AIRLINE COMPANY BUISNESS ANALYSIS

Ahmed Samir

Business Processes

1. Ticket Reservation:

The process of ticket reservation will show the following:

- Booking reference whether the booking is online, from an agency or from the airport itself.
- The whole journey of the passenger by showing the departure date and airport and the arrival date and airport.
- The payment form to facilitate dealing with it whether it will be credit or cash at an agency.
- During the reservation process the seat number and class including the fare basis will be confirmed.
- It will be included within the reservation process if this ticket is subjected to a promotion supported by the airport or not.
- The status of the flyer if he is enrolled in any program as frequent flyer program or not.
- It includes the type of the ticket whether it is refundable or not and the cancellation of the ticket.

2. Customer Services:

- In this process we will handle the complain of the passenger whether it is before, within or after the journey and specify the type of the complaint and the severity of it to enhance the performance and check how handling the situation and interaction occur by the response of the agent

3. Special Requests:

- In order to facilitate the journey for the passenger there is a SSR Code which stands for Special Service Request, it aims to help the passenger and it is a

SSR Code	Description of Assistance
WCHR	Wheelchair assistance required; passenger can walk short distance up or down stairs.
WCHS	Wheelchair assistance required; passenger can walk short distance, but not up or down stairs.
WCHC	Wheelchair required; passenger cannot walk any distance and will require the aisle chair to board.

coding system each code stands for a service and show its description like the need of a wheelchair in the airport

4. Accommodation Support:
    - Some passengers need to have long journeys that will include a transition time between each flight so an accommodation will be needed in this case therefore overnight program is performed t include hotels showing the name, address, rating, room specification whether it is a suite or normal room, the meals supported to the stay if it is full-board or not.

5. Customer Loyalty Program:
    - There are types of programs supported by the airline one of them is frequent flyer program. It will show the points that the frequent flyer will have, how to earn them and redeem the reward.

6. Flight Activity:
    - It can show the flight departure and arrival and calculating the revenue from the journey by checking the expenses in the journey and the profit gained from it.

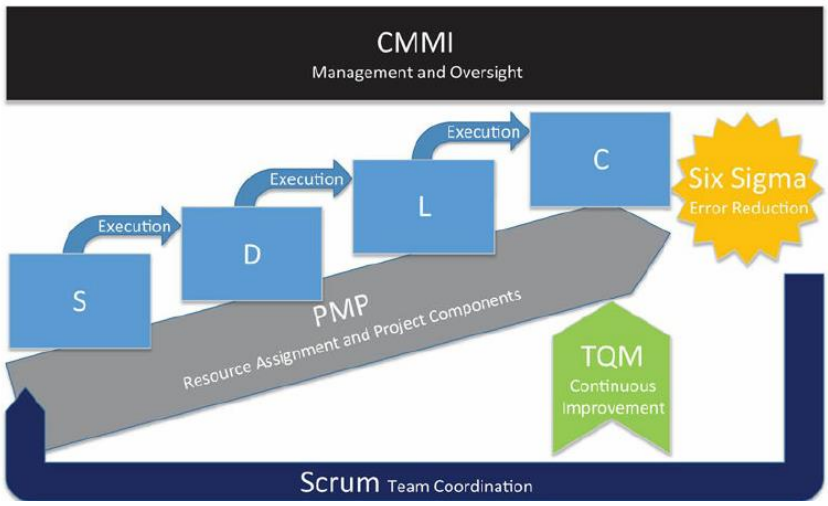
Methodology

Data Vault

In order to deal with further scaling of the Data Warehouse capabilities in terms of new reports and expanding over the opportunities offered by the preliminary features of the Data Warehouse, the selected architecture was Data Vault 2.0, which models the business processes of the airline, and enables developing information marts using dimensional modelling.

Reasons for choosing **Data Vault** as a model:

- In this case we wanted a diagram that deals more with business and need to be scalable in anytime to fit the changes as from the requirement that this business need to check new opportunities, so we decided to use a fast, scalable and help in checking the near real time changes.
- From the benefits of Data Vault Methodology that is shows high efficacy in project management in data warehousing.so by using Scrum and CMMI it will be the way to success.



Building a Scalable Data Warehouse with Data Vault 2.0

Kindly be noted that color coding is used:

- Blue for hubs
- Yellow for Links
- Green for satellites

Illustration of some Business terminologies:

- SSR: Special Service Request.
- PNR: Passenger Name Record, it is a code generated for a passenger or group of passengers traveling together. It contains name of the passenger, itinerary, tickets information and contact information for the booking agency.
- Frequent Flyer: it is a program that is supported by the airline for the passengers that travels a lot it could be by paying fees or you enrolled if you travel certain amount of miles and then within it you will have a status gold, platinum, titanium according to the number of miles you travel and each status has different package of privileges. The frequent flyer is then supported by points that he will redeem in different ways as shopping from certain places or having an award flight.

In our Data Vault Model, we assumed a few things over the business:

- We will calculate revenue and profits based on flights that happened, and total revenue (earned and unearned) based on total tickets.
- Need to make assumptions about levels of severity in customer care tickets.
- Need to assume how complaint time is acquired.

Data Marts

Marketing Information Mart

The business process modeled in this information mart are:

1. Ticket Booking
2. Hotel Reservation
3. Frequent Flyer Program Transactions

The grain is atomic, up to specific transactions within each process, reflected in their specific fact tables.

The facts measure, respectively for every process

1. Ticket Booking
    a. Special Promotion Indicator
    b. Upgraded Ticket Indicator
2. Hotel Reservation
    a. Nights Stayed
3. Frequent Flyer Program Transactions
    a. Point earned or redeemed

The dimensions included are:

1. Date
2. Passenger
3. Frequent Flyer Status
4. Airport
5. Frequent Flyer Channel
6. Frequent Flyer Channel Type (Earn – Redeem)
7. Ticket
8. Hotel
9. Fare Basis

Finance Information Mart

The business process modeled in this information mart are:

1. Ticket Booking

The grain is atomic, up to specific transactions within each process, reflected in their specific fact tables.

The facts measures are

1. Cost per ticket
2. Revenue per ticket
3. Profit per ticket

The dimensions included are:

1. Date
2. Ticket
3. Reservation Channel
4. Flight
5. Frequent Flyer Status

Customer Interaction Information Mart

The business process modeled in this information mart are:

1. Customer Service Interaction

The grain is atomic, up to specific transactions within each process, reflected in their specific fact tables.

The facts measures are

1. Severity Level

The dimensions included are:

1. Date
2. Ticket
3. Passenger
4. Flight
5. Interaction Type
6. Complaint Type

Final Remarks

The current architecture easily enables enhancements to the present information marts, and further addition of more information marts that suit the requirements of the business as time goes.

This approach has an advantage over vanilla dimensional modelling, as it maps out the business processes in the data vault, enabling virtually mapping any data from different source systems without resorting to a new ETL job if the data needed wasn’t included in the one loaded in the dimensional data marts.