
Keeping Fighting Birds in Flight

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As one of the three U.S. Air Force maintenance depots, the Ogden Air Logistics Center Aircraft Directorate provides depot repair, modification, and maintenance support to major aircraft weapons systems. Presently, their workload mix includes the A-10 Warthog ground attack aircraft, C-130 Hercules transport, and the F-16 Falcon Fighter. More than 2,200 civilian and military employees are responsible for supporting the war fighter.

Problem

Each year, the workload mix for the three different weapon systems is shifting. To meet customer deadlines at reasonable cost, program managers must compete for Aircraft Directorate facilities and resources. Before simulation modeling was introduced,

planning and scheduling was a tedious manual process and there was no analytical tool that integrated all three weapon systems at the top level. Numerous and diverse factors further complicated the goal of timely job completion. They included delinquent aircraft arrivals, varied requirements for depot maintenance, inclement weather, late delivery of repair materials, worker turnover, routing obstacles, and many other miscellaneous bottlenecks.

Solution

Because of the complexity of the project, discrete event simulation was selected as the most effective way to evaluate different scenarios. The Air Logistics Center contracted with PricewaterhouseCoopers (PwC) to design a simulation model that can be used to analyze strategic resource allocations and process im-



provements. The model also facilitates analysis of 'what-if' scenarios by allowing the user to modify various components of the business. PwC developed the model using ProcessModel

At a Glance

Problem

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Solution

PwC ultimately selected ProcessModel because it was user friendly, flexible, cost effective, and it provided the detailed features needed to satisfy requirements

Results

Although only recently implemented, the model has correctly predicted current bottlenecks arising from system variability, complexity, and resource constraints. Based on our involvement with this project, we feel ProcessModel is well suited for analyzing, understanding, and improving the depot maintenance processes.

software, a process analysis and simulation tool used at other Air Force and military sites around the globe. PwC utilized a rational software selection analysis and ultimately selected ProcessModel because it was user friendly, flexible, cost effective, and it provided the detailed features needed to satisfy requirements

Results

Although only recently implemented, the model has correctly predicted current bottlenecks arising from system variability, complexity, and resource constraints.

Based on our involvement with this project, we feel ProcessModel is well suited for analyzing, understanding, and improving the depot maintenance processes. Furthermore, it has provided the advanced features needed to construct such a unique, open architecture simulator. This quantitative tool enables the Aircraft Directorate to provide depot maintenance in a timelier, competitively priced fashion.

Future Application

The Aircraft Directorate simulation models will be useful for both developing long-term strategic plans and evaluating near-term tactical decisions. In the near future, PwC and the Aircraft Directorate plan to enhance the simulation model and use it to analyze the most problematic shared resources and backshop routes. These modifications will allow the Aircraft Directorate to dramatically improve resource allocations, thus creating a more sensible balance between the levels of cost and service.

FIND OUT MORE

***About the Authors:** Scott Sutherland is a consultant with the Washington Consulting Practice of PricewaterhouseCoopers LLP. Using his 17 years of experience in the marine, manufacturing, and defense systems industries, he supports commercial and government clients with initiatives related to process improvement, resource allocation, and project management. He is a member of the firm's supply chain management service market and specializes in*

utilizing quantitative methods, such as mathematical programming, stochastic modeling, and simulation.

Ronald A. Haltli has worked as a civilian employee for the United States Air Force for 15 years. During this 15 year period, Mr. Haltli provided engineering support for facility, equipment and process improvements. For five years, he was lead engineer for the largest maintenance facility at Hill Air Force base. As the lead facility engineer, it was Mr. Haltli's responsibility to realign the aircraft layout within the facility. Improving effectiveness and efficiency were the main considerations as different weapon systems were to be worked on. When the focus changed from only fighter aircraft to a larger weapon system, it proved to be a considerable challenge.

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