**PENS & PRINTERS**: ENSURING OPTIMAL SALE OF PRODUCTS ACROSS ALL REGIONS

This presentation is aimed at identifying patterns in products sales across all four operative regions: East, West, South and Central to scale up product sales and ensure profit maximation whilst minimizing losses and consistently delivering value to its customers.

Analysis in this report is based on data gathered by the Company for all orders from the 4 warehouses from January, 2014 to December, 2017. The dataset contains all products orders, by category, region, their sale values, discounts offered and profits earned for each of the orders.

Pens & Printers through the years under review has experienced steady growth in the sale of its products and the profits earned from these sales

The most of these sales and profits appear to have been contributed to largely by the Western and Eastern regions with the Central and Southern regions performing at subpar levels. The least sales were recorded from the South while the least profits were earned through the Central region.

With all four warehouses stocking same products, investigation here would hover around the reasons for low levels of sales & profits realized in the Central and South regions.

The sum of total sales and profits for the 4 years are indicated in the table below in comparison with predicted values if other regions had returned at least 90% of the sales and profits generated by the West region in the time.

|  |  |  |  |
| --- | --- | --- | --- |
|  | **Actual** | **Predicted** | **% Increase** |
| **Sales** | 2,296,936.90 | 2,684,193.95 | **17%** |
| **Profit** | 225,073.86 | 295,035.62 | **31%** |

This is an indication that if the underlying factors could be carefully eliminated, sales could grow by **17%** with an accompanying **31%** growth in profits earned

The key questions to this regard are:

* Are there products that do not sell as well in some locations?
* Are there noticeable patterns over time indicated by the gathered data?

Taking a deep dive into the several distinct products **(1850 Products)** supplied by the company and the orders for the products, the table below contains the distinct number of products that were only supplied from specific region(s).

The listed number of products were sold only at the stated corresponding regions (Product Names can be viewed through the attached SQL file containing queries)

***ONE REGION ONLY:***

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Region** | **Tot No of Products** | **Furniture** | **Office Supplies** | **Technology** |
| West | **59** | 12 | 25 | 22 |
| East | **54** | 4 | 28 | 22 |
| Central | **28** | 4 | 12 | 12 |
| South | **22** | 0 | 14 | 8 |

***TWO REGIONS ONLY:***

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Region** | **Tot No of Products** | **Furniture** | **Office Supplies** | **Technology** |
| West & East | **134** | 31 | 66 | 37 |
| West & Central | **112** | 26 | 58 | 28 |
| West & South | **56** | 9 | 31 | 16 |
| East & Central | **74** | 10 | 42 | 22 |
| East & South | **45** | 6 | 24 | 15 |
| Central & South | **31** | 12 | 14 | 5 |

***THREE REGIONS ONLY:***

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Region Excluded** | **Tot No of Products** | **Furniture** | **Office Supplies** | **Technology** |
| West | **93** | 14 | 58 | 21 |
| East | **127** | 22 | 84 | 21 |
| Central | **186** | 47 | 106 | 33 |
| South | **347** | 83 | 191 | 73 |

An analysis of the ordering pattern of products shows that the first quarter of every year experiences low traction generally, then grow steadily through the months and peak in the 4th quarter of year, with November and December recording the highest cumulative sales. The visualizations to support these are shown below

**Q4**

**Q4**

**Q4**

**Q4**

The months are ranked in order of appearance in the year with 1 being January and 12 being December

There were 1454 orders on which losses were incurred, 693 products, the most being recorded in the **fourth quarter of the years**, eroding the actual realizable profit by an additional **126,682.55**

**67%** of these losses were accounted for by the East and Central regions, these regions offered average discounts of **15%** and **24%** on orders respectively

**CONCLUSIONS:**

* The company has witnessed steady growth in the four years under review in terms of sales and profits
* Some products do not sell as well in other regions
* The most profitable region is the west with the least being the Central losing over half of its income in the period under review
* The company makes the most sales and profits in the last quarter of the year

**RECOMMENDATIONS:**

* The quantity of stock at the start of the year should be moderate and restocked by **60%** per quarter to meet the ordering pattern of customers all year round whilst also reducing the number of unsold products in stock per time.
* Products should be redistributed across regions to only warehouses where their supplies have been sent out in the period reviewed to avoid keeping unsold products in some regions whilst also increasing availability in regions where they are often ordered to maximize sales and profits across all regions.
* The marketing team should advertise all of the products generally across the regions, and in the event that a product is ordered at a region where it is currently unavailable, such items should then be shipped from the warehouse where it is available with an extended delivery time set on such orders.
* Customer feedback should be collected to ascertain the reason for the losses incurred on some of the orders and proceed to eliminate the contributing factors most especially in the East and Central regions where the highest losses were recorded. Eliminating the losses could increase profit by **56.83%** (=126,682.55 Loss of 225,073.86 Profit)