

Digital Marketing Analytics - Sales Forecast

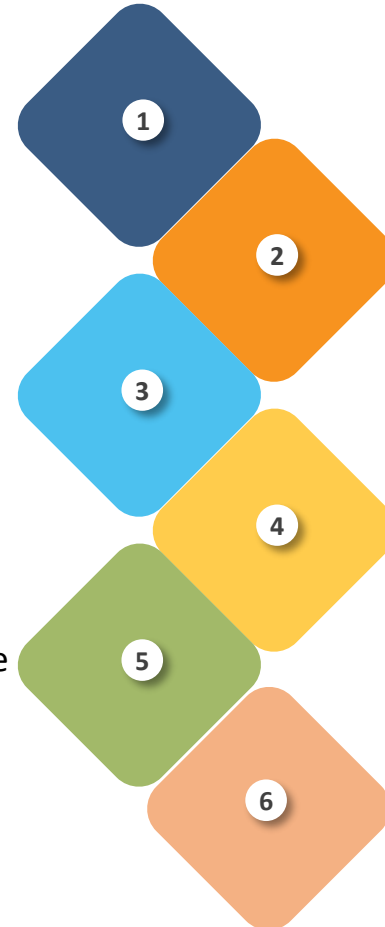


Business Understanding

One of the most important purposes of marketing strategy is to create sales.

The calculated process of anticipating how much advertising dollars will be spent – on what tactic and strategy – and will be the ROI

Measure and quantify digital marketing in order to create a baseline expectation of how well it performs.



Forecasting sales or revenue projection is the foundation and compass for the businesses.

Digital marketing analytics will help marketing team deliver a return on investment.

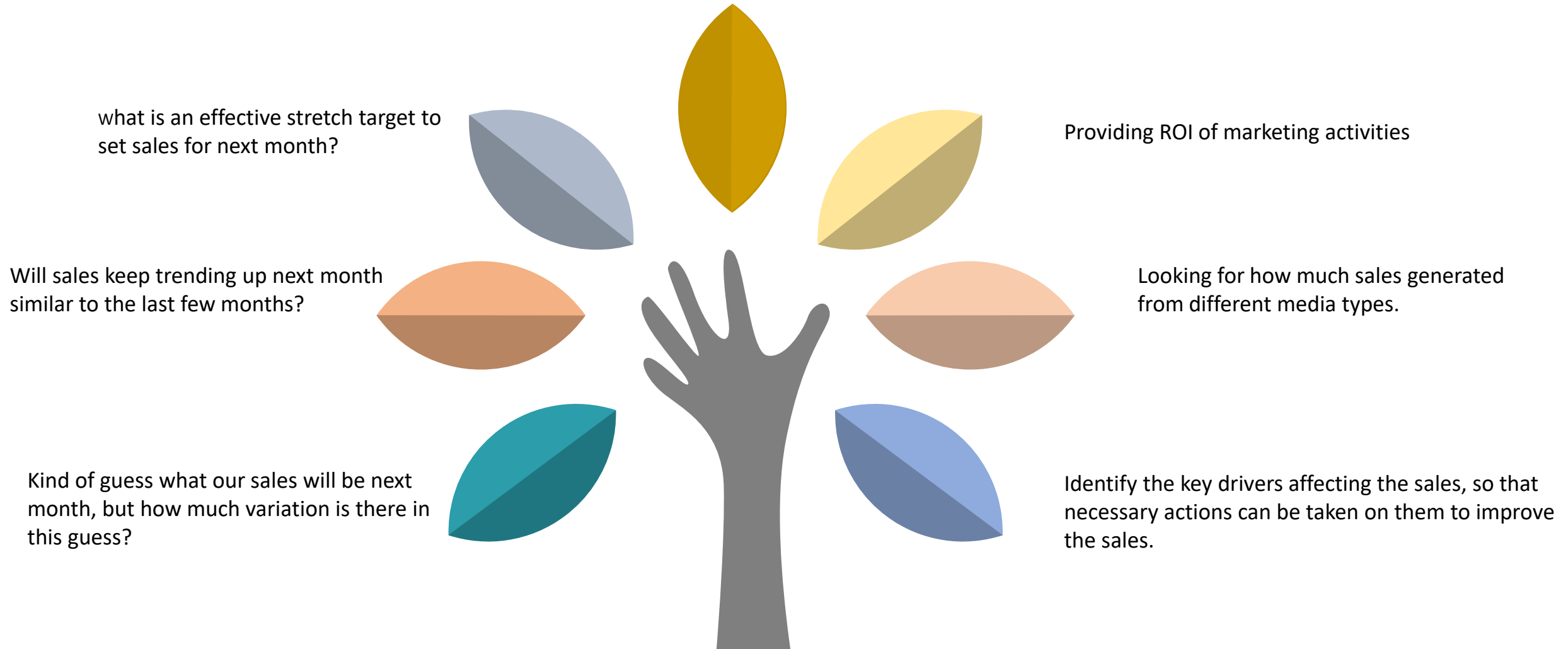
Without a way of measuring the effectiveness of marketing activities, there is no way of knowing whether you are spending your marketing budget wisely.

Business Case

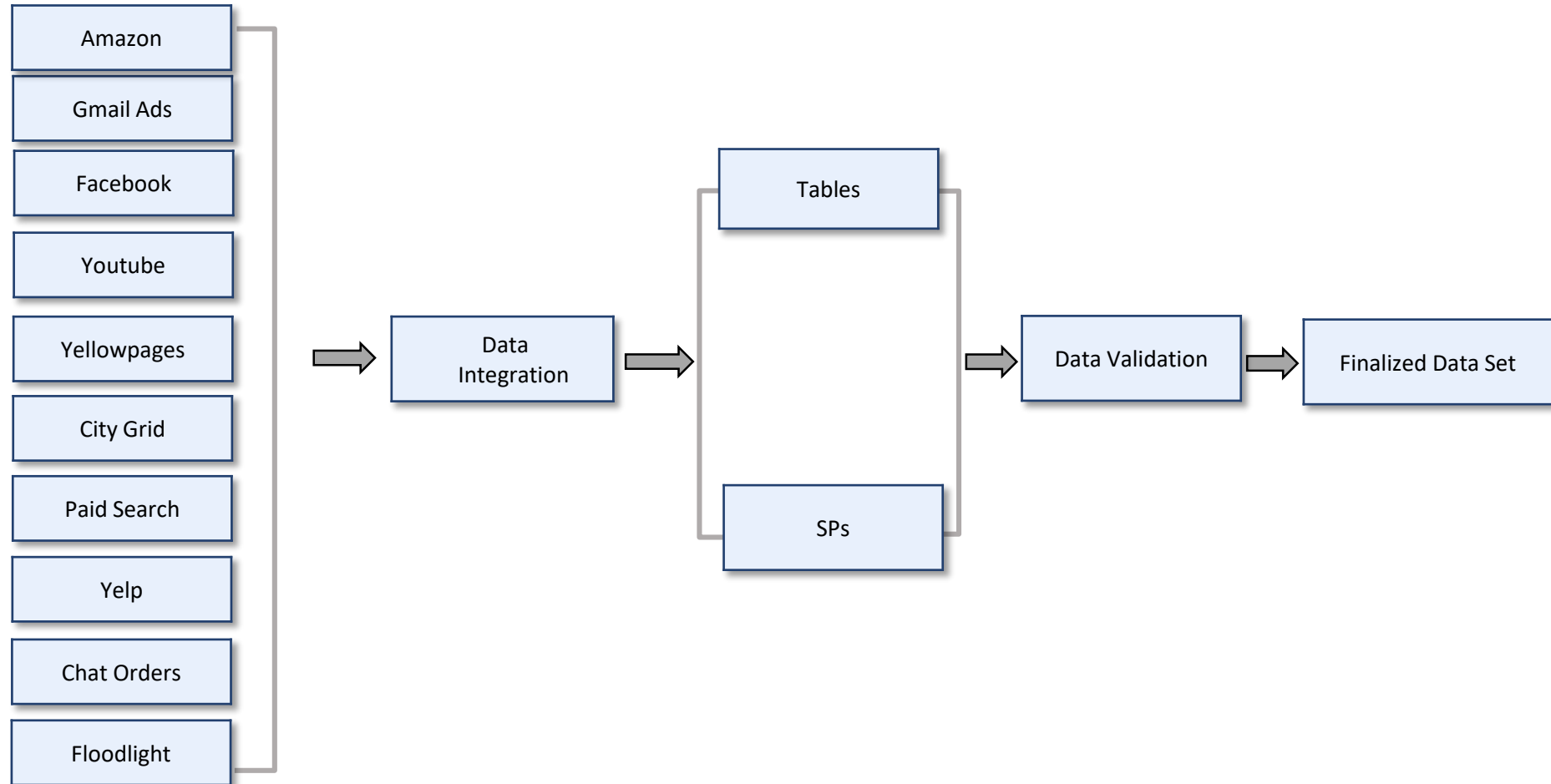


- ❖ One of the retail leader wants to use their digital marketing data source to build an efficient forecasting model to predict the sales, using historical sales data for the past 2 years on a month-on-month basis.
- ❖ The retailer aiming to launch a new strategy, and want to learn from the past one. Sales and promotional information is available for each month.

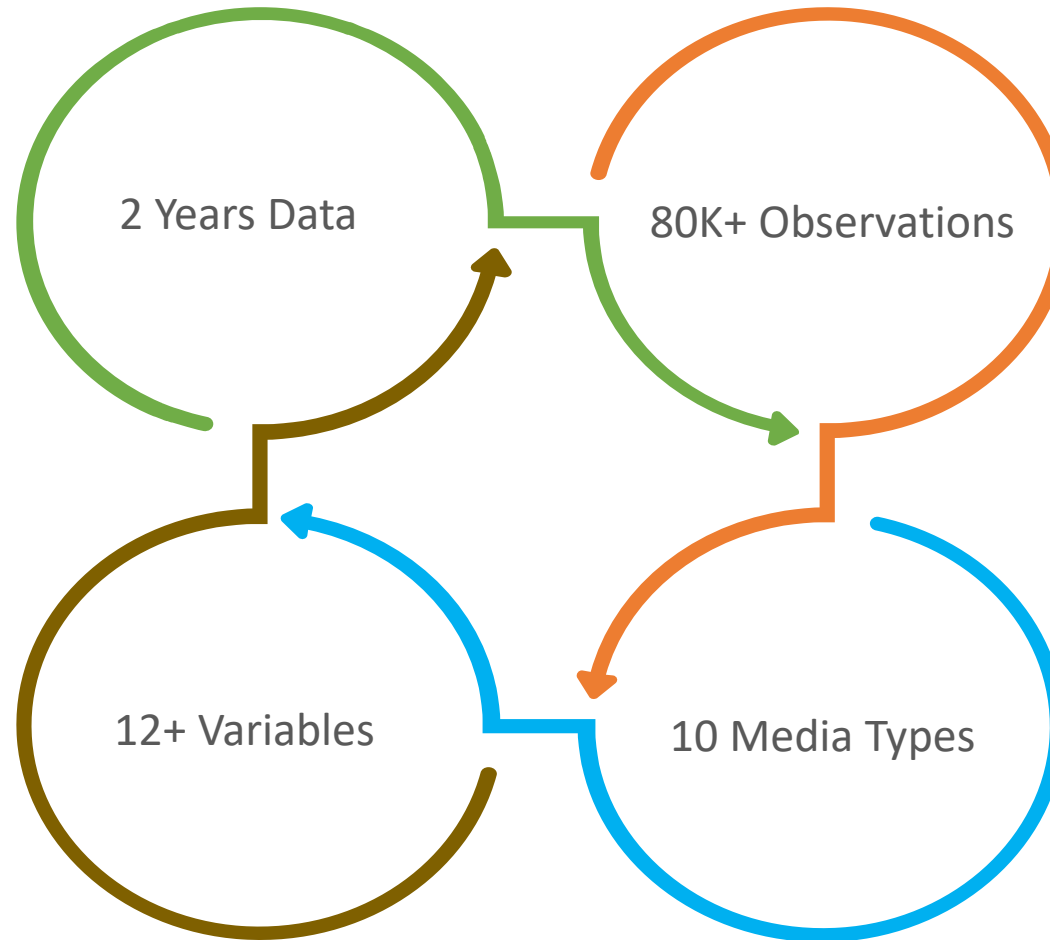
Problem Statement



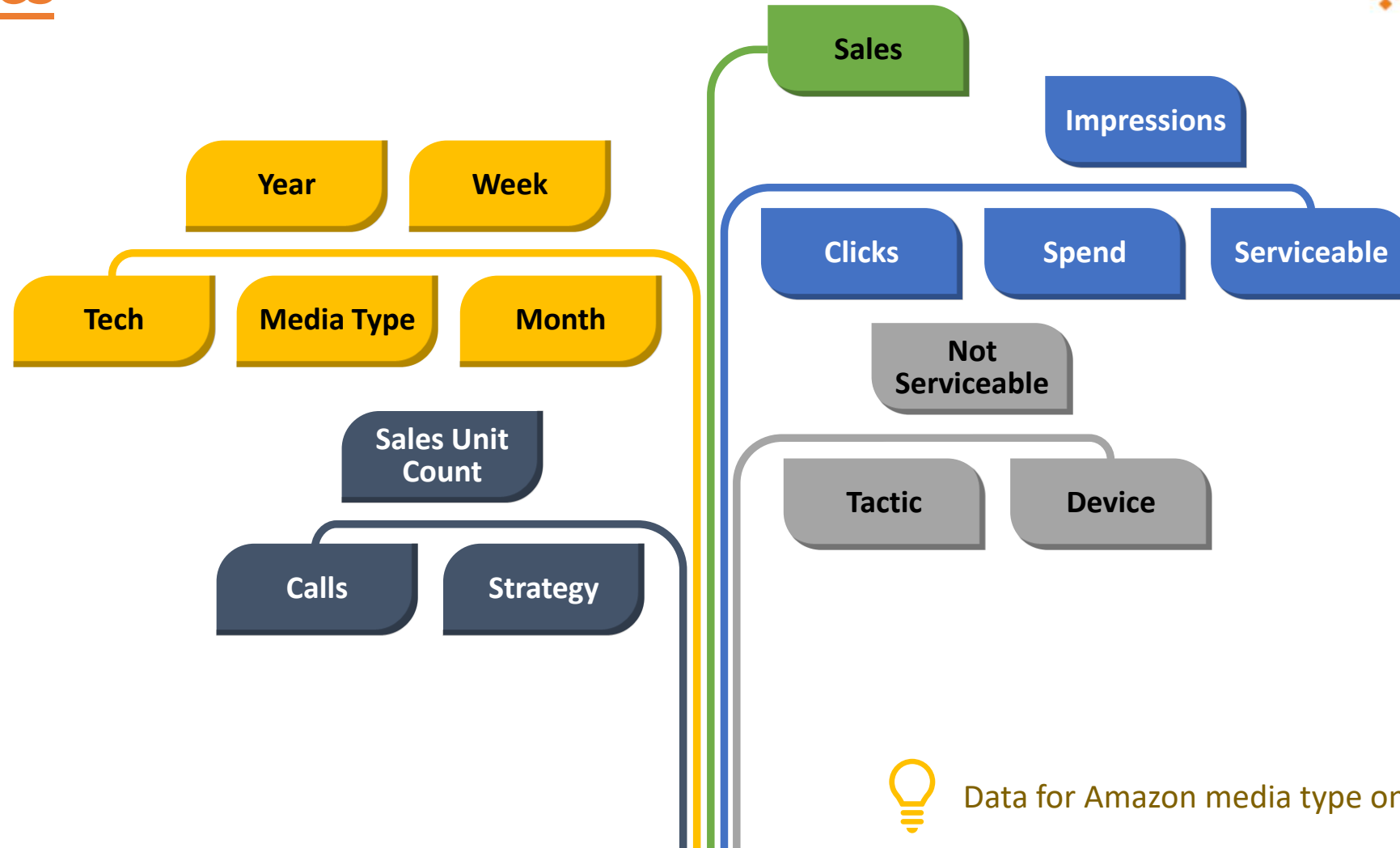
Data Collection & Preparation



Data Understanding



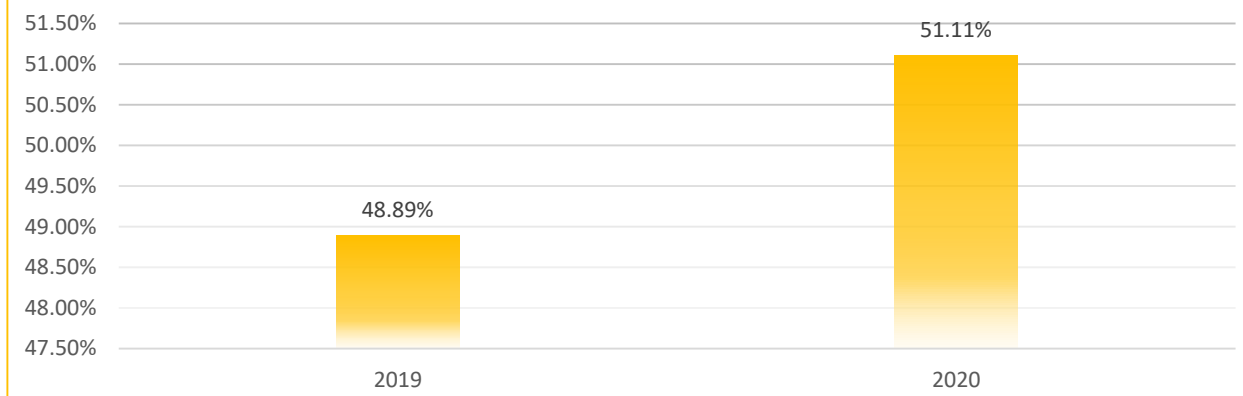
Metrics



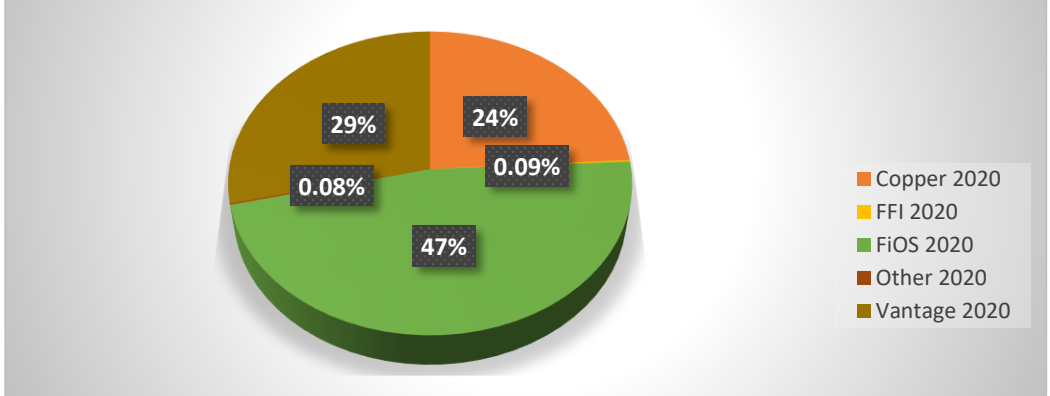
Data for Amazon media type only taken into account

Exploratory Data Analysis

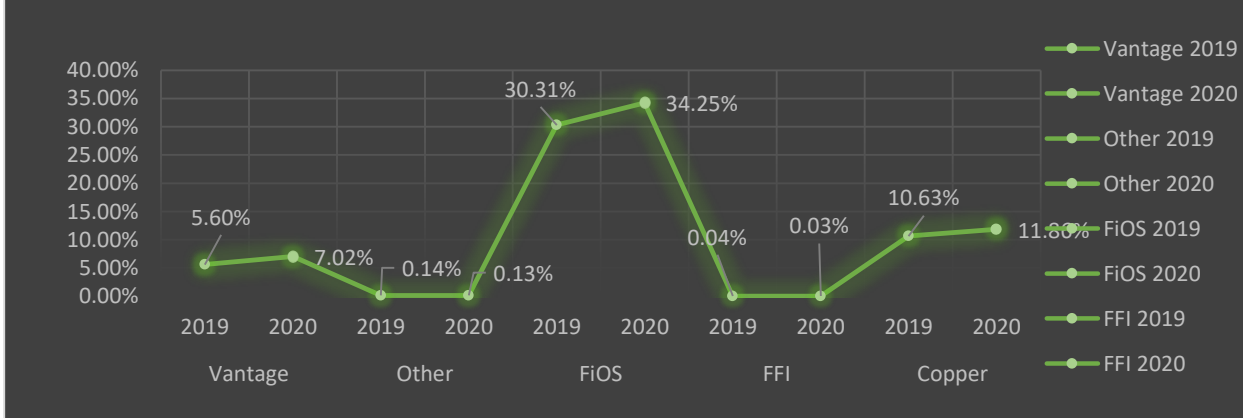
YEAR WISE SPEND



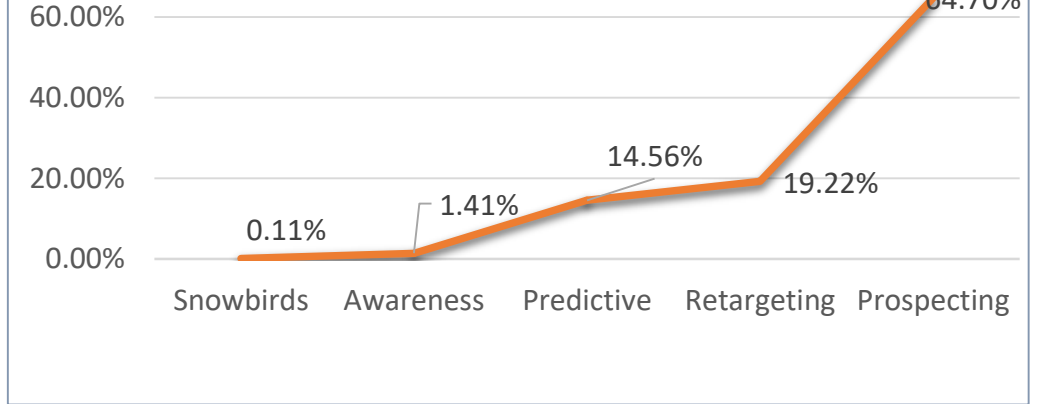
Tech Vs Count of Unit Sales



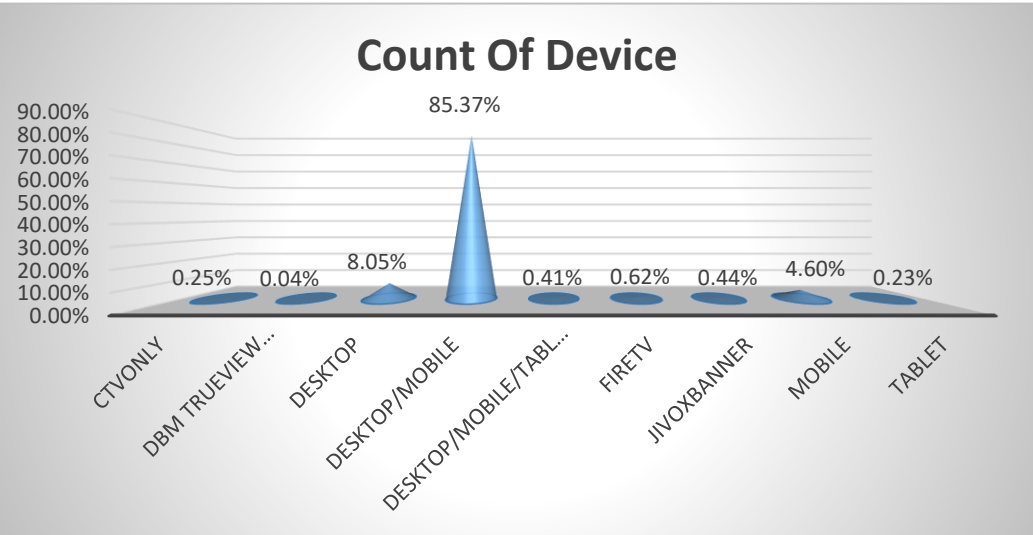
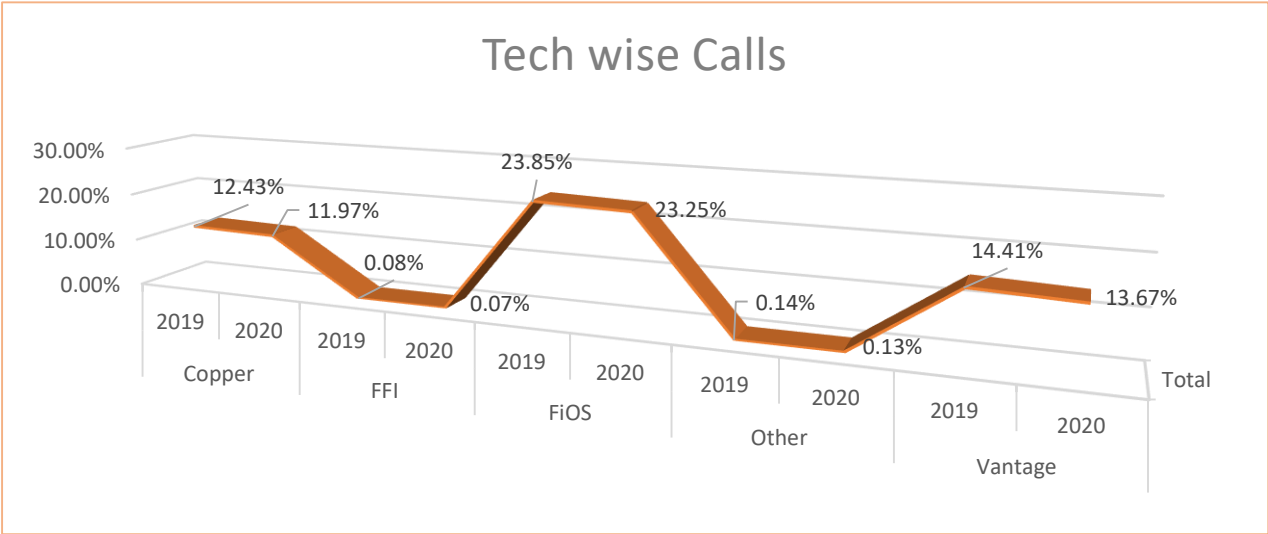
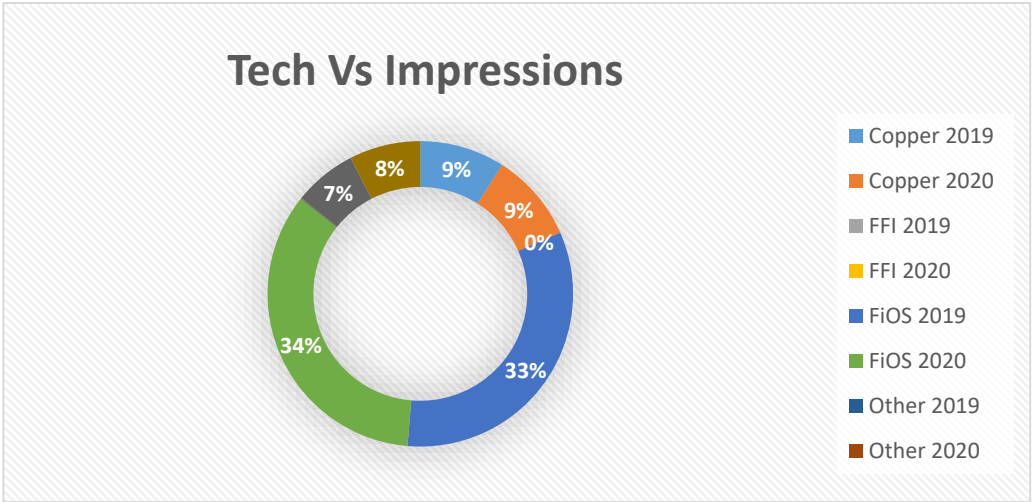
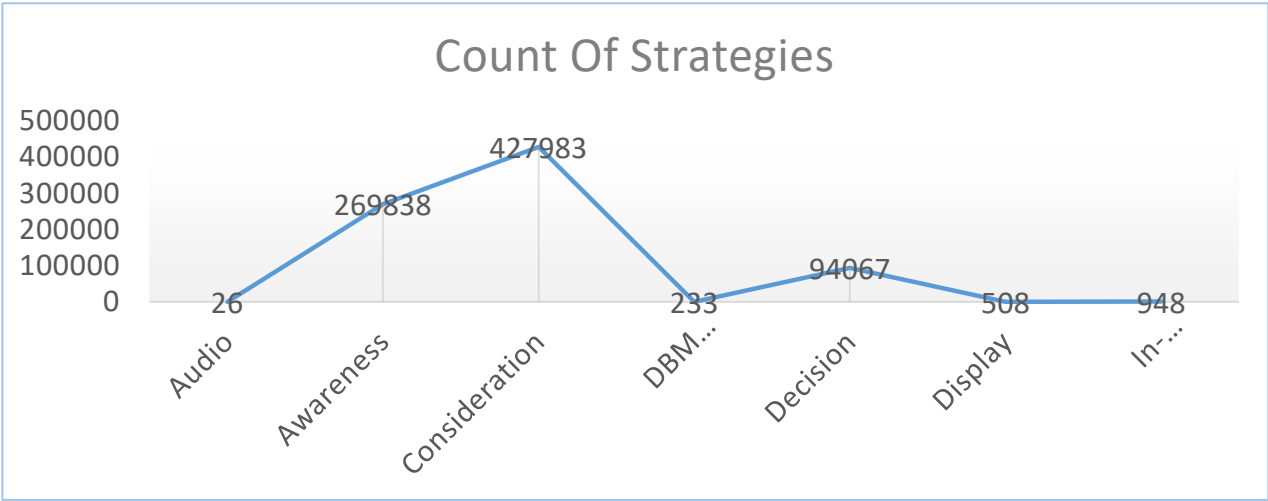
Tech Vs Clicks



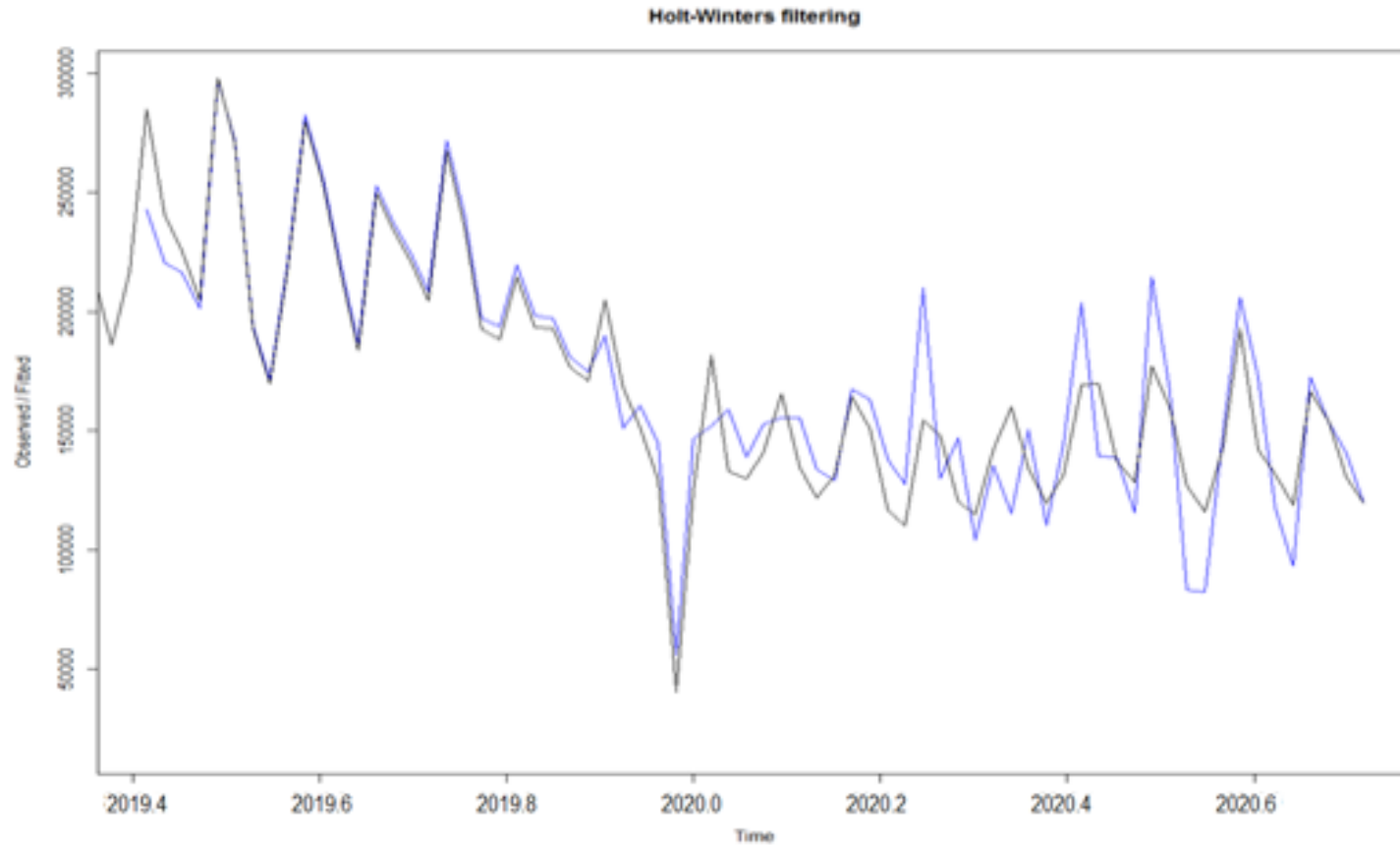
Count Of Tactic



Exploratory Data Analysis



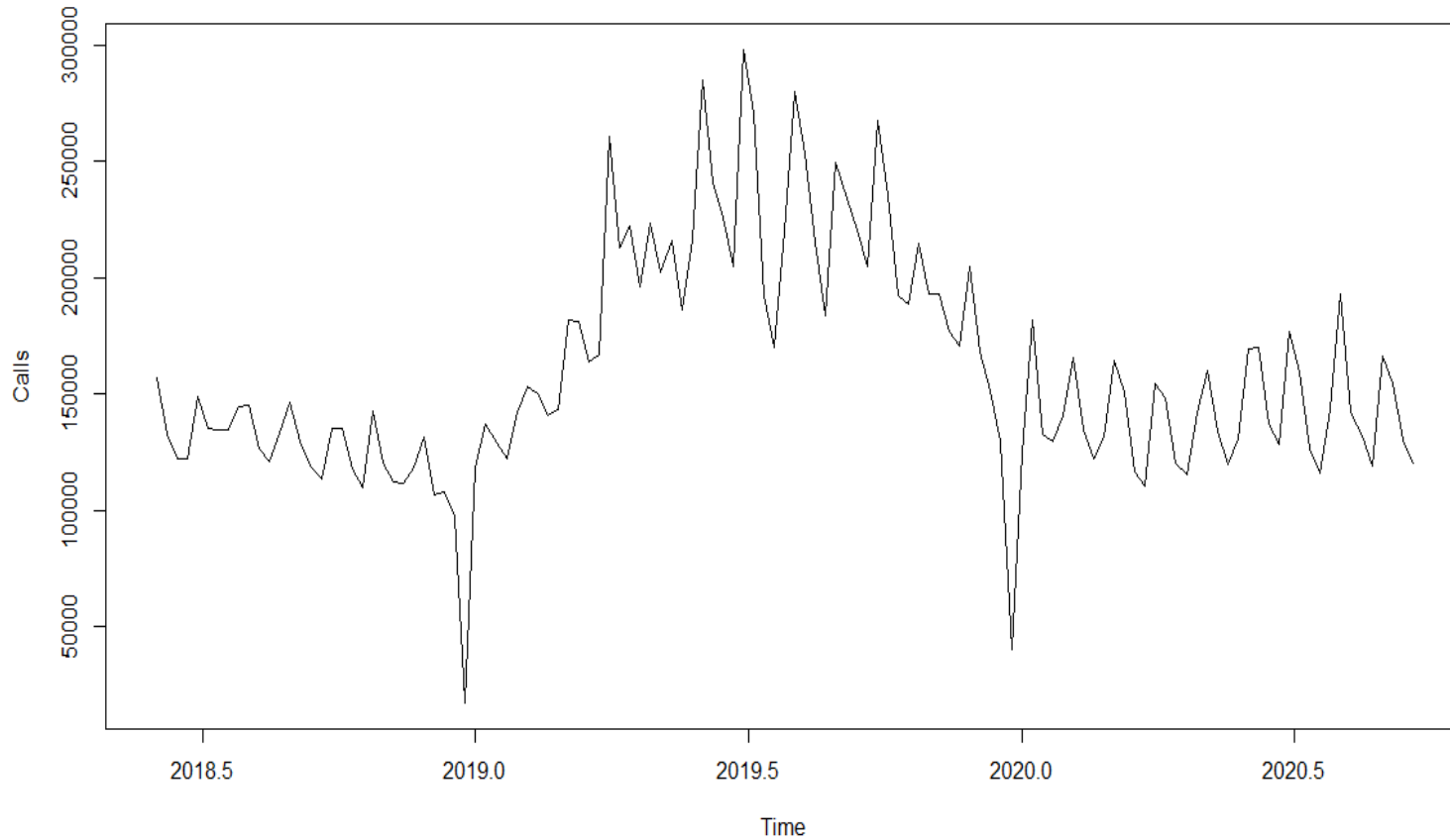
Holt winters Model Forecasting



MAPE

12.63%

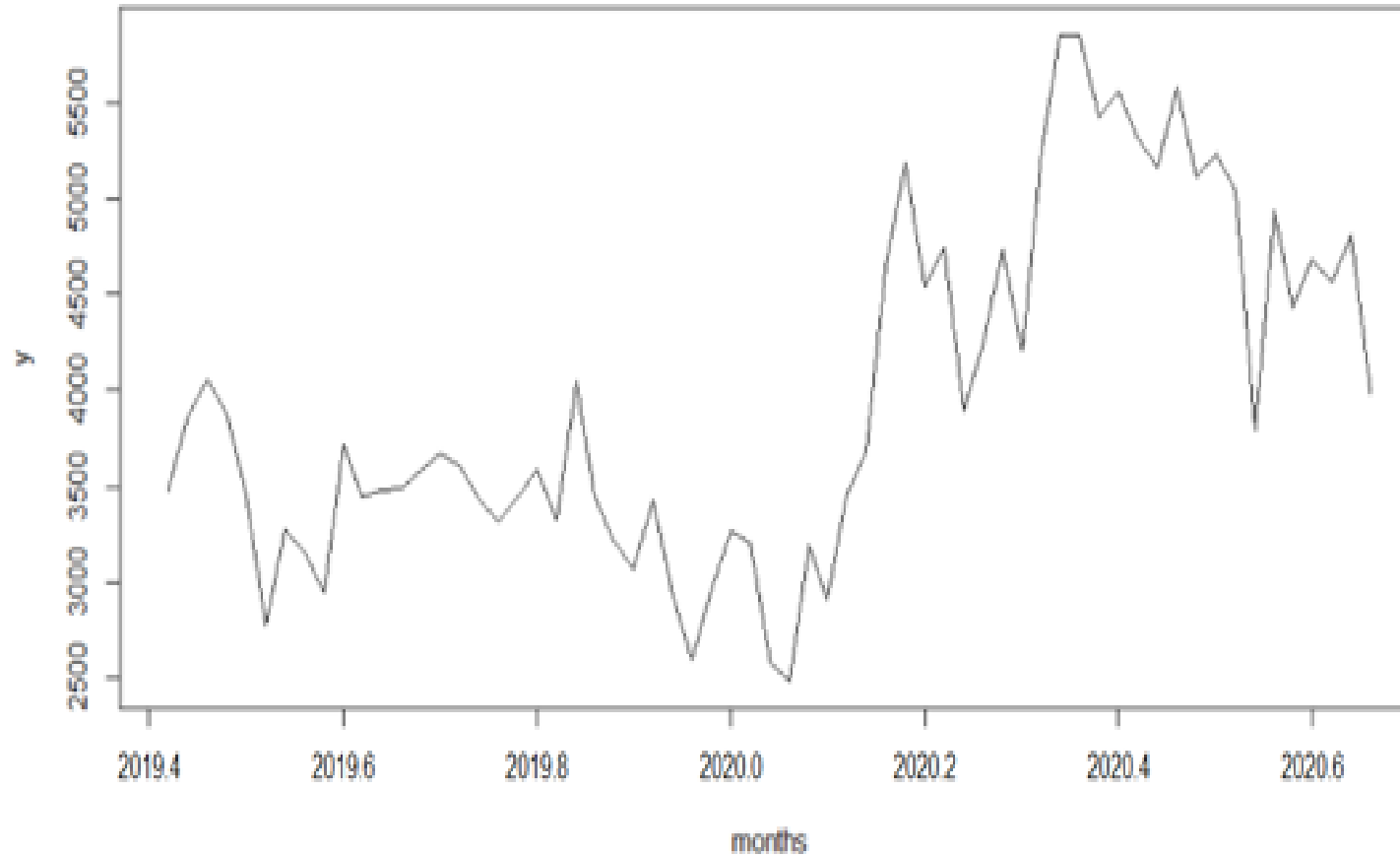
ARIMA Model Forecasting



MAPE

11.86%

LSTM Model Forecasting



MAPE

15.62%

Linear Regression

	coef	std err	t	P> t	[0.025	0.975]
impression	0.1772	0.011	16.556	0.0000	0.156	0.198
clicks	0.2164	0.021	10.503	0.0000	0.176	0.257
spend	0.3744	0.008	47.38	0.0000	0.359	0.39

Dep. Variable	Sales
Model	OLS
Method	Least Squares

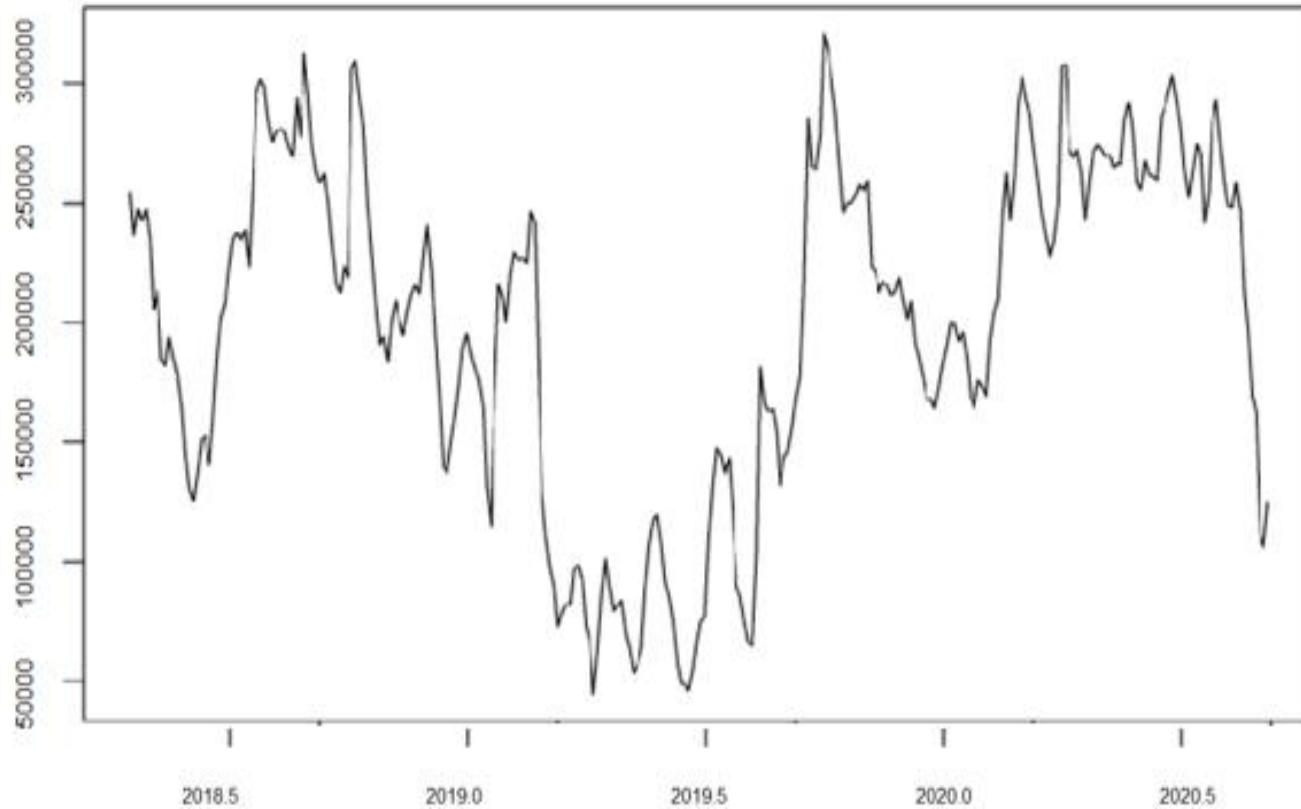
R-squared	0.801
Adj. R-squared	0.773
Prob (F-statistic)	6.15E-265
Log-Likelihood	844.43

Durbin-Watson	1.972
Skew	1.214
Kurtosis	5.465

Significant Variables:



ARIMAX Model Forecasting



ARIMAX performed basing up on significant variables from LR

MAPE

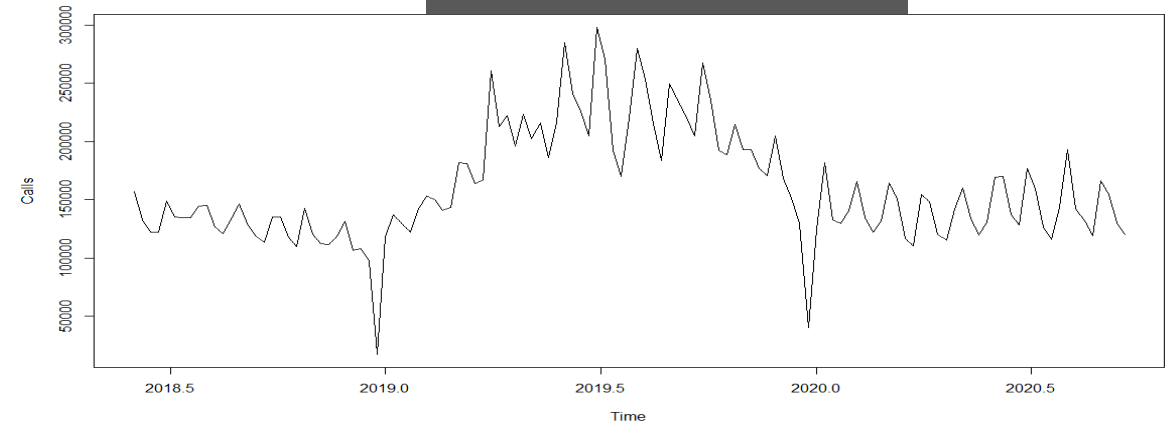
9.53%

Forecasting Results Comparison

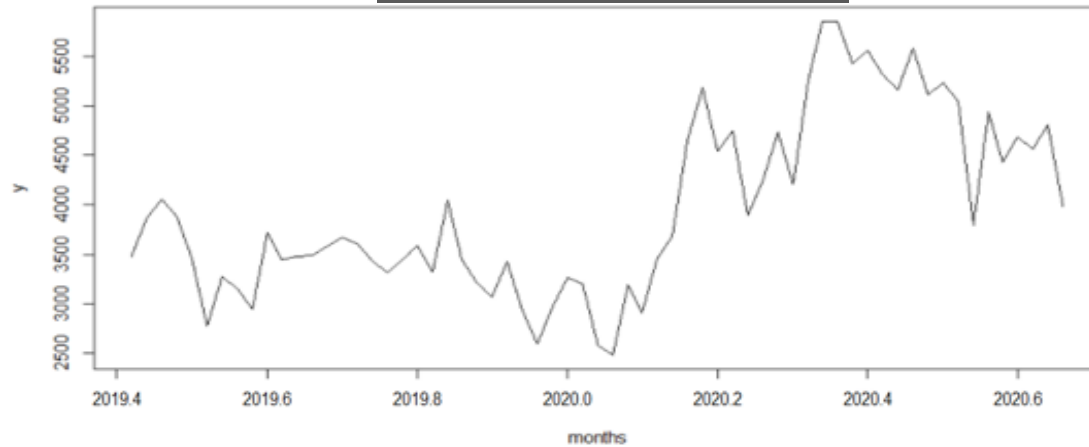
Holt Winters Model
MAPE = 12.63



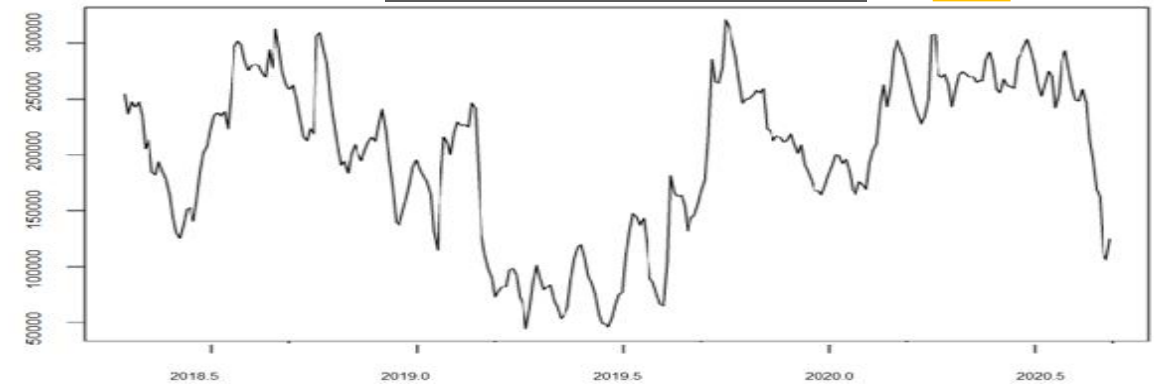
ARIMA Model
MAPE = 11.86



LSTM Model
MAPE = 15.62



ARIMAX Model
MAPE = 9.61



Conclusion

With the forecasting results able to find the upcoming 6 months sales trends, which will help the sales team to identify the key drivers affecting the sales, setting up marketing budget in structured and can make marketing strategies to achieve the sales target as expected.



