

Operation managment



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The paper "Operation Management of Continental Airlines" is a brilliant example of an assignment on management.

What problem(s) did Continental face that caused them to decide to redesign their operations and control center processes as well as the procedures for recovering from a disruption? Answer: Continental Airlines – CA, was facing problems due to disruptions in the scheduled flights when pilots were sometimes stranded in other airports and could not reach the required point in time. To obtain the maximum revenue, airline services often arrange their services and networks along with complex schedules so that the resource utilization is the highest. This calls for close interaction between pilots, aircraft and crew and if the pilots are not available at the required point and at the required time, then there are huge losses as flights get disrupted and onward flights are canceled. Pilots are typically qualified to fly certain types of aircrafts such as Boeing 737 and if a pilot who is a part of the active crew misses a flight, it would be very difficult to replace him with another appropriately qualified crew. Therefore, the recovery of the active crew back into the flight schedule originally designed was an important consideration (Yu, 2003, pp. 5-6). What problem did Continental identify after the storm of March 1993? What were the IT systems structure at that time and how did it hamper Continental's recovery?

Answer: The Storm of the Century that occurred on March 12 to 15, 1993 wreaked havoc in the USA and the CA operations were hampered very much. Besides, causing more than 1 billion USD damages, the killed 240 people, grounded aircraft on the east coast for many days and forced many airports to close and Continental was one of the worst-hit. Aircrafts had to be located by brushing the snow off the identification numbers from airplanes and crew

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could only be located after a very difficult search. When crews tried to call the operations center, all phone lines were jammed and CA lost control over the operations. CA had a disparate accumulation of IT systems that were accrued over the years from acquisitions and mergers. Many of these systems were not integrated and information could not be shared and retrieved so bringing the systems and enabling recovery was very difficult (Yu, 2003, pp. 7).

Describe Continental's operations structure (SOCC) and how its hub structure works.

Answer: The System operations control center - SOCC is placed in Houston where the headquarters are. It is in SOCC that employees carry out operations such as tracking the schedules, monitoring operations, anticipate and forecast disruptions for the flights and allows for recovery planning from the disruptions. The SOCC acts as a central hub for decision making for airline operations, re-scheduling crews, customer service, routing flights, and dispatch and maintenance schedule for aircraft. When there are any disruptions, the SOCC teams make the required changes for flight schedules, delay or cancel flights, route the aircrafts to the required destinations and even reassign the crew. The decisions are taken by using advanced systems that help to view the impact of one decision over the operations. Any decisions taken are discussed with managers for all related departments (Yu, 2003, pp. 6-7).

Describe the crew scheduling and crew recovery problem including crew pairing and monthly bid lines. What other constraints are imposed on

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Continental to complicated finding a solution to these problems?

Answer: For airlines, the cost of crews is one of the largest cost components and hence Crew Scheduling and the Crew Recovery Problem is a major issue. Airlines schedule crews as per the fleet assignments and by assigning fleet types to the markets. Crew pairing is a part of the crew scheduling problem and it a sequence of flights legs beginning and ending at a crew base that would meet contract and government restrictions and constraints. Crew base is the city from where crew pairings start and have to end and the base may be different from where the crew lives. Crew pairings cover the duration of one to 4 days and crew pairing works to find a set of pairings that would cover the optimum flight segments at the least cost. In some cases, deadheading is used where crews are paced as passengers to reposition flight crews. Monthly bid lines are sequences of pairings where the crews are assigned for a month. Bid lines have constraints such as workload balancing, quality of life of the crew, etc (Yu, 2003, pp. 8-9).

Describe what CrewSolver does. What other systems does CrewSolver integrate with and how is information shared among them? Describe the steps Continental currently follows in order to recover from a disruption.

Answer: The CrewSolver system is used for crew recovery solutions when severe disruptions occur. The solutions help to reassign crews quickly to man open flights and to return them to the original schedules in a most cost-effective manner while honoring constraints of government regulations, contractual and crew quality of life requirements. The CrewSolver application server interfaces with different data sources and a connection to crew clients. It integrates with the SOC database, mainframe database, message

server, crew file, static data and configuration parameters, and environmental variables. When there is an initialization, the optimization server retrieves static data from electronic files and takes the operational live data from the SOC database. After initialization, the optimization server receives update messages regarding the modifications to the existing state of operations. The optimization server uses an in the memory data store that shows the operational status and also has an embedded legality checker and algorithm that would solve the crew recovery issues and problems besides giving multiple solutions (Yu, 2003, pp. 10-11).

How has CrewSolver impacted Continental's bottom line? In what ways?

Answer: The management of CA has estimated that about 40 million USD have been saved in 2001 when the system was used in four major disruptions. In the first quarter of 2002, CA obtained savings of 5 million USD when the system was used in minor disruptions. The system was also used in the aftermath of September 11 attacks and in the New Years 2001 weekend and when a major snowstorm struck on 29 December 2000 and it has been estimated that CA saved 4, 422, 000 USD. Over the years, the solution has provided solutions for millions of dollars in direct savings. However, the savings increase the reliability and quality of service is much more than the dollar savings. In many cases, the system reduces the cancellations due to unavailable crews and shifts the operations from one hub to another and used available crews to fly the remaining flights. CrewSolver is used to find the best set of flight cancellations, additions, delays and aircraft routings (Yu, 2003, pp. 14-17).