

DATA DRIVEN DECISIONS FOR BUSINESS

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Task 1: Introduction and project plan

A comprehensive evaluation of *Cafe On The Sea's (COTS)* present business performance has been included in the future report as part of the formulation of the 3-Year Strategic Plan. However, in line with the company's strategic goals, the goal has been to assess how well the current business model supports chances for expansion and growth. In order to guarantee a methodical and evidence-based approach, the project plan places a strong emphasis on the utilization of a solid data analytics architecture. In order to guide the examination of growth possibilities, including diversification, new product creation, and international expansion, this framework has been crucial in answering the fundamental business issues. In order to establish a foundation for assessing company success, the report will also present the Key success Indicators (KPIs) for COTS's coffee shops.

The chosen framework has helped to support enhanced analytics, which has been emphasized as a major factor in raising performance in relation to certain KPIs. Therefore, the entire data analysis to analyze the future revenue, sales value and volume of all the coffee shops based on years and time has been done using *Ms Excel* software tool.

Task 2: Data preparation quality issues and remedies

In the field of data analytics, while gathering, combining, and cleansing data, analysts frequently run across general data problems. However, Strategic decision-making possibly be affected by several issues, which possibly hinder the dependability and accuracy of analysis. In order to examine general flaws, analysts are required to be alert in identifying things like inaccurate information, inconsistent formats, and missing data (Narayana *et al.* 2023). Missing values are one sign of incomplete data, while inconsistent formats possibly be different units of measurement or date formats. On the other hand, human mistakes or malfunctions in the system are also known to be another cause of errors. In order to fix these general data issues, there are several solutions and to evaluate the entire quality of the dataset, analysts first utilize data profiling techniques. Apart from that, this entails looking at summary data, seeing trends, and spotting abnormalities. Data quality possibly be enhanced by utilizing data cleaning techniques like standardization for inconsistent formats and imputation for missing information. Therefore, error introduction is further mitigated by instituting data quality guidelines and validation procedures throughout the collecting phase.

Data Quality issues with COTS Dataset and suggested Solutions

At the time of examination of the data of the COT cafe some problems with the data quality have been identified. However, to guarantee the quality and dependability of the ensuing study, these problems require customized solutions.

Incomplete Information

The dataset has missing values, especially in the fields pertaining to sales values and customer satisfaction. However, the analyst suggests utilizing techniques like data imputation to remedy this. In order to fill in the missing values and preserve the integrity of the dataset, mean imputation for numerical variables and mode imputation for categorical variables are required to be used.

Date Format Inconsistencies

Another issue that has the possibility to occur is the differences between **DD/MM/YYYY** and **MM/DD/YYYY** has been noted as examples of date format inconsistencies. However, standardizing the date format throughout the collection is the suggested fix (Lee *et al.* 2023). In order to guarantee consistency and enhance the dataset's general quality, the analyst makes use of date parsing methods.

Customer feedback errors

The main issues occur due to the outliers and extreme results, there could be errors in the customer satisfaction rankings. In order to deal with this, the analyst intends to utilize outlier identification methods to find and eliminate abnormalities, such as **Z-score** analysis. Therefore, through this process, the total satisfaction levels are reliably represented in the consumer feedback data.

Duplicate Entries

Duplicate entries in the dataset, especially in the area pertaining to client information, has the possibility to compromise the validity of the study. However, using deduplication procedures and unique identifiers like customer IDs to find and eliminate duplicate records has been the suggested method.

Difficulties with Data Integration

There are integration issues because the project data comes from many sources. In order to smoothly combine information, the analyst possibly applies data integration strategies, mapping common variables and making use of technologies. Therefore, this makes the dataset coherent and ready for reliable analysis.

Task 3: Data analysis and commentary

The entire data analysis process performed using Ms Excel software tool has been described in this section. However, sales growth patterns have been encouraged, according to the data analysis, with noticeable increases throughout tourism seasons. On the other hand, in the case of anomalies, customer satisfaction tends to be favorable. Diversification prospects are identified through product-wise performance analysis. Dataset dependability has increased as a result of the used data cleaning techniques. In order to successfully guide *Cafe On The Sea's* development plans moving ahead, a closer analyzation of regional variances and client demographics has enhanced strategic insights.

SALES VALUE AND VOLUME ACROSS 3 YEARS			
Row Labels	Sum of Sales Volume	Sum of Sales Value	
1	3831.5	12418.25	
2020	1218.5	3992.25	
2021	1313	4181.25	
2022	1300	4244.75	
2	4180	12382	
2020	1322.5	3269.5	
2021	1401.5	4484.25	
2022	1456	4628.25	
3	4703.5	15246.75	
2020	1537	4915.75	
2021	1537	5010.25	
2022	1629.5	5320.75	
4	5665	17971.25	

Figure 1: Sales volume and value by month, by year and across the 3 years period

(Source: Acquired from Ms Excel)

The table described above illustrates the sales volume and value for the three years from 2020 to 2022 in a row for various product categories at Cafe On The Sea. However, the years are shown by the appropriate columns, and each row indicates a product category. On the other hand, varying across a three-year period, the data illustrates changes in product performance in terms of both sales volume and value. The bottom of the table, which presents the total sales volume and value

for each year, has been noteworthy as it provides a summary of *COTS's* entire sales performance for the examined period of time across the designated product categories.

Benchmark comparisons of market segments performance covering sales volume and value by quarter, by year and across the 3 years period,		
MARKET SEGMENTS	Sum of Sales Value	Sum of Sales Volume
2020	27615.5	8893
1	3992.25	1218.5
Families with children	579	113
Married young couples	549.25	223.5
Retired people	425	217
Single professional people	360	187
Tourists	413	71.5
Young people	1666	406.5
2	3269.5	1322.5
Families with children	618.5	123.5
Married young couples	678	279
Retired people	563	280
Single professional people	307	137
Tourists	491	79
Young people	612	424
3	4915.75	1537
Families with children	664.5	133.5

Figure 2: Market segments performance covering sales volume and value by quarter by year and across the 3 years period

(Source: Acquired from Ms Excel)

The comparison of the performance of the market segment covering sales volume and values by quarter and year has been done using Ms Excel software tool as described in the above figure. However, the benchmark comparisons that are displayed describe how multiple market categories perform over the course of quarters and years in terms of sales volume and value. The market groups that have been defined for the year 2020 include a wide range of demographics, involving families with children, young married couples, retirees, single professionals, and tourists. On the other hand, the supplementary data provides an in-depth analysis of sales volume and value for every category, revealing patterns and preferences among customers. *Cafe On The Sea* has been able to carefully assess how each market segment contributes to its entire business performance throughout the designated three-year term thanks to this thorough investigation.

customer analysis to identify which market segments provides the highest revenue			
MARKET SEGMENT	Sum of Sales Value	Sum of REVENUE	Sum of Sales Volume
Fam. children	462.5	9.306229773	99.5
Families with children	26660.95	529.8930043	5357.99
Married Y.P.	1264.5	14.36037735	521
Married young couples	27769.98	646.5051786	11538.592
Retired	301	3.651024651	165
Tourists	20895.864	632.4227381	3497.144
Turistas	435	18.50234742	70.5
Young people	72092.768	425.4804513	18239.692
Grand Total	149882.562	2280.121352	39489.418

Figure 3: Identification of which market segments provides the highest revenue

(Source: Acquired from Ms Excel)

The revenue generation for Cafe On The Sea has been evaluated in the customer analysis across multiple market segments. However, the largest donors, making up a sizable chunk of the entire income, are married young couples and families with children. On the other hand, tourists and retired people both make significant contributions. Targeted marketing and strategic business decisions possibly be made with significant information from the study, which highlights the significance of appealing to a variety of demographics. Therefore, families and couples account for the largest sales volume and value.

sales volume and value between coffee shops by quarter, by year and across the 3 years period.		
Row Labels	Sum of Sales Volume	Sum of Sales Value
Newquay	9188	28504.5
2020	3019	8733
1	410.5	1363.25
2	457.5	411
3	505	1642.25
4	626.5	2011
5	482	1574.75
6	537.5	1730.75
2021	2962	9463.75
1	410	1381.25
2	427.5	1355.75
3	391	1339.75
4	658	2054.5
5	509	1573.75
6	566.5	1758.75
2022	3207	10307.75
1	404	1200.75

Figure 4: Sales volume and value between coffee shops by quarter, by year and across the 3 years period.

(Source: Acquired from Ms Excel)

The table described above outlines sales volume and value across multiple quarters and years for Cafe On The Sea's various coffee shops, including Newquay. However, sales data indicates fluctuations, with Newquay demonstrating substantial performance, contributing significantly to the entire sales volume and value for the specified three-year period. Hence, the breakdown by quarter offers insights into seasonal variations and helps assess the shop's quarterly contributions to the company's revenue.

AVERAGE OF SALES AND VOLUME BASED MARKET SEGMENT BY YEAR		
MARKET SEGMENT	Average of Sales Volume	Average of Sales Value
☒ Fam. children	49.75	231.25
2021	48	230
2022	51.5	232.5
☒ Families with children	50.70466667	252.1804762
2020	47.31944444	239.2638889
2021	49.48571429	245.1428571
2022	55.54382353	273.1014706
☒ Married Y.P.	86.83333333	210.75
2020	98.75	244.625
2021	69.25	146.875
2022	92.5	240.75
☒ Married young couples	112.4861961	270.6615686
2020	102.2058824	254.3970588
2021	108.4285714	244.7
2022	127.3815758	314.9539394
☒ Retired	91	165
2022	91	165

Figure 5: Average sales and volume based on market segment by year

(Source: Acquired from Ms Excel)

The average sales volume and value for various market categories at Cafe On The Sea for the years 2020, 2021, and 2022 are illustrated in the data that is supplied. However, over a three-year period, families with children continuously maintained high average sales volumes, exhibiting a steady growth. Positive trends have also been identified by retired people and young married couples. On the other hand, families with children and young married couples continued to have significant market share in terms of average sales value in 2022, while the retired category experienced significant increase (Ujas *et al.* 2023). This means, strategic choices are guided by these averages, which provide insightful information on market sector performance. Therefore, the research underscores the importance of modifying corporate strategies to leverage the disparate tastes and behaviors of discrete market groups in order to achieve long-term success.

Task 4: Data visualization and commentary

The data visualization has been performed on the several data analysis done and the data visualization has been described in this section. However, charts, plots and graphs are implemented to perform the data visualization.

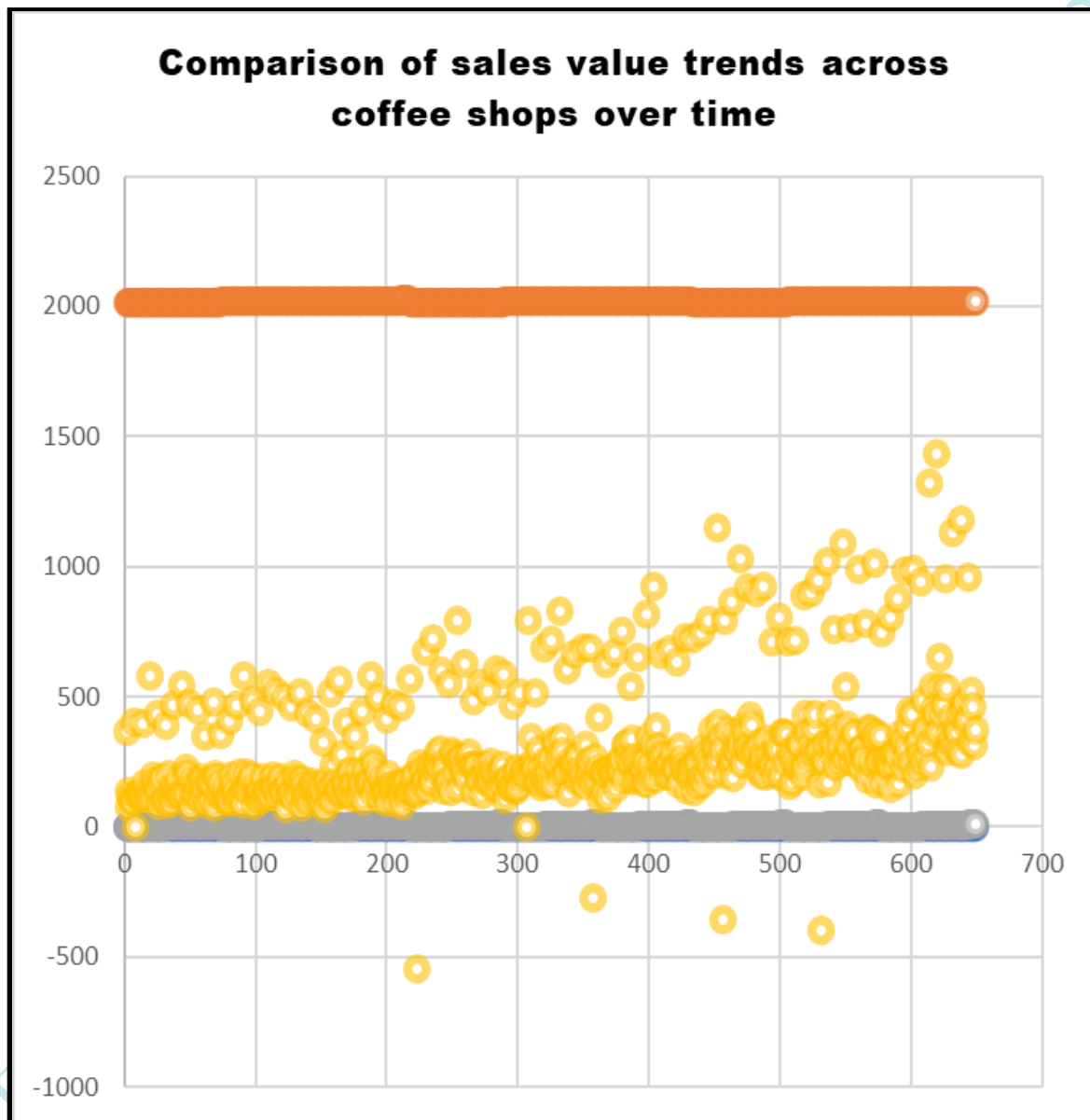


Figure 6: Comparison of sales value trends across coffee shops over time

(Source: Acquired from Ms Excel)

The scatter plot illustrated above shows that, on the X-axis, the trends in sales values over time for many coffee businesses. On the other hand, the sales value of a particular coffee shop at a given time is represented by each point on the plot. However, the pattern points to variety in sales performance, with some stores doing regularly better than average and others performing below average on occasion (Mondal and Mondal, 2020). A general increase in sales value during the time frame shown is implied by the plot's upward trend. Apart from that, significant variances and oscillations between coffee shops suggest different paths of performance, highlighting the necessity of focused tactics catered to the specifics of each shop to get the best possible commercial results.

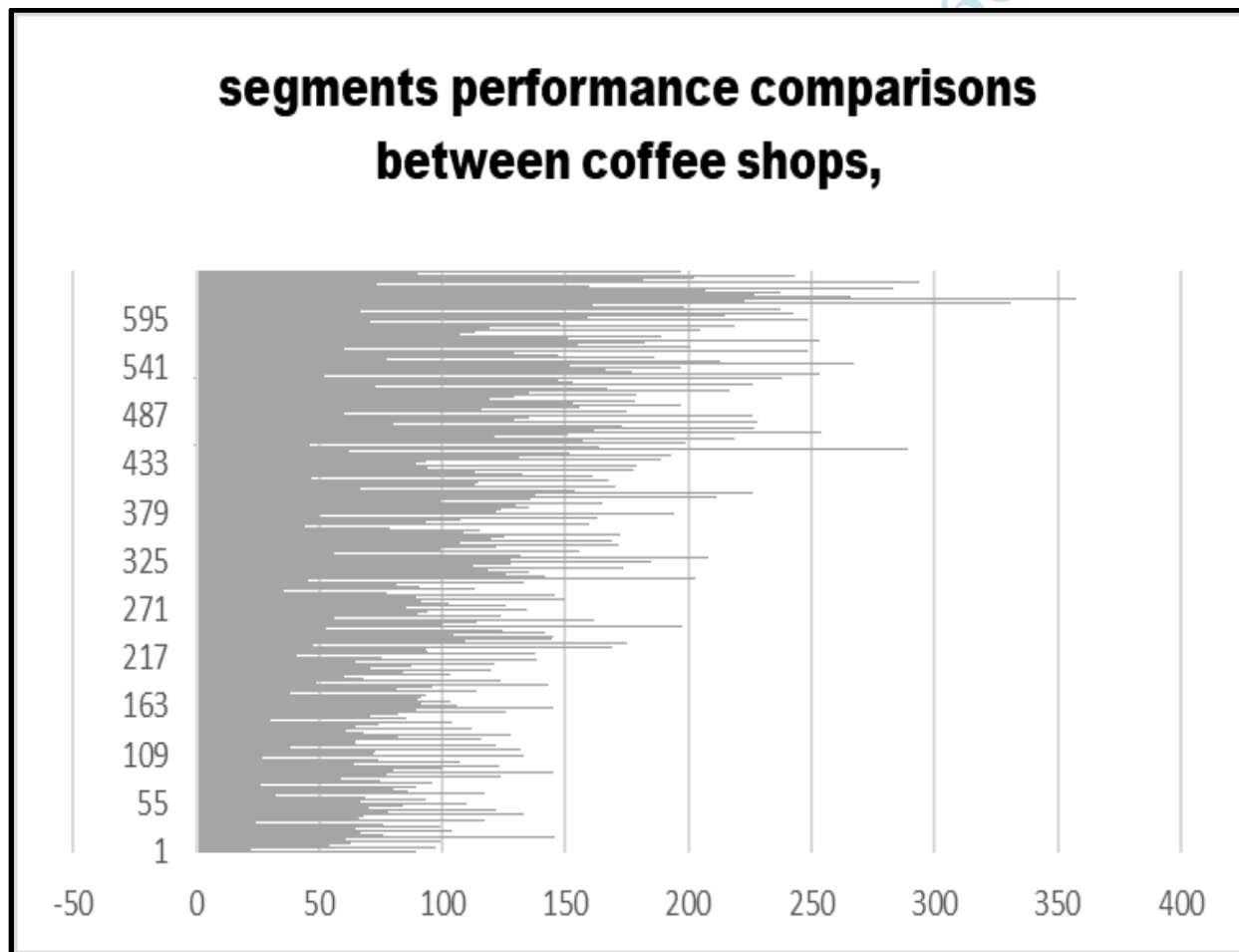


Figure 7: Segments performance comparisons between coffee shops

(Source: Acquired from Ms Excel)

The performance of several market sectors across coffee shops has been compared using a clustered bar plot. However, every group signifies a distinct coffee shop, and within every group, bars show the performance of different parts. Coffee shops and their corresponding sector performances can be easily compared to increasing heights, which display the sales figures for each segment. The declining trend within each cluster illustrates that multiple sectors throughout coffee shops have varied levels of performance. However, through focused enhancement in Cafe On The Sea's marketing and service initiatives, strategic decision-making is made easier with the help of this graphic depiction, which helps detect both general trends and the strengths and weaknesses of certain segments.

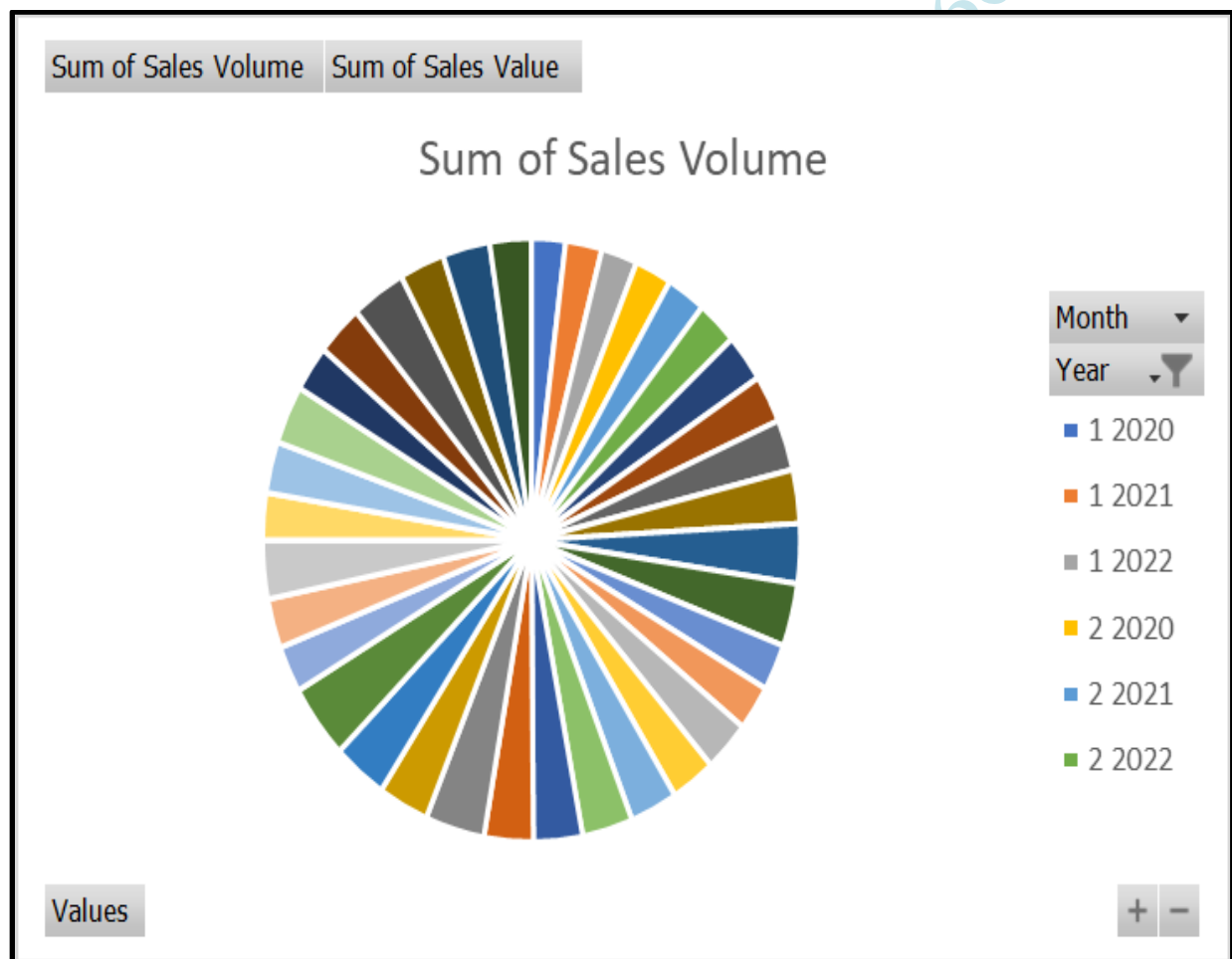


Figure 8: Sales value and volume across three years

(Source: Acquired from Ms Excel)

The total sales volume for various months throughout a three-year period from 2020, 2021, and 2022 has been shown in the pie chart. However, every slice represents a distinct month, and the size of each slice indicates the percentage of sales volume linked to that month. A succinct summary of the sales volume distribution during the designated time period has been provided by this graphic depiction.

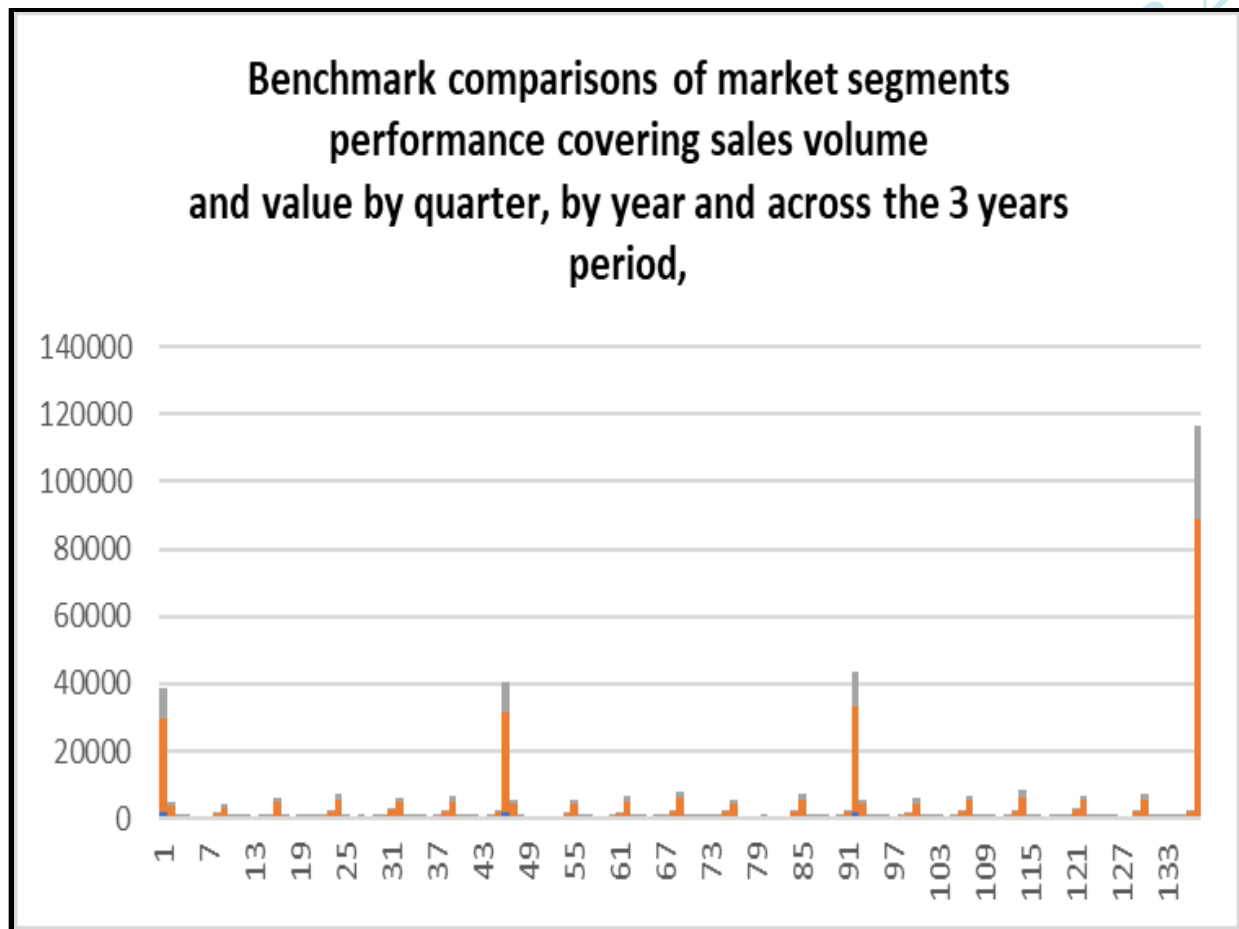


Figure 9: Comparisons of market segments performance covering sales volume and value by quarter, by year and across the 3 years period

(Source: Acquired from Ms Excel)

The market segment performance has been graphically benchmarked in terms of sales volume and value across quarters, years, and a three-year period using a clustered column chart. However, columns inside clusters illustrate the associated sales volume and value, and each cluster represents

a market sector. Therefore, a thorough comparison of segment performance over time is made possible by this visualization.

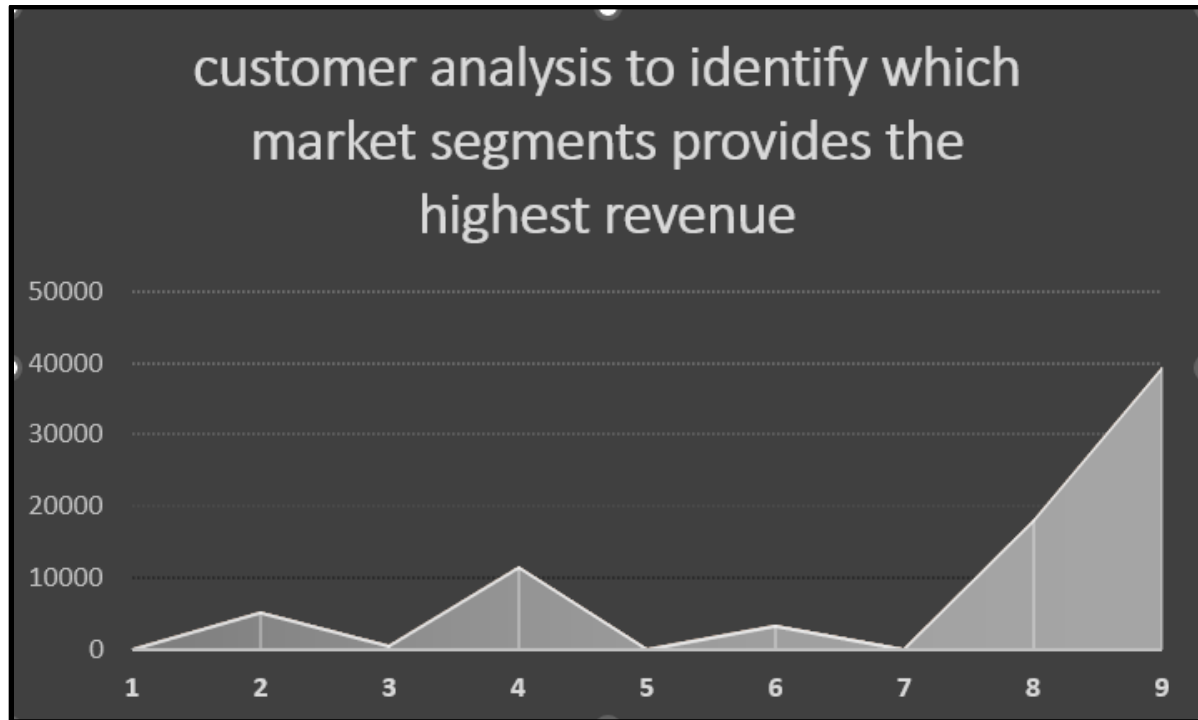


Figure 10: Customer analysis to identify which market segments provides the highest revenue

(Source: Acquired from Ms Excel)

The area chart presents a customer analysis in a visual format with the goal of highlighting the market segments that generate the most income. However, the x-axis shows several categories or time periods, and each shaded region corresponds to a distinct market sector (Dobashi, 2023). A comparison evaluation of the segment performance has been made possible by the regions differing heights, which represent revenue levels. On the other hand, the region's increasing or decreasing patterns show trends in revenue over the specified time periods or categories. Therefore, the revenue distribution among market categories has been well conveyed in this figure, which also provides strategic insights into the contribution of the customer base to overall financial success.

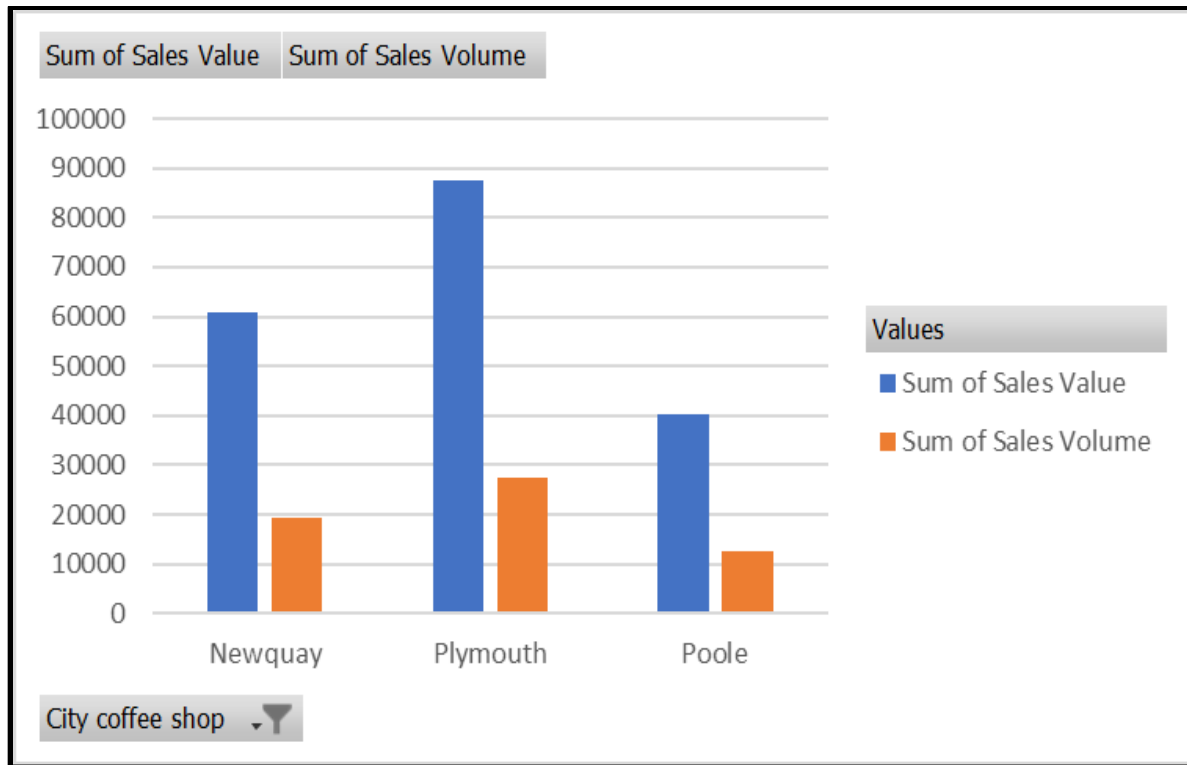


Figure 11: sales volume and value analysis of the three coffee shops

(Source: Acquired from Ms Excel)

The presented chart shown above summarizes the sales value and volume analysis for three coffee shops *Newquay*, *Fifty Coffee Shop*, and *Plymouth*. However, Newquay and Plymouth show higher sales values, indicating stronger revenue potential (Mustafy and Rahman, 2024). On the other hand, Fifty Coffee Shop exhibits the highest sales volume, suggesting a robust customer base. A balanced investment strategy considering both value and volume metrics is recommended for future expansion.

Task 5: Conclusions

The thorough assessment of *Cafe On The Sea's* present company performance, aided by powerful data analytics instruments, has yielded vital information for the development of the three-year strategic plan. However, the significance of making decisions based on data is illustrated by the analysis of sales volume, value, and market segment performance. Resolving issues with data quality improves the strategic basis by guaranteeing the validity of the results. The company's objectives have been matched with key performance indicators (**KPIs**). Therefore, the visuals aid in the clear communication of trends and advance a thorough comprehension of the business environment. The utilization of MS Excel and the data analytics framework has been crucial in directing strategic decision-making.

Recommendations

Data analytics should be a top priority for Cafe On The Sea going forward since it provides the basis for strategic decision-making. However, the dependability of next studies possibly be further increased by ongoing efforts to enhance data integrity and quality. The development of targeted marketing strategies has been necessary to optimize income from important client groups by utilizing insights obtained from market segment performance. On the other hand, it is suggested that staff members receive regular training on data analytics tools and techniques in order to preserve an organization's data-centric culture. In order to further ensure that Cafe On The Sea remains flexible and competitive in the ever-changing industry, investigating modern analytics tools and approaches can provide more sophisticated insights for sophisticated decision-making.

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