Deliver the right meal to the right flight — at the right time

The three questions that can help enhance profits, optimize operations — and satisfy even the most discerning palate

Almost 100,000 meals produced every day, to be delivered to some of the world's biggest airlines within a 15-minute window. A staff of 2,100 (including two executive chefs and 21 sous chefs) spread out across 19 kitchens and multiple catering centers, serving a variety of culinary tastes. Every meal must be immaculate. Consistency is paramount.

Just another day in the world of in-flight catering.

A planning puzzle in every sense of the word, this industry is only set to increase in complexity. A medium-sized operation can involve the loading of an average of half a million items per day[1]. Fueled by an increase in both passenger demand and the number of flights worldwide, the global in-flight catering service market is expected to grow at a compound annual growth rate (CAGR) of 5% between 2016 and 2021 to a size of approximately US$18 billion[2].

Customers now expect granular control of their menu to suit specific tastes and dietary preferences. Airlines are also seeking greater choice and product innovation from their suppliers in order to deliver the best dining experience in the sky. With more choices come more complex recipes, more specialized skills and equipment, and more delivery variations.

Despite the increased demand, however, this is still an industry battling with tight budgets and narrow margins. Airline passengers generated approximately 5.2 million tons of waste in 2016, and that figure is set to double within the next 15 years[3]. In this industry, every decision has a snowballing effect. Wasted food isn't just wasted expense; it is also underutilized manpower and additional expenditure.

[1] How to beat the 4 deal breaker challenges in Airline Catering (ProcessWare)

[2] Global In Flight Catering Services Market - Analysis of Growth, Trends Progress and Challenges (2017-2022) (Research and Markets)

[3] The ridiculous story of airline food and why so much ends up in landfill (The Guardian)
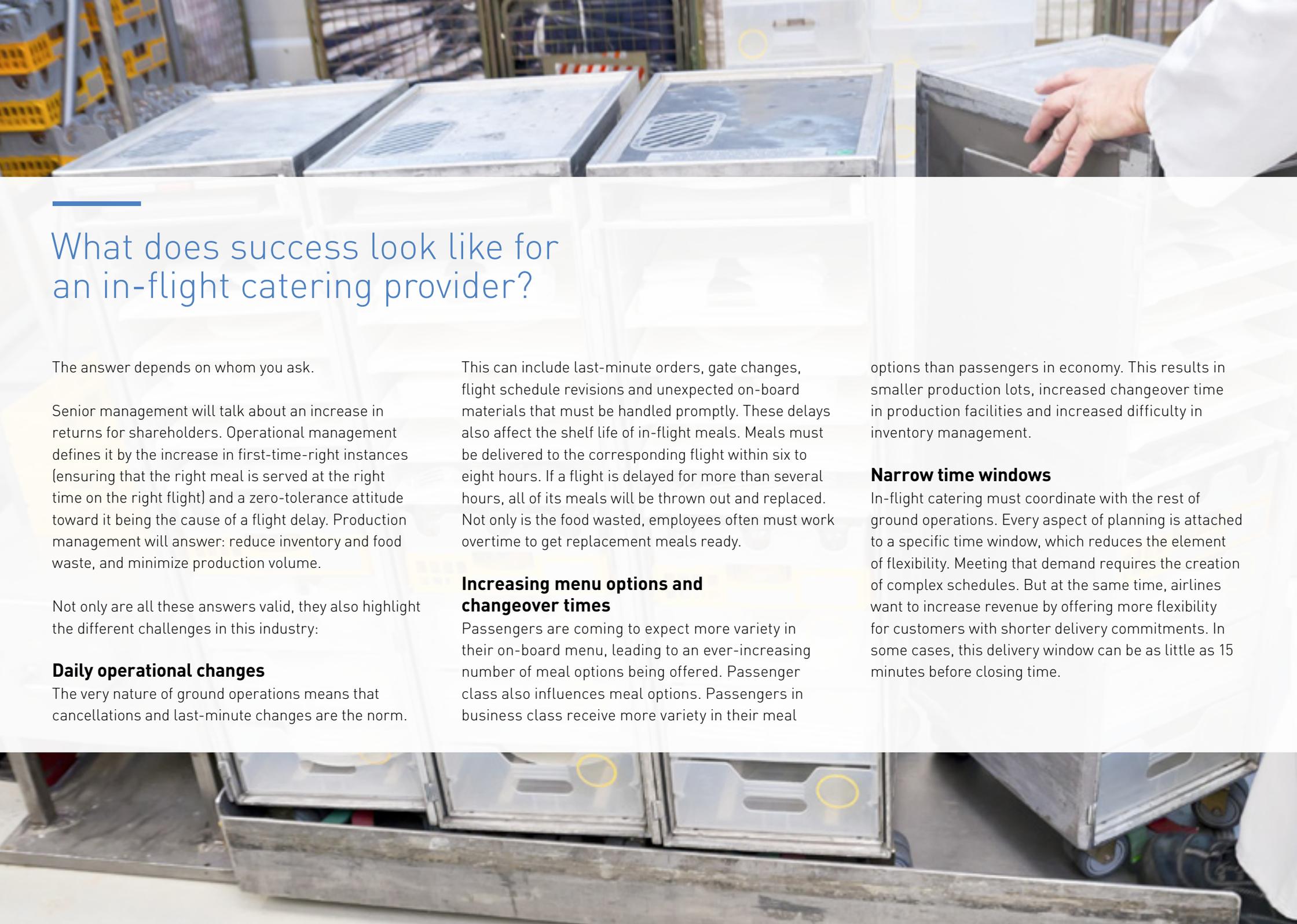
What does success look like for an in-flight catering provider?

The answer depends on whom you ask.

Senior management will talk about an increase in returns for shareholders. Operational management defines it by the increase in first-time-right instances (ensuring that the right meal is served at the right time on the right flight) and a zero-tolerance attitude toward it being the cause of a flight delay. Production management will answer: reduce inventory and food waste, and minimize production volume.

Not only are all these answers valid, they also highlight the different challenges in this industry:

Daily operational changes

The very nature of ground operations means that cancellations and last-minute changes are the norm.

This can include last-minute orders, gate changes, flight schedule revisions and unexpected on-board materials that must be handled promptly. These delays also affect the shelf life of in-flight meals. Meals must be delivered to the corresponding flight within six to eight hours. If a flight is delayed for more than several hours, all of its meals will be thrown out and replaced. Not only is the food wasted, employees often must work overtime to get replacement meals ready.

Increasing menu options and changeover times

Passengers are coming to expect more variety in their on-board menu, leading to an ever-increasing number of meal options being offered. Passenger class also influences meal options. Passengers in business class receive more variety in their meal options than passengers in economy. This results in smaller production lots, increased changeover time in production facilities and increased difficulty in inventory management.

Narrow time windows

In-flight catering must coordinate with the rest of ground operations. Every aspect of planning is attached to a specific time window, which reduces the element of flexibility. Meeting that demand requires the creation of complex schedules. But at the same time, airlines want to increase revenue by offering more flexibility for customers with shorter delivery commitments. In some cases, this delivery window can be as little as 15 minutes before closing time.

The three questions that can help improve your in-flight catering operations

Question 1: Can we minimize catering disruptions, especially on the day of operations?

Some disruptions can be averted, but many are unavoidable. Flights can be changed, added, delayed or even canceled. Flight changes can occur due to fluctuations in passenger volume or technical problems with the aircraft itself. There may be last-minute meal requests or special dietary requirements. Employees might call in sick or take emergency leave due to unavoidable family issues.

Given that these challenges can and will occur at any time, how do you minimize the impact of these disruptions? There needs to be a platform where all planners from all departments can communicate with each other seamlessly. When one department makes a decision, other departments should automatically be notified of the decision — and its corresponding effects. A collaborative decision-making process can then result in a better decision being taken and executed.

You need to know as soon as possible when a disruption occurs. But a system that provides you with visibility of the planning system only solves half of the equation. What will you be able to do with that information, and how will it benefit your operations?

The answer: Automatically calculate the consequences of a disruption — and make analytical decisions to solve it

A planning solution that can seamlessly integrate with existing external systems — real-time flight data, human resource information, employee self-service systems, fleet GPS data — will be able to receive different sources of information. Instead of manually updating relevant variables to communicate the changes, the solution will automatically calculate — and disseminate — the consequences of that disruption to all of your operations team. Couple this with decision support tied to your specific business goals and you'll be able to make analytical decisions that benefit your operations.

Question 2: Can we handle the complexities in our workforce and gain efficiency?

A typical in-flight catering operation can serve anywhere from several hundred to several thousand flights per day. Tens of thousands of tasks need to be sequenced to the letter. It is an enormous undertaking, especially with strict time windows, differing employee skillsets and resources that need to be matched with the right employee.

It is impossible to manually evaluate all of the available options and come up with the optimal sequence of tasks. That is why, more often than not, planners end up falling back on experience and instinct to come up with a solution that's merely feasible, instead of measuring results against core business goals.

Suppose you want to sequence all tasks for a particular day based on the earliest start time. If you merely follow that criteria, you would realize that there are peaks and troughs in demand throughout the day. Demand-based planning doesn't consider the amount of people and assets available on that particular day. Therefore, there is a possibility of flights not being served on time. Conversely, there's also a possibility of too many employees with no work assigned to them.

The answer: Compare different options — and have the confidence to choose the best results

An integrated planning system powered by proprietary, world record-breaking algorithms can help you consider all available options. By showcasing all available scenarios, you will be able to compare and contrast different options before choosing the one that best fits your available people and assets. With this knowledge, your planners will have the absolute confidence to create the best schedules for your operations.

Question 3: Can we handle the complexities in our workforce and gain efficiency?

This is a difficult question to answer, and is highlighted by three variables:

The demand
Fleet size will vary seasonally, even daily. A typical flight demand pattern will see high peaks in the morning and evening, and low troughs in other parts of the day. Unstable demand makes it difficult to properly predict the right resources needed at the right time.

The options
Consider the different types of resources that you have — high-loaders, vans — and the thousands of tasks that need to be scheduled every day. What would be the ideal loading order for the delivery vans? What variables must be considered when determining the aircraft visiting order? Sequencing the tasks can create an overwhelming number of available options, and it is impossible for human beings to calculate all these options. Relying on simple heuristics leads to suboptimal decisions.

The people
We tend to separate the assets from the people. But when it comes to operations, the optimal fleet size is determined not only by assets but also through the different skillsets of the people in the organization. To be able to calculate all these options, you first need to understand how your operation really runs. To do that, you would need information and this requires data from various sources.

Your operations managers possess invaluable soft knowledge about operations. You need to quantify this information, and couple it with powerful optimization technology to be able to calculate all possible options and make the best decisions for your business.

The answer: Separate the notion of big data and big calculations

Data is stored across different systems. The right solution can leverage all that data and combine it with the power of predictive analytics to forecast what might happen in the future. For example, the solution will be able to forecast the types of delay that might happen within a certain time period as well as the number of passengers that might be affected by that delay. That information can then be used as input for the optimizer that's at the heart of the solution — it considers both historical data and forecast values in generating the optimal solution.

Case study: How an in-flight caterer reduced labor costs by 20% — in just six months

The Malaysian subsidiary of a global leader in airline catering and in-flight services delivers 40,000 meals daily to over 220 aircraft at the Kuala Lumpur International Airport. To fulfill the demands of flight passengers, the company requires a large fleet of trucks and vans and more than 300 personnel. The wide variety of aircraft and vehicle sizes requires highly accurate assignment of delivery equipment and personnel. Planning complexity was compounded by the frequent last-minute changes in flight schedules and gate assignments, which in turn affected travel time and delivery sequences.

The Quintiq solution integrated planning and decision support capabilities across the caterer's planning horizon. Planning could be made months in advance, based on flight schedules and anticipated meal requirements. Assets and personnel are assigned to specific flights and gates, and planners can immediately view the utilization of assets and make adjustments to eliminate overtime and usage of unnecessary resources. As the target date approaches, planners perform 'next day' planning, adjusting their original plans to accommodate changes in flight schedules, equipment and personnel.

The results

Just six months after deployment, the Quintiq system already paid for itself. The number of trucks and vans was reduced by 15% and 35% respectively. Labor costs went down by 20%. The drop in vehicle count drastically reduced maintenance costs as well.

In a world where thousands of decisions need to be made every hour, have the peace of mind in knowing that you can make the right call in time, every time. Unlock new possibilities for enhanced profits and improved customer satisfaction with proven, real-time planning technology.

Talk to us today and find out how Quintiq can help solve your catering planning puzzle.

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