

Optimizing pilot planning and training for continental airlines

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Optimizing Pilot Planning and Training for Continental Airlines Summary

Continental Airlines is the fifth largest airline based on passenger volume in United States. It provides over 1, 100 daily flight services to five continents. Effective manpower planning is a key component for the success of Continental Airlines. It is essential for Airline Company to adjust its need for pilots constantly in different position in response to new market opportunities, changing passenger demand, acquisition and retirement of aircraft and training resources and evolving economic conditions.

Therefore, the company collected information from several separate database systems and built the training plans by using spreadsheet. However, this development method was time consuming and complicated and the database used was not capable for training plan as it was used for more 10 years. In order for solving the complicated, large-scale pilot planning and training program and increasing the competitive advantage in air transportation market, Continental Airlines replaced the old database system and spreadsheets by the Crew Resource-Solver integrated decision-support system.

It includes four main modules to handle staffing, vacation, planning and training. The staff-administration module and vacation-administration module maintain crew records including all current and past assignments, absences and training while the planning-optimization module and training optimization module provides information of pilot-planning and training functions (Yu, Pachon, Thengvall, Chandler and Wilson 2004). Generally, Continental Airlines uses system bid award to determine the needs of staff

changing to different positions and handle the pilots' requests to change positions.

It mainly uses seniority-based rules for decision making. In an average system bid award, 15 to 20 percent of the airline's pilots receive new positions. As long with system bid award, the Crew Resource-Solver system can build the training program that establishes the timing of training, advancements, releases, and new pilot hires. The Crew Resource-Solver system includes two phase to solve the pilot training problem. The pilot-transitioning phase determines the timing of pilot transitions by using limited information about training capacities to restrict the number of pilots assigned to training.

The training-class-scheduling phase produces the detailed training schedule taking as input the solution from the pilot transitioning phase. As a result, the training program contains a set of detailed training schedules including all training events for each student and each training resource. The training program must satisfy all the constraints set by Continental Airlines such as pilots training will not be assigned during their vacations and other scheduled absences. Planners are able to use system to customize the training plans by changing the objectives and options (Verbeek 1991).

Analysis The main objectives of the Crew Resource-Solver system are: 1. The improvement of the efficiency of the training programs 2. The forecast of future airline pilots' needs 3. The maximization of the cost savings There are a number of advantages in using the Crew-Resource Solver system. First, the system improves the airline's processes by enhancing information sharing within the organization and by simplifying system maintenance. Second, the <https://assignbuster.com/optimizing-pilot-planning-and-training-for-continental-airlines/>

system enhances data integrity by eliminating duplicate data storage and automating processes.

Third, the system saves time compared to the old manual approach as it can produce a complete, optimized training plan that includes both the pilot transitions and the training class schedules within an hour (Yu et al 2004). Moreover, the system increases the flexibility of the training program as it is able to customize by adjusting objectives and setting options. The Crew-Resource Solver system provides an optimal set of components that can satisfy all training program requirements. However, there are several limitations to the Crew-Resource Solver system.

First, the training program constraint is based on the traditional training plan which highlights the inherent weakness of any optimization model as it relies upon sound data for accurate outputs (Sarker 2008, p. 5). Second, the potential sources of savings vary depending on different system bids. It is the fact that a bid will have no cost components associated with those activities when it is not required on new hires and pilot releases. Third, even using the system, there is a trade-off between block-hour shortages and other costs on the training plans.

Therefore, when block-hour shortages cost increases, the training cost will decrease, vice versa. It is unable to decrease both block-hour shortages cost and training costs together. Finally, the final decision of the training program is not automated and requires management to select the best option for each training program. Result The Crew Resource-Solver system is an important investment of Continental Airlines to upgrade the management of

manpower-planning needs by resource optimization and operation and financial performance improvement.

Based on the evidence given in the article, the Crew-Resource Solver integrated decision-support system is a successful program for Continental Airlines to achieve its above objectives. First, there are three ways for the cost savings. Training classes' schedules become more efficiently and the number of pilots sending to training decrease. Second, there is reduction in pay-protection costs as promoting pilots in new positions in seniority order.

Third, it reduces payroll costs because the system can provide the optimized training plans which can use exiting pilots more efficiently and reduce the chances to hire new pilots. In fact, many recommendations derived from the Crew Resource-Solver integrated decision-support system have already been applied and have helped Continental Airlines to save approximately \$10 million each year. Second, the integrated system have focused process improvement and improved data integrity, and it is easier to maintain than the numerous legacy systems and spreadsheet application it replaced (Yu et al 2004).

References Sarker, R & Newton, C 2008, Optimization Modelling: A Practical Approach, CRC Press, Florida. Verbeek, P. (1991) Decision support systems - An Application in strategic manpower planning of airline pilots. Eur. J. Oper. Res. (55)3, 368-381 Yu, G. , Pachon, J. , Thengvall, B. , Chandler, D. & Wilson, A. (2004) Optimizing Pilot Planning and Training for Continental Airlines. Interfaces, Vol. 34, No. 4, July-August, p. 253-264