

IBM Literature Survey**Team Leader:** Dinesh Sundar S (311519106024)**Team mates:** Akshaya S (311519106008)

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Domain Name: Logistic & Transport (L & T)**Use case Name:** Airlines Data Analytics For Aviation Industry

S.No	Author	Title of the Paper	Methodology	Pros (Advantage)	Cons (Disadvantage)
1.	Kasturi E , Prasanna Devi S , Vinu Kiran S, Manivannan S	Airline Route profitability analysis and Optimization using BIG DATA analytics on aviation data sets under heuristic techniques	In this paper the airline route profitability optimization model is proposed based on performing Big data analytics over large scale aviation data under multiple heuristic methods, based on which practical problems are analysed. Analysis should be done based on key criteria, identified by operational needs and load revenues from operational systems e.g. passenger, cargo, freights, airport, country, aircraft, seat class etc., The result shows that the analysis is simple and convenient with concrete decision.	The implementation of accurate and algorithm based optimized flight plans can save airlines even litres to several millions of gallons of fuel every year, pretty much without forcing the airlines to compromise their schedules or service. Big data analytics on aviation data helps By varying the routes, shifting passengers, freights, speeds, total distance and amount of departure fuel, an effective flight plan can reduce fuel costs, route distance, overflight costs, time-based costs, and lost revenue from payload that cannot be carried.	Operating cost, traffic forecasting and airport capacity restriction and several other variables are not considered into account. There are multiple known and hidden variable factors involving on the aviation data

2.	Dr.M.Sornam, M.Meharunnisa, Parthiban Nagendren	Big Data Analytics on Aviation data for the prediction of Airline Trends in Seasonal Delay	This paper provides the result about the total flight delay for a specific period of time caused due to climate, security, carrier, NAS, arrival and departure based on total number of flights getting delayed over the past few years. The historic data which is to be analysed is stored on the databases such as MongoDB and Hive. The usage of time series analysis along with the integration of heterogeneous database helps to achieve the Airline Seasonal Delay which is implemented and visualized in R.	The results of this paper help us to setup a trend line to take necessary measures to avoid future delays. The data is integrated from MongoDB and Hive, which is used to provide the insights for the aviation industry to take future measures to avoid delays and manage them	With the advent of the big data era, dealing with large amounts of data is challenging. The dataset provided in this paper is not up-to-date. It is a tedious process of conversion referring to recent data.
3.	Hamida Abd El Samie Mohamed, Mahmoud Ramadan Al-Azab	Big Data Analytics in Airlines: Opportunities and Challenges	This study illustrates how airlines successfully adopt big data technology. The paper also explores the opportunities and challenges of big data in the airline industry. Big data analytics is considered a new generation of technologies, designed to extract value from very large volumes of a	The results demonstrated that big data presents a plenty of promising opportunities for the aviation industry. Big data provides airlines with modern insights that can invent new business models	Through data analysis, different types and sources of data can be linked to form specific relationships that end with meaningful value decisions. This challenge is also related to a lack of knowledge and absence of organizational culture based on the importance of

			wide selection of data, by enabling high velocity capture, discovery and/or analysis		data in airlines.
4.	Anandavel Murugan, Dinkar Mylaraswamy, Brian Xu, Paul Dietrich	Big Data Infrastructure for Aviation Data Analytics	This paper describes the authors approach towards developing and using a big data infrastructure for analyzing aviation data. They briefly introduce our data sources, nature of data collected, cluster design, data loading and storage strategy and our language and library of choice for analytics and visualization. They have derived solutions for Auxiliary Power Unit (APU) analytics using Big Data.	The case studies discussed here explain how new and novel perspectives could be easily developed by employing big data. In this paper, columnar nature of HBase which is the important part of our big data stack enabled us in storing data of different schemas in one database. R along with hadoop packages like rhbase and visualization packages like ggplot, rCharts enabled querying and plotting the data with ease	The tool used in analytics is rCharts which is not very frequent among analysts which makes it difficult to follow their research
5.	J. Pulido, D. Moore and W. Hill.	Flight Delay Prediction Based on Aviation BIG DATA and Machine Learning	In this paper the dataset they have used includes the scheduled and actual departure and arrival times for non-stop flights recorded by different airways. Information on delayed and cancelled flights, actual travel time and non-stop distances is also	The purpose of doing the above classification and analysis is to gauge the delay to not only suffice the various purposes of humankind, but also analyze factors affecting delay.	These methodologies offer virtually identical accuracy however we want an algorithmic rule that is good with real world prediction and analysis

			available in the dataset. Three methods are used to predict flight delay, that is, Random Forest, Support Vector Machine, K-nearest neighbour		
6.	Mihai ANDRONIE	Airline Applications of Business Intelligence Systems	Data coming from various sources in the aviation industry are integrated into a common big data repository before they can be analyzed using specialized software. To explore big data and offer decision support at all levels in a company special software systems have to be used, also known as business intelligence/ business intelligence type systems. An airline company that has access to large volumes of data (stored into conventional or big data repositories) has two options to extract useful decision support information: processing data by using general-purpose business intelligence systems or processing data by	Business intelligence systems for the airline companies are designed to optimally process airline related data so that the activities that are conducted can be optimized to maximize profits, while meeting customer requirements. Dedicated airline industry business intelligence systems offer solutions to specific problems that airline companies are facing, offering even access to specific data interesting to such companies	Processing data by using general purpose business intelligence systems offer to companies more flexibility and a wider range of instruments, but, in the same time, they are not as adapted to the needs of airline companies as processing data by using industry specific business intelligence systems.

			using industry specific business intelligence systems. The present paper presents a comparative study of a number of general-purpose and airline industry specific business intelligence systems, together with their main advantages and disadvantages.		
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