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## Landing results

Northwest Airlines (NWA) is facing myriad challenges due to record fuel prices, steep competition from low-cost carriers, and high labor costs. These challenges require restructuring NWA's business model to focus on cost reductions while maintaining customer service. NWA relies on its industrial engineering group to design and evaluate process improvement opportunities. In turn, the IE group relies on time studies to analyze and quantify process improvement opportunities.

### Issues

Conducting time studies in the airline's operational areas is a major IE work function. The IE group had to observe multiple subjects simultaneously, which could be cumbersome and yield unsatisfactory data with the stopwatch-and-paper method. Given the high number of time studies requested, the variety of studies to be performed, the amount of observations needed, and the speed for which results are required, the IE group needed a different method for managing them. NWA turned to Quetech's WorkStudy+ software for a solution.

### Project example

One of many projects for which NWA uses WorkStudy+ is passenger throughput analyses of its seasonal Mexico stations. NWA is planning a significant flight schedule increase to one of its top leisure travel destinations in Mexico. The general manager of customer service wanted to ensure that the station would have the appropriate number of ticket counter positions available to handle the planned rise in passenger traffic so that passengers would not face long queues and wait times upon their arrival to the airport.

In engineering terms, what is the throughput capacity per ticket counter position based on process constraints, and how can NWA ensure an acceptable service level for its passengers measured in queue length and wait time?

To solve these challenges, IE had to gather passenger check-in time and passenger arrival rate. Passenger check-in time is the amount of time it takes a customer service agent to check in a passenger or group of passengers for their flight. Passenger arrival rate is the number of passengers arriving at different time intervals before their flight departure. To collect the data, two different studies were developed in WorkStudy+.

"With this software, it is possible to create a study while flying to a location and to analyze the data on a laptop when flying back. This capability has greatly improved our project turnaround time," says NWA industrial engineer Victor Perazzoli.

After the data was collected and summarized, throughput capacity and passenger arrival rate were obtained. The results demonstrated unique differences in arrival rates between this location and other domestic NWA locations. Once quantified, the IE group constructed a model using data collected from WorkStudy+ to determine ticket-counter positions required to maintain the desired service levels of passenger queue length and passenger wait. Then different staffing and flight scenarios were analyzed to make appropriate recommendations.

### Conclusion

The NWA IE group is excited to have a work measurement tool as powerful and flexible as WorkStudy+. NWA field consultants can quickly create a study structure tailored to its internal customer needs and perform the study with the appropriate number of observations in a short timeframe. With this tool, the IE group can put together sound recommendations aimed at improving the operational efficiency of the airline.

"After we meet with an internal customer and understand the time elements to be measured, we need to be able to quickly provide results. WorkStudy+ is perfect for us because it is simple and flexible to use."

— Victor Perazzoli, industrial engineer, Northwest Airlines



WorkStudy+ during data collection of passenger check-ins