Airlines: A New Operating Model Providing Service and Coverage Without the Cost Penalty
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Once again the global airline industry is in crisis, and industry icons are fighting for survival. Already, there have been high-profile bankruptcies in both the U. S. and Europe, and there is significant risk of more to come. The scene is reminiscent of a decade ago, when the airline industry struggled through the last recession and the aftermath of the Gulf War. There are too many airlines and too many hubs operating in a competitive environment where exit barriers are high. Market forces and bankruptcy protection ensure that distressed capacity does not disappear; instead it comes back, potentially at a lower cost level, threatening to trigger price wars that drive still more airlines into bankruptcy. Only this time, the situation is worse.

Financially and structurally, the U.S. airline industry is in more dire straits than it was a decade ago, and the competitive situation in Europe is much more unstable as traditional pricing discipline breaks down. The big difference is the impact of Low Cost Carriers (LCCs). Ten years ago, the LCC threat in the U. S. was limited to a regional carrier, Southwest Airlines, and some underfunded start-ups. Europe was not threatened at all. Today, LCCs, operating at half the cost levels of traditional network carriers, threaten to undermine the whole hub and spoke (H&S) system.

Clearly, a new business model is needed that eliminates the structural cost penalties of the H&S model while retaining and selectively enhancing key service and coverage attributes... urgently in the U. S. and soon in Europe. Today’s problems are not merely cyclical; they are structural and, as such, demand a structural solution. The objective of this Viewpoint is to evaluate the nature and causes of this industry crisis and to propose a potential solution, drawing on experiences from other industries that have undertaken fundamental business model transformations.

An Unstable Industry Structure
In the U.S. the gap between costs and revenues has never been wider, and September 11 is only part of the reason. “Industry-leading” labor agreements and rising fuel prices in 1999 and 2000 drove costs to such a high level that only boom-period pricing could offset them and allow the industry to break even. While post–September 11 restructuring has reduced capacity, it has had only modest impact on unit costs. Meanwhile, prices may be reverting toward historical trend levels following the longest--and arguably the most intense--economic boom in recorded history (see Exhibit 1). Business travelers, in particular, are no longer prepared to pay the high fares tolerated in the late 1990s. Indeed, both corporate and individual travelers are asking for lower prices, high frequencies, and simpler, more efficient service.
In Europe, the crisis has been less pronounced, but unrelenting price competition is putting cost levels under pressure. Airline pricing structures are collapsing as industry incumbents address the threat of low-cost competitors and defend their market positions. In fact, this market is beginning to look like the U. S. market in the early ‘90s, when “value pricing” provoked a fare war that ushered in a period of prolonged losses.

Part of the industry’s problem is the very nature of the product it offers. An airline seat is a fixed-cost perishable product. The incentive to fill empty seats and fly underutilized aircraft is tremendous. Idle capacity inevitably comes back on the market as start-ups buy the aircraft or established airlines increase the utilization of expensive assets. Meanwhile, manufacturers continue to build and deliver new aircraft, adding new capacity to the market.

Pricing and overcapacity pressures, however, pale in comparison to the impending impact of the cost gap that exists in the airline industry. By cost gap, we refer to the 2:1 differential that exists between traditional full-service airlines’ unit costs and that of low-cost carriers for a given stage length. LCCs such as Southwest and Ryanair don’t operate on the low end of the airline cost curve; they occupy an entirely different cost curve, as Exhibit 2 (see page 3) makes clear.
Significant Structural Cost Gap

Booz Allen has evaluated the cost gap between full service airlines and LCCs on both sides of the Atlantic, and the similarities are striking (see Exhibit 3). Cost differences exist across the board: pilots, onboard services, sales and reservations, maintenance, aircraft ownership, ground handling. This is not simply a matter of LCCs paying lower salaries or using cheaper airports; rather it is a function of fundamental differences in the LCC business model. LCCs have successfully designed a focused, simple operating model around nonstop air travel to and from high-density markets.

Exhibit 2
LCCs Deliver 1–2 Hour Product at Half the Cost of H&S Carriers

![Diagram showing unit cost versus stage length for various airlines in Year 2000.](chart)

Notes: The two lines on the exhibit are engineered cost curves, and show how costs vary by stage length for a given airline and structure. Data points are approximate and based on group level cost information with select adjustments to facilitate cross-industry comparisons.

Source: Booz Allen Hamilton Analysis

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Exhibit 3
Unit Cost Differences in Europe Exist Across the Board

![Diagram showing unit cost differences between European network carriers and LCCs.](chart)

Notes: The two lines on the exhibit are engineered cost curves, and show how costs vary by stage length for a given airline and structure. Data points are approximate and based on group level cost information with select adjustments to facilitate cross-industry comparisons.

Source: Booz Allen Hamilton Analysis

H&S carriers, on the other hand, support a highly complex system of operations. Their business model is predicated on offering consumers a broad range of destinations, significant flexibility (ranging from last-minute seat reassignments and
upgrades to complete itinerary and routing changes), and “frills” (e.g., specialty meals, lounges, in-flight entertainment, etc.). It’s a model that labors under the built-in cost penalties of synchronized hub operations (e.g., long aircraft turns, slack built into schedules to increase connectivity) and that implicitly accepts a slower business pace to accommodate continuous change, legacy systems, and the added time it takes for passengers and baggage to make connections. In addition, the H&S business model relies upon highly sophisticated information systems and infrastructure to optimize its fundamental value proposition: to take anyone from anywhere to everywhere... seamlessly.

Exhibit 4 breaks down the cost differences between the H&S and LCC business models, using Southwest Airlines (SWA) and the U.S. network carriers as examples. To isolate business model effects, the comparison has been performed for 737-300’s and been normalized for differences in labor rates, fuel prices, aircraft configurations, and stage lengths. Even so, the 2:1 cost differential persists. Some 70 percent of the difference can be attributed to explicit business model choices; another 15 percent to work rules and labor agreements; and 12 percent to differences in balance sheet structure and financial arrangements.

Of the 70 percent attributable to business model differences, the largest contributing factors by far are business pace and process complexity, and distribution cost differences (which are narrowing with the elimination of commissions). A remarkably small proportion of the cost differential is “frills”-related. In fact, the “no frills” and “full service” labels are misleading in describing LCC and H&S carriers. It’s the relative simplicity or complexity of their business models that distinguishes them.

Exhibit 4

Business Model Choices Account for 70% of the Cost Gap between LCC and H&S Carriers

Few Limits to LCCs’ Growth Potential

The growth of Southwest Airlines in the United States over the past three decades sheds useful light on the growth and development of the LCC business model. Initially started as a low-cost, point-to-point Texas carrier, SWA has managed to broaden its original market focus and stretch its business model. It has steadily and profitably expanded across the country, extending its service offering to the point where it now provides connections through pseudo-hubs and nonstop transcontinental flights. In its established markets, SWA tends to have a frequency advantage over network carriers and is widely accepted among business travelers who value its efficient, reliable service.

Today, SWA competes effectively in other airlines’ hub markets and participates on a nonstop basis in a range of small markets (i.e., below 100,000 passengers per year). We estimate that fully a quarter of its revenues derive from passenger
trips over 1,000 miles, and that more than 5 percent come from trips over 2,000 miles. Significantly, SWA has managed to add “network” features to its point-to-point business model without incurring most of the associated complexity costs.

Europe has yet to contend with a Southwest-style competitor, but leading LCCs are expanding their reach. Low-cost scheduled carriers (as opposed to charter operators) are a relatively new – but growing—phenomenon in most of Europe. Well established in the U.K., LCCs are aggressively staking ground on the continent, particularly in central Europe. While their impact continues to be debated—especially in hub and business markets – LCCs’ aggressive entry in the German market, the anticipated competitive response, and the furor that has been generated among industry observers point to a looming shakeout.

By our conservative estimates, low-cost carriers could potentially—and successfully—participate in more than 70 percent of the U. S. domestic market. The only sectors which provide H&S carriers appreciable protection are smaller “connect markets” that cannot be reasonably serviced on a nonstop basis (~20 percent of the U.S. domestic market) and longer-haul markets, where onboard services are more prized and the cost differential is smaller (~10 percent of the market).

This projection is not meant to suggest that Southwest and its peers will take over 70 percent of the market. It does, however, mean that prices will continue to fall as LCCs penetrate further, undermining the profit engines of traditional carriers. According to our estimates, SWA typically prices 50 percent lower than incumbents in the one to two hour markets it enters, reducing the price realization of traditional carriers by 25 to 35 percent (see Exhibit 5).

Exhibit 5
Southwest Reduces the Price Realization of Other Airlines in Markets It Enters

It is the LCCs’ impact on overall price levels – not the loss of traffic – that poses the real threat to traditional H&S carriers. LCCs actually stimulate significant new traffic as they enter a market. But they also bring down price levels, and those price pressures manifest themselves in a broad range of markets: in local markets to and from the hub, in shuttle markets, in connecting markets, and in adjacent markets (i.e., those not directly served by the LCC, but available via ground transportation).

As long as low-cost carrier penetration is limited, H&S carriers can compensate for these revenue pressures by leveraging “network effects” (e.g., by focusing on connecting flows and new destinations not yet served by LCCs). However, as LCCs expand both their geographic scope and service offering, it will become gradually more difficult and expensive to coexist. Over time, LCCs will serve more destinations, operate from a broader range of airports, and
participate in more traditional connecting markets, either with their own one-stop service or by over-flying the hub. H&S carriers, meanwhile, will find it more and more difficult to subsidize exposed traffic flows with profits earned in their remaining protected markets, including intercontinental traffic flows.

**Overextension of the Hub and Spoke System**

The challenges facing H&S airlines are further complicated by the fact that there are too many hubs and too many airlines. The revenue base of a traditional airline is dependent on maintaining the loyalty of its most frequent business travelers and leadership in its home markets.

To be competitive, an H&S carrier needs to serve a wide range of destinations and provide frequent, comprehensive service. In Europe, the key competitive differentiator among H&S carriers is the extent of their intercontinental product. Most airlines in Europe can serve key European business markets from their home base; what distinguishes the leading airlines is the depth and breadth of their intercontinental services. In the U.S., carriers need a nationwide network with acceptable intercontinental services to compete successfully. Mergers offer the most logical way for the industry to provide such extensive services, but national interests, subsidies, restrictive air-traffic rights, and antitrust regulation have stymied many combinations. Instead, the industry remains largely regional on both sides of the Atlantic. In the U.S., no airline provides a comprehensive nationwide service despite the network of hubs at its disposal, and no European carrier has expanded appreciably beyond its own national borders. The result has been a proliferation of smaller hubs in “secondary” markets on both continents to provide network breadth.

In our estimation, there is nearly twice as much connecting capacity in the U.S. as the underlying market requires. Large numbers of passengers traveling between major cities that already have, or can support, nonstop service still opt to take connecting flights, motivated by price or loyalty programs. It is not just the intercontinental passenger, or those traveling to or from small communities, that connect through the hubs.

Indeed, the American market is so fragmented that 60 to 80 percent of most carriers’ traffic is exposed to instant price competition (see Exhibit 6). H&S carriers compete aggressively in connecting flows and in leisure markets, where they price “for contribution,” well below fully allocated costs. In these markets, an excessive number of hubs compete for traffic and trash prices, creating a hyper-competitive environment. Only some 20 to 40 percent of revenues come from local business markets where the airline is comparatively advantaged and protected from other H&S carriers. This is where profits (if any) are realized.

**Exhibit 6**

60%–80% of H&S Revenues Are Exposed to Hyper-competition Between Hubs

<table>
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<th>Degree Of Price Sensitivity</th>
<th>Non-Stop Passenger Flight</th>
<th>Connecting Passenger Flight</th>
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<tr>
<td>Low: Individual chooses airline, travels on business or rich personal travel</td>
<td>20% – 30% revenue</td>
<td>20% – 25% of revenue</td>
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<tr>
<td>Medium: Corporation is principal decision-maker, drives bargain</td>
<td>10% – 15% revenue</td>
<td>10% – 15% revenue</td>
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<tr>
<td>High: Mostly leisure travel and price-sensitive business</td>
<td>15% revenue</td>
<td>10% – 15% revenue</td>
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Source: Booz Allen Hamilton Analysis

**In our estimation, there is nearly twice as much connecting capacity in the U.S. as the market structure requires**
In Europe, the situation is similar, although less severe. A higher proportion of revenues come from business travelers, and some of Europe’s connecting markets are less competitive. That said, the European market can support only three, maybe four, intercontinental network systems. Until there is consolidation, weak and strong hubs will compete vigorously for scarce intercontinental traffic, pressuring the balance sheets of all players, not just the smaller and most vulnerable flag carriers.

Alliances have offered some relief, allowing carriers to furnish their loyal, high-yielding business customers with a more competitive product offering. Still, alliances have not enabled airlines to rationalize hubs, significantly restructure networks, or realize most of the cost and revenue synergies of full consolidation. While alliances may allow carriers to extend their service offering, they do not provide a vehicle for the profitable earnings growth that the capital markets demand.

The prospect of unilaterally shutting down weaker hubs to eliminate excess connecting capacity and reduce competitive vulnerability is not an attractive one either. Destination breadth would suffer, and significant elements of the fixed-cost base would not go away. Moreover, aircraft cannot be economically redeployed to other markets at current cost levels.

The continued growth of low-cost carriers will only exacerbate these problems as they undermine the revenue generation potential of existing hubs (especially in the eastern U.S. and continental Europe), increase price competition in both local business and connecting markets, and convert existing connecting markets to nonstop status. Precious few markets will be immune.

A New Operating Model for the Airline Industry
To continue to operate in this competitive environment, H&S carriers need to overhaul their business systems to move costs within range of the LCCs’ and reduce their sensitivity to economic and competitive pressures. To effect this overhaul, U.S. carriers must urgently restructure their core operations. Labor concessions are but a starting point; they are necessary but not sufficient to overcome the cost disadvantages of a hub and spoke business model.

In Europe, carriers have the luxury of employing two parallel approaches, given the lower penetration of LCCs. Airlines may chose to introduce low-cost subsidiaries in order to participate immediately in growth markets that its core operations cannot access with their currently high cost structures, while simultaneously redesigning their core network operation to compete effectively with the looming threat of LCCs.

In launching these low-cost subsidiaries, European carriers need to be careful to avoid the mistakes U.S. carriers made in pursuing this strategy some years back. In the name of market and cost synergies, low-cost subs in the U.S. adopted the cumbersome and labor-intensive processes of their parents, relying heavily on favorable labor agreements for competitiveness. The resulting cost levels were too high to compete with those of the LCCs.

The key to effectively restructuring an H&S airline’s core network is implementing a lower cost structure business model without giving up the critical service and coverage attributes prized by high-value customers. Ideally, this restructuring would increase the product differentiation between high and low priced services and would occur in conjunction with network changes designed to reduce competitive vulnerability through more direct flights and/or mergers.

The experience of other industries (e.g., automotive assembly, certain heavy manufacturing, increasingly in financial services) that have executed fundamental business model changes yields important insights:

1. To be successful, companies must reconfigure the product or service so that structural barriers to efficient operations are eliminated.

2. The “product architecture” (i.e., how the product is assembled or produced) needs to be broken down into distinct business streams so that commonalities are maximized, and the differences that contribute to process complexity are minimized within each stream. The objective is to isolate the 80 percent of processes that are routine and unchanging from the vicissitudes of the 20 percent that change with each iteration.

3. Significant cost improvement then comes from “tailoring” each of these business streams. For example, an airline might industrialize its approach to the 80% of its activities that are routine (e.g. domestic leisure travel), while upgrading the resources devoted to complex activities that are ever-changing (e.g. last minute re-routing of business passengers).
The governing principle in this kind of restructuring—Tailored Business Streams (TBS) – is not a new concept; it has been applied to parts of the manufacturing industry for some time. The essence of the approach is to reduce the cost of complexity, not necessarily to reduce the level of complexity. That said, many TBS initiatives result in the elimination of self-induced complexity (e.g., last-minute seat changes, overbooking) and restrict customer-driven complexity to those areas where it actually adds value.

The applicability of the TBS approach to the airline business model is striking. As we’ve noted, many of the cost penalties inherent in the H&S system are associated with its complex business processes and slower business pace, rather than with the “frills” it offers travelers. Southwest Airlines has amply demonstrated that these complexity costs don’t have to be. An airline can provide some of the benefits of the H&S system (e.g., high frequency levels, long-haul flights, connections) without incurring many of the H&S costs.

We are not implying that H&S employees don’t work hard (although productivity could be improved among many labor groups), but that extraordinary manpower is required to execute relatively simple tasks. Network carriers have designed their infrastructure and business systems for the most complex requirements. This sophisticated business system is then utilized for all activities, complex or simple.

By tailoring business streams and redesigning how services are provided, we believe that it is possible to eliminate much of the H&S cost penalty (e.g., 70 to 80 percent for leisure travel) without eliminating many of the attributes that consumers value. What does this mean for H&S carriers? It means they may have to:

- **Remove the scheduling constraints to much higher asset and personnel utilization.** As discussed, H&S airlines today accept the slow turns and scheduling inefficiencies of connecting bank structures. A network designed around the needs of profitable, local passengers would eliminate these scheduling barriers and enable a significantly faster business pace. This may require rolling hubs and longer, more random connections. Local market services may well improve, especially as costs are lowered, although carriers would likely experience some share loss in the less profitable large city connecting markets. Increased connect times should not prove much of an issue in intercontinental and small community markets.

- **Create separate business systems for distinct customer and product segments.** At the extreme, this might mean separate aircraft and airports for business and leisure travelers. At a minimum, it would involve a high degree of process and product separation, reflecting the different underlying values and needs of distinct market segments.

- **Tailor business streams to the needs of each customer segment.** The key element here will be to industrialize and simplify all the handling processes for routine work, especially leisure travelers, where the discrepancy between “customer requirement/willingness to pay” and “capability/cost” is the greatest. The objective should be to increase productivity dramatically—e.g., by as much as three times at airports—and virtually eliminate all costs associated with change, complexity, and multiple handling. This undertaking will require significant alterations in service policies, distribution approaches, systems, and processes. Ultimately, the air travel product should be so tailored to leisure traveler needs that airport processing is minimal; the vast majority of passengers will not need or want to change anything at the last minute. Moreover, the check-in process will be so intuitive that infrequent travelers can navigate the airport without significant hand-holding.

As for tailoring the business traveler stream, carriers should focus on streamlining processes to the greatest extent possible. Most business travelers want simply to get through the system reliably and quickly with minimal staff interaction. Of course, this business stream will still need to accommodate the ever-changing schedules of business travelers, a source of complexity that will not go away. The trick here will be to streamline these change activities as well, so that they are as automated and simplified as possible. This would also allow more resources to be devoted to the services the business travelers value.

Finally, airlines will need to dedicate special processing line(s) to deal with true exceptions and extraordinarily complex matters.

- **Increase the pace of all operations.** This should be the natural result of the above changes, but time compression will further flush out remaining inefficiencies in the system. As in other industries, the degree of sophistication and level of cost tend to be determined by the available time rather than the underlying need—manpower costs are driven by how long the plane is at the gate or a station is manned.
In sum, we are suggesting that the industry’s major H&S carriers need to design and adopt a new business model, whose “objective function” is to eliminate the costs of complexity and provide a more differentiated service between customer/product segments. They can accomplish this goal by designing processes that reflect the simple needs of the vast majority of customers, while focusing discretionary expenditures on those areas where they add consumer value and contribute to the bottom line. Such a model will almost certainly result in substantial changes in most airline product attributes and support requirements, including network structure, pricing strategies, fleet structure, and service policies. However, the benefits are substantial. The new operating model we are suggesting would improve the defensibility of H&S carriers as services would be more closely aligned with customer needs; cost levels would be substantially lower; and the enterprise would be more closely focused on local traffic. While larger hubs would remain in the networks to serve intercontinental and small community markets, their operations would be very different and far more efficient.

**Looking Ahead**

So far, no airline has undertaken a restructuring of this magnitude. It is a bold journey that will require the complete commitment of the airline’s current and future leaders. To effect changes on this scale, executives need to abandon many of the tenets that have guided the industry for the past 20 years. While there are many lessons that other industries have learned as they embarked on this journey, a few stand out:

- **This is a clean-sheet redesign** requiring a fundamentally new mind-set. Incremental moves will not get traditional carriers where they need to be.

- **The results are multiplicative.** Pursuing a single dimension (e.g., rolling hubs) without simultaneously addressing other aspects of the business model will yield insufficient results. All the airlines that have rejected de-peaking have discovered this. On their own, schedule changes will have limited impact. The benefits come when processes are redesigned to capitalize on the higher pace.

- **Changes will be system-wide and cascading** from reservations to frontline staff functions to systems and infrastructure. While the resulting product may be no less complex, the organization delivering it will be much more streamlined.

- **Existing organizations will resist the change.** Airlines will need to expend as much, if not more, effort driving the change process as they put into designing the solution.

- **The risk of inaction is much greater than the risk of acting and getting it wrong.** The first airline to recognize the need for fundamental business model change will be able to shape the new competitive landscape. The prize that awaits first-comers is significant, not just in terms of lower costs, but also in considerable growth opportunities. The time to act is now.

**About the Author**

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