



# Network Checkup

Airlines must often evaluate their route network — determining when to add a new route, when to discontinue a route or when to change the frequency on a route. Following some basic guidelines is key to making sure the right markets are served at the right times.

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Airlines live and die by the strength of their network. Therefore, they need to relentlessly ensure that their routes maintain an acceptable return for their investment. With this in mind, airlines should always seek ways to strengthen their networks through the addition and deletion of routes as well as strong codeshare relationships.

Deciding which changes are beneficial can be very difficult, if not impossible, to determine completely. There are many factors that go into this type of decision and, unfortunately, many of the drivers are constantly changing. With such a huge economic impact on the airline, the decision to change service must be examined in detail with a process that is dynamic enough to stay ahead of the changes in the marketplace. Knowing this, the ever-important task remains in deciding how or when to change the network. Fortunately, there are some universal guidelines to follow when making network modifications.

### Adding Flights

The goal to increase profits is usually dependent on the strength of the airline's network. The question then arises, how does an airline identify flights to add and then judge if the flight is beneficial? There are several factors to consider before adding a flight. Before proceeding too far, the airline must verify that it has proper authority to add the flight. Restrictions exist between most countries limiting new service into a country and, depending on the location, domestic restrictions may exist as well. In addition, an airport may have its own constraints such as slots or heavy congestion that may influence a new route opportunity. However, the question remains, assuming the authority exists and the airport can support the new service, how are opportunities identified and then measured for profitability?

One of the more common ways to identify opportunities is through the use of marketing information data tapes, or MIDT, which will identify how traffic has historically flowed between origins and destinations. Additionally, it allows the comparison of month-over-month and year-over-year data to establish trends. When using MIDT data, an airline should keep in mind that the data is based on bookings not actual flown passengers. Many airlines have processes in place to adjust the booking data to an estimation of traffic data by incorporating other data sources into the process. When using MIDT data, it is also helpful to pair the nonstop capacity with the origin and destination. This gives a feel for the traffic in the market as well as for the capacity in the nonstop market. Markets with far more traffic than nonstop capacity are likely to be good opportunities.

If a carrier does not have access to MIDT, there are other ways to help identify opportuni-

ties. First, using the airline’s own historical data to identify trends in the market can give valuable insight. If single-plane service to a point via another point exists and the beyond point has been growing, then perhaps the beyond point now warrants its own nonstop service. Additionally, airlines often have intelligence from their sales organizations of opportunities. While this insight is extremely helpful, they should beware that the sales manager may be a little too optimistic about opportunities in their own region and certainly other groups within the airline should give input on the opportunity. Another external data source that can often be free or inexpensive to obtain is population and census data for given cities. While a growing population can indicate opportunities, it is often more relevant to look at non-agricultural business growth — the type of business that funds lucrative business passengers.

Often, opportunities exist between linking the airline’s network with codeshare partners’ networks. This usually increases traffic for both airlines. Additionally, having partners as well as the airline’s internal sales force trying to sell seats usually ensures a higher success rate.

Also, airlines should consider infrastructure that may allow unique opportunities that competitors find difficult to match. Obviously, one of the recent changes in the industry is the performance of aircraft. With newer-generation aircraft, markets that previously suffered without nonstop service due to stage length are now within range of new airplanes.

After identifying an opportunity, the potential new service needs to be evaluated for profitability. Hence, the opportunity needs to be forecast. If the airline owns a forecasting tool, such as the *Sabre® AirFlite™ Profit Manager*, then this is an easy task to perform. However,

even if a sophisticated forecasting model is not owned, there are still ways to judge the potential of a market. One way is to calculate the seat share in the new market and use that as an indicator of potential load factor. With this method, an airline should consider the type of service offered against the competitor along with fare implications to understand if this seat share needs to be adjusted to represent the market share realistically. With a low seat share, it will be difficult to capture significant traffic, especially with the S-curve (providing limited service in a market) working against the airline. Additionally, new markets typically have a “ramp-up” period. If a forecast predicts a 73 percent load factor, it may take the flight three to six months, or longer, to reach this level as the flight is being established.

As new markets are evaluated, airlines should consider the corporate strategy. All too often, a company will enter a market that forecasts profitably but goes against the corporate strategy. Years later, these companies tend to drop out of the market after coping with the unanticipated repercussions of these types of markets.

### Removing Flights

Before discussing canceling flights, a quick definition of key finance terms is appropriate:

- Variable operating costs, or VOC, refer to strict costs driven solely by flying the plane (for example, fuel, catering, etc.).
- Direct operating costs, or DOC, are VOC plus aircraft lease payments or depreciation.
- Fully allocated costs, or FAC, are DOC plus all other costs not accounted for in DOC (overhead, administrative costs, etc.).

When considering deleting flights from the network, there needs to be a clear under-

standing on what will be done with the aircraft if it no longer operates a particular flight. Are there new or better opportunities where the aircraft can be deployed? Is there an option to return or sell aircraft? Is parking the airplane the best or only alternative if a flight is cancelled? Having this overall understanding will help assist the analyst in weighing out the many factors that will determine if a flight or route needs to be eliminated.

In general, all routes should be covering their VOC for the long term or the airline may be better off simply grounding the aircraft. There will be instances, such as fare sales and seasonality, where the flight might lose money on a VOC basis; however, this should only be a short-term condition unless there is a reason to allow the flight to operate with a negative VOC. In some cases, the flight might lose on a VOC basis but make significant contribution to the network, resulting in an overall positive network effect. An airline might choose to operate a flight that is below the VOC threshold for defensive measures (discourage competition from encroaching); however, caution should be used to measure the actual benefit of delaying (probably not preventing) competition from

entering the defending airline’s territory when there is a consistent negative VOC.

If an airline has the ability to dispose of an aircraft (either return it to the lessor or sell the unit), then each route should pass the DOC threshold in addition to the VOC threshold to maintain its place in the network. Again, this should be measured on a long-term rather than short-term basis, taking into account strategic positioning and future growth as well as total network contribution. It is important to monitor any cancellations of flights that other airlines may invoke as well, especially

## Segment And System Revenue Contribution For Set Passengers

FCO-MAD Segment	Itinerary	Fare	Segment Contribution	System Contribution
Local Passenger	FCO-MAD	€500	€500	€500
Connecting Passenger	FCO-MAD-LIS	€1,200	€750	€1,200
<b>MAD-LIS Segment</b>				
Connecting Passenger	FCO-MAD-LIS	€1,200	€450	€1,200
<b>Total</b>			<b>€1,700</b>	<b>€2,900</b>

When examining a flight for cancellation, it is important to understand how revenue is allocated to the routes and how much will be retained with the cancellation.

codeshare partners. Other airline cancellations could decrease or increase traffic to an airline's network, therefore, it's critical that the airline understands from where its connecting traffic is coming.

Another consideration in analyzing routes is to understand the segment revenue as well as the revenue contribution the route makes to the rest of the network. When discussing passenger revenue, two categories are generally used: segment revenue or system revenue. For example, a passenger who travels from Rome, Italy, to Lisbon, Portugal, via Madrid, Spain, contributes revenue to both the Rome-Madrid segment as well as the Madrid-Lisbon segment while a local passenger from Rome-Madrid will only contribute directly to the Rome-Madrid segment.

Using this example, assume a passenger is traveling Rome-Madrid on a €500 fare and another passenger is traveling Rome-Madrid-Lisbon on a €1,200 fare, with €750 of the fare being allocated to the Rome-Madrid portion and the remaining €450 allocated to the Madrid-Lisbon portion. The segment revenue for Rome-Madrid would be €1,250 (€500 from the local passenger plus €750 from the Rome-Madrid-Lisbon passenger). The system revenue for the Rome-Madrid market requires adding the beyond revenue (€450 in this example) to the segment revenue giving €1,700 system revenue contribution from the Rome-Madrid segment. If a flight is being canceled, its segment revenue will certainly disappear (€1,250 in this case). More than likely, the system revenue (€1,700) will also be lost unless the airline has sufficient capacity and schedules to recapture the Rome-Lisbon passengers via other services. For the connecting Rome-Madrid-Lisbon passenger who pays €1,200, the system revenue will be €1,200 for both the Rome-Madrid segment as well as the Madrid-Lisbon segment. While accountants do not like the use of system revenue, arguing that it is double counting, it is important for the analyst to understand the segment revenue as well as the total system revenue a segment or flight will contribute. This can help justify the cancellation or protection of a flight or route in the network.

When a route is being considered for cancellation, it is extremely helpful to measure the network effect with and without the flight or route in place. *Profit Manager* enables an airline to simulate the performance before and after the cancellation. It is important to understand that in addition to the local market that may be lost, there may be other markets that will be lost as well. Using a forecasting model, it is easy to determine how many overall markets as well as passengers are lost and how many can be recaptured on the network via other gateways or codeshare partners. If a flight is cancelled that provides significant feed to the airline's network and cannot be

recaptured by the airline, the overall impact of the cancellation may not be beneficial to the airline even if it is losing on a VOC basis. In any case, the airline has to have a full picture of the connecting passengers who may be lost by cancelling a flight. In addition, for carriers with codeshare partners, it is important to understand the impact of the cancellation on the codeshare relationship as well.

With a forecasting model in place, the analyst can measure the amount of traffic that might be recaptured on the network or through the partner's network prior to the cancellation.

## HIGHLIGHT

### ... airlines should always seek ways to strengthen their networks through the addition and deletion of routes as well as strong codeshare relationships.

While it would be ideal if most of the flights covered their fully allocated costs, this is rarely the case. In general, airlines will have flights at all different profitability levels. However, the network must contain enough routes that are profitable on a fully allocated basis to cover all the airline's expenses.

If a route is identified as a candidate for cancellation, airlines should not rush to remove the service before fully understanding, and hopefully fixing, the situation. If a flight is losing money on a VOC basis, carriers should strive to improve it through alternative avenues such as revenue management strategies, sales initiatives and codeshare agreements. If a flight covers its VOC, the airline should not be satisfied. Rather, it should desperately search for ways to cover the flights DOC.

#### Adjusting Frequency

In most cases, the goal would be to offer daily service in a given market. There are certain times, however, that this does not hold true. If the airline's traffic base is constrained, for example, based on an island where growth is limited or in an area with a limited population that travels, the market may not be large enough to support daily service. Another

example is niche markets. Perhaps an airline offers weekend service to a tourist destination that does not require or warrant daily service. However, if the airline targets business traffic, the goal should be to have daily service or, if less than daily, at least at similar levels as its competition.

An important principle, the S-curve, comes into play when an airline offers sparse service in a market. One might expect that as the airline adds frequency, its traffic share increases proportionally. In this case, if an airline has 10 percent of the flights in a market, it may expect 10 percent of the traffic, but this is not the case. The S-curve, named for its S-like shape, demonstrates that if a carrier has fewer frequencies in a market than its competitors, it gets less than its fair share of the traffic. Conversely, if a carrier has an advantage over its competition in frequencies in a market, it will get a disproportionate amount of traffic. Hence, frequency becomes an issue in most markets and why an airline should strive for daily service. If an airline is going to operate with less-than-daily service, it is important to analyze the competitors' nonstop service and remain at competitive frequency levels. It is also essential to note that while the S-curve is a crucial tool, there are exceptions. Studies have indicated that the S-curve effect can be altered with the presence of a low-cost carrier in the market.

There is an old saying that "you can't fix what you don't know is broken." This is particularly true for airlines when analyzing their network. They need to constantly monitor routes against historical performance as well as expected performance. It is all too easy for a competitor to "slip" into a market and steal share before an airline realizes it. This is especially true in connecting markets. Markets, as well as individual routes, should be examined on a weekly basis by many areas such as network, scheduling, revenue management and sales. All groups have important insight on the overall performance of routes as well as new opportunities. It is only when all these groups work in unison that those optimal results can be achieved.

While the surface has just been scratched on evaluating network changes, airlines should use this foundation of general knowledge when evaluating optimal network performance. ■

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