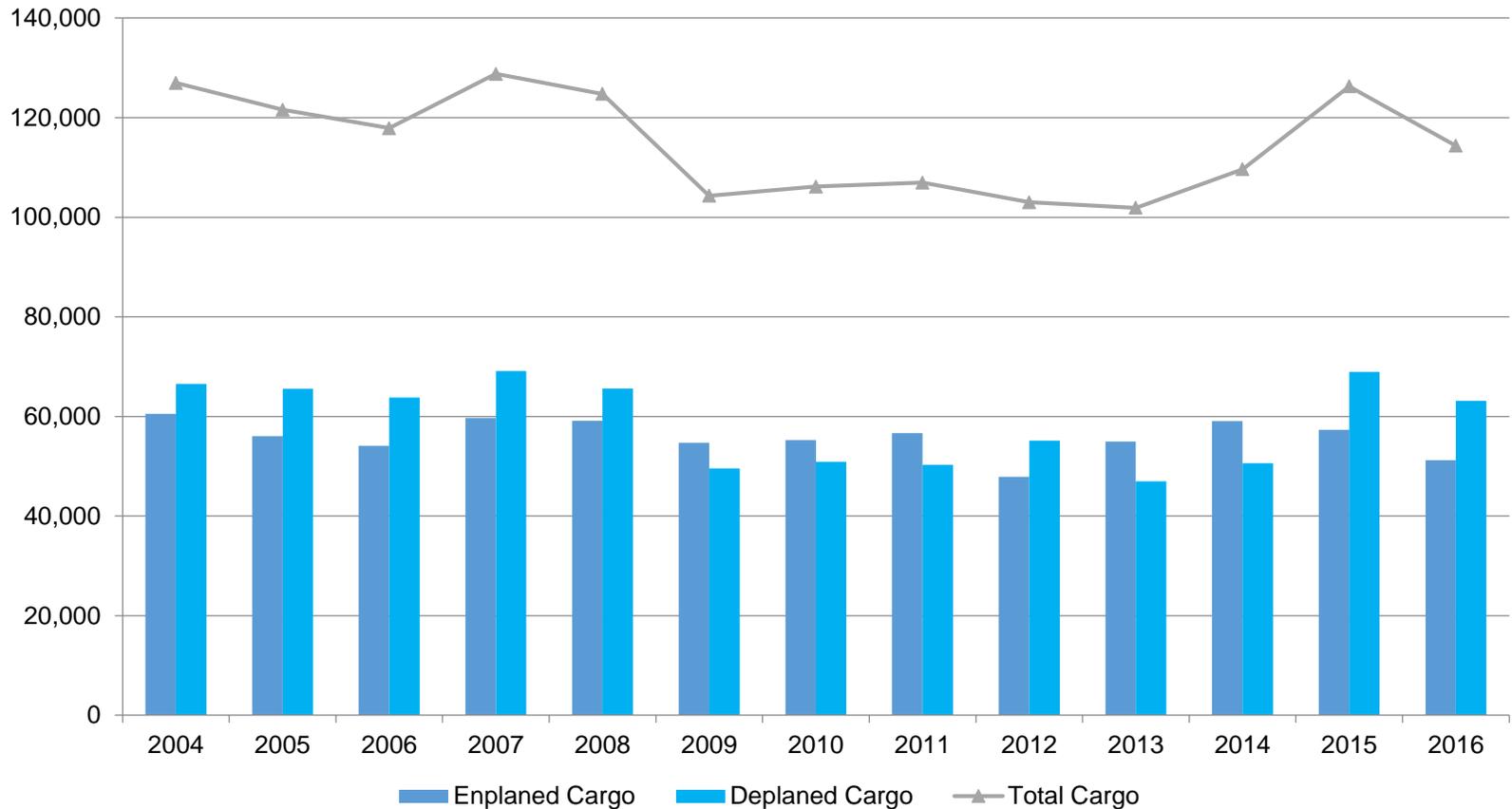


	Freighter Cargo	Pax Lower Deck Cargo	Percent Freighter
2014	182,599	144,640	55.8%
2015	180,954	151,682	54.4%
2016	220,591	145,839	60.2%



Data source: Port of Seattle statistics

Air Cargo Trends for King County International Airport (BFI)



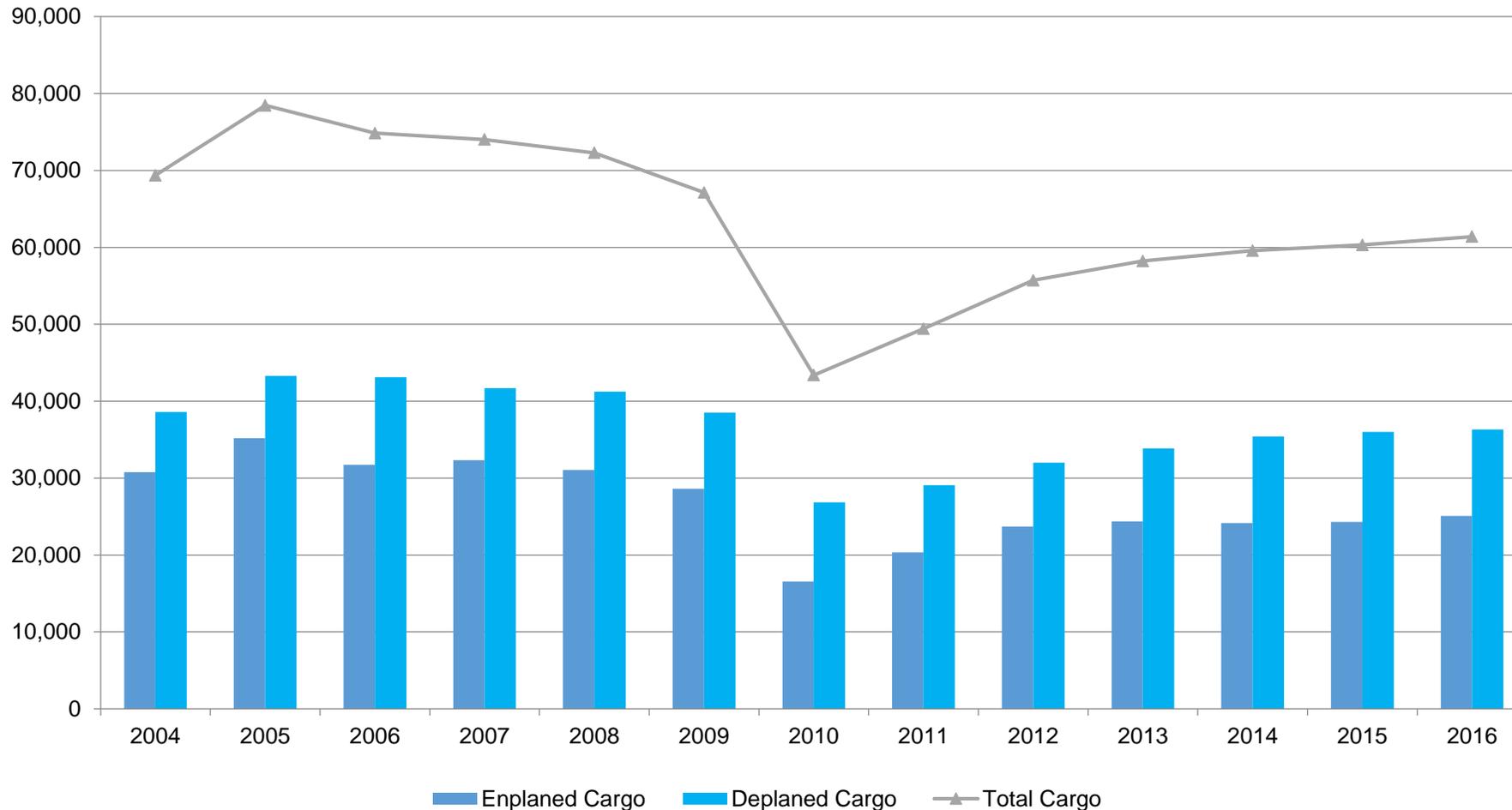
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In 2016 UPS accounted for 90% of the air cargo tonnage at King County International and is expected to generate 99 to 100% of the air cargo in 2017

Data source: USDOT T-100 market reports



Air Cargo Trends for Spokane International Airport (GEG)



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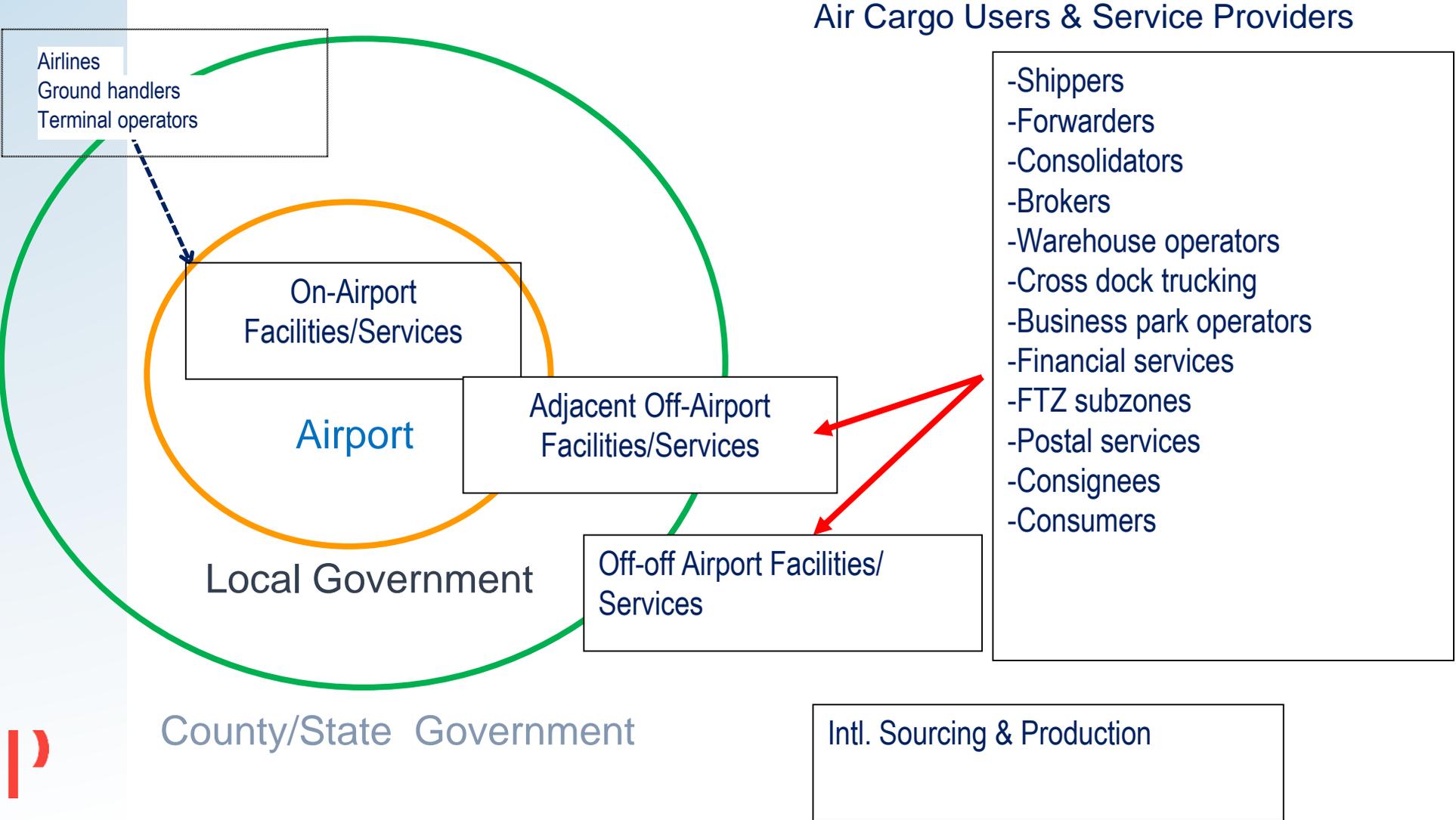


FedEx and UPS account for over 90% of the air cargo volumes at GEG

Data source: Spokane International Airport statistics

The Airport Air Cargo Ecosystem

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Factors Influencing Airline/Airport Choice

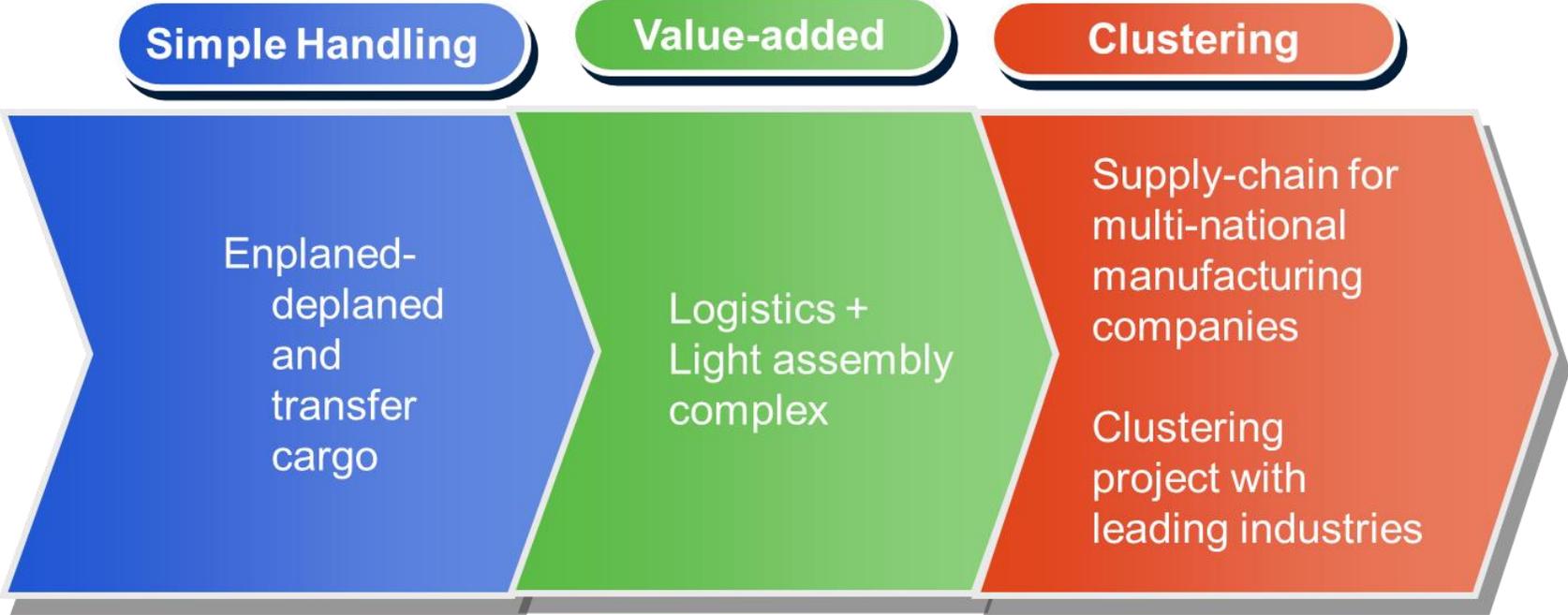
Market Area	Location	Infrastructure	Financial Environment	Operational Freedom
<p><i>Primary</i> - up to 100 mi</p> <p><i>Secondary</i> - within 400 mi</p> <p><i>Tertiary</i> - >400 mi</p>	<p><i>Fits Existing Network</i></p> <p>different for integrator, belly & freighter airlines</p>	<p><i>Runways</i></p> <p>length, strength, redundancy, approaches, minimums, etc.</p>	<p><i>Operating Costs</i></p> <p>landing fees, aircraft parking, facility leasing, fuel flowage, etc.</p>	<p><i>Permissions</i></p> <p>related to routes, frequencies, pricing, slot controls, curfews</p>
<p><i>Connectivity/ Interlining</i></p> <p>airline, RFS, regional PUD</p>	<p><i>Close to Customers</i>- % of pop (markets) within X miles or Y minutes of airport</p>	<p><i>Aircraft Parking & Ground Handling Capabilities</i></p>	<p><i>Transparency of Accounts</i></p> <p>paying only for services utilized</p>	<p><i>Operational Flexibility</i></p> <p>aircraft change of gauge, self-handling or ability</p>
<p><i>Freight Forwarders</i></p> <p>multinational, local, specialty, etc.</p>	<p><i>Local Surface Access</i></p>	<p><i>Landside Facilities & Services</i></p> <p>terminals, FIS, customs brokers, temp. control, etc.</p>	<p><i>Economic Incentive Packages</i></p>	<p>to select among competing agents, ability to transfer between aircraft, 24/7 operations, etc.</p>
<p><i>Distribution Services</i></p> <p>warehouses/DCs, cool chain, FTZs</p>	<p><i>Interstate Highway Connectivity</i></p>	<p><i>Interstate Highway Access</i></p>	<p><i>Residual vs Compensatory</i></p>	<p><i>Ability to Use Intermodal Services</i></p>

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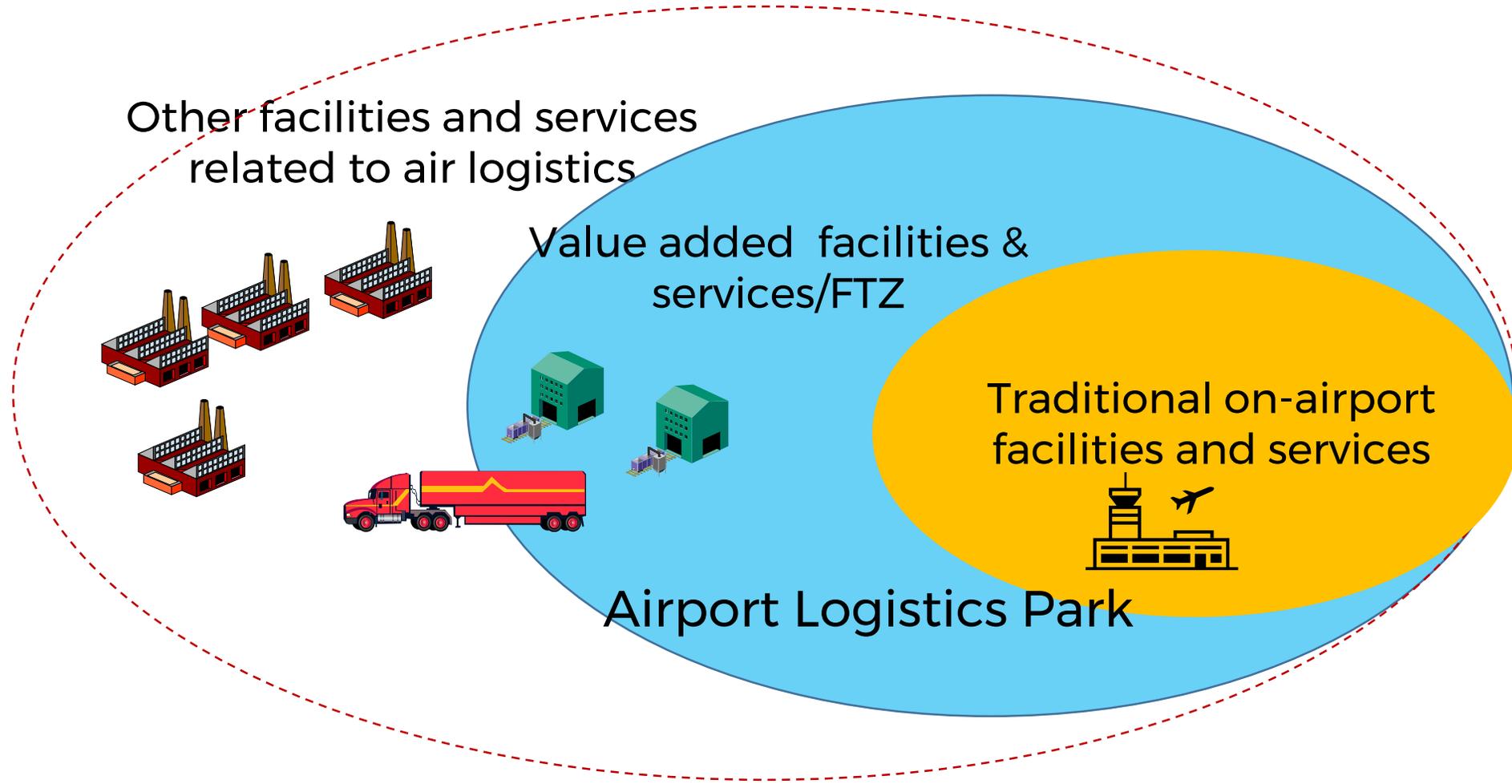


The Airport Logistics Park

Goal: to move your airport up the value chain



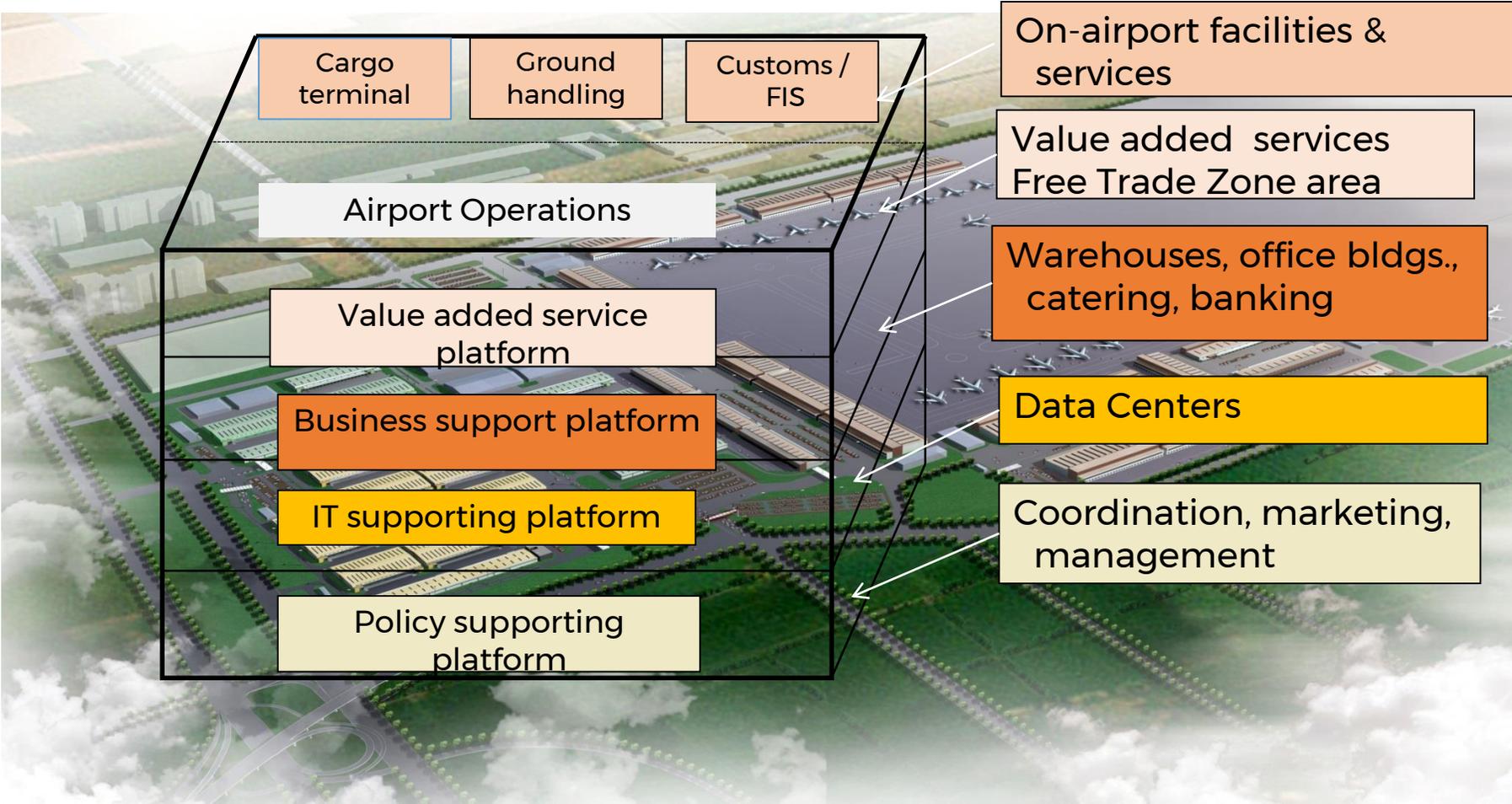
Airport Logistics Platform/FTZ



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Airport Logistic Park Functions

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Summary

- Air cargo growth has seen robust growth in 2016/17 but could be nearing a peak
- There are two major business models for air cargo carriers
 - *integrator/express model*
 - *airport-to-airport model*
- Trucking is of great importance to air cargo
- Airports should think beyond their boundaries in planning
- Airport cargo strategies are reliant on knowing your market and key airport and community objectives
- Partnering is a key to creating new airport business models

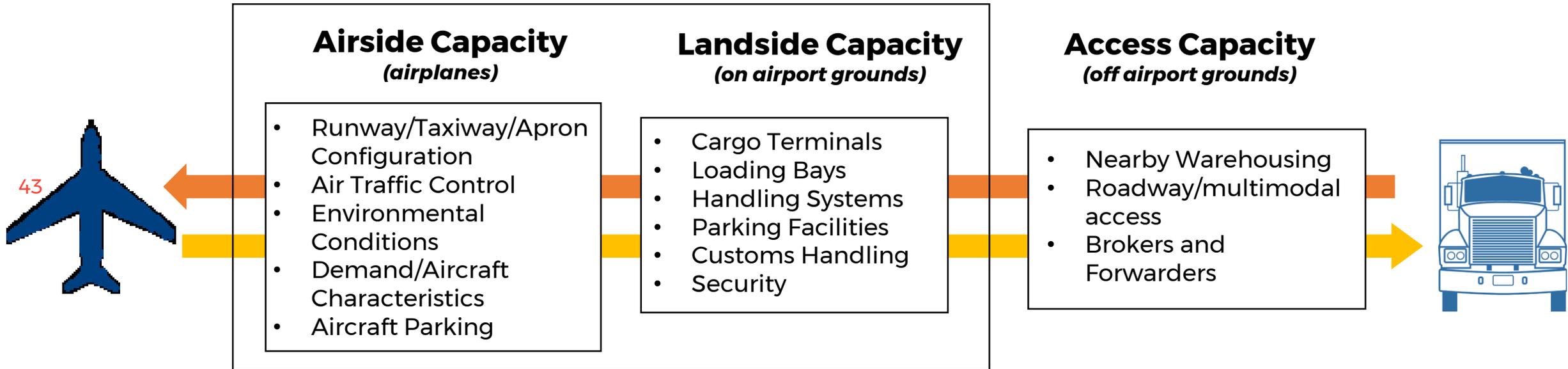
Air Cargo Congestion

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Air Cargo Capacity

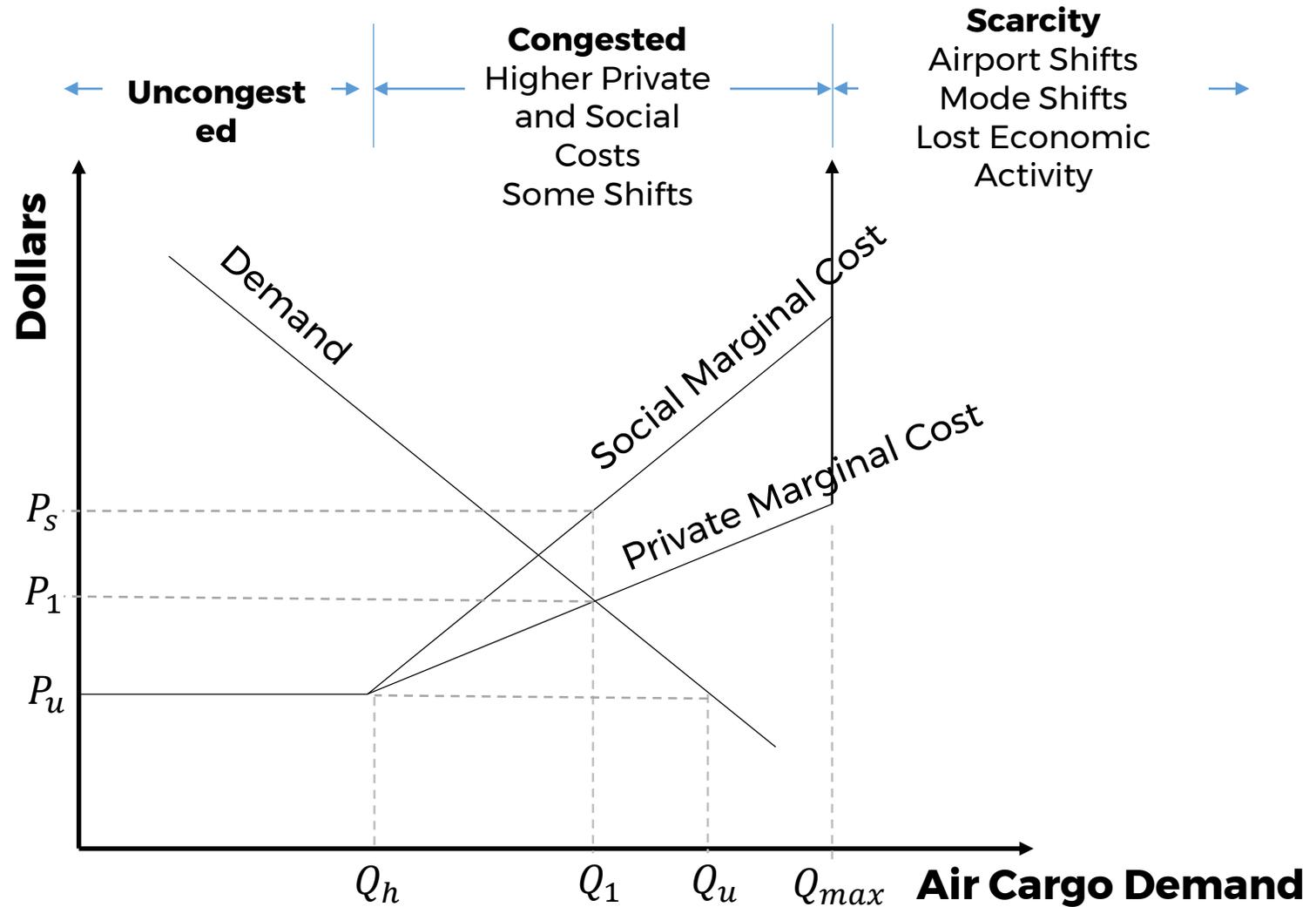
AIRPORT CAPACITY



Air Cargo Congestion

In congested conditions, each additional unit of cargo increases costs for everyone - higher rates, longer queues, more unreliability. Shippers must consider alternatives or become less competitive.

- Operators use more resources to maintain service
- Shippers absorb more cost unless viable alternatives available



Proposed Definitions

Air Cargo Capacity: The maximum cargo volume that can be handled by airside, landside and access system components.

Air Cargo Congestion: Increase in costs to shippers as cargo volumes approach capacity, stressing one or many system components.

- Costs reflect increases in time
- Disrupts regional market functions
- Erodes competitive advantage

Proposed Air Cargo Congestion Extent

Two complementary approaches:

- 1. Capacity Analysis:** Inventory airside, landside, and access system components. Identify system weaknesses and use metrics to assess facility utilization. Compare with industry standards and reference airports.
- 2. Congestion Delay Analysis:** Analyze FAA's Aviation System Performance Management database to characterize air cargo delay.

DISCUSSION



Next Steps

- Define Air Cargo Congestion
- Conduct Regional Market Analysis
- Review and Update Air Cargo Forecasts
- Inventory Existing Facilities
- Future meetings
 - *late March/early April 2018*
 - *mid/late June 2018*
 - *early/mid September 2018*