

# GLOBAL STORE ANALYSIS

## INTRODUCTION

Analysis of store's sales data to understand the underlying trends. The sales data covers a 4-year period in which the store served customers from 147 countries across the world. During this period, the store sold goods in three main categories i.e. technology, office supplies and furniture. The analysis has been broken down into:

- Temporal sales analysis.
- Geographical sales analysis.
- Financial performance analysis.
- Customer segmentation analysis.
- Logistics analysis.

## DATA CLEANING AND UNDERSTANDING

The analysis was performed on MySQL workbench, however, due to the file size and presence of multiple columns with special characters and text, the data was loaded onto MySQL workbench using python. This was done on Jupyter notebook and involved creating Pandas dataframe, checking for null values, checking the column data types, correcting the date columns' data type and finally loading the data into MySQL workbench.

Due to no direct way of retrieving the number of items bought during an order, the column `total_order_quantity` was added to the dataset that would contain this data.

During the 4-year period, the store sold 178,312 items and had 25,753 orders from 4,873 customers. 10,768 product variations sold during this period.

## TEMPORAL SALES ANALYSIS

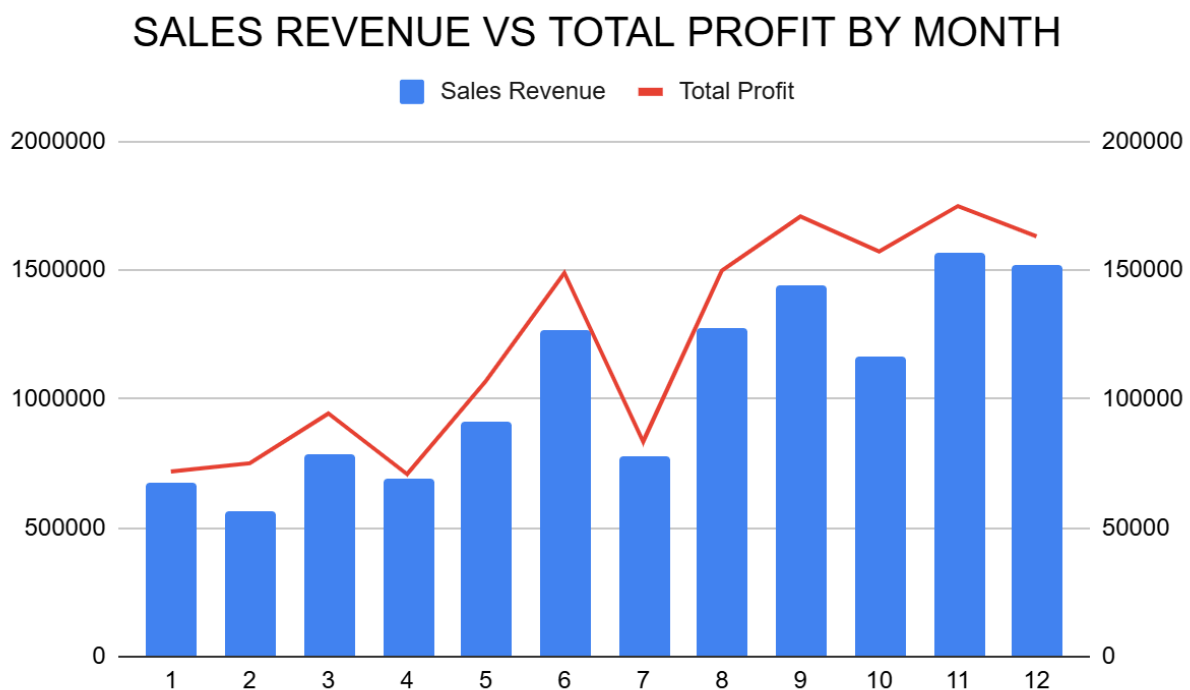
The earliest sale recorded in the dataset was from 2017-12-30 while the most recent sale was from 2021-12-29, a period of exactly 4 years.

Year	Sales	Revenue	Profit
2017	20	1122.78	201.99
2018	31423	2258328.16	248738.82
2019	38197	2686807.9	308761.8
2020	48245	3404160.95	405989.82
2021	60427	4292082.43	503764.85

Totals	178312	12642502.22	1467457.28
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The store consistently had an increase in sales, revenue and profit year over year. The most profitable month for the store was 2021-09 in which their gross profit was 68,574.06.

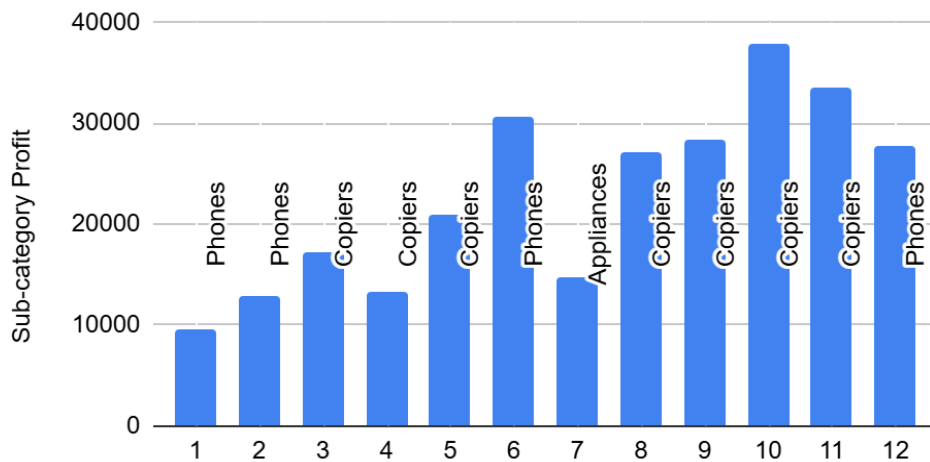
Upon aggregating the 4-year data by order month, November was their best month on revenue and profit basis. February was the month they generally had the lowest sales revenue and April was the month with the least profit.



The top performing sub-category on sales quantity basis all year round was binders with tables being the worst performing sub-category.

The most profitable sub categories observed when the data is aggregated on a monthly basis for the 4 years were phones, copiers and appliances.

## MOST PROFITABLE SUB CATEGORY BY MONTH



## GEOGRAPHICAL SALES ANALYSIS

The store served customers from 4 main markets; EMEA, USCA, LATAM and APAC. EMEA had the highest number of customers and sales (2,309 customers and 59,854 sales) and LATAM had the lowest (794 customers and 38,526 sales).

The top 10 countries by sales and consumers were:

- United States
- France
- Mexico
- Australia
- Germany
- China
- United Kingdom
- India
- Brazil
- Indonesia

The countries listed above also retained lead on a category to category basis with the US maintaining the leading position throughout.

The top 10 cities on sales basis were: New York City, Los Angeles, Philadelphia, San Francisco, Manila, Santo Domingo, Seattle, Houston, Tegucigalpa and Managua. 6 of these 10 are located in US.

The most profitable cities were: New York City, Los Angeles, Seattle, Managua, San Francisco, London, Sydney, Vienna, San Salvador and Mexico City.

The cities in the 5th to 10th position in profitability were not in the leading positions in sales.

The top selling products by market were:

- APAC: Novimex Swivel Stool, Black
- EMEA: Binney & Smith Sketch Pad, Blue
- LATAM: Harbour Creations Chairmat, Black
- USCA: GBC Premium Transparent Covers with Diagonal Lined Pattern

## **FINANCIAL PERFORMANCE ANALYSIS**

Over the 4-year period the store had a total sales revenue of 12,642,502.22 and profit of 1,467,457.29 with the overall profit margin being 12%.

The sub-categories with the highest overall sales revenue were phones (1,706,824.18), copiers (1,509,436.31) and chairs (1,501,681.78) while labels sub-category (73,404.04) had the lowest sales revenue.

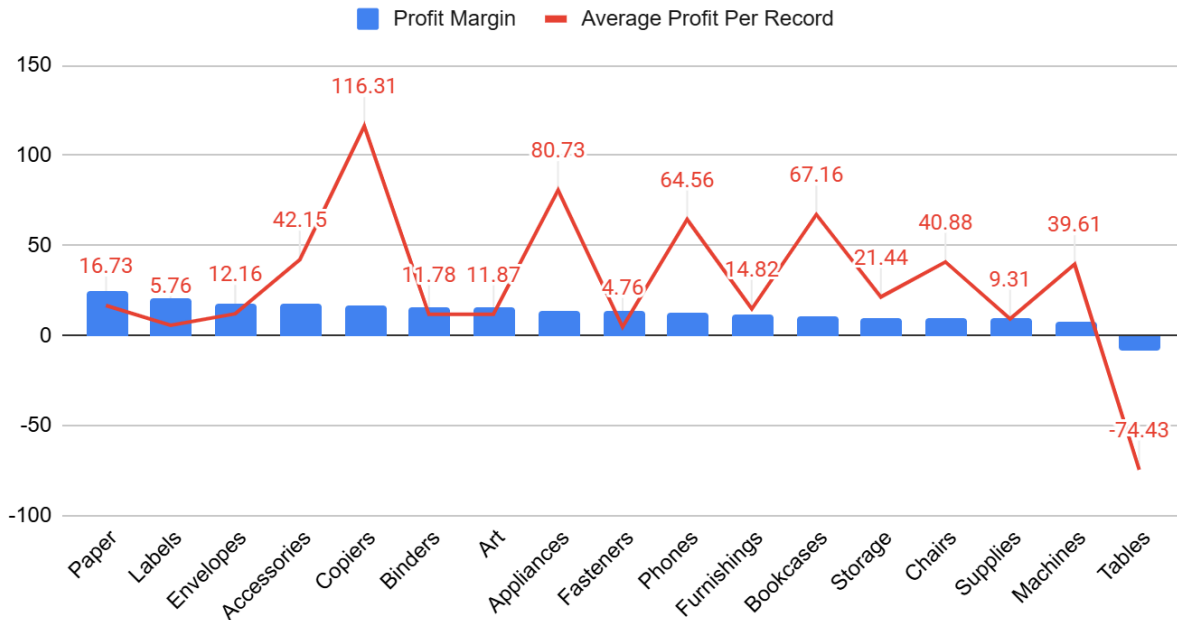
In terms of profitability, copiers (258,567.55, 17% profit margin), phones (216,717.01, 13% profit margin) and bookcases (161,924.42, 11% profit margin) were the most profitable sub categories with tables being the most poorly performing having a total loss of -64,083.39 and 8% negative profit margin.

The subcategory that had the highest profit margin was paper (24%).

The sub categories with the highest average profit per product order were copiers (116.31), appliances (80.73) and bookcases (67.16).

The average loss incurred per recorded product order in tables sub category was 74.43.

## SUB CATEGORY PROFIT MARGIN & AVERAGE PROFIT



Tables sub category had the highest discount average per sales record, the lowest sales quantity and it was the only sub category that had incurred loss overall.

Despite copiers having the 4th least sales quantity and the 2nd lowest average discount it was the sub category with the highest total profit.

Paper, the sub category with the highest profit margin, also had the lowest discount average and the 4th highest sales quantity.

Binders sub category had the 2nd highest discount average, the highest sales quantity and had the 8th highest total profit.

Sub Category	Discount (AVG %)	Total Profit	Sales
Tables	0.2907317073	-64083.39	3083
Binders	0.179206762	72449.85	21429
Machines	0.1695827725	58867.87	4906
Chairs	0.1631100757	140396.27	12336
Bookcases	0.1537577769	161924.42	8310
Furnishings	0.1510662461	46967.43	11225
Phones	0.1458474829	216717.01	11870

Appliances	0.1417094017	141680.59	6078
Fasteners	0.1405950413	11525.42	8390
Storage	0.1384641233	108461.49	16917
Envelopes	0.1317494867	29601.12	8380
Supplies	0.1279175258	22583.26	8543
Accessories	0.1204813008	129626.31	10946
Labels	0.1204489639	15010.51	9322
Art	0.1173622773	57953.91	16301
Copiers	0.1165811966	258567.55	7454
Paper	0.1094686263	59207.68	12822

The top 10 most profitable products were:

- Canon imageCLASS 2200 Advanced Copier - 25,199.93
- Hoover Stove, Red - 10,345.58
- Nokia Smart Phone, Full Size - 8,121.48
- Fellowes PB500 Electric Punch Plastic Comb Binding Machine with Manual Bind - 7,753.04
- Hewlett Packard LaserJet 3310 Copier - 6,983.88
- Office Star Executive Leather Armchair, Black - 6,123.26
- Nokia Smart Phone, with Caller ID - 5,455.95
- Hamilton Beach Stove, Silver - 5,452.46
- Samsung Smart Phone, VoIP - 5,356.81
- SAFCO Executive Leather Armchair, Black - 5,003.1

Tables sub category had the highest average shipping cost (92.75) and labels had the lowest (3.09).

## CUSTOMER SEGMENTATION ANALYSIS

The store had three main customer segments:

- Consumer - 2509 customers
- Corporate - 1457 customers
- Home office - 907 customers

There was minimal variation in the profit margin and average discount in the three categories. Consumer segment also maintained the highest record in sales and profit.

Segment	Sales Quantity	Total Profit	Profit Margin	Discount (Avg)
Home Office	32590	277009.18	11.99	14.09
Corporate	53565	441208.33	11.54	14.29
Consumer	92157	749239.78	11.51	14.36

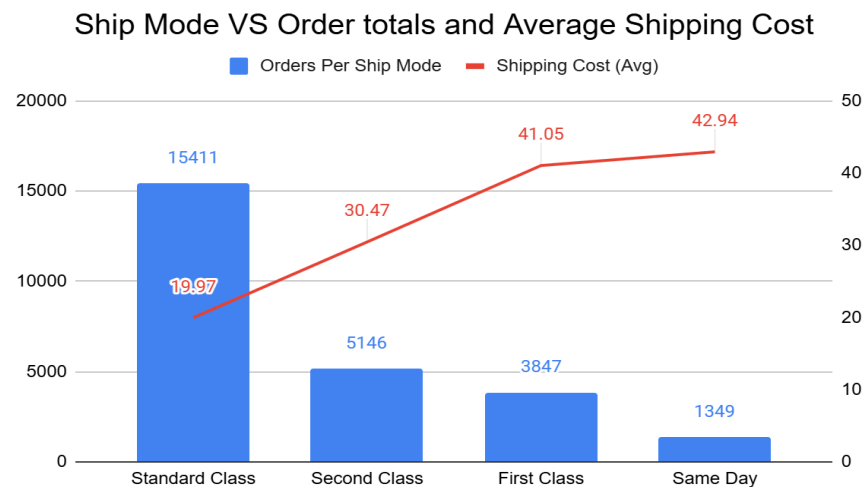
The customers with the highest order quantities were:

- Bill Eplett (China) - 58
- Ted Butterfield (Singapore) - 55
- Seth Vernon (United States) - 52
- Patrick O'Brill (Mexico) - 51
- Eric Murdock (Australia) - 50
- Alejandro Grove (United States) - 46
- Kimberly Carter (Germany) - 46
- Keith Herrera (United States) - 46
- Ben Ferrer (China) - 45
- Delfina Latchford (Austria) - 45

## LOGISTICS ANALYSIS

The average dispatch time for an order was 4 days. The country with the slowest average dispatch time was Sudan (6 days) while the fastest are Guinea-Bissau, Bahrain, Chad, Estonia all having 2 day average.

The store had 4 shipment modes available and the most affordable variant, standard class, being the most used by customers. The average order dispatch time decreased with increase in average shipping cost. Standard class had the highest at 5 days and same day has 0 days.



The store provided 4 options for order priority:

Order Priority	Sales Quantity	Dispatch Time (Avg)
Medium	102555	5
High	54021	3
Critical	13439	2
Low	8297	6

## CONCLUSIONS

The store has been able to consistently grow over the years in sales, revenue and profitability and expand its market to serve customers from around the world.

They have the best performance both in revenue and profit towards the end of the year with 2 of their best months being in Q4 (November and December).

The store has a relatively long average dispatch time for orders that use standard class on medium priority tier.

The tables sub category has not been successful as it is mostly sold at a loss and has little demand.

The US market is highly favorable for the store, as several of its cities rank among the top 10 in both sales and profitability.

More than half of the sub categories have a profit margin that is higher than the 12% overall average.

## RECOMMENDATIONS

Take advantage of the spike in demand that happens towards the end of the year especially in September, November and December and plan accordingly so as to have adequate supply and maximize their revenue.

Make use of data indicating top performing sub categories by month to inform their stocking decisions so as to meet demand.

Increase marketing efforts in countries where they are already performing well so as to acquire new customers, especially within the most profitable countries and cities.



Position the store in the market as a leading supplier of copiers as it is one of the best performing sub categories on basis of multiple KPIs i.e sales quantity, profit margin, total profit, sales revenue and unit order profit. By niching into this they could increase their sales and in turn profits.

Consider halting the supply of tables to re-evaluate the operations within this sub category or remove it from their catalog as it is not performing well in terms of profitability, revenue or sales.

Implement strategies to reduce the order dispatch time for standard class and medium priority orders as it could improve their customer satisfaction.