

Developments in airline revenue management philosophies in recent years have seen an increase in the use of web-based fares. These have been hard for competitors to analyse, but webcrawler software products have been developed to provide airlines greater visibility in unpublished fares.

# Gaining visibility of unpublished fares in revenue management

**R**evenue management in airlines has always been complicated by the high number of unpublished fares that competitors offer, which account for a large percentage of the total they have available. Competing airlines have historically not known what they were. A portion of competing airlines' tariffs had to be researched and examined manually which made it hard for them to accurately match fares. Software has been developed by several suppliers in recent years that allow unpublished, especially web-based fares, to be examined in detail. This provides airlines with greater knowledge of competitors' fares than was previously possible. This improved level of market intelligence leads to greater control in optimising unit revenues.

## Fare categories

Airline fares can be divided into several categories.

The first of these is published fares that are sent by each airline to the general distribution systems (GDSs), and are known as Airline Tariff Publishing Company (ATPCO) or tariff fares. These can be used by travel agents and other airlines that participate in ATPCO.

ATPCO published fares are the highest yielding fares and are issued by traditional carriers. "Low-cost airlines do not file fares like the major airlines do," explains Fred Kochak, director of revenue management at Flybe. "ATPCO allows all other airlines to view the fares an

airline publishes, and these are distributed around the world for other airlines and travel agents to use. Most low-cost airlines sell most of their fares via the internet and so do not publish ATPCO fares."

The next category of fares is those issued by airlines on their websites. This second category has only come into existence and accounted for a significant portion of fares offered by airlines in the past five to six years as the internet has become a major distribution channel. This development has increased airlines' difficulty in monitoring the fares offered by their competitors.

Web-based fares can be divided into two sub-categories. The first are published ATPCO fares, that are also put on airlines' websites, usually with small discounts because of the internet's lower distribution and selling costs. Web fares also include the second group of unpublished off-tariff fares, and are some of the lowest offered by airlines. They are only distributed on-line. It is this category or group of fares whose visibility is obscured to airlines.

The third category is net fares, which are distributed to tour operators and travel agents. "Travel agencies have been supplied with net fares from airlines at discounted rates, and the level of discounting by airlines depends on how distressed their unsold inventory is," explains Kochak. Again this category has been hard for airlines to monitor, and has required manual research to follow just a portion of fares to gain an idea of what competitors are offering.

## Changing environment

The advent and success of low-cost airlines in the past five to eight years has caused many changes in the tariffs of published fares, the emergence of web-based published and unpublished fares, the percentage of fares sold from each category, reducing travel agency commissions, and airline revenue management philosophies.

Prior to the internet airlines offered published and net fares. Travel agencies sold both types, and were paid commission rates in the region of 10% for the sale of published tariff fares, while they grossed up net fares at whatever price they could command.

Before low-cost airlines became a major force, published fares were priced in line with fare restrictions, so that the fewer the restrictions the higher the tariff. Revenue management philosophy was based on yieldable demand. This is where passengers are interested in a specific fare product (one with a particular level of restrictions), irrespective of cheaper fares being available that have more restrictions.

Low-cost airlines embraced the internet to attain cheap and more widespread distribution. With a strategy of offering low fares to stimulate demand, they utilised a priceable demand revenue management philosophy, where restrictions are removed for all fare classes, and buyers are able to purchase low fares if they are available. The availability of each fare depends on the

*Flybe is one carrier that has recently implemented webcrawler software. One major advantage is that it can see what fares its competitors have available and how long these are available for.*

level of demand. Most low-cost airlines only display one fare on their websites for each flight. If it is selling slowly then a low fare class will be displayed. A higher rate of ticket sales will result in the revenue management system replacing the fare with a higher one.

This adoption of a yieldable demand structure has forced major airlines to follow the same path. Legacy carriers have also been forced to use the internet to distribute fares. Web-based fares now account for the largest proportion of fares sold, which are less visible or harder to track by competitors. This development has also reduced the portion of fares sold by travel agents. Yieldable demand strategies have lowered fare yields, with the result that airlines have cut travel agents' commissions on published tariff fares; in some cases from 10% down to between 0% and 1%. Airlines are also now giving agents net fares at the same rate as web-based fares, making it harder for agents to add in their own commissions. "Net fares sold by travel agents accounted for at least half of all fares sold at one time," says Kochak. "In our case at Flybe they now account for less than 10% of fares sold."

## Visibility

This change of revenue management philosophy and shift in portions of types of fares sold has presented airlines with new challenges in recent years. Airlines have always been able to access information on published fares, and the challenge they faced was gaining information on unpublished fares. The portion of net fares sold is now low, leaving web-based fares as the ones on which airlines require the most information and intelligence.

"We achieve about 75% of our sales through our website, that is unpublished fares, and the majority of the remainder on our 0800 telephone line," says Roger Johnson, revenue management director at jetBlue. "The use of web-based fares by all airlines means there is now less transparency for competitors to analyse unpublished fares".

It has been possible to analyse web-based fares manually by searching competitors' websites. This is a laborious process that can only analyse a small percentage of fares available.



Software suppliers have developed web-crawler software to analyse websites of competing airlines. "Web-crawling software is something that we looked at for two years. We tested several products, and have selected a vendor. We have been using it for about one year and have added some enhancements," says Johnson.

Igentica is one provider that has recently developed this type of software, which is now being used by Flybe. "Most airlines used to analyse their competitors' web-based fares manually once a week. This only represented a statistical test," explains Nick Kandola, chief executive officer at Igentica. "Software technology allows a webcrawler to be programmed to examine particular airlines, routes and flight times over a particular date period. The software emulates someone browsing the airline's website like a robot. It can gain larger volumes of data and be programmed to analyse a specific route as frequently as desired, rather than performing a statistical analysis once a week. The software can also be programmed with an alerting capability, so that price changes offered by each airline on each route can be highlighted."

"Web-crawler software means that net fares are the only ones out of four categories that an airline cannot see," explains Vinay Dube, vice president for Europe, the Middle East and Africa at Sabre Airline Solutions.

## Information utilisation

Information gathered from webcrawler software has to be used effectively to refine the revenue management and price optimisation process. "Webcrawling software has reduced the time an airline has to react to

a competitor's new unpublished fare to as little as one hour," says Kandola.

"Traditional airline revenue management systems did not allow them to react fast enough. Airlines used to split fares into different price buckets and just varied the price of each according to demand in order to gain the highest possible yield mix. Little attention was paid to competitors' fares. There needs to be a logic to fares made available by airlines."

Each airline may have 10 or 20 fares for each route, although only a portion of these are available at any one time. "We use webcrawling software to look at our closest competing flights, and some carriers make several fares available for each flight. It was relatively easy to know the different fares each airline had for each route, but hard to determine exactly what fare each airline was offering at a particular time," says Alan James, general manager of network planning at revenue optimisation at British Midland Airways. "We take 60 reading points for each flight over a period leading up to the flight. This allows us to closely follow what each competitor is offering and follow changes to the fare available for each route from each competitor."

Johnson says jetBlue's use of web-crawling software is still evolving, although its use is very thorough. "We do a nightly query on every flight and route we are interested in for 56 days leading up to a flight".

Web-crawler software allows all fares offered by all airlines competing on a route to be followed. Crucially, it can determine how long each one is available for. "One thing we like to do is to see how easy it is to get a particular fare. A competitor may advertise that certain highly discounted fares are available,



*jetBlue has been using webcrawler software for a year. Besides gaining visibility into competitors' web-based fares on the routes it operates, the software can also be used to analyse routes that it may potentially operate in the future.*

leading us to react by offering the same fare. Close analysis, however, may reveal that this fare is only available for a limited period," says Kochak. "The information allows us to remain competitive for a high proportion of the time, and the Igentica software gives us a better picture of what other airlines are doing."

## Revenue strategies

Making the best use of this increased information and visibility depends on an airline's corporate strategy and revenue management philosophy. While some may wish to always have the lowest fares available, others may want to achieve the highest possible fare and yield mix. Some airlines may seek to maintain a good yield mix, but also seek to stimulate passenger demand so that they can increase market share and expand their network by keeping fares relatively low.

"Each airline's position in the market has to be considered," says Dube. "It may be a price leader because of its airport location, and so will want to know what fares its competitors are offering so that it can always set a premium. The prices set also depend on the amount of distressed inventory it has, and so pricing decisions cannot be made in isolation just using information from webcrawler software."

jetBlue was originally supplied with tabular information from the web-crawler software, but the information is now presented graphically and shows trend data. "The information allows us to analyse specific markets and get pricing behaviour by each carrier," says Johnson. "We do not have a policy of offering the lowest fare on a route, but aim to be very competitive in off-peak periods. The

software allows us to analyse big demand periods or new markets we are entering".

Yieldable demand revenue management systems have been programmed by many airlines to automatically change the fare available according to the speed at which a flight is selling. "While our revenue management system might put up fares because a flight is selling fast, the webcrawler software may tell us that competitors' fares are low, so we can manually override the revenue management system to keep fares the same," says Kochak. "While we may be able to charge higher fares, the webcrawler software allows us to see what our competitors are offering which allows us to make more informed decisions. For example, we may decide it is better to keep fares low, despite a high sales volume, because it will allow us to gain market share."

jetBlue uses the web-crawler data and information by feeding it into its revenue management system for its analysts to use for comparison of fare differentials with other airlines. "Analysts can also see what fares we are currently offering, the load factor achieved so far for each flight and the speed at which it is selling. The analyst can then set fares manually".

Improved intelligence on offered fares means airlines can get closer to determining the price-elasticity for each route. Ultimately, this will make it easier to maximise the revenue for each flight by making the best fare available at the right time. "We currently analyse the webcrawler data manually, although we are developing a revenue management system with Sabre to use this information so that changes to fare availability can be made automatically," says James. "As we gain more detailed data we can develop a

pricing curve for each flight. Analysis of fares offered by all airlines on a route over a period of up to one year prior to a flight will allow us to determine what fare to make available that will maximise demand. The system will ultimately set up a price curve to maximise the revenue on each flight, taking into consideration the fare and demand history of each flight for the preceding years."

The speed at which the webcrawler information is obtained allows airlines to react faster. "ATPCO fares are uploaded into GDSs six times a day. Fares are also communicated by airlines to their websites and reservation systems several times a day," says Dube. "The idea is that the revenue management system can gauge price elasticity and so control the fare available on each route. An airline may have 20,000 fares, but only make 5,000 of these available at any one time. Sabre's systems analyse webcrawler data automatically to achieve the highest yield mix. Changes to the tariff fares available can also be transmitted to ATPCO. This whole process requires a timely reaction for an airline to take full advantage of it, and so requires automation. There are, of course, manual overrides.

## Summary

Webcrawler software has increased the visibility of web-based fares, especially unpublished ones that could not be examined from other sources. This increased amount of data with respect to competitors' fares now means airlines are able to follow up to 90% of the fares offered by their competitors. Now that net fares are similar to unpublished web-based fares, an airline can have an accurate idea of what its competitors are offering. The automation of the webcrawling process means airlines can soon be informed of fare changes, as well as being able to react quickly. "The prevalence of unpublished fares and the level of competition means the web-crawling software is helpful, since no airline can afford to stay for too long. Price-sensitive passengers book fares quickly and there is only one chance to get them," says Johnson. "Having better intelligence also helps drive a higher percentage of fares sold to the website. Of course, all airlines will eventually use web-crawling software and so the situation will become more dynamic, and published fares will become static." 