Milestone 1

Michael Mitchell

DAT 320

11 July 2021

Introduction

Austin Air is contemplating expanding into the international aviation market. Sir Austin Emmanuel, a Nigerian billionaire, owns the aviation business. Sir Emmanuel wants to grow the business by cutting expenses, offering affordable ticket prices, improving consumer loyalty, and gaining a larger share of the European aviation industry. MichaeMitchellConsulting has been employed as a contractor to help with site selection, country selection, airport selection, and flight path selection.

There are a few issues that must be resolved before Austin Air can spread internationally. One challenge to tackle is determining which flight routes have the most accessible market share, i.e. which routes have the fewest flights. Another issue to solve is how to cut costs and have affordable ticket prices while fulfilling consumer needs. There are 59,637 separate routes from 1114 active airlines in the provided data collection, so choosing routes that are actually operated with the equipment Austin Air owns is critical to performance.

The airline industry and market are one of the most complex markets whose entry requires several considerations. New companies face different factors that they need to consider. The entrance of new companies into the market is considered a threat for the all of the current providers. However in this case, there are many barriers that they are forced to face before finally getting into operation. There are certain requirements that Austin Air need to consider. Some actions that they have to do before entering the market, and this study aims to highlight these requirements and actions. For instance, our organization has a target of operating within the Nigerian domestic airline market. This is a complex market characterized by many regulations and requirements that need to be considered before making an entry, as well as a lack of operation policies (Ladan, 2012). The environment is characterized by many potential consumers given by the country's large population; however, the return on investment is not guaranteed as it has been seen in the previous airlines that have entered and left the market in a short while. There are many cases where new companies have entered and left the market within a short time. In this case, one needs a deeper understanding of how the market operates first before making an official entry. To get a good understanding of the market and make an entry on a positive note, the following are the goals that new entrants need to achieve first.

For operating in the airline business, there is a need for airplanes, and they are the main means of operation. The budgeting for buying planes is done across the planning process, where the market survey allows for analysis of the different types of airplanes, the cost and quality, the business plan gives the exact budget after the decisions have been made on the type to purchase and before the actual operation starts, the planes are purchased. The business will also put into consideration the online and offline marketing costs. Before getting into the market, there is a need for marketing. Marketing in today's world takes both forms, online and offline, in a bid to get to the largest potential audience. Additionally, bookings for air travel today work best with online booking and hence the need for creating the company website where all transactions will be conducted. This will involve IT experts who are well versed in the operation of the online market.

The Nigerian Airline industry is characterized by many limitations, including security, laws and regulation and other factors like competition. The industry currently boasts 23 active domestic airlines (Fagbemi & Daramola, 2019). This makes the market very competitive for new entrants. However, the limitation to operation is the fact that there are no policies to control the operation and competition strategies. In this case, new entrants need to make a good survey of the market and ascertain the operation activities and strategies of the current players in the market before making an official step into the market. Finding out more about the competition allows the new entrant to have a good idea of the strategies to put in place to survive and keep up with the competition and possibly gain a competitive advantage. Entering any market for any business is driven by the need to make a profit and remain in operation and meet the needs of the consumers. The main business problem would be learning the intricacies of running the business within the Nigerian market. The business is both labor and capital-intensive; however, the government plays a major role in determining the operation.

Data Life Cycle

For Austin Air, MichaelMitchellConsulting plans to heavily use the “Data Life Cycle” in their approach. For clarity, let me describe the Data Life Cycle in depth.

Phase 1 – Understanding the Business issue – When you initiate a data project, the first step is to fully understand the problem state and the expectations of the customer. Normally, the customer will have an outline that briefly describes the problem. Then you need to map out the scope of work, business objectives, information requirements, type of analysis they are seeking, and the deliverables.

Phase 2 – Understand the Data – Before any analysis can be conducted, you will need to have a strong understanding of the data. It is recommended that you clean the data first. This consists of looking for missing fields, illegal characters, etc. This is usually done with a tool such as: Qlikview, R, or Python.

Phase 3 – Prepare the Data – A follow on to understanding the data. Here you will add any additional columns, reformat the data if necessary.

Phase 4 - Perform Exploratory Analysis and Modeling – In this phase, you will start to compile statistical models to aid in your initial assessments of the data.

Phase 5 – Validate Your Data – Once the data is assessed, you will need to validate your data and ensure that it meets the requirements for the deliverables. Questions like “Did the models work correctly?”, “Does the Data require additional cleaning?”, or “Did you meet the customer requirements?”.

Phase 6 – Visualize and Present Your Findings – Create your visualizations and present them to the Customer. Be sure to try and tell a story with your data.

Now that we have established all of the phases of the Data Life Cycle, let’s talk about application to the Austin Air Project. Due to time constraints, Phases 1 & 2were done simultaneously. After speaking directly with Sir Austin Emmanuel to discuss current challenges and expectations of MichaelMitchellConsulting, the refined requirement for Austin Air, is to infiltrate the European stronghold on the Airways. The plan is to gain understanding of deciding locations, countries, airports, and flight routes first. Next, we will look for viable entry points to expand the presence of Austin Air. Sir Austin Emmanuel provided data sets for Airlines, Airports, & Routes. By sorting through the data using Power BI, it was revealed that some of the data has discrepancies. It is also noted that there were missing fields and that additional columns might be considered. The total numbers provided in the rubric/scenario is also different than what is actually available when opening the datasets. The Airport As of right now, no re-formatting is necessary. Moreover, there are missing fields, illegal characters, and null entries that will eventually need to be addressed. For use now, the data is essentially “Prepared” as much as possible. Exploratory Analysis should yield results in the no more than 1 week or so. After explorations, MichaelMitchellConsulting will use two methods to further validate any initial findings. The first, is to use the open source research available (statista, Google, etc.). The second method of validation will be a consult with my Director of Analytics at MichaelMitchellConsulting. Hopefully by validating via both methods, the customer’s requirements will be crystal clear at this point. On week eight of the process, Phase 6will be implemented, by providing a detailed analysis via Power BI and JMP. A detailed narrative of each report will also be provided.

Planning

This presentation would need to be customized with a large group of people. Individuals or associations that are specifically affected by an organization's or company's decisions and activities are referred to as stakeholders (Steininger, 2014). Sir Austin Emmanuel, Austin Air owners or board executives, C-Level managers, and presumably B-Level managers would be among the company's stakeholders. Audiences are the recipients of tweets, which are usually disseminated without the expectation of a response. Austin Air staff and clients would be among the crowd for this presentation.

MichaelMitchellConsulting has prepared a data outlook to present to Austin Air. The primary aim of this data plan is to win a significant portion of the market share presently held by European carriers by analyzing the best overall routes into and out of Nigeria. This can be accomplished by analyzing data and searching for patterns, especially in comparison to European carriers. Evaluating these ideal flight paths would therefore assist in achieving the company's goal of cost reduction and efficient ticket prices thus fulfilling consumer standards.

The choice tool for analysis will be “PowerBI”, which is a free business intelligence tool that is provided from Microsoft. The initial dataset of flight information was provided to MichaelMitchellConsulting by Austin Air. The consulting group plans to assess the many nuances in flight routes, cost analysis, etc. Following the initial assessment, MichaelMitchellConsulting plans to monitor all progress of Austin Air using PowerBI. By comparing market share of European Airlines against Austin Air using regression analysis, trends should start to become clear. A double line map, one plotting European airline market share and the other plotting Austin Air, will easily calculate progress in securing market share. If Austin Air is winning the industry, the lines should be trending in the same direction. This will be a map addressed to Sir Emmanuel on a monthly or quarterly basis. The other option for MichaelMitchellConsulting is to create a Dashboard using PowerBI that can compare the data in multiple ways. This would be an ideal way to monitor progress if an API were connected from the data source where the initial dataset was exported. If this approach were the preferred option, Sir Emmanuel could check progress at any time by simply accessing the Dashboard.

There is not enough data to support a full scope analysis of the market. Instead, MichaelMitchelllConsulting will have to rely on an array of Data Analysis Techniques per many of the elements of the Data Life Cycle.

They are roughly 7 different types of analysis techniques that could be used. The first is descriptive analysis. This type of analysis is usually used when an analyst is trying to understand exactly what happened. Many analysts that work for government agencies use this technique. The second type of technique is exploratory analysis. For the Austin Air Project, this is the preferred method. With this technique and Anolis can spend countless hours trying to curb the data set to aid in a preconceive narrative. This may not be the best technique for many projects this could prove to be quite effective. Another popular technique is the diagnostic analysis. The diagnostic analysis is used by many business executives to help them gain a firm contextual understanding of why something happened (Calzn,2021). Michael Mitchell Consulting will also use this technique to gain true insights. Two other techniques are predictive and prescriptive analysis. Being that these methods will not likely be used, we will not elaborate too much on their purpose.

In the exploratory phase there are many different types of visuals used to help explore different narratives. Why using cluster analysis, Michael Mitchell consulting has been able to explore different trends and different patterns in the data. For Instance, Nigeria has two main Air providers which fly from the destinations within Nigeria itself. After learning this it was easier to dissect which routes in which airports where important for Austin Air. In turn, MichaelMitchellConsulting was able to conduct some Regression Analysis as well.

References

*6 Phases of Data Analytics Lifecycle Every Data Analyst Should Know About*. upGrad blog. (2021, April 3). https://www.upgrad.com/blog/data-analytics-lifecycle/.

Chidera, V. (2021). *Requirements And Cost Of Starting An Airline In Nigeria – TIPSINFLUENCER*. Tipsinfluencer.com.ng. Retrieved 13 July 2021, from https://tipsinfluencer.com.ng/requirements-and-cost-of-starting-an-airline-in-nigeria/.

Fagbemi, T., & Daramola, A. (2019). Air Travel and Airline Operations in Nigeria: Market Potentials and Challenges. https://doi.org/10.5772/intechopen.80646

Ganiyu, M. (2020, July 4). *Tableau: Unleashing the Power of Visual Analytics*. Medium. https://towardsdatascience.com/tableau-unleashing-the-power-of-visual-analytics-3376ccf0c1f8.

*Importance, Purpose, and Benefit of Data Visualization Tools!* SplashBI. (2020, September 10). https://splashbi.com/importance-purpose-benefit-of-data-visualization-tools/.

Kaur, R. (2021, January 2). *Best Free BI Software 2021: Top Free Business Intelligence Tools*. SelectHub raquo. https://www.selecthub.com/business-intelligence/free-business-intelligence-tools/.

Ladan, S. (2012). AN ANALYSIS OF AIR TRANSPORTATION IN NIGERIA. *JORIND*, *10*(2). Retrieved 13 July 2021, from.

Miranda Li Design & Visualization Lead. (2018, May 3). *The Art and Science of Action-Driven Visual Analytics*. The Art and Science of Action-Driven Visual Analytics | Blog de Microsoft Power BI | Microsoft Power BI. https://powerbi.microsoft.com/es-es/blog/the-art-and-science-of-action-driven-visual-analytics/.

Nayak, S. (2019, March 13). *Data Science Life cycle and Exploratory Data Analysis with python.* Medium. https://medium.com/@swastiknayak76/data-science-life-cycle-and-exploratory-data-analysis-with-python-f8005febe131.

*New Emerging Markets: Nigeria, Indonesia, Mexico, The Philippines and Turkey*. Euromonitor. (n.d.). https://www.euromonitor.com/new-emerging-markets-nigeria-indonesia-mexico-the-philippines-and-turkey/report.

Ramdev, V. (2016, March 7). *Should You Go Global, or Consolidate Locally?* Entrepreneur. https://www.entrepreneur.com/article/272020.

Sharma, R. (2020). *6 Phases of Data Analytics Lifecycle Every Data Analyst Should Know About | upGrad blog*. upGrad blog. Retrieved 13 July 2021, from <https://www.upgrad.com/blog/data-analytics-lifecycle/>.

Staff, G. P. (2021, March 10). *Understanding the Lifecycle of a Data Analysis Project*. Northeastern University Graduate Programs. https://www.northeastern.edu/graduate/blog/data-analysis-project-lifecycle/.

*What Is Data Analysis? Methods, Techniques, Types & How-To*. datapine. (2021, June 7). https://www.datapine.com/blog/data-analysis-methods-and-techniques/.