The Merger of Delta Air Lines and Northwest Airlines: An Antitrust White Paper

July 10, 2008[1]

I. Introduction

The American Antitrust Institute (AAI) has conducted an independent review of the proposed merger between Delta Air Lines (Delta) and Northwest Airlines (Northwest). Announced on April 14, 2008,[2] the $3.1 billion deal will create the largest airline in the U.S. and the world.[3] The transaction comes at a time when the U.S. airline industry is facing perhaps one of the most defining points since deregulation. This juncture is punctuated by record level fuel prices and poor profitability. Cartel enforcement actions for price fixing on international cargo routes, competition from foreign carriers that are now free to enter U.S. markets under the 2007 U.S.-European Union Open Skies agreement, and increasingly large, immunized international airline alliances have also changed the landscape of international aviation. These changes will have indelible spillover effects on domestic markets.[4]

The effect of the proposed merger must therefore be considered against a complex and changing industry backdrop, which includes high fuel costs, diminished passenger demand, and consequent industry-wide reductions in scheduling, aircraft, and personnel. But this

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[2] *See* Delta Air Lines, *Northwest Airlines Combining to Create America's Premier Global Airline*, *available at,* http://news.delta.com/article_display.cfm?article_id=11034.

[3] Jeff Bailey & Micheline Maynard, *Delta and Northwest in $3 Billion Deal*, N.Y. TIMES, Apr. 15, 2008, *available at,* http://www.nytimes.com/2008/04/15/business/15air.html?pagewanted=1.

[4] *See, e.g.*, U.S. DEP'T OF JUSTICE, *Major International Airlines Agree to Plead Guilty and Pay Criminal Fines Totaling More Than $500 Million for Fixing Prices on Air Cargo Rate, available at,* http://www.usdoj.gov/opa/pr/2008/June/08-at-570.html.

dismal industry climate does not establish a good case for haste or exception in reviewing the merger application. The antitrust laws are not suspended during an economic downturn and industry distress for good reason. When the economy recovers, competition and consumers would be faced with a permanently changed and potentially impaired market structure. Undoubtedly, prices for air travel will increase due to market dynamics. But consumers should not have to suffer a second time as a result of a potentially anticompetitive merger and its accompanying adverse effects, including loss of choice in carriers, reduced service quality and scope, diminution of competition, diseconomies of scale and density, and potential system failure. Moreover, as downsizing occurs, consumers in smaller markets that face reduced or eliminated air service may find greater relief if there are more independent airlines that might potentially enter than if there are fewer.

A number of factors recommend even more intensive antitrust scrutiny of the proposed transaction. One is that there is significant concentration of carriers at key Delta and Northwest hubs. The merger will thus enhance the market power of the merging parties should they choose to act unilaterally, or if a tacit agreement were to emerge from a high degree of perceived interdependence among carriers. Second, viewed through a broader lens, a merger of Delta and Northwest will eliminate a competitor in the market for regional airline networks or "systems." This merger may present the first significant instance in which we ask the question: How many competing end-to-end systems are required to preserve rivalry and the low prices and choice such competition ensures for U.S. air travelers? Third, an unassailable fact is that as networks expand, so do the consumer-oriented benefits of network effects. But with that expansion come the diseconomies of scale and density that increased network size also produces. Merger review must therefore grapple with the self-limiting efficiencies associated with larger networks.

As the DOJ has noted on numerous occasions, Section 7's prohibition of mergers that tend substantially to lessen competition is ". . .designed to cope with monopolistic tendencies *in their incipiency* and well before they have attained such effects as would justify a Sherman Act proceeding."[5] Anything short of a thorough probe into traditional and novel issues raised by the proposed transaction could set a troubling precedent for future airline mergers and the structure of the U.S. aviation industry. The AAI cannot perform the type of review of the proposed merger that the DOJ can.[6] However, based on information available to us, the AAI believes that the proposed merger between Delta and Northwest is likely to harm competition, to the detriment of consumers. This White Paper sets forth, in a five-part analysis, our rationale for why the merger should be blocked:

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[5] *See* United States v. Northwest Airlines Corp. *Trial Brief of the U.S.,* Civil Action No. 98-74611 (E. D. Mich.) (October 24, 2000) quoting *Cargill, Inc. v. Monfort of Colorado*, *Inc.*, 479 U.S. 104, 124 (Stevens, J, dissenting) (1986) (emphasis added) (citations and quotations omitted).

[6] The AAI's review of the proposed acquisition has been informed by discussions with industry personnel and a review of publicly available data and information. The AAI has not had access to any confidential company information and our analysis and recommendations are therefore limited accordingly.

- ***Both city-pair and system-based markets are affected by the proposed merger.*** The merger results in significant increases in concentration at already highly concentrated Delta and Northwest hubs and focus cities and on at least eight hub-to-hub routes. The merger also eliminates a large, overlapping network in the broader, system-based relevant market for air travel. Elimination of important head-to-head competition between airline systems could not only harm competition and consumers but set into play a daisy chain of similar mergers between large carriers, resulting in a domestic industry dominated by a few behemoth systems.

- ***A number of adverse competitive effects in city-pair and system markets could potentially result from the proposed merger***. Anticompetitive conduct by the merged firm--either unilaterally or in coordination with other firms--could restrict seat availability, raise fares, degrade service quality, and reduce choice. The merged firm could, among other things: eliminate or scale back service at particular hubs, leverage network effects to increase switching costs for time-sensitive passengers, and raise barriers to entry by locking up corporate traffic. Moreover, the merger could facilitate higher prices under the "umbrella" of a smaller number of firms in the market and eliminate a disruptive force in system wide pricing.

- ***Efficiencies claimed by the merging parties should be viewed with skepticism.*** The parties' burden of proving the existence of merger-related efficiencies is made more difficult by the fact that airline mergers have historically not produced significant benefits. Economies of density and scale claimed by Delta and Northwest are likely to be defeated by larger network size. Moreover, the costs of integration are notoriously underestimated by merging companies, particularly in the airline industry. This transaction is probably no exception.

- ***Entry by legacy network and low-cost carriers (LCCs) cannot be counted on to discipline post-merger price increases.*** Sunk costs are a major barrier to new entry into hub markets affected by the proposed merger. Entry by legacy network carriers or low cost carriers (LCCs) on a system level would be even more difficult. Moreover, LCC entry is further limited by the fact that such carriers typically do not enter on low-density routes and high concentration would undercut any disciplinary effects of entry on high-density routes.

- ***There are no easy remedies for the proposed transaction.*** A viable spin-off strategy would be difficult to craft for city-pair markets affected by the merger due to network complexities and limitations on the LCC business model. Moreover, the loss of system competition due to the merger would be virtually impossible to restore.

II. Background

On April 14, 2008, Delta and Northwest announced that they would merge in a $3.1 billion transaction in which Northwest shareholders would receive 1.25 Delta shares for each

Northwest share. In their joint press release, the airlines state that as a result of the merger customers would "benefit from the combined carriers' complementary route networks, which together will offer people greater choice, competitive fares and a superior travel experience to more cities than any other airline."[7]

Delta is the third largest airline in the U.S and fourth largest in the world, based on passenger revenue miles.[8] It has hubs in Atlanta, Cincinnati, New York-JFK, and Salt Lake City. It has a large domestic and international route network, with particular strengths in the South, Mountain West, East, Europe, and Latin America. Northwest is the seventh largest airline in the United States and ninth largest in the world. It has hubs in Detroit, Memphis, and Minneapolis-St. Paul. It operates an extensive domestic and international route system, with a large presence in the Midwest, Canada, and Asia. Both Delta and Northwest are members of the international SkyTeam alliance, one of the three international airline alliances and one of two alliances that have U.S. antitrust immunity to jointly set fares and coordinate operations.[9]

U.S. carriers follow three principal business models: network, point-to-point, and hybrid systems. There are six major network carriers--American, United, Northwest, Delta, Continental, and USAirways. Network carriers' systems are based on a hub-and-spoke network where a carrier's major hub or focus city serves as the central switching point for connecting flights to other domestic hubs (including international gateways) and smaller, low volume markets. Other carriers, including those that are categorized as LCCs either operate point-to-point or, as is the case of Southwest, have begun to move to a combination of point-to-point and hub-and-spoke oriented service.

III. City-Pair and System Markets are Affected by the Proposed Merger

Traditional merger analysis involving airlines focuses heavily on demonstrating the plausibility of post-merger competitive effects in appropriately defined relevant markets. Section 1 of the DOJ/FTC *Horizontal Merger Guidelines* (*Guidelines*) asks whether consumers would switch to competing products or different supplier locations in response to a price increase by a hypothetical monopolist. [10] Specifically, would a small but significant (e.g., 5 percent), nontransitory increase in price by a hypothetical monopolist be

[7] Delta Air Lines, *supra* note 2.

[8] U.S DEP'T OF TRANSP., BUREAU OF TRANSPORTATION STATISTICS, *available at,* http://www.transtats.bts.gov/.

[9] The Star alliance also has antitrust immunity. Only oneworld, the American Airlines-based alliance, is not immunized. International alliances raise a host of issues relating to the benefits and costs of coordination. On May 22, 2008 the DOT granted antitrust immunity to the expanded SkyTeam alliance, including Northwest, Delta, and four other alliance partners. *See*, Forbes, *DOT Grants Antitrust OK for Expanded Transatlantic Alliance for Delta, Northwest, available at,*
http://www.forbes.com/afxnewslimited/feeds/afx/2008/05/22/afx5041386.html.

[10] U.S. DEP'T OF JUSTICE/FED. TRADE COMM'N, 1992 *Horizontal Merger Guidelines*, *available at,*
http://www.usdoj.gov/atr/public/guidelines/hmg.htm.

enough to induce consumers to switch to other products and locations in sufficient numbers such that the price increase would be unprofitable? If so, then those products and locations should be included in the relevant product and geographic markets. When no more substitute products or locations can be included due to customer switching in response to a price increase, the relevant market has been identified.

Market definition is a less important exercise in itself than it is to establish a "testing" ground for a particular theor(ies) of competitive harm involving the likely post-merger conduct of the merged firm. Large increases in market concentration (as measured by the HHI, or the sum of the squared market shares of all firms in the market), coupled with highly concentrated post-merger market, creates the presumption that competitive outcomes are less likely. Specific competitive effects of the proposed merger are discussed in part IV.

A. The Merger Increases Concentration at Numerous Delta and Northwest Hubs and Focus Cities and on at Least Eight Hub-to-Hub Routes

Business and other time-sensitive travelers require flexibility and convenience in air travel services. As a result, they are willing to pay a higher price for tickets that have limited or no restrictions on the time of purchase or changes in itinerary. Business travelers also value their time very highly, preferring nonstop service to the risk and delay associated with connecting service. Leisure travelers do not display these characteristics to the degree that business travelers do. A number of relevant product markets are thus typically defined in airline mergers. These include scheduled airline passenger service, nonstop scheduled airline passenger service, and scheduled airline service for time-sensitive travelers.[11]

Travelers compare fares offered by various airlines that provide service from an origin to a destination city. Competition in city-pair markets is therefore relevant for an antitrust inquiry. City-pair markets include those hub-to-hub markets controlled by the merging parties. The AAI does not have access to the detailed data and information revealed in an investigation necessary to identify all of the city-pair markets that are affected by the proposed merger. However, hub market share data provide some insight into the effect of a proposed merger on hub-to-hub markets.

Delta and Northwest together have seven hubs, as shown in Table 1. Delta operates hubs at Atlanta, Cincinnati, New York-JFK and Salt Lake City and Northwest has hubs at Detroit, Memphis and Minneapolis-St. Paul. Six of the seven hubs are "fortress" hubs where one airline has a market share of 70 percent or more, as measured by revenue passenger miles. Delta has an astonishing 92 percent market share at Cincinnati and about 71 percent at both Salt Lake City and Atlanta. Northwest's market shares at Detroit, Minneapolis, and Memphis are about 72 percent, 74 percent, and 76 percent, respectively.

In addition to the major hubs, both Delta and Northwest operate secondary hubs, commonly

[11] Trial Brief of the U.S.*, supra* note 5 at 10.

known as focus cities, where they have significant but less extensive operations. Delta's secondary hubs are Boston, Los Angeles, New York-LaGuardia and Orlando and Northwest's are Honolulu, Indianapolis, and Seattle-Tacoma. The merging parties' shares at focus city airports are smaller than at their hub airports. Northwest's shares range from about six percent at Honolulu to 23 percent at Indianapolis while Delta's range from about 12 percent at Los Angeles to 20 percent at New York-LGA.

Table 1
Concentration Statistics for Delta and Northwest Hubs and Focus Cities

Major Hub/ Focus City	Delta Share (%) (1)	North-west Share (%) (2)	Pre-Merger HHI (3)	Change in HHI (4)	Post-Merger HHI (5)	Exceeds Merger Guidelines Thres-holds? (6)
Major Hub City:						
Minneapolis-St. Paul (NW)	6.6	73.7	5,524	968	6,492	Yes
Detroit (NW)	5.1	71.6	5,221	723	5,945	Yes
Memphis (NW)	10.2	76.4	5,968	1,564	7,532	Yes
Cincinnati (Delta)	92.0	1.5	8,475	270	8,745	Yes
Atlanta (Delta)	70.9	1.1	5,481	153	5,634	Yes
New York-JFK (Delta)	24.3	1.6	3,213	78	3,292	Yes
Salt Lake City (Delta)	71.3	1.3	5,324	181	5,504	Yes
Focus City:						
Honolulu (NW)	9.7	5.6	2,002	109	2,111	Yes
Indianapolis (NW)	8.9	23.4	1,412	419	1,831	Yes
Seattle-Tacoma (NW)	6.7	6.7	2,743	89	2,833	Yes
Boston (Delta)	18.5	6.2	1,413	229	1,641	Yes
Los Angeles (Delta)	11.5	4.8	1,587	111	1,697	Yes
New York-LGA (Delta)	20.4	8.5	1,619	345	1,964	Yes
Orlando (Delta)	14.9	6.3	1,242	188	1,430	Yes
Source: http://www.transtats.bts.gov/Fields.asp?Table_ID=258						

Delta's and Northwest's dominant position at their respective hubs drive the high levels of pre-merger concentration we see in column 3 of the upper part of Table 1. The proposed merger would combine Delta and Northwest at their major hubs. By adding the smaller share of the merging partner, the increase in concentration exceeds the *Guidelines* thresholds for raising significant competitive concerns.[12] Pre-merger concentration ranges from 3,213 HHI at New York-JFK to 8,475 HHI at Cincinnati, well beyond the *Guidelines* level of a highly concentrated market of 1,800 HHI. As shown in column 4, merger-induced increases in

[12] U.S. DEP'T OF JUSTICE/FED. TRADE COMM'N, *supra* note 10, at section 2. For unconcentrated markets (HHI<1,000), no change in market concentration raises competitive concerns. For moderately concentrated (1,000<HHI<1,800) and highly concentrated (HHI>1,800) markets, changes of 100 HHI and 50 HHI, respectively, raise competitive concerns and warrant further investigation into additional *Guidelines* factors.

concentration range from 78 HHI at New York-JFK to 1,564 HHI at Memphis. In all hubs cities, increases in concentration and post-merger levels exceed the *Guidelines* thresholds. Concentration at focus city airports is lower than at the major hub airports (ranging from 1,242 HHI at Orlando to 2,743 HHI at Seattle-Tacoma). But in all cases, increases in concentration (ranging from 89 at Seattle-Tacoma to 419 at Indianapolis) and post-merger concentration exceed the *Guidelines* thresholds.

Concentration problems at hubs and focus cities associated with combining Delta and Northwest give a preview of similar problems on hub-to-hub routes. Market shares and merger-induced increases in concentration on nonstop flights between several of the carriers' hub cities are extremely high, as shown in Table 2. For example, the most adversely affected hub-to-hub routes are Detroit-Cincinnati, Detroit-New York-JFK, Minneapolis-St. Paul-Cincinnati, and Minneapolis St. Paul-Salt Lake City. Atlanta-Detroit, Atlanta Minneapolis-St. Paul, Atlanta-Memphis, and Detroit-Salt Lake City show lower, but nonetheless very high increases in concentration. These merger-related increases in concentration establish the presumption, therefore, that competition and travelers on these routes would be adversely affected by the proposed merger.

Table 2
Concentration Statistics for Nonstop Flights
Between Delta and Northwest Hub Cities

From Hub	To Hub	Merger-Induced Increase in Concentration (HHI)
Detroit	**Atlanta**	**2,961**
Detroit	**Cincinnati**	**4,997**
Detroit	**Salt Lake City**	**576**
Minneapolis-St. Paul	**Atlanta**	**2,559**
Minneapolis-St. Paul	**Cincinnati**	**4,947**
Memphis	**Atlanta**	**1,560**
New York-JFK	**Detroit**	**4,183**
Salt Lake City	**Minneapolis-St. Paul**	**4,785**

Source: http://www.transtats.bts.gov/Fields.asp?Table_ID=258
Note: Increases in concentration due to the merger are about the same going in either direction on the above-listed routes.

B. The Importance of Network Effects in Defining Relevant Airline Markets

Networks are typically considered by the DOJ in merger analysis as a form of business organization. However, important attributes of networks have demand-side implications. This is significant because relevant markets for antitrust purposes are defined from the perspective of the consumer. In other words, the likelihood of lost sales following a price increase depends on the ability of consumers to switch to alternative products and locations. In airlines, the degree of substitutability is affected by the presence of demand-side externalities. These so-called "network effects" are realized when consumers derive

more and more value from a particular carrier's network as interconnected nodes and links are added, thus expanding the network.

Network effects highlight the importance of a "systems" perspective in evaluating competition issues involving airlines. In general, a system is characterized by two or more complementary markets, linked together via interfaces that promote compatibility.[13] Both intra-system and inter-system rivalry are important. In the first case, rivals compete at various levels *within* the system. This requires access to an interface to facilitate competition, such as in wholesale electricity or telecommunications. Inter-system competition involves head-to-head rivalry *between* systems, such as international airline alliances or direct broadcast satellite and cable broadband.

Expanding a hub-and-spoke network through merger allows for greater connectivity, including access to smaller, formerly inaccessible markets, non-stop service where indirect service was formerly offered, and increased flight frequency on particular routes—especially hub-to-hub routes. For example, when an airline adds service between its hub and a new location to accommodate passengers at that location, it also creates new service offerings between that location and all other locations that can be reached through its hub. This benefit, which is fundamental to hub-and-spoke airline networks, enhances the value of the network to travelers. Similar benefits are experienced when additional demand prompts a carrier to increase flight frequency between two locations.

Frequent-flyer programs and airport amenities can further promote network effects to the extent that they increase traveler convenience and benefits, creating customer loyalty to particular carriers. Network effects can be enhanced through merger. Strategic consolidation that expands the size of the network can fuel the self-reinforcing process of network effects. Empirical evidence supports the concept that a hub carrier receives large network benefits that increase with the number of markets served from a hub.[14]

Network effects associated with airline systems may be more relevant for certain types of passengers, particularly time-sensitive travelers who value the convenience of non-stop service, more flight frequency, service to smaller destinations, and the benefits of frequent flyer programs. This stands in contrast to the leisure traveler who may place less value on the benefits of staying within one airline network. The value of network effects may thus be powerful enough to raise switching costs for consumers and limit their ability to substitute out of a given carrier's system. As a result, consumers may view network carriers' *systems* as an important basis for making substitution decisions. In light of this, a system-based

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[13] *See, e.g.*, Michael L. Katz and Carl Shapiro. *Systems Competition and Network Effects,* 8 J. ECON. PERSP. 92 (1994). Depending on the type of system, the interface is the technology, software, set of facilities, or operational standards or protocols that facilitate interconnection and/or interoperability of the system components.

[14] Christopher Mayer & Todd Sinai, *Network Effects, Congestion Externalities, and Air Traffic Delays: Or Why Not All Delays Are Evil*, 93 AM. ECON. REV. 1194, 1195 (2003).

market is arguably a relevant market for the purposes of evaluating the Delta/Northwest transaction.

C. Inter-System Competition is Not a New Phenomenon in Airlines

Inter-system competition is not a new concept in the airline industry. A number of factors support the notion that head-to-head rivalry between network systems is an important element of competition policy and merger analysis. First, the airlines themselves recognize the importance of competition at the system level. For example, the competitive significance of system (as opposed to city-pair) overlaps were a central component of Delta's arguments *against* a hostile takeover bid by USAirways in 2006.[15] Second, DOT's policies regarding antitrust immunity for international alliances were predicated on the development of multiple, viable competing systems to ensure choice for consumers and inject competitive discipline in transatlantic markets.[16] Alliances rely on the same network structures that domestic legacy carriers do.

Third, price differences are a key indicator that consumers do not view two products as close substitutes. Coupled with other factors, different price points for products militate against including them in the same relevant product market. Empirical work on interconnection pricing by dominant carriers reveals that intra-network travel is cheaper than inter-network travel.[17] The effect of this pricing regime is to "tip" travelers using a multi-leg travel itinerary toward intra-network itineraries. Put another way, dominant airlines' pricing strategies in the market for connecting travel permit competition only at the system (full-itinerary) level, foreclosing competition at the individual flight level.

Finally, the DOJ has itself acknowledged the importance of system wide competition involving the major network carriers. In its trial brief in *U.S. vs. Northwest*, the Division stated that:

> "The major airlines compete across the vast number of domestic markets where their systems overlap, responding to each other's price and service. If one airline initiates a nationwide sale, the others quickly follow. Similarly, if one improves or promotes a particular aspect of its service, the other major airlines respond competitively."[18]

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[15] *See* Delta Air Lines, *Form 8-K: Proposed US Airways/Delta Merger Would be Highly Anticompetitive,* Dec. 19, 2006, *available at*, http://www.sec.gov/Archives/edgar/data/27904/000118811206003752/0001188112-06-003752-index.htm.

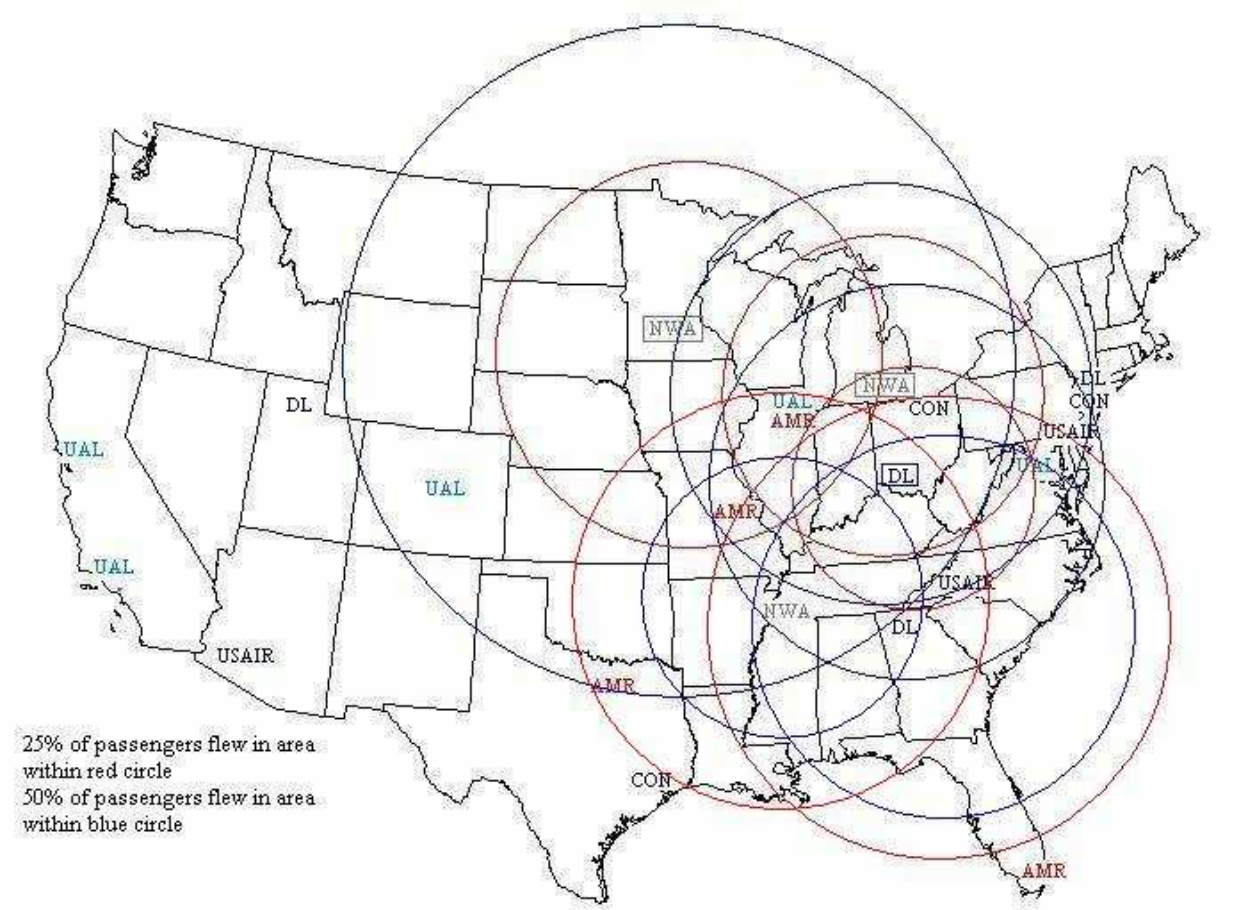
[16] *See Effects of Airline Alliances and Partnerships on Competition*, Chapter 4 in ENTRY AND COMPETITION IN THE U.S. AIRLINE INDUSTRY: ISSUES AND OPPORTUNITIES, Transportation Research Board Special Report 255 (October 21, 1999), at 149.

[17] *See* Bradley H. Weidenhammer, *Compatibility and Interconnection Pricing in the Airline Industry*, 114 YALE L.J. 405 (2004).

[18] Trial Brief of the U.S, *supra* note 5, at 13.

If a system market can in fact be considered a relevant market for antitrust purposes, then the foregoing discussion prompts us to ask whether the proposed merger of Delta and Northwest eliminates a close competitor. Figure 1 illustrates the merger's effect on the Midwestern and Southeastern system market. The red and blue concentric circles indicate the region around each carrier's hub in which 25 percent and 50 percent of passengers fly, respectively.[19] It is clear that the Delta and Northwest systems substantially overlap in both the Midwest and Southeast. This casts doubt on the companies' assertion that the two systems are merely "complementary" and highlights the fact that the merger eliminates one system.

Figure 1
Midwestern and Southeastern System Markets
for Delta and Northwest



[19] U.S. DEP'T OF TRANSP., BUREAU OF TRANSPORTATION STATISTICS, *available at*, http://www.transtats.bts.gov/Fields.asp?Table_ID=258.

IV. The Merger is Likely to Have a Variety of Adverse Competitive Effects

High fixed costs and constraints on landing slots, gate facilities, and other infrastructure at hubs grant dominant airlines significant market power. Consolidation of Delta and Northwest will substantially increase concentration at hub airports, particularly Memphis, Detroit and Minneapolis-St. Paul and eliminate a competing system in the Midwest and Southeast. Adverse competitive effects from the merger could result from either unilateral conduct or coordinated interaction among the remaining firms in the relevant markets.

A. Unilateral Effects

Much of the damage risked by combining Delta and Northwest into the largest domestic airline can be accomplished by the merged firm acting unilaterally. For example, the merger enhances the ability and incentive for a combined Delta/Northwest to eliminate or scale back service at a particular hub. Combined frequent flyer programs could also help cement Delta/Northwest's control of a hub, allowing the carrier to leverage network effects to increase switching costs for time-sensitive passengers.

The merged company may also have the incentive to move to direct marketing and distribution. Online systems such as Travelocity, Expedia, and Orbitz that aggregate and market airline fares help consumers by reducing search costs and allowing them to comparison shop. A larger Delta/Northwest could reduce or eliminate their participation in online agreements, forcing consumers to shop only on their websites without the price transparency afforded by internet tools.

The merger could raise already high barriers to entry in city-pair markets. For example, there is fierce competition for corporate accounts since a significant portion of airlines' revenues come from business travelers. A merged Delta/Northwest could potentially lock up more traffic by tying the corporate discount percentage to a commitment to steer larger volumes of business to the merged carrier or to meet higher share targets on particular routes. This would have the effect of blocking entry by potential rivals seeking to expand into business services.

Any of the foregoing types of post-merger conduct would set the stage for subsequent reductions in seat availability, higher fares, lower service quality, and reduced choice on domestic city-pair routes and in system markets. Moreover, by virtue of Northwest's and Delta's membership in the immunized SkyTeam international airline alliance, the merger may also have adverse effects on international routes.

For example, Delta and Northwest currently compete on the domestic legs of international itineraries involving SkyTeam travel. These legs are located "behind-the-gateway" or the jumping off point for an international itinerary. Competition behind-the-gateway will be diminished after the merger, potentially leading to higher prices and/or lower service quality that will affect international travel on SkyTeam itineraries. This effect is

exacerbated by the fact that concentration on transatlantic routes has increased over time, the number of alliances has shrunk, and the remaining alliances have expanded.[20] It is also worth noting that combining Delta and Northwest within SkyTeam would likely reduce (if not eliminate) any incentive for the combined carrier to compete with other SkyTeam members on service and quality on transatlantic routes. The merger would also alter the internal structure of the alliance, with potential ramifications for Delta/Northwest's ability to influence alliance pricing and marketing policies. In sum, the adverse effects of the proposed merger on SkyTeam travel may not be outweighed by the benefits of an expanded network. Balancing the costs of reduced competition against the benefits of network efficiencies and other cost savings that might flow from international alliance operation is the basis for the Department of Transportation's decision to grant antitrust immunity. [21] The merger will potentially change this balance.

B. Coordinated Interaction

The proposed merger could also facilitate coordinated interaction in markets affected by the proposed merger. For example, rivals at very highly concentrated hubs such as Atlanta, Detroit, Minneapolis-St. Paul, Memphis, Cincinnati, and Salt Lake City may have incentives to price under the "umbrella" of a smaller number of firms in the market. LCCs have modified their business model that prevailed in the 1990s by pursuing the business traveler and increasing densities on point-to-point routes. Increasingly, this can be done with fares that are just under legacy carrier fares, as opposed to dramatically lower prices. Without the competitive discipline offered by a larger number of carriers at particular hubs, the incentive to even slightly undercut incumbent legacy carriers may disappear.

Moreover, as the DOJ noted in *U.S. vs. Northwest*, the pattern of interaction between legacy network carriers has been that if one airline initiates a nationwide sale or promotion regarding service, the others quickly follow.[22] Eliminating one carrier in a system market, however, potentially eliminates a disruptive force in this pattern of interaction, particularly Northwest which has, at times, refused to match system wide increases.[23] In light of DOJ's own recent criminal actions against multiple conspiracies in the aviation industry, there is no longer any doubt that airline markets that are even less concentrated than will be produced by this merger are conducive to collusive conduct. So, the increased concentration from this merger can be presumed to increase the risk of such conduct across all of the affected markets.

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[20] The European Commission has expressed grave concerns about anticompetitive behavior by alliance members. *See, e.g.,*
www. ec.europa.eu/comm/competition/antitrust/cases/decisions/37984/commitments.pdf.

[21] For more discussion, *see, e.g.,* James Reitzes and Diana Moss, *Airline Alliances and Systems Competition*, 45 HOUSTON L. REV. 293 (2008). Antitrust immunity for alliances is a double-edged sword--with the potential to harm and help competition and consumers.

[22] Trial Brief of the U.S, *supra* note 5, at 13.

[23] *Id*. at 14.

V. Efficiencies Claimed by the Merging Parties Should be Viewed with Skepticism

The DOJ/FTC Merger *Guidelines* emphasize that competition usually "spurs firms to achieve efficiencies internally."[24] But in some cases, merger can produce efficiencies by better utilizing assets and lowering the costs of producing a given output and quality level. Because the competitive process should ideally force firms to lower costs on a standalone basis, the *Guidelines* impose fairly rigorous requirements as to what constitutes a cost savings that "reasonably cannot be achieved by the parties through other means."[25] Moreover, the larger the anticompetitive effects of a proposed merger, the greater the efficiencies must be. Section 4 of the *Guidelines* provides that cognizable efficiencies are most likely to outweigh anticompetitive risk only when concentration levels are low. Thus, the burden is on those that support the transaction to show that it is, on balance, not anticompetitive.[26]

The companies estimate that the proposed merger will generate more than $1 billion in annual revenue and cost synergies. These include more effective aircraft utilization that will make transportation more efficient across the merged network; a more comprehensive and diversified route system, including improved worldwide connections to small communities in the U.S.; and cost synergies from reduced overhead and improved operational efficiency.[27] Delta and Northwest face the challenge of showing that the high levels of merger induced concentration at highly concentrated hubs and any significant diminution of systems competition are outweighed by merger-related efficiencies. However, many of these cost-savings are dubious in light of the *Guidelines* requirements that they be merger-specific and cognizable.

A. Economies of Density and Scale are Defeated by Larger Network Size

Economies of scale arise when having a larger airline in terms of fleet and network size reduces the marginal cost of serving an additional passenger. Economies of density arise when increased traffic volume *on a particular route* (e.g., hub-to-hub flights) reduces the marginal cost of serving an additional passenger. These economies are generally the result of higher load factors (percent of seats occupied on a particular flight), which permit fixed

[24] *Id.* at 30.

[25] *Id.* at 3.

[26] In *Heinz*, the FTC and the Court of Appeals stated that this burden was very high when it stated: ". . . high market concentration levels present in this case require, in rebuttal, proof of extraordinary efficiencies, which the appellees failed to supply." Federal Trade Commission v. H.J. Heinz Co. and Milnot Holding Corporation, 246 F. 3d 708 (D.C. Cir. 2001).

[27] Delta Air Lines**,** *supra* note 2.

costs to be spread out over a larger volume of passengers.[28] Economies of density are best exploited through the development of efficient, comprehensive hub-and-spoke networks. But LCCs focused only on point-to-point routes can also realize economies of density by utilizing fewer, larger, and more efficient aircraft.

Past a certain point, however, "hubbing" can neutralize or even negate economies of density. For example, bigger networks create peak-load problems because network effects encourage a hub carrier to bunch its flights at peak times. This increases the disparity during the day in the number of arrivals and departures and creates problems for efficient staffing of gate, ticket, and maintenance personnel. Bunching of flights at hubs occurs even at the cost of additional delays to a carrier's own flights and is the largest contributor to air traffic congestion.[29] Indeed, empirical research demonstrates that as networks become larger (e.g., through merger), economies of scale and scope begin to diminish.[30]

A large Delta/Northwest system that is not held together by the "glue" of significant efficiencies is likely to be a very fragile system. Fragility is important to consider because a system failure in an industry with highly interconnected networks would have significant reverberations throughout domestic aviation. The enormous disruptions caused by American Airline's recent aircraft servicing and repair problems are a case in point. Robust system competition reduces the externality effects associated with adverse events in a large, unwieldy system. This reasoning applies both domestically and to international markets.

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[28] *See, e.g.*, Severin Borenstein and Nancy L. Rose. *How Airline Markets Work...Or Do They? Regulatory Reform in the Airline Industry*, Working Paper 13452, NBER WORKING PAPER SERIES (September 2007), at 20.

[29] Some of the large operating costs associated with hub and spoke networks include increased terminal space, operational support and personnel, large aircraft and less airtime waiting for connecting passengers.

[30] *See, e.g.*, David Gillen, et al., *Airlines Cost Structure and Policy Implications*. 24 J. TRANSP. ECON. AND POL'Y 9 (1990); Michael Creel and Montserat Farell, *Economies of Scale in the US Airline Industry After Deregulation: a Fourier Series Approximation*. 37 TRANSP. RES. PART E 321, 332 (2001); W. M. Swan, *Airline Route Developments: A Review of History*. 8 J. AIR TRANSP. MGMT. 349 (2002). These studies show that unexploited economies of density are likely greater for smaller carriers than for larger ones and some airlines have recently shifted toward the use of smaller aircraft, implying that one source of economies of density–-larger aircraft--has been fully or perhaps even excessively exploited. Kumbhakar finds that economies of scale and thus benefits from future mergers have almost entirely been exhausted but some economies of density may still remain. *See,* Subal C. Kumbhakar, *A Reexamination of Returns to Scale, Density and Technical Progress in U.S. Airlines*. 57 S. ECON. J. 428, 439 (1990). But, Basso and Jara-Diaz find that significant economies of scale could yet be realized. *See,* Leonardo J. Basso and Sergio R. Jara-Diaz, *Distinguishing Multiproduct Economies of Scale from Economies of Density on a Fixed-Size Transport Network*. 6 NETWORK AND SPATIAL ECON. 149 (2006).

B. The Costs of Integrating are Likely to Have Been Underestimated by the Parties

The cost of integrating airline operations may also consume many of the claimed efficiency gains from the proposed merger. As illustrated by the US Airways-America West merger, the logistics of creating one airline out of two are daunting. These include combining reservations systems and maintenance operations, harmonizing labor contracts, and coordinating fleets and flight schedules. A combined Delta-Northwest airline would yield an impressive 80,000 employees.[31] Pilot seniority problems encountered in early 2008 that forced abandonment of the initial merger announcement could be a harbinger of workforce problems likely to come, as could the difficult process of integrating a unionized Northwest and a non-unionized Delta workforce.[32]

Delta and Northwest also say they anticipate large savings because they operate different types of aircraft and, if merged, the new company can match the right planes with the right routes. However, the combined airline will have about 1,100 aircraft from two very different fleets. Additional training for pilots and ground operation personnel will be needed to efficiently operate new types of aircraft. All of these factors call into question the likelihood that--even if merger-related efficiencies did outweigh anticompetitive effects--such savings would be passed on to consumers. For example, integrating reservation systems and ground operations could well exceed initial estimates, reducing benefits to consumers.

C. Airline Mergers Have Historically Not Produced Significant Benefits

In light of the foregoing, there is a compelling story as to why efficiencies claims by the parties should be viewed with some skepticism. This is consistent with economic evidence that largely shows that the overall the anti-competitive effects of airline mergers outweigh their incremental benefits.[33] A proper analysis will therefore ask to what extent these

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[31] Oren Harari, *Why the Northwest-Delta Deal, And Many Others, Are Stinkers*, FT PRESS (June 9, 2008), *available at,* http://www.ftpress.com/articles/article.aspx?p=1218137.

[32] Only the Delta pilots are unionized. The remaining employees in the Delta workforce are not unionized.

[33] For relevant economic literature, *see, e.g.*, Jan K. Brueckner and Eric Pels, *European Airline Mergers, Alliance Consolidation and Consumer Welfare,* CESIFO WORKING PAPER NO. 1154 (2004); Jan K. Bruckner, J. and Pablo Spiller, *Economics of Traffic Density in the Deregulated Airline Industry*, 37 JOURNAL OF LAW AND ECONOMICS 379 (1994); Matthew J. Hergott, *Airport Concentration and Market Power: An Events Study Approach*, 12 REVIEW OF INDUSTRIAL ORGANIZATION 793 (1997); E. Han Kim and Vijay Singal, *Mergers and Market Power: Evidence from the Airline Industry*, 83 AMERICAN ECONOMIC REVIEW 549 (1993); Frank R. Lichtenberg Moshe Kim, *The Effects of Mergers on Prices, Costs, and Capacity Utilization in the U.S. Air Transportation Industry, 1970-84*, NATIONAL BUREAU OF ECONOMIC RESEARCH, INC., NBER WORKING PAPER NO. 3197 (1989); Craig Peters, *Evaluating the Performance of Merger Simulation: Evidence from the U.S. Airline Industry,*49 JOURNAL OF LAW AND ECONOMICS 627 (2006); Oliver Richard, *Flight Frequency and Mergers in Airline Markets*, 21 INTERNATIONAL JOURNAL OF INDUSTRIAL ORGANIZATION 907 (2002); Anming Zhang and Derek Aldridge, *Effects of Merger and Foreign Alliance: An Event Study of the Canadian Airline Industry,* 33 TRANSPORTATION RESEARCH PART E: LOGISTICS AND TRANSPORTATION REVIEW 29 (2006).

efficiencies can be achieved internally over time. Another question is why—short of merger—efficiencies cannot be achieved through other forms of operational coordination that preserve the competitive independence of the two carriers.

In all likelihood, achieving the magnitude of efficiencies claimed by the companies will be difficult without structural and operational changes much more radical than what Delta and Northwest claim to be necessary. Given the tension between the benefits and costs of operating a large combined airline network, the only way to overcome the limitations in achieving efficiencies is arguably by *shrinking* the network. For example, despite the merging parties' promise not to eliminate hubs, closures may be necessary to reduce costs.[34] Some of the smaller hubs such as Cincinnati, Indianapolis, and Memphis that are situated geographically between the larger hubs might eventually be eliminated or scaled back. All of this would come at a cost to consumers in the form of higher fares, lower service quality, and less choice.

VI. Entry Cannot be Counted on to Discipline Post-Merger Price Increases

Another defense for an anticompetitive merger is post-merger entry that defeats the exercise of market power by the merged company. But for entry to play its expected role, barriers to entry by new firms must be low. Under the *Guidelines*, this requirement is operationalized in three requirements: timeliness, likelihood, and sufficiency. In other words, entry must occur within a two-year period (timely), there must be a high probability that entry will occur (likely), and an entrant must be able to achieve minimum viable scale by capturing a significant portion of the passengers in a given hub or focus city (sufficient).

The *Guidelines* distinguish between two types of entry. One is uncommitted entry or a supply response by market incumbents that can shift to more profitable products, product lines, or in the case of airlines—city-pair routes. Another form of entry is greenfield or committed entry which involves firms that do not currently compete in the relevant market.[35] The first form of entry is considered primarily in the process of defining relevant markets since those suppliers can potentially undercut a price increase by the merged firm. For example, both legacy network carriers and LCCs could simply rearrange planes to take advantage of high profits on routes adversely affected by a Delta and Northwest combination.[36]

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[34] Delta Air Lines, *supra* note 2.

[35] The first type of entrants are termed "uncommitted" because entry could occur rapidly and without the expenditure of large sunk costs, in contrast to Greenfield or "committed" entry. See *supra* note 10 at 5.

[36] LCCs currently operate in each of Delta and Northwest's hub and focus cities. For example, in Atlanta, Salt Lake City, New York (JFK), and Detroit, LCCs such as AirTran, JetBlue and Southwest account for a market share of 10 percent or more.

This theory treats aircraft as almost entirely fungible assets, available in the numbers and sizes necessary to quickly establish service on more profitable routes after the merger. It also assumes relative ease in obtaining additional gates, landing slots, and expanding ticketing and ground operations. Most important, for an incumbent firm to exert this type of supply response post-merger, it would have to have been able to influence the market *before* the merger. This would be unlikely given the dominance of Delta and Northwest at their respective hubs and the tiny shares accounted for by smaller fringe competitors. And the merger only exacerbates the pre-existing problem of high concentration, further limiting a competitive supply response.

A. Greenfield Entry is Unlikely due to Sunk Costs and the Pattern of Interaction Between Interdependent Carriers

There are significant barriers to entry at airport hubs. The costs of greenfield entry by either major carriers or LCCs include obtaining gates and developing ground operations and ticketing facilities. Entering on the scale necessary to discipline higher fares or lower quality service implied by the high levels of post-merger concentration at Delta/Northwest hubs would be prohibitively high. Most of these costs are sunk and therefore cannot be recovered if entry is unsuccessful. Entry at the major hub cities dominated by the merged airline (e.g., Minneapolis, Cincinnati, Detroit, or Atlanta) therefore requires that sunk costs be put at risk.

Both legacy carriers and LCCs would be loathe to risk sunk costs through greenfield entry for the reason that they could reasonably expect an aggressive (even predatory) price response from a larger, consolidated Delta/Northwest. Indeed, in prior cases, the DOJ has stated that established network carriers are unlikely to challenge each other at their hubs.[37] Moreover, when new entrants mount service, incumbent carriers often triple frequent flyer awards and utilize other means such as schedule bracketing to punish rivals. Under these circumstances, rival airlines are unlikely to add nonstop service between Northwest's and Delta's hub cities.

The proposition that entry into hub markets is, in fact, very difficult, bears up under the DOJ's own statistics. For example, the agency reports that major carrier entry into another's hub-to-hub route occurs on average once every 32 years and is successful less than 25 percent of the time.[38] If entry on a hub-level is unlikely due to barriers to entry, then broad regional or nationwide scale comparable to the major airlines is even more unlikely. Indeed, entry at the system level would be an enormous undertaking--almost inconceivable at this stage in the industry's development.

[37] Trial Brief of the U.S.*, supra* note 5 at 15.

[38] *Id.*

B. LCCs Cannot Compete on a System Levels or on Routes Other Than Those with High Densities

The emergence of LCCs has had substantial, well-documented benefits for the flying public. For example, when Southwest has entered a route, fares have generally fallen significantly and the number of seats available has increased. There is also evidence that incumbent airlines cut their fares as soon as they *expect* Southwest to enter a particular route.[39] With high barriers to entry by legacy carriers at the hub and system level, therefore, the only plausible avenue for entry is by LCCs on particular city pair routes.

However, LCCs represent a competitive threat to incumbent legacy carriers only on a subset of city-pair markets--heavily-traveled trunk routes. LCCs typically do not serve smaller markets. Former Delta CEO Gerald Grinstein acknowledged this reality in response to US Airways' then hostile takeover bid for his airline where he said LCCs would be "highly unlikely to replace the loss of a competing hub at Charlotte, Pittsburgh, Cincinnati, or Salt Lake City" because LCCs ". . . .typically cherry-[pick] markets with enough passengers to fly non-stop, without connecting through a hub."[40]

Empirical evidence supports the notion that LCCs could be expected to serve as a competitive constraint only on high-density routes.[41] LCC entry into smaller markets served more efficiently by hub-and-spoke networks of the legacy carriers like Delta and Northwest would undermine the cost-effectiveness of their existing point-to-point networks. Delta/Northwest are thus unlikely to face a competitive threat from LCCs on more thinly-traveled routes. And on high-density routes, the proposed merger creates the most egregious increases in concentration, making entry on a viable scale by LCCs that do not currently operate in those markets even less probable (and less attractive). Moreover, there is a compelling argument that because airlines face each other in several markets, the fear of retaliation in one market diminishes the incentive to compete vigorously in another.[42]

Entry by LCCs in the event of a post-merger price increase is thus not a foregone conclusion. The history of the airline industry is replete with failed attempts by new carriers to challenge established network carriers such as Delta and Northwest. New

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[39] *See, e.g.*, Austan Goolsbee & Chad Syverson, *How Do Incumbents Respond to the Threat of Entry? Evidence from Major Airlines*. NBER Working Paper Series, No. 11072 (2005).

[40] Hearing on the State of the Airline Industry: The Potential Impact of Airline Mergers and Industry Consolidation Before the S. Comm. On Commerce, Science & Transportation, 110th Cong. (Jan. 24, 2007) (testimony of Gerald Grinstein, CEO of Delta Air Lines), *available at*, http://commerce.senate.gov/public/_files/grinstein_testimony.pdf.

[41] *See* Harumi Ito & Darin Lee, *Low Cost Carrier Growth in the U.S. Airline Industry: Past, Present, and Future,* Brown University, Department of Economics, Working Paper Series, No. 2003-12 (2003). The authors find that one of the most important determinants of LCC entry is route density: the greater the passenger volumes on a given route, the greater the likelihood an LCC would enter.

[42] *See* Kim and Singal, *supra* note 33.

carrier entry occurs once every 13 years and is successful only 32 percent of the time.[43] And while it is conceivable that the LCCs could transform themselves into hub-and-spoke carriers, recent history and economics suggest they will not. For example, in spite of the surfeit of slots at St. Louis following American's takeover of TWA, no carrier established a hub at St. Louis.[44] LCCs would lose the significant cost advantage of relatively homogeneous, uniform fleets if they became hub-and-spoke carriers.[45]

VII. Remedies for the Proposed Merger Will be Difficult to Craft

Should the proposed merger raise competitive problems in city-pair markets, an appropriate remedy will likely be difficult to craft. A likely solution would be that Delta/Northwest abandon the gates of the smaller of the two at cities where their combined market shares cause market concentration to increase substantially. In a market with a larger number of competitors, this would appear to be the optimal remedy. However, divestitures in this context are likely to run-up against a number of impediments.

One is that it is difficult to determine if divestitures of any particular gates, or group of gates, at a specific airport are an appropriate remedy given the complexities implied by a larger, merged network. These complexities include the impact of divestures on network effects and any economies of density that might actually materialize from the combination. Arguably, divestitures of assets in networked industries are a fundamentally different calculus than spinning off a business unit of one market participant in a non-networked industry. This uncertainty is cause for even further skepticism regarding the merging companies' already dubious claims regarding the benefits of the proposed combination. Second, LCCs—which are the most obvious buyers of any divested assets--may not in fact be viable buyers. Such assets would have to complement a LCC's route and cost structures, which are fundamentally different from a legacy network carrier's.

Moreover, if the potential adverse effects of a Delta/Northwest combination on domestic airline *systems* are given the antitrust attention they deserve, then there is virtually no fix for the loss of systems competition the merger will generate. Creating a competing hub-and-spoke system that will replace the competition lost due to the merger—as the DOJ's policy guide to merger remedies discusses at length—is neither possible for an incumbent legacy carrier nor possible *or* desirable for an LCC.[46]

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[43] Trial Brief of the U.S*., supra* note 5, at 15.

[44] Hearing on the State of the Airline Industry (testimony of Gerald Grinstein), *supra* note 37.

[45] Maintaining uniformity in fleets allows LCCs to place larger aircraft orders and thus receive volume discounts and also achieve economies of scale in maintenance. If they were to switch to a hub-and-spoke model, they would have to build more heterogeneous fleets to accommodate the different traffic densities and distances on the various "spokes."

[46] U.S DEP'T OF JUSTICE, ANTITRUST DIVISION, ANTITRUST DIVISION POLICY GUIDE TO MERGER REMEDIES 11 (2004), *available at*, http://www.usdoj.gov/atr/public/guidelines/205108.pdf.