Subject: Supply Chain Management
Topic: Supply Chain
Answer the questions from the case study
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Refer to the case study ‘Gate Gourmet: Success means Getting to the Plane on Time’.  Answer the following supply chain related questions:

1. What supply chain challenges does Gate Gourmet face when dealing with demand fluctuations from airlines?
2. Explain what a “Bullwhip Effect” in the supply chain is and what such a phenomenon would mean to Gate Gourmet’s operations if it was present.
3. What supply chain management concepts, methods, tools and techniques does Gate Gourmet have at its disposal to ensure customer service and resource utilization?
4. Explain why lead-time reductions in the supply chain are attractive to companies like Gate Gourmet.

Reference at least five (5) relevant journal articles.

Gate Gourmet: Success

Means Getting to the Plane on Time\*

M. Day

Headquartered at Zurich Airport, Switzerland, and Reston, VA, USA, Gate Gourmet is the world's second largest airline catering company, providing catering services to many of the world's major airlines, such as British Airways, Swissair, United Airlines, Delta Airlines, Virgin Atlantic and Cathay Pacific to name just a few. In a very competitive and low-margin industry, the company manages to provide more than half a million meals a day worldwide, on average 195 million every year. It has 115 flight kitchens in 30 different countries, in locations as diverse as Hawaii, Los Angeles, Buenos Aires, New York, Madrid, London, Bangkok, Sydney and Tokyo. However, it is far more than a food preparation operation; most of its activities involve organising all on-board services, equipment, food and drinks, newspapers, towels, earphones and so on. And that's not all. Gate Gourmet also unloads from the aircraft, disposes of waste, cleans the cutlery, trays, and trolleys, stores all these customer-specific accessories for each airline, and makes everything ready for the next time it's needed at the required location. In sum it is, essentially, a specialist logistics operation for the aviation industry.

Gate Gourmet places considerable emphasis on working in unison with cleaning staff, baggage handlers and maintenance crews to ensure that the aircraft are prepared quickly for departure. Normally, no more than 40 minutes are allowed for all these activities in the tight confines of an aircraft cabin and hold, so complete preparation and a well ordered sequence of working are essential. Eric van den Berg, Director of Business Applications at Gate Gourmet, gives a practical example of the complexity that is involved in servicing an aircraft in a tight schedule: 'For example, a long-haul flight from Asia may stop at Zurich Airport for only two to three hours before it returns. In this time slot, beside un-boarding and re-boarding passengers plus cabin cleaning, we are scheduled

to unload the plane of used cutlery and rubbish, and prepare and load about 5 tons of new food, drinks and equipment for the return flight.' He goes on to say: 'The process is further complicated by the fact that last-minute passengers can show up shortly before departure and also would like a meal according to the airline's specification. Then there are the passengers that require special meals (e.g. a kosher meal or a low-fat meal) and at the same time we try to avoid producing and loading more meals than actual passengers (so-called "over-catering") as this is a loss for the airline and us. People often talk about "just-in-time" delivery, but for us, just-in-time delivery is literally down to minutes.'

These requirements for speed and total dependability would be difficult enough to achieve in a stable environment, but as Eric explained there are wide-ranging uncertainties that have to be managed. Although Gate Gourmet is advised of the likely numbers of passengers for each flight, the actual number of passengers for each flight is only fixed 6 hours before take-off (although numbers can still be increased after this, due to late sales). The agreed menus are normally fixed for six months, but the actual requirements for each flight depend on the destination, the type of aircraft and the mix of passengers by ticket class. Finally, flight arrivals are sometimes delayed, putting pressure on everyone to reduce the turnaround time, and upsetting work schedules.

**BUSINESS-CRITICAL PROCESSES**

Gate Gourmet has chosen to use information technology to assist in the scheduling of food and ancillary goods. The system, called Scala, covers almost all business processes for the company's catering operation. Food cannot be easily produced too far in advance as most of it has to be freshly prepared. Preparation and production for a flight usually starts 12-24 hours before departure,

at a time when passenger numbers for this flight often still change both up and down.

The focus for Scala is to make sure that all the meals and all their accessories are delivered at the right time, at the right place and in the right quantities. The flight kitchen's control area monitors all flight operations and responds to any last-minute changes. This is vital, too: every delay, every cancellation, every rebooking and every aircraft reassignment will have a direct and immediate impact on the catering process. Minutes can often be crucial; and Gate Gourmet's dedicated teams need to respond with the utmost flexibility. This is why close contacts are constantly maintained between the purchasing, kitchen and logistics units.

Eric explains more about how Gate Gourmet uses Scala in practice for its internal processes: 'The service contracts we have with the airlines include flight schedules and meal specifications (bill of material), which are pre-set into Scala,' he says. In the days leading up to a flight, the company is kept updated with the latest passenger numbers by the airline. These numbers are either entered or electronically uploaded into Scala where, in conjunction with the flight schedule and bill of material, the daily demand for meals is calculated, and a timetable for production is worked out. Through Scala and additional fax software, the chefs in the kitchen can directly send daily purchase orders for, for example, vegetables to the suppliers. 'You will find Scala terminals everywhere on the shop floor in our flight kitchens.'

When food for a flight is ready to be boarded, a last quality check is made and trolley labels and delivery notes are printed from Scala. Once shipped and confirmed in Scala, invoices are printed either on paper or in electronic form and sent to the airline.

Scala relies on vast databases that store thousands of detailed recipes to ensure consistent ingredients, presentation and taste, even on the largest of scales and stowing modules in which the layout for each aircraft is captured.

**HAND-CRAFTED FOOD MANUFACTURING**

Yet despite these high-tech inroads into the cooking world, the majority of the food preparation work is still done by hand. The vast range of products for snacks, tasters, starters, main courses, desserts and in-between meals for over 250 airline customers has to be processed and prepared every single day. No conveyor-belt production is possible here: every day, Gate Gourmet prepares over 570000 hot and cold meals in repetitive batch processes that use a small range of cooking techniques that preserve the quality of the ingredients. On top of this, the group produces a large quantity of special meals, which are also changed daily. All these products need to pay due and full regard to the cultural and culinary features of each specific destination.

Needless to say, the strictest hygiene standards are applied at all Gate Gourmet's production premises, which are regularly inspected by the relevant authorities. One hundred per cent cleanliness is constantly maintained; and the correct handling of foodstuffs is an uncompromising imperative. Gate Gourmet's in-house laboratories and hygiene specialists are a further guarantee of the group's full compliance at all times with the highest quality and hygiene standards.

**THE WIDER SUPPLY CHAIN**

Gate Gourmet has also invested a great deal of time and money in integrating its supply base into the systems that provide real time data into the Scala system. Under the banner of 'e-gatematrix', a series of web-enabled systems capture schedule data from Gate Gourmet's airline customers, using it to schedule meal deliveries, procure and synchronise deliveries from suppliers, and finally close the purchase-to-pay loop by managing supplier and airline invoicing.

One of the most testing times for Gate Gourmet and the e-gatematrix system came during the weeks and months following September 11, 2001, when there was an endless stream of changes regarding in-flight services that needed to be communicated and implemented. A number of Gate Gourmet's customers needed to communicate changes about:

* Flight schedules
* Over 10% of the flights were eliminated
* Meal services
* The number of flights with meal service was reduced by over 40%
* Meal service levels were changed on the remaining flights
* In-flight equipment
* Regulations required that certain equipment could no longer be used during the flight (i.e. knives)
* Supply chain issues
* Equipment and perishable inventory re-balancing in the network.

The workload involved service scheduling, galley planning and menu specifications. Using e-gatematrix's integrated technology systems, the e-gatematrix team created all the changes necessary to maintain accurate communications to the upstream supply chain about the current in-flight service specifications. Additionally, technology interfaces with the airline's legacy systems allowed Gate Gourmet to communicate new demand expectations to the supply chain by publishing accurate passenger load forecasts and service level demand forecasts, reducing production volumes throughout the supply chain.

As a result Gate Gourmet and its airline partners were able to successfully communicate thousands of individual changes regarding in-flight services to the airlines' in-flight supply chain. The changes were created and managed using the e-gatematrix technology systems, providing the supply chain with real-time communication of those changes. Communications were made to the service providers and suppliers who serviced over 140 worldwide stations and encompassed hundreds of flight schedule changes and many more service level, meal and equipment changes. The ultimate result of quickly implementing all of these changes was Gate Gourmet's airline customers realised significant savings and cost avoidances, quickly adapting to the changes in the industry's economic environment.