# Adidas Sales Data Analysis

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**ABSTRACT**

**The report represents in depth analysis of adidas sales data through development of powerBI dashboard. The dashboard offers a user-friendly interface with interactive visualizations, including a world map for geographical sales analysis, key metrics (profit, sale, profit margin) overview, retailer performance tables, and trend analysis over time. Initially, after doing in depth analysis of data, those data is converted into graphs using powerBI. User feedback is also an important part of development process which help us to make dashboard user friendly.**

**Keywords**: out-performing, over-performing, performance matrix, dashboard.

## 1 INTRODUCTION

In the continually shifting retail industry, understanding, and utilising sales data is crucial for strategic planning and well-informed decision-making. In order to improve market positioning and provide strategic guidance for decision-making, this research examines Adidas sales statistics from 2020 to 2021. I'm going to use an adidas sales dataset for this project that I downloaded from Kaggle. The dataset has key performance indicators that are useful for analysing the market performance of various products. I'm going to use Power BI to turn data into an engaging, user-friendly experience. As a result, our Power BI dashboard integrates the dataset into a captivating and interactive interface, providing stakeholders with a user-friendly platform to analyse, evaluate, and derive insightful information from the Adidas sales data.

## 2 BACKGROUND STUDY

Background study is also an aspect before conducting any kind of study. I did three different studies before diving into making dashboard. First study is to understand which kind of chard use to covey which kind of information and how to use are information to make charts. According to that study [2] It's important to follow some basic rules for making charts easy to understand. First, put time on the horizontal axis, moving from left to right. Keep things in proportion, so the size of things in the chart matches the numbers they represent. Also, make sure charts aren't cluttered—remove anything that doesn't really help. When sorting data, do it by value, not by the alphabet, to make comparisons easier. If there's only one kind of data, you don't need a legend. Use labels directly on the chart, and if you're talking about money over a long time, adjust for inflation. Lastly, don't use too many colors—stick to six or less to keep things simple and clear. Following these rules makes charts better for understanding Adidas sales trends. Second study is about how to use visualization tool (powerBI) this involve how to write queries to extract meaningful information from data.[5]. Third study involve analyzing similar kind of visualization available online to analyze what kind of dashboard design we can implement in our dashboard and what kind of design process or chart we have to avoid as it may convey wrong or incomplete information[3][4].

## 3 DATASET AND TASK

### 3.1 Dataset

After searching Kaggle for a while for a sales dataset, I was able to locate one dataset for adidas sales data[1]. The dataset includes adidas sales data from 2020 to 2021 for the United States. The dataset contains information like states wise sales, city, total sale, total profit, profit margin, 6 different products, retailers' information (Here we have 6 retailers: Amazon, footlocker, kohl's, sport direct, Walmart, west gear), sales methods (be it online, outlet or in-store), price per unit, unit sold. It also contain invoice data of sell which used to track sell on different day.

### 3.2 Task

The task involves examining regional sales differences, evaluating product effectiveness, comprehending retailer contributions, and examining sales strategies. Moreover, Analysing success products through exploring product-based dashboard. Additionally, locate the target areas with lower sales and utilise that information to make upcoming marketing plans.

## 4 DESIGN ITERATION AND RATIONALE

### 4.1 Design rationale:

The visualization incorporates multiple interactive features. The each graph utilised in the project strongly relates to its goal of giving users practical insights into Adidas sales data. I build following under graphs to get meaningful insights from my data.

A) World map

The decision of taking world map is because of to provide geometric distribution of sale adidas sales data throughout the United States. I used grayscale mapping to distribution sell throughout the United sates. Which means darker shades represent higher sales values, while lighter shades represent lower sales values. With this visualisation, stakeholders may quickly identify under-performing areas and out-performing areas also they can quickly and easily visualise how sales vary between states which makes it easier to make informed decisions for international marketing efforts.

B) Card

To display important indicators like total sales, profit margin, total profit, top seller, and bestselling states, I utilise card visualisation. The goal of gathering all of this important data into a single screen is to provide stakeholders a comprehensive understanding of Adidas's financial performance.

C) Stacked bar chart

The stacked bar chart encodes the number of products sold by different retailers. The length of the bar represents the magnitude value of that product and different colour in bar chart represent different retailers. This visualization allows stakeholders to understand the relative performance of each product category and identify high-performing or underperforming items.

D) Area Chart

The area chart encodes sales and profit trend on different months. In an area graph, various data series (profit and sales) can be distinguished using colour and area of chart represent magnitude of that data series. This graph helps to uncover long-term performance trends by allowing stakeholders interactively explore sales trajectories.

E) Pie chart

pie chart encodes total sale into three different types of selling methods (in store, online, outlet) and colour can be used to distinguish three different selling methods. Area in pie chart represent magnitude of that selling method. This pie chart provides a quick understanding of the proportion of sales achieved through online, in-store, and outlet methods.

### 4.2 Design interactions

in this dashboard, you can do multiple analysis using different interactions and some of the interactions are following under that:

- initially map showing grey scale based on sales. Darker state represents highest sell while light shaded state shows less sell. When you click over any state in map, the card graph shows exact sale and profit. The pie chart shows sales through different sales methods, area chart shows sales trend on that particular state, bar chart shows number of products sold by different retailers.
- if you click over any month in area chart, a map with a greyscale representation of that month's sales performance (darker color for highest sale, lighter color for lowest sale) will display. And stacked bar chart shows number of products sold by retailers on that month and pie chart and card Visualization change accordingly to represent sales through different sales methods and different performance metrics respectively.
- when you click our any product in stacked bar chart, map shows sales into different region, Area chart shows sales trend of that product and pie chart tell how that product has been sold (online, instore, outlet). You can also see total sale, total profit, bestseller and state with highest sale in card visualization.

## 5 IMPLEMENTATION AND EVALUATION STUDY

### 5.1 implementation

Data implementation is followed following under states

I. Data Cleaning and Transformation:

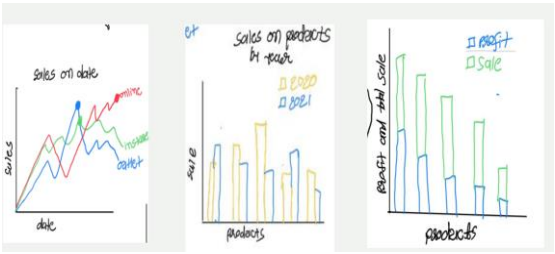
Downloading the Adidas sales dataset from Kaggle is the first step in the process. After downloading data we need to check is there any missing data or any outliers are present in the data or not and for that we can explore data using excel query.

II. Data Exploration

Before making visualization, we need to explore data to analyse how data is connected to each other's and what kind to insights we can get through different connection of data. This means determining critical metrics, understanding data distributions, and gaining information that guides the design of the dashboard.

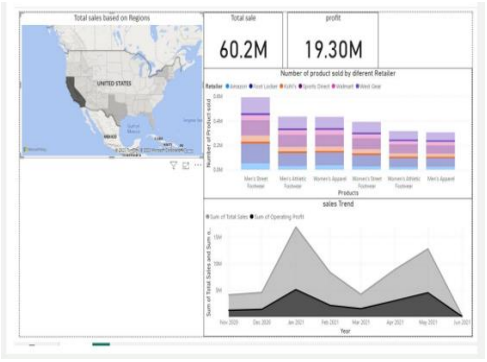
III. Dashboard Design

After carefully analysing data, I planned design of dashboard. It starts with making charts on paper. Then after doing some research and analysing and understanding powerBI functionalities, I decided to use what kind of graphs in dashboard. This phase on development includes selecting appropriate visualizations (such as world maps, tables, line graphs, and pie charts) and determining their placement within the dashboard layout. This phase includes where to place our charts in dashboard.




IV. Visualization Implementation

During this phase, I carefully designed each part to show Adidas sales data in a way that's easy to understand. I used a world map to highlight sales in different places, with darker colours showing higher sales. Key numbers like total sales and profit best seller are displayed clearly using card visualization. The stacked bar chart breaks down which products are doing well, and number of products sold by different retailers. and a pie chart shows how sales happen—whether online, in stores, or in outlets. While making different charts for different data, I made sure everything looks good, easy to use, and only appropriate charts use to show appropriate data. Also all of my implementation done in 3 phases. In first phase I include some of the charts and check is that visually appealing and running properly or not and in second phase I include all of my graphs in one dashboard and for evaluation I took user feedback on that dashboard and according to feedbacks and suggestion I made some changes in my dashboard and make my dashboard less clutter by implementing four button where each button give you one kind of analysis which was my third phase.

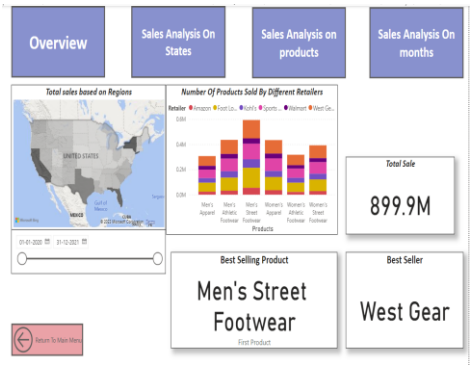



1.First phase

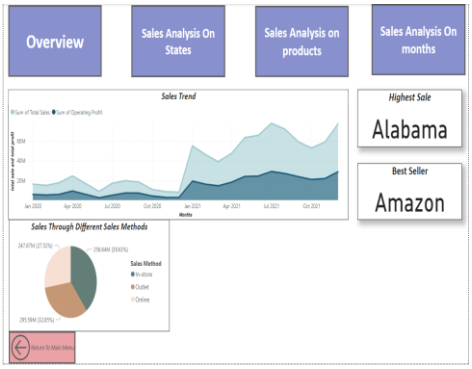

2. Second Phase


3. Third phase

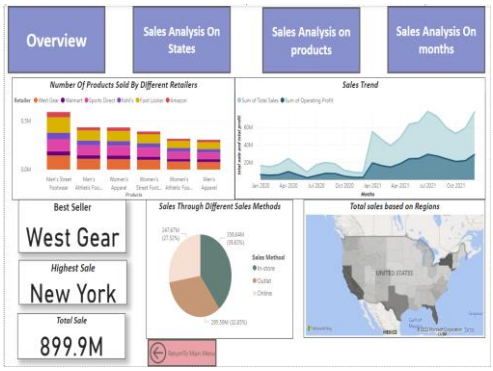

3.1 Overview Design




3.2 Analysis on state




3.3 Analysis on Months




3.4 Analysis on Product

5.1.1 Link of visualization:

https://app.powerbi.com/reportEmbed?reportId=69062389-7b87-4b03-9a0f-f11c970316d3&autoAuth=true&ctid=6ad91895-de06-485e-bc51-fce126cc8530

## 5.2 Evaluation study

Evaluation study is an important part of to check the visualization that I made is effective and convey the message the try to do and how well my visualization features align with the effectiveness of user while analysing sales data. I choose Evaluating user experience method for evaluating my visualization.

Question asked to users after using visualization.

- What are you observing at first glance about all graphs.
- What information you get while using all interactions.
- What insights you get after using visualization
- Please review my visualization (use of colours, use of appropriate graphs for specific task)
- Rate my visualization.

Result And Evaluation learned from Evaluation

- The participant found the visualisation user-friendly and useful for studying adidas sales data.
- When he clicks on any of graph, he able to understand what changes are happen in other graphs so choose of my graphs to visualize my data is good.
- For bar chart graph, he thinks on y-axis I have total sale but in reality, I have total number of products over there. So, I must label that bar graph appropriately.
- He also suggests me adjusting the colour contrast for better readability. In bar graph I use two shades of blue colour so, it's difficult for review to distinguish at first glance.
- He also suggests me to make visualization accessible to colour blind people.

## 6 Discussion and Future work

### 6.1 Insights

The visualisation provides interesting insights about adidas sales statistics. It effectively conveys that while adidas had lower sales in 2020, from December 2020 to January 2021, sales increased significantly and throughout 2021, sales were higher than in 2020. Secondly, it shows that sales are generated by various sales channels are distributed equally, giving sales in-store has just a slight edge than another channel. thirdly, Using Slicer, when you explore sales data over any time period, you discover that the men's street footwear is the highest selling product for any time phase. Additionally, if you analyse total sale, West Gear is a best seller; but, if you look only at 2021 sales (which are greater than average), Foot Locker is a best seller. Lastly, Adidas has 899.9 million in total sales, of which more than 20% come from the four major states of United States (California, Texas, Florida, and New York).

### 6.2 Future works

In the future, I think the dashboard should include more functions. This feature would evaluate historical data and forecast future sales using machine learning techniques. It's similar to forecasting Adidas' future product sales based on historical data. This enhances the dashboard's intelligence and allows its users to make decisions in advance of events happen. Additionally, Tableau Dashboard's "Aible" feature makes it simpler to integrate ML algorithms with the dashboard. Thus, you might consider creating the same dashboard with Tableau in the future and integrating machine learning into it.

## 7 Conclusion

In conclusion, In conclusion, the Power BI dashboard has shown to be an effective resource for analyzing and examining Adidas sales data. Stakeholders are able to learn about sales trends, retailer performance, and product contributions through the use of interactive features and clear visualizations. Moreover, Productive data exploration is made possible by the dashboard's user-friendly design, and user input has also been important in improving its usefulness.in addition, Important discoveries of this dashboard , including differences in product performance and seasonal trends, which have helped to improve decision-making.

## References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