Optimize discretionary fuel planning with FuelSafe

Highlights

- Helps predict required discretionary fuel loads using data mining and analytics

- Provides comprehensive rationale behind recommendations to boost pilot and dispatcher confidence

- Offers machine-learning capabilities to enable continually improving results

- Supports mobile enablement for fuel planning on the go

Despite periodic price adjustments, fuel continues to be a major operating cost for airlines. Decisions on fuel estimation at the time of flight planning can be a complex task, demanding precision in computation and the ability to use the latest information about a host of external parameters such as the weather or airport conditions. Many of these decisions are performed using sophisticated tools to compute fuel burns for various flight phases and planned flight paths.

But not all fuel decision variables are free of human discretion.

Some of these decisions are often done based on human judgment and intuition, predominantly due to non-availability of reliable information or inability to use information in a way that can better decision-making. Fuel boarded on an aircraft above regulatory requirements and the airline's own policies, procedures and guidelines, upon the discretion of fuel planners (dispatchers) and pilots, is called *discretionary fuel*.

Better decisions on discretionary fuel can result in about 0.5% savings on airline's annual fuel bill.[1]

Discretionary fuel decisions come from planners based on their own reading of a situation — using personal insights from years of experience — to top up fuel above the regulatory requirements and guidelines. Since these decisions are "discretionary" by definition, variability exists from one planner to another based on differences in skill or inference about a situation. Inevitably, this can lead to inconsistent results — in any given situation, one planner might get the quantity just right, while another might load unnecessary quantities onboard. In turn, these results can have a big impact: Fuel carried and not used leads to a "carry cost," which is about 3 percent of fuel carried.[2] Each year, airlines can incur millions of dollars per year in excessive discretionary fuel, along with avoidable carbon emissions from burning excessive fuel on board.

FuelSafe can help.

FuelSafe is a robust discretionary fuel planning tool designed to help minimize variability in planners' discretionary decisions. FuelSafe provides recommendations to airline fuel planners on optimum discretionary fuel loads at the planning stage. With precise recommendations on fuel amounts in real time based on the latest information about weather, traffic and airport conditions, pilots and dispatchers can predict from past patterns the necessary amounts of fuel for multiple options, such as taxi, alternate airport and traffic control delays.

Weather
Fuel planned to cover en-route weather detours

TAXI
Fuel used in taxiing from the block to start of takeoff

ATC
Fuel planned to cover air traffic control delays at destination

ALTN
Fuel needed to fly from the destination to the alternate airport

OPN
Fuel planned at the Pilot's request

EXTRA
Fuel planned to cover contingencies sthat may occur during the flight

OVER
Overfill fuel

TKG
Fuel planned for tankering purposes

DEV
Fuel planned for aircraft performance deviation

ETOPS
Fuel required for ETOPS flight

FInal Reserve
Minimum amount of fuel required to be in the tanks at landing

BURN
Fuel used between takeoff and landing; includes cost to carry all above fuel buckets

= Discretionary fuel

Discretionary fuel can fall in multiple decision buckets.

Displays rationale behind predictions and recommendations—and learns from it

FuelSafe not only provides detailed information to users on the insights drawn from mining historical data, it provides the logic behind the recommended actions. With this information, users can have a nuanced view of the recommendations and make a well-informed decision.

For example, users can view the probability data that taxi burns will be less than or the same as recommended taxi fuel amount, or the probability that weather at the alternate at arrival time would meet minimum requirements. Users can see the top closest options for Alternates to understand how FuelSafe arrived at the recommendation for best suited ALT in real time conditions.

And with each iteration of its use, FuelSafe uses advanced machine-learning algorithms to learn from them. Machine-learning capabilities allow the system to spot patterns from historical data and continuously sharpen its recommendations.

Supports mobile enablement for planning on the go

A dedicated Plan Flight app helps put deep analytical decision-making capabilities for discretionary fuel in the palm of planner. Plan Flight is an IBM MobileFirst App designed as a front-end user interface with FuelSafe, exclusively for Apple's iOS 8 operating system. Virtually all native features of FuelSafe analytics platform—such as accessing historical data, data mining, advanced software development methods, and machine-learning to continuously optimize recommendations—can be brought to the user's fingertips.

For more information

To learn more about FuelSafe, please contact your IBM representative.

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Notes
1. Based on IBM internal data.
2. Based on IBM internal data.

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