

Real time business intelligence at continental airlines

[Environment](#), [Air](#)



1.

Describe “ active” data warehousing as it is applied at Continental Airlines. Does Continental apply active or real-time warehousing differently than this concept is Normally described? Explain your answer. Answer: as shown in the case Continental senior management decided to invest in enterprise data warehouse that all employees could use for quick access to key information about the business and its customers. The data warehouse initial focus was to provide accurate integrated data revenue management.

At Continental they moves real-time data, ranging from to-the-minute to hourly about customers, reservations, check-ins, operations and flits from its main operation system to the enterprise data ware house. Following are the few key applications that rely on real-time data. Fare design: continental understands how important it is to offer competitive prices for the flights to desired places at convenient times. Continental uses real-time data to optimize airfares using mathematical programming models.

These helped continental improve the ability to estimate the impact of fare sales and these activities have been estimated to earn \$10 million annually. Customer relationship management: continental marketing department uses the warehouse for customer segmentation and target marketing, loyalty, retention management, customer Acquisition and campaign management, in addition marketing has also created other innovative CRM applications that leverage the warehouse’s real time capabilities. a targeted CRM program resulted in \$150 million in additional revenues in one year , while the rest of the airlines industry declined 5 percent. Customer value analysis: a customer

value model using frequency, regency and monetary value gives continental an understanding of its most profitable customers. Over the past years, a goal was to increase the amount of travel by continentals most valuable customer travel. There has been an average increase in travel of \$800 for each of the top 35, 000 customers.

(Managing information technology, 2009, P. 315) Marketing insight: at continental airlines the marketing insight clearly shows that it is developed to help sales personnel, marketing managers and flight personnel with customer profiles. They can see how much someone has traveled with continental and what the person's value is to airline. Fraud detections: Continental uses its warehouse to identify reservations that are not in fare and contract Compliance and to profile suspicious booking and ticketing transactions.

Fraud also includes the Blocking of seat inventory, the selling of tickets at prices lower than allowed. Fictitious booking records, fraudulent lost baggage claims, and One Pass account redemption abuse. Airline security is also supported by the Continentals real-time data warehouse. Around \$30 million in the last three years was identified and prevented from the fraud in Continental.

This includes more than \$ 7 million in cash collected. (Managing information technology, 2009, P. 318) In my opinion continental apply real-time warehousing, Powered by a real- time data warehousing and strong management leadership around data, deploying applications in revenue

management, customer relationship management, flight and ground operations, fraud detection, security, and others. Because of this the company has dramatically changed all aspects of its business.

Reference: (Managing information technology, 2009, P. 315, 316, 218, 321)2.

In what ways does real-time data warehousing fit with the Continental strategy and plans And describe some of the specific benefits they have realized from its implementation? Ans: in my opinion the real-time data warehousing and strong management leadership around data. Fit with the Continental strategy and plans, by deploying applications in revenue management, customer relationship management, flight and ground operations, fraud detection, security, and others. We can clearly see that this real-time data warehousing applications are suitable with the conventional strategy and plans which is affecting the ways of business continental does. Benefits: benefits includes from real-time BI at Continental range from better pricing of tickets to increased travel to fraud detection.

Following are the some of the benefits which has been realized: Marketing benefits: •Customer segmentation, target marketing, loyalty/retention management, customer acquisition, channel optimization, and campaign management using the data warehouse has been performed at continental regularly. Targeted promotions have produced cost savings and incremental revenue of \$15 to \$18 million per year to continental. •Over the past year, a goal was to increase the amount of travel by Continental's most valuable customers travel. There has been an average increase in travel of \$800 for each of the top 35, 000 customers. Corporate security benefits: •Continental

was able to identify and prevent over \$30 million in fraud over the last three years.

This includes more than \$7 million in cash collected. IT benefits: •The warehouse technology at continental has significantly improved data center management, which has leading to cost savings of \$20 million in capital and \$15 million in recurring data center costs Revenue management benefits: •Continental's Full reservation analysis have realized \$20 million in savings through alliances, overbooking systems, and demand-based scheduling Reference: (Managing information technology, 2009, P. 321)3.

What did the data warehousing group do right from a technical, organizational, and strategic perspective that has led to the successful deployment of (real-time) data warehousing and BI within Continental?

Ans: The first right thing the group has done is to divide their work; here each person was responsible for their work. They together manage the warehouse, develop and maintain the infrastructure, data modeling, developing and maintaining ETL processes, and also worked with the business units. These groups have been a great help for continental in implementing real-time data warehousing.

On the other hand, another right thing the group has done is the communication between the employees. For example, the warehouse staff meets with the committee to inform and educate the members about warehouse-related issues. In turn, the members identify opportunities for the warehouse staff to become involved with the business areas. The warehouse teams also help to validate and write requests for additional funding.

Another responsibility is to help set priorities for future directions for the warehouse4.

What elements of the data warehousing environment, people, organization, and/or Technical, at Continental are necessary to support the extensive end-user BI application development that occurs? Ans: following are the few elements of the data warehousing environment, people, organization, and/or Technical, at Continental are necessary to support the extensive end-user BI application development that occurs

- Flight Management Dashboard: The Flight Management Dashboard system is an innovative set of interactive graphical displays developed by the data warehouse group. These displays are proposed to help the operations team quickly identify issues in the Continental flight network and then run flights in ways to improve customer satisfaction and airline profitability (Managing information technology, 2009, P. 316). To understand the high-level's views can be broke down to see the details on the On flights that create different statistics or categories.
- Real-time Flight Statistics: Updated operational data can be seen in real time every moment, as this data is updated every minute, here the users are able to submit Queries and understand how the airline operation is performing at any moment.

On the other hand the Management can see all the time real-time, the revenue projections for any flight, where the most valuable customers are while in flight, which ones are affected by delays and cancellations, and bookings as they are made. And the good thing here is they can also run “ what-if” scenarios to determine the impact of cancellations, delays, or

changes to specific flights. (Managing information technology, 2009, P. 317) Also can be included in the elements of the data warehouse is, Automatically generated Meta data that is refreshed and published on the Intranet, so that the user can assess easily. SQL Server operational database that stores configuration and status data, Control of Teradata at continental which loads utilities, and monitoring of MVS jobs through 3270 emulators, and at the end is the real-time display of what each service is doing in each transformation server machine. 5.

Why does Continental believe that a 3rd normal form enterprise data model is important? Ans: There are very few reasons shown in the case that why continental believe that a 3rd normal form enterprise data model is important. Following is the most important reason As shown in the case with the use of the 3rd normal form model, all warehouse data can be stored in one place. By storing in one place the data can be easily maintained, queries can easily cross subject areas, and the data can be available any time enterprises wide. Due to the use of 3normal form model Continental has had great success with its enterprise data warehouse.

People at continental think that the use of enterprise-wide data has made them think more creatively. Because of this particular reason I think continental believes that a 3rd normal form enterprise data model is important to the growth of its business. 6. What special issues about data warehouse management (e. g., data capture and loading for the data warehouse (ETL processes) and query workload balancing) does this case suggest occur for real-time data warehousing? How has Continental

addressed these issues? Ans: Special issues about the data warehouse management which continental has address are: •Due to the Continuous data loads software use, such as CDC (Change Data Capture), and also the captured the special hooks or triggers on the operation system.

- Under the continues monitoring of the Service processes, they queues and transform each piece of data that gets loaded into the warehouse using the Teradata continuous load TPump facility
- High priority is set to the tactical queries that access single records.
- Due to the high volume of data uploading, it will not allow a single user Intervention because the monitoring systems detect a condition that requires attention.