Report on Southwest Airlines and an Internship

Swapnil Sonar, UT Dallas Class of 2013

This report is up-to-date as of 2013. Soon after, its data can change but the managerial comments will remain valid for longer. If you want to discuss managerial comments, contact Metin Çakanyıldırım metin@utdallas.edu.

Overview

Southwest Airlines is known as largest low-cost domestic airline in United States. Low-cost airlines offer relatively low priced tickets to passengers.

Southwest was established in 1967 and now have more than 46,000 employees as of August of 2012. It operates more than 3300 flights per day after acquiring AirTran Airways [on May 2, 2011 Southwest completed the acquisition] and it carries more domestic passengers than any other U.S. airline. As of April 2013, Southwest Airlines has scheduled service to 97 destinations in 41 states and Puerto Rico (Wikipedia.org)

Business Model

There are more than dozen domestic carriers, each of them have unique services to offer but still Southwest Airline came out to be most successful airline. One of the most important reasons behind Southwest Airline success is its business model which combines high level of employee and aircraft productivity with low unit costs by reducing aircraft turnaround time particularly at the gate. These made Southwest low cost yet profitable. Southwest has been a major inspiration to other low cost carriers, and its business model has been repeated many times around the world. Europe's EasyJet and Ryanair are two of the best known airlines to follow Southwest's business strategy in that continent. Other airlines with a business model based on Southwest's system include Canada's WestJet, Malaysia's AirAsia (the first and biggest LCC in Asia), Qantas's Jetstar (although Jetstar now operates two aircraft types), Philippines's Cebu Pacific, Thailand's Nok Air, Mexico's Volaris and Turkey's Pegasus Airlines. Although Southwest has been a major inspiration to many other airlines, including Ryanair, AirAsia and Jetstar, the management strategies, for example, of Ryanair, AirAsia and Jetstar differ significantly from those of Southwest. All these different management strategies can be seen as means of differentiation from other competitors in order to gain competitive advantages. One of the major competitors of Southwest is Delta, American, and US Airways and recently Spirit and Jet Blue is considered to be major threat for Southwest. All these airlines except Spirit and Jet Blue operate in both domestic as well as international market.

In addition to low cost tickets, Southwest is known for its customer service. Southwest maintains excellent customer satisfaction ratings; for many years, according to the Department of Transportation(DOT) Southwest ranked number one (lowest number of complaints) amongst all U.S. airlines for customer complaints. Southwest Airlines has consistently received the fewest ratios of complaints per boarded passenger among the major U.S. carriers that have been reporting statistics to the DOT since September 1987, when the DOT began tracking Customer Satisfaction statistics and publishing its Air Travel Consumer Report.

Southwest Culture

Southwest focuses on providing the best Customer Service for both our Internal Customers (Employees) and External Customers. Southwest Airlines Culture is as unique as each of its Employees. Southwest encouraged to "Live the Southwest Way," and Employees exemplify this with their Warrior Spirits, Servant's Hearts, and Fun-Loving...
Attitudes, but each Employee is also encouraged to “color outside of the lines” when appropriate in doing what is right by Customers and Company. Following are the three characteristic components of “Living the Southwest Way”:

**Warrior Spirit**: work hard, desire to be the best, be courageous, display a sense of urgency, preserve, and innovate.

**Servant's Heart**: follow The Golden Rule, put others first, demonstrate proactive Customer Service (that includes both Internal--SWA Employees--and External Customers), and embrace the SWA Family.

**Fun-Loving Attitude**: don’t take yourself too seriously, maintain perspective (balance), celebrate successes, enjoy your work, and be a passionate Team player.

Unlike other companies in Southwest “order of importance,” is different, at Southwest employees first, then customers, then shareholders. Other companies give importance to customers or shareholders first, but Southwest’s approach proved right and made Southwest as an admired company.

Happy Employee=Happy Customers=Increased Business/profits=Happy Shareholders.

That is if you treat employees right, they will treat customers right, and in turn that results in increased business and profits that make everyone happy.

Many companies may ask what would be the best way to treat employees in right manner. They say they don’t have the money to do much, but really…how can they afford not to? Their employees can be their best and most cost-effective source of advertising, and you don’t have to spend a fortune. While Southwest does save and plan for Companywide celebrations, also realize that a little can go a long way in making an Employee feel special as a person, and not just a number in work force of 46,000 Employees. A card or hug/handshake and a sincere verbal thank-you from a Coworker or Leader can go a long way in making an Employee feel appreciated. These actions are simple, don’t take much time to do, and don’t cost much money. (Nuts about Southwest)

**Comparison and Analysis**

Following are some charts on comparison between Southwest and other major carriers taken from Airline financials (Airline Data and Analysis)

C1: Comparison on average revenue per aircraft.
C2: Comparison on average revenue per employee

From the chart C1 we can see that Southwest has low revenue per aircraft as compared to other carriers because they operate only one type of aircraft. Southwest operates all Boeing 737 Series, which have minimum capacity of 128 passengers. Sometimes, there might be excess capacity when some flights operating from certain locations don’t require this capacity and hence dragging down the revenue per aircraft. (From Day on field at Network Department, Southwest Airlines)

Chart C2 shows Southwest have highest revenue per employee as compared to competitors. Southwest is known for its high employee productivity which comes with its well known Southwest culture as we discussed above.

C3: Southwest revenue Productivity.

Revenue productivity measures the amount of income or revenue that a certain resource produces for a business. There are two ways to measure revenue productivity: by using the average revenue productivity and by using the marginal revenue productivity. These two exhibit different ways of looking at the same business feature.

Average Revenue Productivity: It measures the amount of revenue each resource unit produces on an average. It can be calculated as Total Revenue / Number of units of resources.
Marginal Revenue Productivity: It measures the extra revenue business earns by adding another unit of resource.

Above charts shows how some of the most important components contributes for the overall revenue of Southwest Airlines. As stated above, employee productivity is high at southwest and also southwest employees are not as high paid as others airlines, revenue generated per employee is the highest contributor in Southwest revenue. The next significant contributor for revenue is aircrafts.

Southwest operates only one type of aircraft, Boeing 737 series aircraft which gave southwest competitive advantage over other carriers which operates wide range of aircrafts. Having only one type of aircraft has an advantage of having many inventory parts compatible with 300, 500, and 700 series [These are different aircraft models of Boeing 737 Family]. This reduces the inventory parts to be purchased.

Southwest pilots and flight attendants are highly paid as compared to other carriers, so they are at the bottom of revenue productivity. (From information session on Southwest Airlines which was held on first day of my internship)

C4: Average ASM per Aircraft

Available seat mile (ASM) (in the United States and Canada), or available seat kilometer (ASK) (in other countries) is a measure of an airline flight's passenger carrying capacity. It is equal to the number of seats available multiplied by the number of miles or kilometers flown. An available seat mile is the fundamental unit of production for a passenger-carrying airline. A unit in this case is one seat, available for sale, flown one mile. For example, an aircraft with 300 seats available for sale flying 1,000 statute miles would generate 300,000 ASMs for that particular flight. That the seats are available for sale is critical. An aircraft that had 300 seats but which was limited (for regulatory or technical reasons) to filling only 250 of them on a particular flight of 1,000 miles would generate 250,000 ASMs on that flight, not 300,000. Similarly, if passenger seats on a particular flight are dedicated to crew rest purposes, such seats would not be included in the calculation of ASMs for that flight. (Wiki)

Therefore ASM is one more important criterion for comparing performance of an airline. From charts C2 we can see that United has highest average ASM’s per aircraft as they operate wide range of aircraft hence improved productivity in contrast as I mentioned before how having one type of aircraft can cause limitations in operation causing less productivity from an aircraft.

Southwest Airlines flight operations:

Southwest has over 10,500 flight attendants and 6,500 pilots (First Officers & Captains)
Aircraft Fleet Information

### Effective May 2013

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*NG is Basically Next Generation 737 and MAX is again 737 aircraft model which is on order

Above table is shows the information on aircraft Southwest Airlines operates, it operates all 737 series models by Boeing. Each aircraft requires one First Officer and one Captain. All of aircraft, except the 800 series require three flight attendants. The 800 series requires four flight attendants. (All numbers are from Gretchen Stone, Supervisor, Inflight Crew Scheduling at Southwest Airlines)

### In-flight Crew Scheduling Department operations

It's an integral part of southwest airlines operations. Inflight crew scheduling department is responsible for coordinating with flight crew and managing their schedule to keep flight operations seamlessly. Southwest Airlines Inflight Crew Scheduling department is a 24/7 operation. Between the hours of 0600 CST and 2200 CST, has staff of an average of 11 Schedulers. From 2200 CST to 0600 CST has staff an average of 5 Schedulers. Customers are the Southwest Airlines Flight Attendants. Primary job for In-flight is to ensure our operation is covered safely and cost effectively.

Schedulers are expected to understand and abide by the Flight Attendant contract, the Inflight Crew Scheduling Manual (ICSM) and the Federal Aviation Regulations (FAR’s). These three documents provide scheduler with the information and direction to make decisions for operation. Department have many applications to assist schedulers with their duties. Some of these applications are **AChamps, Hobo, Swift, Sky Solver, Qik, Otis and CSS** (Primarily applications used, some of these are developed by in house technology department (Hobo, CSS, Swift, Sky Solver))

Schedulers notify Flight Attendants of assignments or changes to their assignments. Schedulers must be able to cross utilize Reserves in order to support the surrounding bases, make overlap adjustments and cover uncovered flying. Uncovered flying can come from weather situations, sick calls or other flight attendant pulls. Scheduler work legality reports every 4 hours to ensure FAR compliance. All schedulers also run daily Reserve reports and audit inbound Reserves.

### Hotel Inventory Management:
The hotel process, in relation to the flight attendants is as follows:

The Flight Attendants have a Hotel Committee. This Committee is in charge of finding hotels, in cities where Southwest flies that are acceptable for the crews for overnight stays. The Committee maintains a list of preferred hotels.

The hotels are pre-purchased for all overnights that are scheduled. These rooms are assigned to a specific flight number. Scheduling gets involved once irregular operations (sick calls, no shows, reroute, and weather) has created hotel needs.

Scheduling uses two programs to maintain hotels...HOBO and AChamps.

HOBO shows Scheduling where hotel rooms are needed and where there are extra rooms. It also keeps track of the pre-purchased rooms and highlights changes.

AChamps is the program Scheduling uses to create purchase orders for additional hotel rooms. When we are unable to find rooms in a city, we contact the AChamps group for assistance.

Each shift, a Scheduler is assigned to work on hotels. This individual will maintain HOBO and purchase any needed rooms. If necessary, they will be the one to contact AChamps. They will also use the department credit card to purchase any rooms at hotels that do not accept purchase order.

The schedulers are responsible for managing crew schedule as well as their overnight accommodation at various Airports across US. These hotels are already purchased for entire month depending flights schedules.

Inventory Imbalance problem

The hotels rooms are booked a month in advance according to flight schedules. But as we know how flight schedules are versatile according to weather and other factors, this causes rescheduling, cancelation, rerouting etc. This can cause hotel inventory imbalance. We will consider each case and see how it might cause hotel inventory imbalance.

- Rescheduling
  Flights are rescheduled due to several reasons such as weather disturbance, technical problems with aircraft. This will cause delay and which causes Doppler Effect propagating delay in entire schedule. This might cause last flight cancelation or leads to cancelation of scheduled overnight. In this case, Southwest already has booked hotel rooms for the crews who are expected for an overnight at a particular airport but because of above explained reason they will not occupy these booked rooms and this creates three to four unoccupied hotel rooms for which Southwest has already paid.

- Cancelations
  There are several reasons for flight cancelations, such as Airport is closed due to severe weather or some security reason, flight is under booked, aircraft have technical problems and another aircraft might not be available for service. This will again lead to overnight cancelations and extra rooms.

- Rerouting
  Flights are rerouted mostly because severe weather conditions. This will cause extra crew flying to an airport where they are not scheduled for an overnight stay. This will lead to crew needing extra rooms and buying new rooms for them.
- **LIMO**
  Sometimes crew member has overnight at his/her hometown, so he/she might prefer to go home instead of taking hotel room. This case called as LIMO by schedulers. Southwest do not observe and look into these cases and buy hotel rooms in advance for every crew member doing overnight. This may lead to one or many unoccupied rooms.

The above stated cases can trigger inventory imbalance which leads to losses due to unused rooms and buying an extra rooms.

In order to get help on such situation Hobo was developed few years ago which was getting used with AChamps (Its 3rd party application) another application which helps to find and book the hotels.

**HOBO 1.0**

Hotel Booker also known as HOBO, it was an Excel based solution developed earlier to help schedulers to get know about hotel inventory situations.

*Application front end: Excel*

*Databases utilized: Primarily Production database (which contain scheduled flight schedules as well as real time flight schedule information)*

*How it works:*

HOBO is basically macro embedded excel sheet which pulls the data from production database. Then it finds all the overnights for a current day and once again it pulls the data from the real time database to get the current flight schedules situations. The next step is to compare the current schedule against the desired or designated flight schedules or we can say overnights. After comparison it shows the current overnight situation at all airports. This is an overview showing where there are extra rooms and where there will be need to buy new hotel rooms to accommodate crew for an overnight. HOBO further have provision to dive deeper where scheduler can click on particular airport for LAS (Las Vegas) and he will get complete idea about scheduled overnight flight against current overnight situation at Las Vegas. By looking at overview, page schedulers can see the current situations of overnights at all airports and he can take decisions to book new rooms or he can reroute crews to locations where he finds an extra unused rooms.

**My Internship role**

**Limitations with existing HOBO**

Older version: Hotel Booker had several limitations and it was slow as it pulled the entire data every time there was a request for the current situation. Some of the limitations listed below.

- It pulled the data every time scheduler requested on hotel inventory situation which was taking several minutes to update.
- There was not any push notification on changes on hotel inventory.
- No suggestions provided on how to reconcile the hotel inventory.
- Every time it needed to go through long list of flight schedule on excel sheet which was inconvenient.
My position was created to develop new tool which is called HOBO 2.0 with newer technology VB 2010, with the help of Andy Conrad from Automation Department.

**HOBO 2.0**

Front end: Several interactive screens developed using VB 2010

Database Utilized: Production Database

New HOBO design and features

HOBO 2.0 contains a more simplified UI which will be easy to use and help to make a decision on reconciling hotel inventory.

New HOBO is designed in way so that while schedulers working on other problems, it updates itself at specified time interval (This can be changed by scheduler depending busy day and how frequently he want to know about current situation). It also pushes the new updates as there is need for new hotel room or some extra rooms are available as result of some cancelation or some other reasons.

It has all the data on one screen, which will give global view to schedulers on hotel inventory situation at all airports in United States. This feature shows at what airports there will be need to buy rooms and how many rooms are needed to buy. It also suggests the location of the room and the number of rooms that are unoccupied. When scheduler clicks further on airport name, it shows the flight schedule for which we need to buy hotel rooms or because of which flight we would get extra rooms.

New HOBO is equipped with extra window which will provide suggestions on hotel inventory reconciliations. For e.g. suppose for LAX overnight flight 762 got canceled which created 3 extra rooms which can be used and on some other day, a new flight say 862 got rescheduled for overnight at LAX so need for 3 extra rooms to accommodate crew on flight 862. New hobo will handles this issue and there will be suggestion for scheduler stating that there are 3 extra rooms from flight 762 that can be used for crews from flight 862. This will help the scheduler to take a faster decision and also saves time looking for a reconciliation options by searching flight schedules.

**Conclusion:**

As a result of my internship, Inflight Crew Scheduling department got new tool which will be used by schedulers to take decisions on hotel allocation. The tool is currently under testing and might need some improvements which will be carried out by Automation Department which is technical support team for my department.

**References:**

4. In addition my manager emailed me some information, which I have used in this report.

Justin Schiffner, Assistant Manager Inflight Crew Scheduling at Southwest Airlines
Gretchen Stone, Supervisor, Inflight Crew Scheduling at Southwest Airlines