AIRLINES DATA ANALYTICS FOR AVIATION INDUSTRY

Data Analytics for Air Travel Data(2021):

Authors:Haiman Tian,Yudong Tao

The researcher in this article cited that,From the start, the airline industry has remarkably connected countries all over the world through rapid long-distance transportation, helping people overcome geographic barriers. Consequently, this has ushered in substantial economic growth, both nationally and internationally. The airline industry produces vast amounts of data, capturing a diverse set of information about their operations, including data related to passengers, freight, flights, and much more. Analyzing air travel datacan advance the understanding of airline market dynamics, allowing companies to provide customized, efficient, and safe transportation services. Due to big data challenges in such a complex environment, the benefits of drawing insights from the air travel data in the airline industry have not yet been fully explored. They introduce existing data sources commonly used in the papers surveyed and summarize their availability. Finally, we discuss several potential research directions to better harness airline data in the future. They anticipate this study to be used as a comprehensive reference for both members of the airline industry and academic scholars with an interest in airline research.

Data Analytics Of Skytrax's Airport Review And Ratings(2015):

Author:KrityaBunchongchit

The researcher in this article cited that,This study investigates the perception of passengers of airport service attributes, using data from the Skytrax Airport Review websites. Overall, a total of 7358 reviews were collected from the website, together with other related passenger data, namely review headers, passenger types, rating scores of airport attributes and the overall rating. This study focused on investigating each group of passenger types to identify underlying differences amongst airport's passenger segmentation, particularly on the leisure travellers. The study performed different

techniques of data analysis including sentiment analysis, lemmatization and partial least square – structural equation modelling (PLS-SEM) to reveal key patterns derived from the available data, which the normal survey data or the interview data may not have revealed. The research contributes to airport passenger segmentation by highlighting the differences found in the travellers segmented by Skytrax. The study also provides practical implications to airport managers.

Post Pandemic Aviation Market Recovery: Experience and lessons from China(2021)

Author:Achim.I.Czemy

The researcher in this article cited that,China was the first aviation market in the world hit hard by COVID-19 and has been recovering gradually as the pandemic became largely under control within mainland China. This study reviews the recovery pattern influencedby the Chinese government's aviation policy choices, in the hope that our discussions and findings will help improve aviation policy responses elsewhere. While the domestic market in mainland China has enjoyed a quick recovery to about 80% of the pre-crisis level by July 2020, the recovery of international services has been much slower, due to the bilateral route and flight frequency/capacity control and strict requirements for health check and quarantine. China's domestic aviation market was recovered by about 80% in two months after the pandemic became under good control. Most other countries with a “curve flattening” strategy, instead of full pandemic control, may not expect the fast recovery path China has achieved. A British “travel corridor” approach may be more practical for Western countries to follow, albeit more likely to be subject to serious setbacks and disruptions. The aviation fee reductions and cost support China and many other countries have been using are helpful by reducing airlines' marginal costs, but not sufficient for carriers to return to profitability or sustainable operations. Capital injection and/or credit guarantee may be needed for many airlines to survive. With various, often uncoordinated, regulations imposed in international markets, airlines based in open economies that have small domestic markets will face particularly serious challenges during the recovery process.

Sustainability Reporting In The Airline Industry: Current Literature And Future Research Avenues(2022):

Authors: Malgorzata Zieba and Eljas Johansson

Researchers in this article cited that,sustainability reporting (SR) allows organisations to communicate their non-financial impacts to stakeholders. It has also become a widespread business practice in aviation, a transport sector that contributes significantly to global warming.

Academia has begun to examine SR in the context of airlines surprisingly late, and no comprehensive reviews of its respective developments have been made so far. Consequently, a systematic literature review was performed with an exclusive focus onairline SR to synthesise its associated scholarly research and distinguish the common concerns and gaps that have emerged from it. The analysed publications indicate that the industry has lacked a unified policy and common understanding of how to define and measure sustainability, which has led to inconsistent SR practices. This causes ambiguity between the real actions and promotional communication through which airlines may legitimise their operations. Academia and various airline stakeholders would benefit from more in-depth studies examining the stakeholder views and quality of disclosures, helping the industry improve its SR.

The Impact Of Social Media And Offline Influences On Consumer Behaviour: An Analysis Of The Low-Cost Airline Industry(2018):

Author:Carla Ruiz

The researcher in this article cited that,this study analyses the impact of social media as well as offline environments upon tourist online purchase and recommendation behaviour of low-cost airline services. Drawing on the Theory of Reasoned Action (TRA), this research considers the effect of offline social influences (interpersonal and external influences) and analyses online Consumer-to-Consumer (C2C) information exchanges as a driver of customer attitude towards online purchases. We propose that these factors improve online repurchase intentions and positive word-of-mouth communication (WOM and e-WOM) in low-cost settings. Using structural equation modelling, the conceptual model is tested with a sample of 441 Spanish Internet buyers of low-cost airline services. Interpersonal offline influences (e.g. friends, relatives, and family) have a

significant effect on online repurchase intentions and WOM but do not affect e-WOM. External offline influences (e.g. media and experts), however, only affect consumer intentions to recommend future purchases of low-cost airline services on social networking travel sites and have no effect on online repurchase intentions or WOM.

Assessing Quality Of Air Transport Service: A Comparative Analysis Of Two Evaluation Models(2021):

Author:Denise Dumiko De Medeiros

The researcher in this article cited that,this paper aims to analyze the opinion of tourists about airlines' service in a developing country. For this, the study proposes to make a comparative analysis of two evaluation models (SERVQUAL and SERVPERF) to investigate the factors that influence the formation of perceived quality in airline services, using statistical techniques such as Cluster Analysis and Structural Equation Modeling. Although the results were not the same, the result of both analyzes indicated two common dimensions (tangibles and empathy) that influence the customer's perception of the airline service quality. The main conclusion of this study is that the two analyzes are convergent for the study sample. The SERVQUAL and cluster analysis allow airline managers to identify and prioritize gaps in service delivery according to criticality, aiming at the allocation of efficient resources by the airline. The SERVPERF and SEM provide statistical evidence of the impact of different dimensions of service quality on customer satisfaction, highlighting the direct relationship between satisfaction and dimensions. Considering how customers evaluate the service provided by airlines, particularly regarding the service they receive from airport employees, this study has relevance for decisions taken by airline managers to develop quality services, and provide guidelines for improvements in airline services.

Customer segmentation revisited: The case of the airline industry(2018):

Author:Iwanvon Wartburg

The researcher in this article cited that,although the application of segmentation is a topic of central importance in marketing literature and practice, managers tend to rely on intuition and on traditional segmentation techniques based on socio-demographic variables. In the airline industry, it is regarded as common sense to separate between business and economy passengers. However, the simplicity of this segmentation logic no longer matches the ever more complex and heterogeneous choices made by customers. Airline companies relying solely on flight class as the segmentation criterion may not be able to customize their product offerings and marketing policies to an appropriate degree in order to respond to the shifting importance and growing complexity of customer choice drivers, e.g. flexibility and price as a result of liberalization in the airline industry. Thus, there is a need to re-evaluate the traditional market segmentation criterion.

By analyzing the stated preference data of more than 5800 airline passengers, we show that segmenting into business and leisure (a) does not sufficiently capture the preference heterogeneity among customers and (b) leads to a misunderstanding of consumer preferences. We apply latent class modeling to our data and propose an alternative segmentation approach: we profile the identified segments along behavioral and socio-demographic variables. Wecombine our findings with observable consumer characteristics to derive pronounced fencing mechanisms for isolating and addressing customer segments receptive for tailored product packages

A Hierarchical Model Of Service Quality In The Airline Industry(2015):

Author:Ching Chang-Cheng

The researcher in this article cited that,the purpose of this study is to enhance understanding of service quality in the airline industry by developing a conceptual framework and measurement scale. Based on an extensive literature review, qualitative and empirical research, a hierarchical model of service quality for the airline industry is proposed. Analysis of data from 544 passengers indicates that the proposed model fits the data well. Reliability and validity of the measurement scale are established using a pilot test and the substantive survey. This study extends the literature on service quality in the fields of transportation management by providing a comprehensive framework and measurement scale. Theoretical and managerial implications are discussed.

Applied Cognitive Task Analysis in Aviation(2017):

Authors: Thomas L. Seamster and Richard E. Redding

Researchers in this article cited that, due to the requirements of automatic system design, and new needs for the training of complex tasks, Cognitive Task Analysis (CTA) has been used with increasing frequency in recent years by the airline industry and air traffic control community. Its power is reflected in the literature on professional training and systems design, where CTA is often cited as one of the most promising new technologies, especially for the complex cognitive tasks now confronting those working in aviation. The objective of this book is to bridge the gap between research and practice, to make what we know about CTA available to practitioners in the field. The book focuses on cognitive psychology and artificialintelligence analyses of aviation tasks. It is designed to help readers identify and solve specific design and training problems, in the flight deck, air traffic control and operations contexts. Distilling experience and guidelines from the best aviation cognitive analyses in accessible form, it is the first comprehensive volume on CTA, and is written for practitioners of cognitive analysis in aviation. It provides an overview of analyses to date; methods of data collection; and recommendations for designing and conducting CTA for use in instructional design, systems development, and evaluation. The first part of the book provides the principles and foundations of CTA, describing traditional approaches to task analysis and ways that cognitive analyses can be integrated with the analysis and development processes. The next part details how to: select the appropriate method or methods; determine job tasks that can be trained for automatic performance; extract knowledge structures; analyse mental models; and identify the decision-making and problem-solving strategies associated with experienced job .performance. The authors also describe when to use and how to design and conduct a cognitive task analysis; how to use CTA along with traditional task analysis and ISD; and how to use CTA in training program development and systems design, as well as in personnel selection and evaluation. The current demand for cognitive analyses makes this a timely volume for those in aviation and, more generally, the industrial development and training communities. Readers will find this a thorough presentation of cognitive analyses in aviation and a highly usable guide in the design, implementation and interpretation of CTA. The book will be useful to instructional developers, aviation equipment and systems designers, researchers, government regulatory personnel, human resource managers, instructors, pilots, air traffic controllers, and operations staff

Data Science And Analytics In Aviation(2020):

Authors:Sai-Ho-Chung,Hoi-Lam-ma

The researcher in this article cited that,Due to the rapid development of advanced technologies nowadays, a massive amount of real time data regarding flight information, flight performance, airport conditions, air traffic conditions, weather, ticket prices, passengers comments, crew comments, etc., are all available from a diverse set of sources, including flight performance monitoring systems, operational systems of airlines and airports, and social media platforms. Development of data analytics in aviation and related applications is also growing rapidly. This paper concisely examines data science and analytics in aviation studies in several critical areas, namely big data analysis, air transport network management, forecasting, and machine learning. The papers featured in this special issue are also introduced and reviewed, and future directions for data science and analytics in aviation are discussed.

Topological Data Analysis For Aviation Applications(2018):

Authors: Max Z. Li,Megan S. Ryerson and Hamsa Balakrishnan

Aviation data sets are increasingly high-dimensional and sparse. Consequently, the underlying features and interactions are not easily uncovered by traditional data analysis methods. Recent advancements in applied mathematics introduce topological methods, offering a new approach to obtain these features. This paper applies the fundamental notions underlying topological data analysis and persistent homology (TDA/PH) to aviation data analytics. We review past aviation research that leverage topological methods, and present a new computational case study exploring the topology of airport surface connectivity. In each case, we connect abstract topological features with real-world processes in aviation, and highlight potential operational and managerial insights.