Contents

Executive Summary

During the time period from Jan 2017 to Dec 2020, there were 6159 orders placed in total, making £528.58K in sales while generating £111.9K in profits. On average, the profit to sales ratio is 21.17%. Within the UK, most of the sales occurs in the England which accounted for £485.17K and £100K in profit. However, it has the lowest profit/sale ratio out of the three countries at 20.06% which is also the only one below the national average. In contrast, despite Wales produces only £10.87K in sales with £3K in profits, it scores as much higher profit to sales ratio at 27.59%. Similarly, Scotland shows a roughly identical results in the P/S ratio with Wales at 27.59%, but higher sales and profit at £32.9K and £9K respectively.

Figure 0

Section A: Analysis
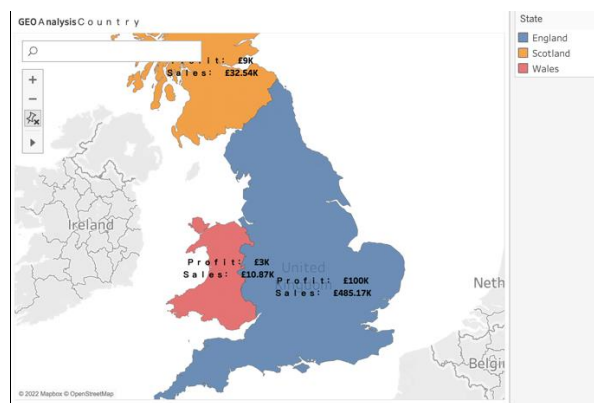
Sector 1-Sale Performance Analysis

Part 1.1- KPI: Net Profit, Sales, Quantity, Profit to Sales Ratio (P/S Ratio)

Fortunately, the amount of the orders is growing as the time progress. Even though it dips sharply at the beginning of pandemic, it slowly reclimbs back up and reached peak in August 2020. it is also predicted that even higher rate will be achieved in the future.
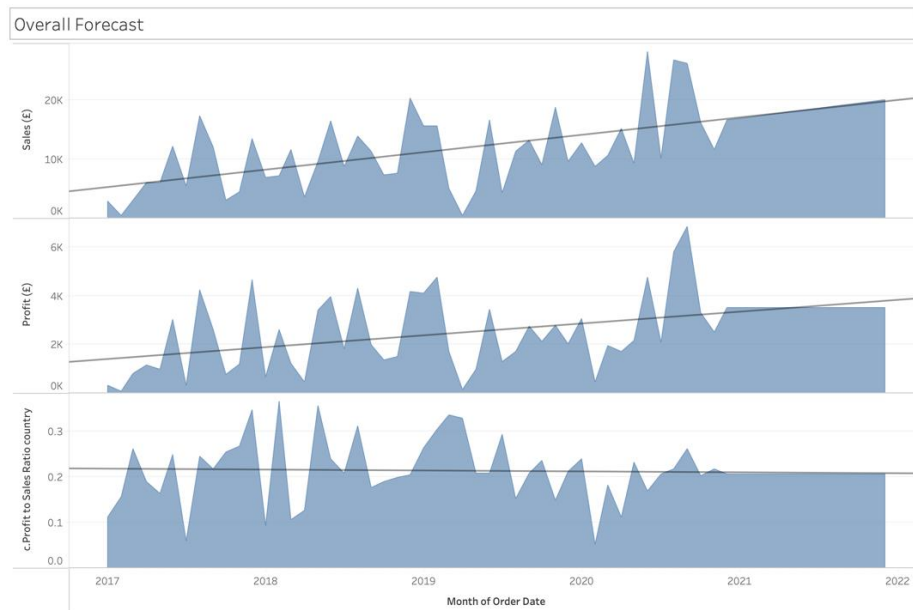
Figure 1.1

In general, both Profits and Sales demonstrate an upward trend in growth over the years. In the beginning, they dropped in growth in the first month in February 2017 and it is the lowest point for almost 2 years till April 2019 when both figures hit the all-time low at £454 and £149 respectively. Surprisingly, both indicators reached their peak performance after the start of the pandemic. On September 2020, the maximum profit was achieved at £6840. However, it is noticeable while sales reached the peak in June 2020, the corresponding profit had experienced a sharp drop.

It is also alarming to see that the rate of increase on sales is slightly higher than that of the profit which indicates the trends are diverging and less profit is going to be made per sale. The profit forecast also indicates a downward trend for the future which will further manifest the problem.

This is also reflected in trend of the profit to sales ratio which has a general downward slope. Interestingly, according to the chats above, October often saw a decrease in quantity, sale and profit compared to the previous month while having a higher profit to sale ratio. This implies that the product composition and customer preference have a seasonal effect on the profitability. Likely, April demonstrates the similar behaviour.
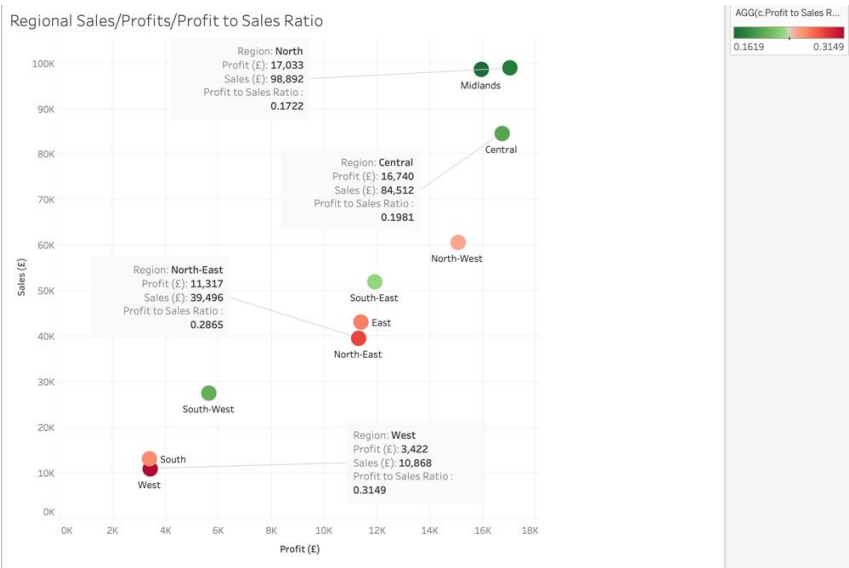
Part 1.2- KPI: Regional Profitability

Regional Sales/Profits/Profit to Sales Ratio

AGG(c.Profit to Sales R...
0.1619   0.3149

Region: North
Profit (£): **17,033**
Sales (£): **98,892**
Profit to Sales Ratio :
0.1722

Midlands

Region: Central
Profit (£): **16,740**
Sales (£): **84,512**
Profit to Sales Ratio :
0.1981

Central

North-West

Region: North-East
Profit (£): **11,317**
Sales (£): **39,496**
Profit to Sales Ratio :
0.2865

South-East

East

North-East

South-West

Region: West
Profit (£): **3,422**
Sales (£): **10,868**
Profit to Sales Ratio :
0.3149

South

West

Sales (£) axis: 0K, 10K, 20K, 30K, 40K, 50K, 60K, 70K, 80K, 90K, 100K

Profit (£) axis: 0K, 2K, 4K, 6K, 8K, 10K, 12K, 14K, 16K, 18K

Figure 1.2

Profit/Sales by Region

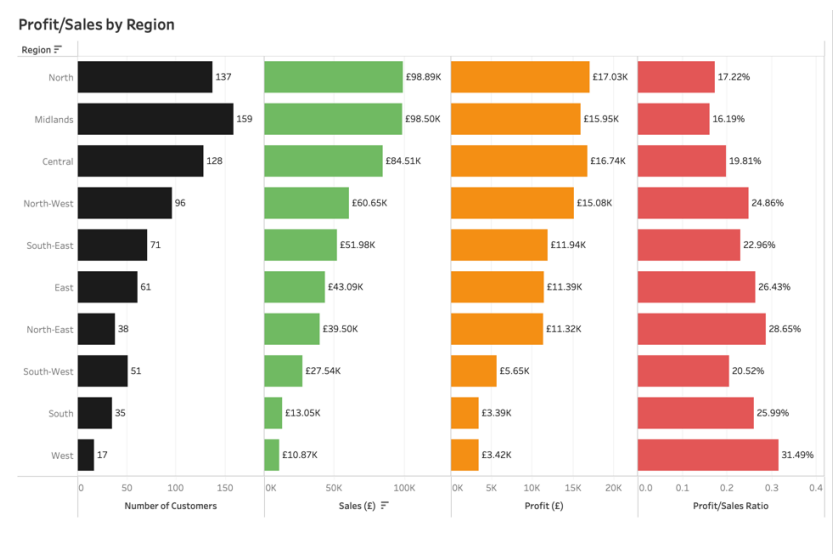| Region	Number of Customers	Sales (£)	Profit (£)	Profit/Sales Ratio
North	137	£98.89K	£17.03K	17.22%
Midlands	159	£98.50K	£15.95K	16.19%
Central	128	£84.51K	£16.74K	19.81%
North-West	96	£60.65K	£15.08K	24.86%
South-East	71	£51.98K	£11.94K	22.96%
East	61	£43.09K	£11.39K	26.43%
North-East	38	£39.50K	£11.32K	28.65%
South-West	51	£27.54K	£5.65K	20.52%
South	35	£13.05K	£3.39K	25.99%
West	17	£10.87K	£3.42K	31.49%

Figure 1.3

Since England is where most of the sale took place, it will be primary focus of the investigation. The North, Midlands and Central accounts for the top three areas in sales and profit. However, they rank at the bottom in terms of profit to sales ratio. In contrast, the West, Northeast, and the South shows a much higher profits to sales ratio while contributing only a fraction of sales. Specifically, both North and Midlands show a leading rate of increase in sales and profit, yet the latter rate is much less in comparison which means the sales and profit are diverging over time. Both the East and the Central shows a declining profile in profit making, however the Central is the only area with negative trend in both sales and profit while the overall quantity is slowly increasing. This is also reflected in the declining trend of profitability ratio which means the customers in this area are going to be less profitable on average.
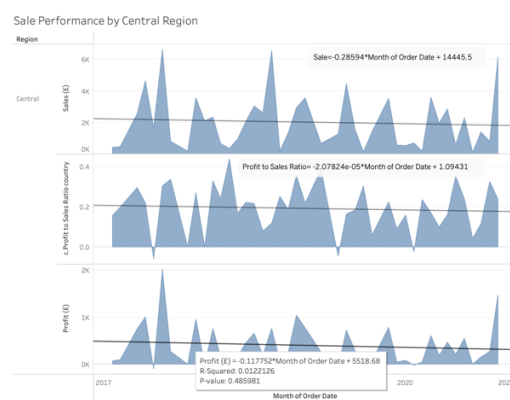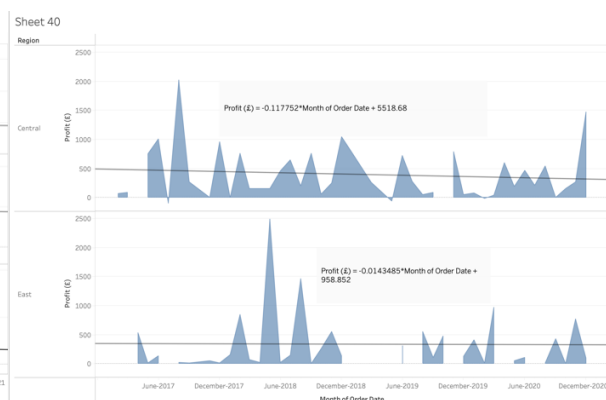

Figure 1.4

Figure 1.5

Part 1.3- KPI: Rate of Unprofitable Orders
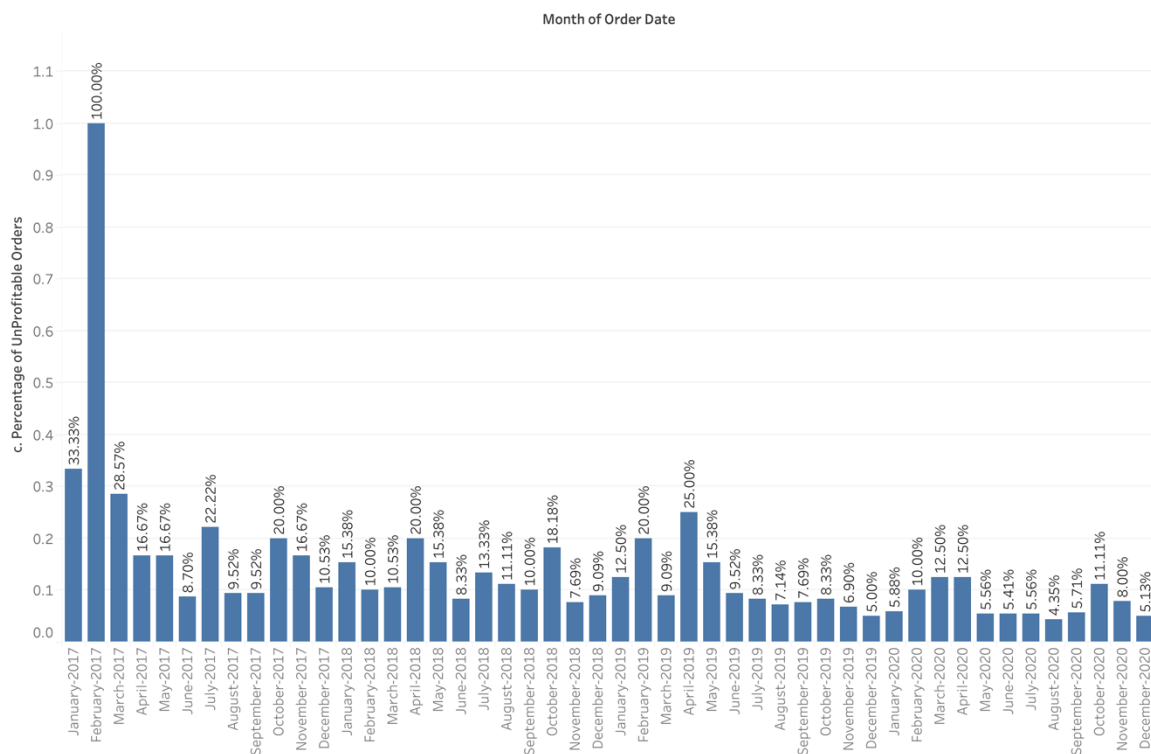
Percentage of Unprofitable Orders

Figure 1.6

The chart above demonstrates the percentage of the order which have net profit smaller than 0. Since the beginning, the general trend is a downward slope which. However, there is a certain seasonality can be observed after 2017 where the rate often peaks around late spring and fall (April and October) while hit bottom around mid-summer and early winter (July and December). It is also worth mentioning that despite the downward trend in percentage, the quantity of unprofitable orders is always moving upward, it peaks right after the second wave pandemic and is predicted to raise even faster in the future.
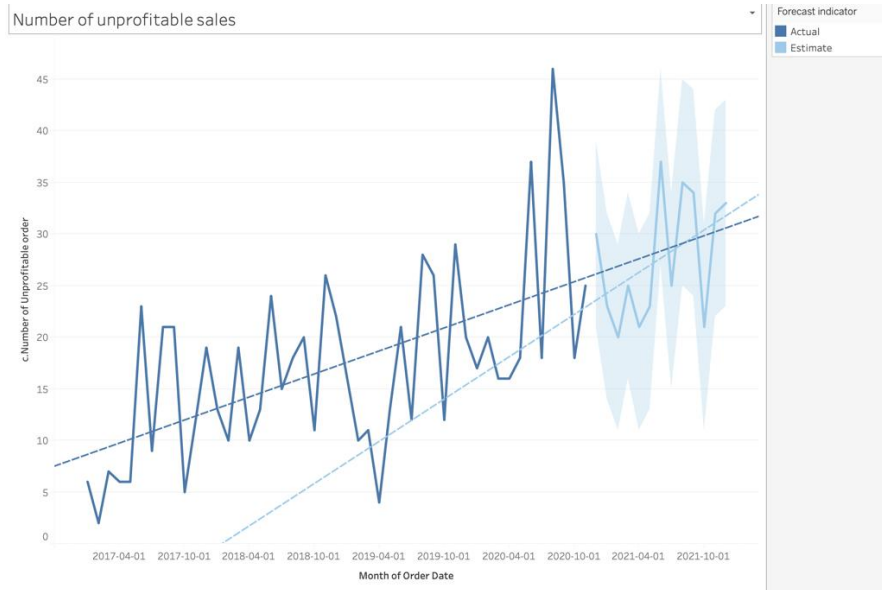
Figure 1.7

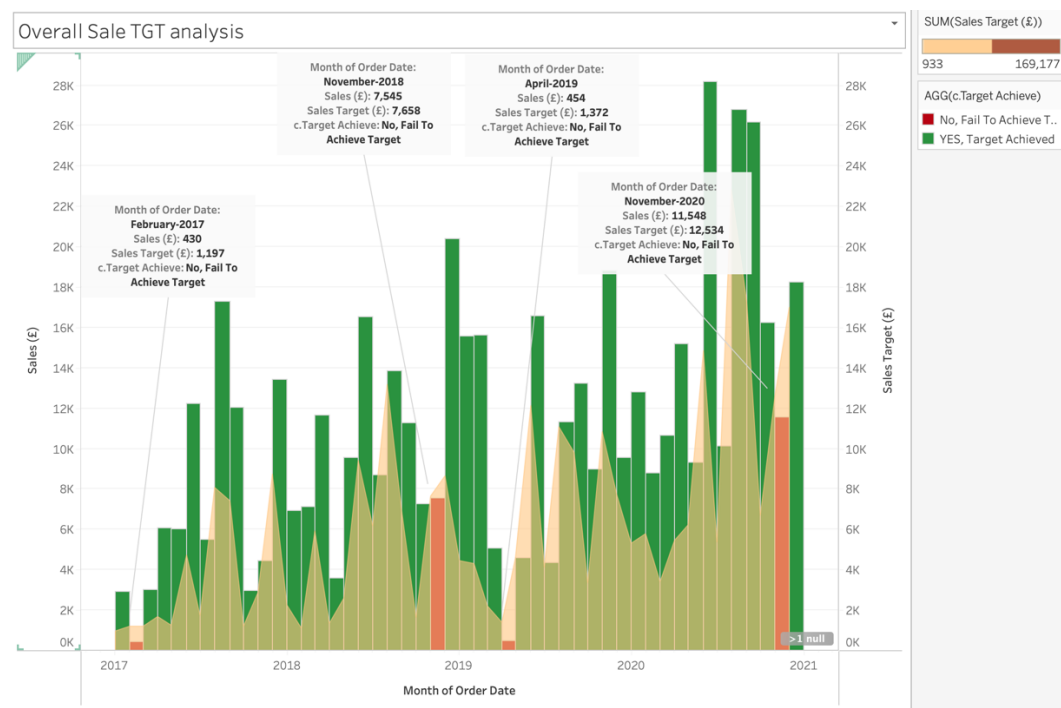## Part 1.4- Brief Analysis of Sales Target

Figure 1.8

As for sales target achievement, there are 4 months which failed to acquire sale target. 2 of them happened in November in 2018 and 2020. The other 2 happened during spring 2017 and 2019 in February and April respectively.

Sector 2-Product Analysis

Part 2.1- KPI Product Category Profitability

Figure 2.1

There are three major types of products, of which "Woman's Shoe" achieved the greatest number of the orders but the worst profitability with a profit to sale ratio of 18.9%. In contrast, "Kids' Shoe used the least number of orders while having the most profit vs sale ratio at 22.8%. However, it is also the only product category that demonstrate a downward trend in profit vs sale ratio in the future. On the other hand, the same ratio for the other two product categories forecasted a growth overtime, although the "Men's Shoe" shows nearly flat increase rate while "Woman's Shoe" increase much more rapidly.

Catagory Sale Analysis

Category	% of Total Count of Order ID	Profit (£)	Sales (£)	Profit/Sale Ratio
Kids Shoe				
Men's Shoe				
Women's Shoe				

Table 2.1

Profit Ratio Analysis by Brand

Sub-Category: **Timberland**
Profit (£): **27,728**
Quantity: **602**
Sales (£): **116,918**
Profit to Sales Ratio : **23.72%**

Sub-Category: **Lilli Kelly**
Profit (£): **18,112**
Quantity: **595**
Sales (£): **83,803**
Profit to Sales Ratio : **21.61%**

Sub-Category: **UGG**
Profit (£): **16,658**
Quantity: **444**
Sales (£): **71,599**
Profit to Sales Ratio : **23.27%**

Sub-Category: **Dr Martens**
Profit (£): **546**
Quantity: **588**
Sales (£): **16,278**
Profit to Sales Ratio : **3.35%**

Sub-Category: **Kickers**
Profit (£): **16,833**
Quantity: **296**
Sales (£): **68,430**
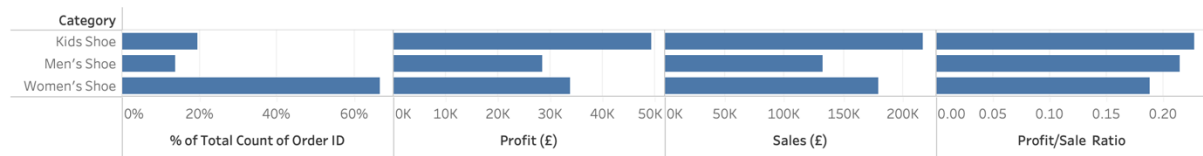Profit to Sales Ratio : **24.60%**

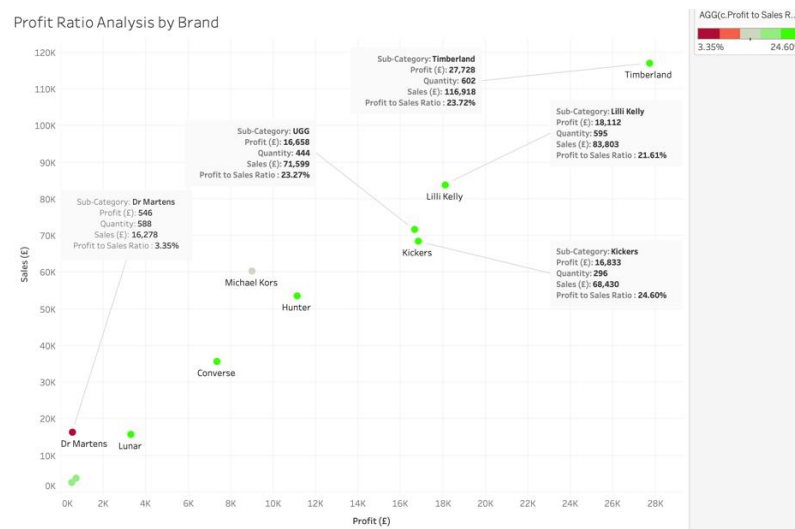AGG(c.Profit to Sales R...
3.35%   24.60%

Figure 2.2

The product range covers 11 brands with varying profitability. In terms of the quantity and sales, Hunter is the most popular brand with 909 units sold the most sales at £53.51k. However, the top performer in total profits belongs to "Timberland" and "Lilli Kelly" valuing at £27.73k and £18.11k respectively. Although "Kickers" only ranks second last in the order quantity, it represents the best product profitability with profit vs sale ratio of 24.60%. That is in sharp contrast from the performance of "Dr Marten" which only shows a fraction of the average profit vs sale ratio at merely 3.35%.
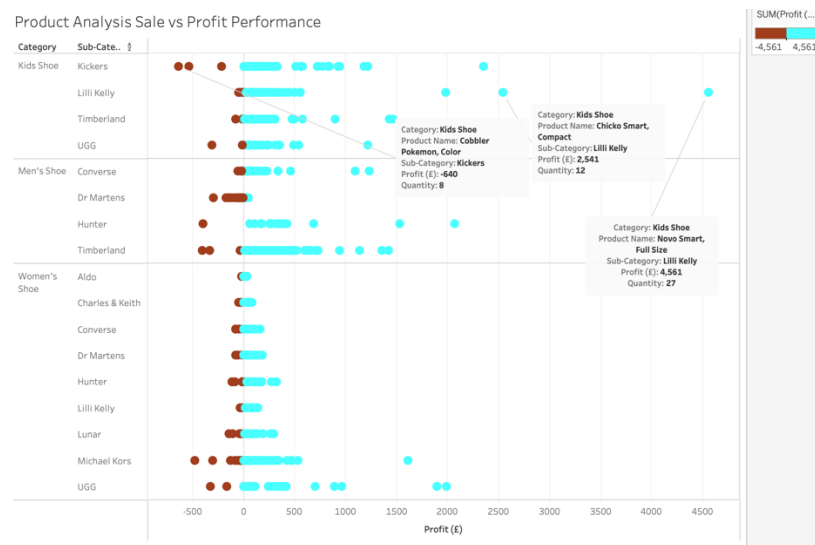
Part 2.2- KPI Product Profitability

Figure 2.3

The chart above demonstrates the profitability of each individual product. The most profitable product is Nova Smart-Full Size belongs to Lilli Kelly brand with a profit of $ 4561, and the least profitable products is Kicker brand's Cobbler with negative profit of -640 under Kids' Shoe Category. Brand "Kicker" and "Timberland" performed nearly flawlessly with only 3 unprofitable products each and scored a high profit to sale ratio at 21.35% and 21.85% respectively. Under the "Men's Shoe" category, the "Dr Marten" brand shows the largest number of unprofitable products (indicated in red dot) and indicates a negative profit of -£1.51k. However, the brand performs much better in the "Women's Shoe" category where most of products are profitable and have a decent profit to sales ratio of 22.64%. UGG is the most noticeable performer under the "Women's Shoe" category which achieved the most profit and profit to sale ratio while contributing the least amount of sale quantity of 169 units. It also performs decently in the "Kids" Category with 24.41% profitability rate. "Hunter" brand exhibits the similar behaviour, of which it performs exceedingly under the "Men" category with £6.72k in profit and only 58 units sold while performing poorly under "Women" category with less profit at £4.42k and over 800 units sold. These also leads to a big difference in profit to sale ratio at 23.54% and 17.68% respectively. Lastly, despite the popularity Michaels Kors in Women's Shoe category, it also shows up with the greatest number of unprofitable products.
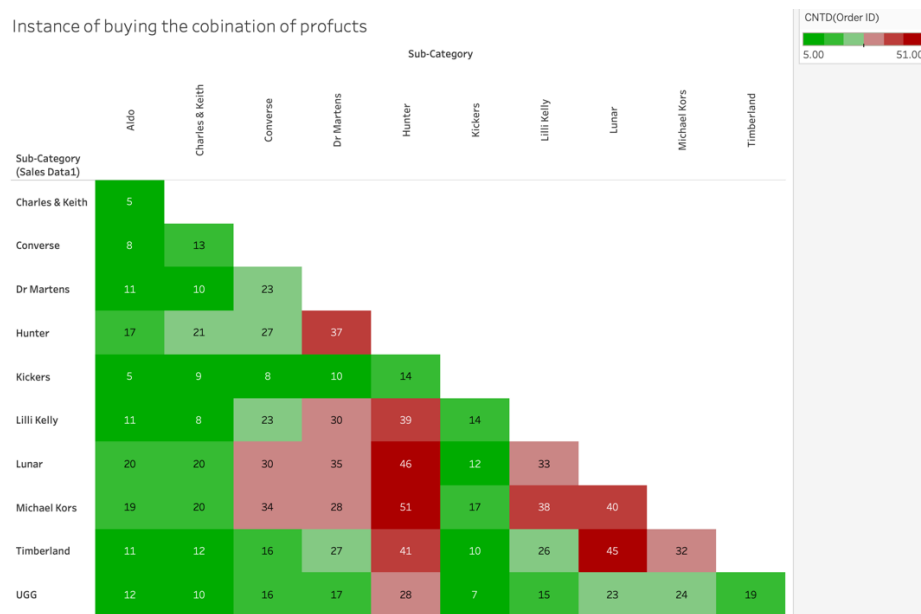
Part 2.3 KIP: Frequently Bought Together

Instance of buying the cobination of profucts

CNTD(Order ID)
5.00 — 51.00

Sub-Category

Sub-Category (Sales Data1)	Aldo	Charles & Keith	Converse	Dr Martens	Hunter	Kickers	Lilli Kelly	Lunar	Michael Kors	Timberland
Charles & Keith	5									
Converse	8	13								
Dr Martens	11	10	23							
Hunter	17	21	27	37						
Kickers	5	9	8	10	14					
Lilli Kelly	11	8	23	30	39	14				
Lunar	20	20	30	35	46	12	33			
Michael Kors	19	20	34	28	51	17	38	40		
Timberland	11	12	16	27	41	10	26	45	32	
UGG	12	10	16	17	28	7	15	23	24	19

Figure 2.4

The chart above provided the instances of products purchases together. Kicker stands out as a brand which is less commonly purchased together with other products despite its high profitability. Interestingly, Hunter brand is the direct opposite to this behaviour because it is shown as the most popular brand to be purchased together with. According to the previous findings of brand profit to sales ratio, if hunter is the most popular brand, then the high volume of combine purchases with UGG, Lilli Kelly and Lunar is a good sign due to relative high profitability. Nevertheless, the most combined sales happened to Hunter is Michael Kors, which is a significantly lower profitability brand, not to mention Hunter also shows significant affiliation with Dr Marten which performs the worst in the profitability department. On the other side of the spectrum, Timberland, and Lunar, two high profit ratio brand is also often purchased together which is a behaviour that should be encouraged and further studied.

Sector 3-Customer Analysis
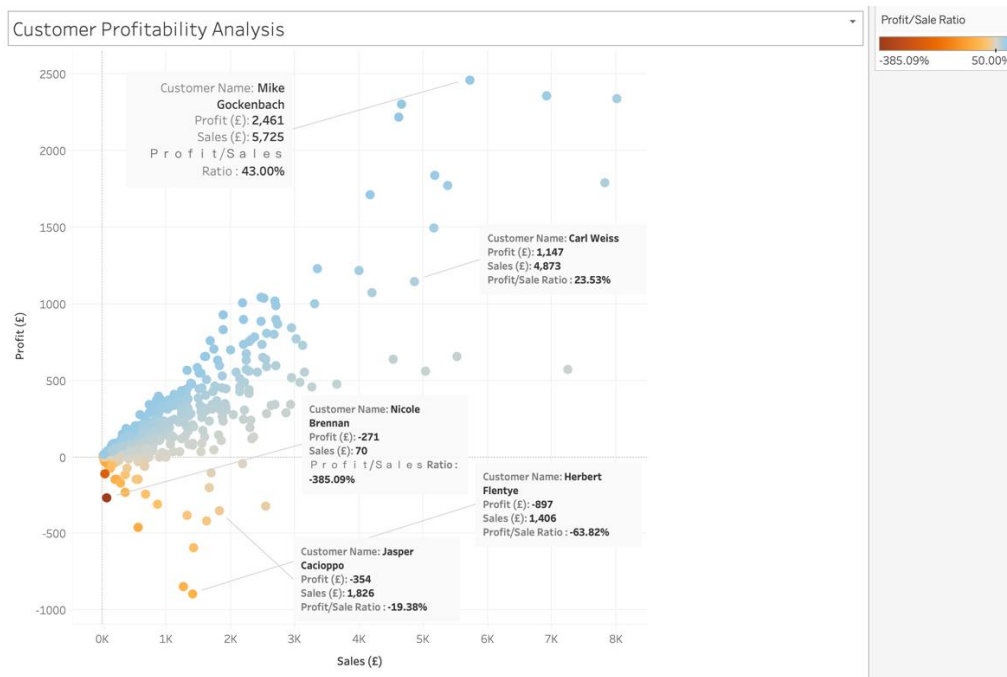
Part 3.1 Customer Profitability

Figure 3.1

Ranking the customer purchase by the quantity, we can find that Car Weiss who is in the first position bought 60 units over the course of 4 years, produce £4873 in sales and £1174 in profit. At the fourth position, the first customer with a negative profit of -£3 appears despite he purchased over 47 units. This phenomenon repeated two more times with the top 15 customers, both Jasper Cacioppo and Herbert Flentye registered a loss of profit of –£354 and -£897 respectively while having the same quantity at 34 units. In fact, the latter has the most loss of profit of all customers. Ranking the customers by sales, the number-one customer purchased £8024 worth of goods and he shows a profitability ratio of 29.2% which is above the national average. Nevertheless, within the top ten sales, there are 3 customers shows less-than-average profitability ratio. Mike Gochenbach provided the most profit at £2461 while only purchased 9 items that belongs to the Lilli Kelly brand. It is also interesting to see the customers with least profit to sales ratio, Nicole Brennan, and Becky Martin, both of their purchases unsurprisingly consist solely of Dr Marten brand.

Part 3.2- KPI: Customer Group Profit Analysis

Customer Group and Product Category

Category	Sub-Catego..	House.. ⇂	Count of Sales Data ⇂	Profit (£)	c. Percentage of UnProfitable Orde..
Kids Shoe	Kickers	Family	37	8,147	5.56%
		Couples	25	5,620	4.00%
		Singles	14	3,066	14.29%
	Lilli Kelly	Family	46	9,549	4.76%
		Couples	30	4,792	3.33%
		Singles	17	2,257	12.50%
	Timberland	Family	35	5,216	5.88%
		Singles	22	1,590	11.11%
		Couples	22	3,473	5.00%
	UGG	Family	31	1,888	7.14%
		Couples	28	3,271	8.33%
		Singles	11	607	18.18%
Men's Shoe	Converse	Family	22	2,796	9.09%
		Couples	22	1,536	10.53%
		Singles	13	1,544	15.38%
	Dr Martens	Family	36	-408	5.56%
		Couples	19	-707	11.11%
		Singles	12	-399	18.18%
	Hunter	Family	9	3,811	22.22%
		Couples	5	2,309	20.00%
		Singles	2	598	50.00%
	Timberland	Family	43	8,652	5.00%
		Couples	30	5,457	7.14%
		Singles	11	3,340	9.09%
Women's Shoe	Aldo	Family	38	273	5.88%
		Couples	19	169	10.53%
		Singles	13	77	16.67%
	Charles & Keith	Family	42	461	4.88%
		Singles	19	194	11.11%
		Couples	19	82	10.53%
	Converse	Family	28	598	7.14%
		Singles	18	534	11.76%
		Couples	18	336	11.11%
	Dr Martens	Family	44	808	4.88%
		Couples	35	1,067	5.71%
		Singles	10	185	20.00%
	Hunter	Family	119	2,812	1.96%
		Couples	65	654	3.57%
		Singles	45	950	5.41%
	Lilli Kelly	Family	35	770	6.06%
		Couples	23	466	8.70%
		Singles	14	277	16.67%
	Lunar	Family	105	1,247	2.06%
		Couples	77	1,220	3.13%
		Singles	36	822	6.90%
	Michael Kors	Family	121	3,479	1.79%
		Couples	66	3,885	3.70%
		Singles	40	1,636	5.56%
	UGG	Family	25	4,755	8.00%
		Couples	12	3,369	16.67%

Household Type
- ■ Couples
- ■ Family
- ■ Singles

Table 3

The entire cohort of customers is divided into 3 groups. Family is the biggest contributor of sale and quantity and profit while consistently having the least rate of unprofitable orders among all product categories. To be specific, most of the quantity occurs in the Women's Shoe category however most of the profit is generated by the Kids' Shoe category. Single buyers are the least active and profitable group, with buying Men's Shoes have the worst rate of unprofitable orders at 5.56%. It is projected that Family buyer will continue to profit with the fastest growing rate out of the three, at the same time, single buyer is having the slowest growing rate in profit. Although Hunter has an excellent profit and sales figure in Men's Shoe category, Single buyers who bought the brand for Men's shoe show the worst rate of unprofitable sales at 50 %. In contrast, the same brand performs much better in Women's shoe department despite the lack of profit and sale figure.
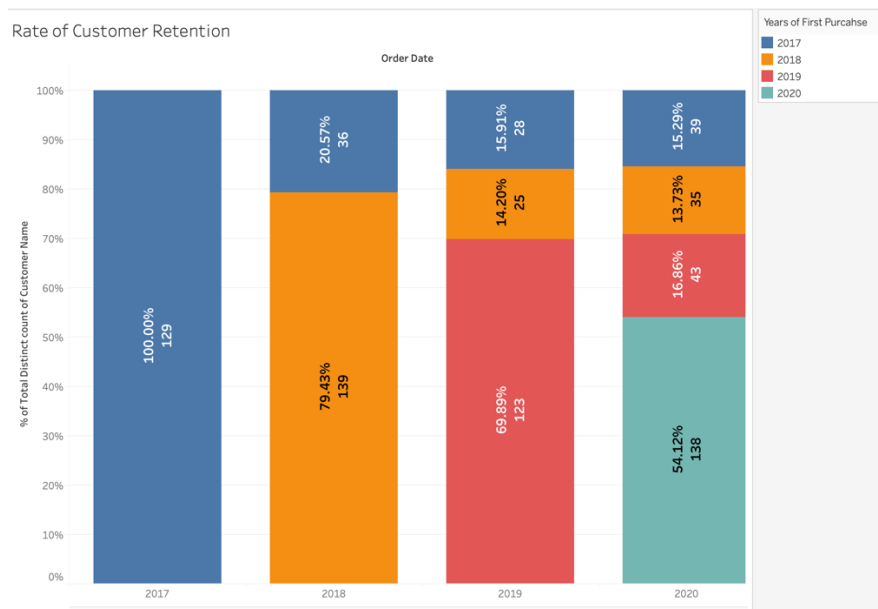
Part3.3- KPI: Customer Retention Rate

Figure 3.3

Lastly, the company's customer retention rate is on a slow decline over the years as show on the figures above. Usually less than 20 % of customer volume each year is made up of the customer from last year. However, in terms of counts of returned customers, it is steadying increased over the years. What's more, the count of returned previous year customer is also increasing.

Sector 4-Shipping Analysis

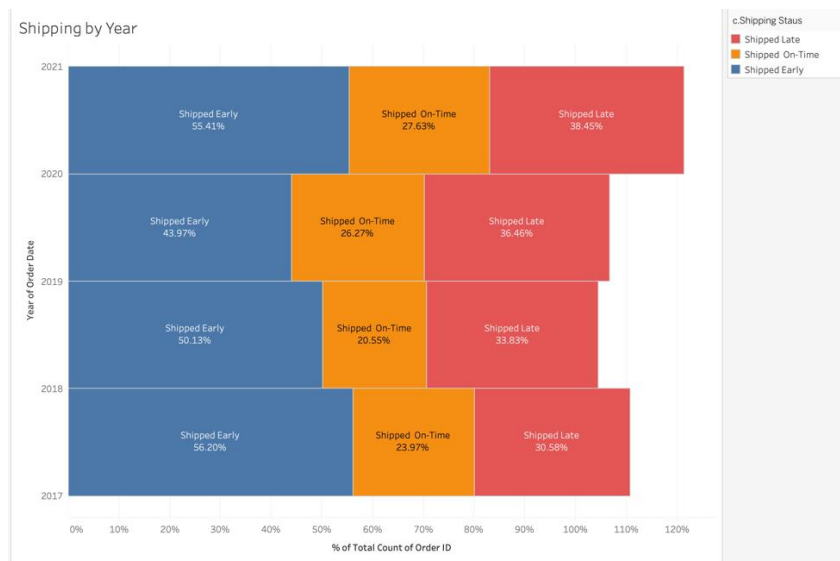# Part 4.1-- KPI Rate of Acceptable Shipping

Table 4.1

Over the course of first 3 years, the rate of early shipment and is in a steady decrease while the rate of late shipment steadily increases. However, the final year saw a significant reboots of on-time and early shipment rate. The effect of the covid pandemic can be easily seen by in the monthly shipping performance in 2020. The rate of early shipment drops sharply after the January, and fluctuate between 40% and 50% till September when the isolation is lifted. Nevertheless, it never returned to the   original   level.
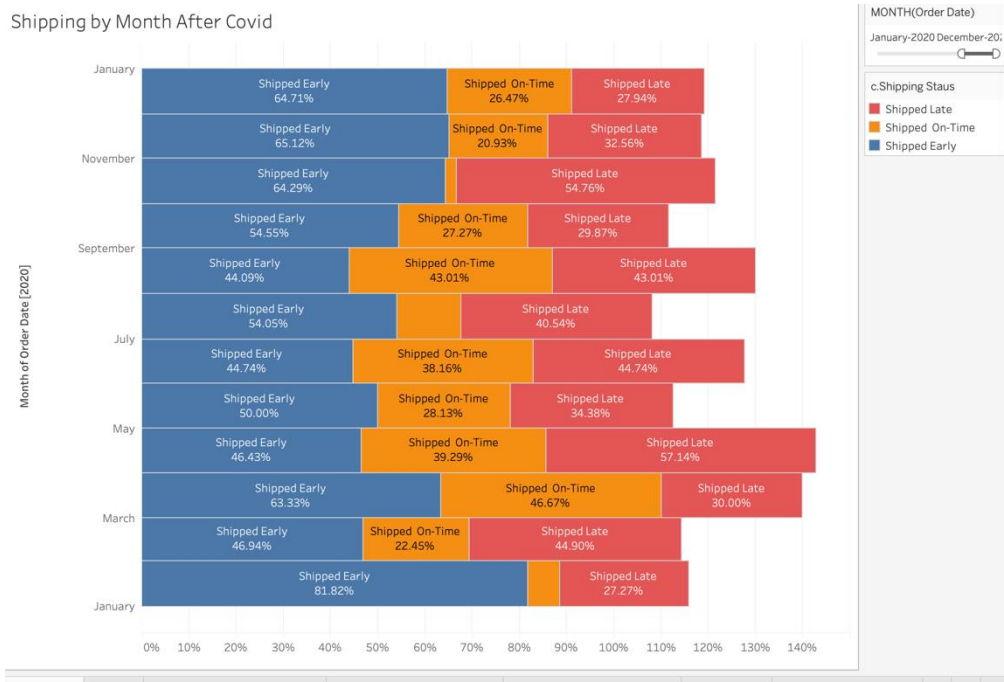

Table 4.2

Section B- Recommendation

From a summative perspective, the quantity of sales will keep increasing in the future, but that doesn't necessarily translate into an improving profit performance because of the surging unprofitable products. From the charts above, the effect of the pandemic only briefly hinders sale performance at the beginning, and it has changed consumers' shopping behaviour in a way that they are more relying on the online marketplace now. Thus, maintaining or improving the online presence to harness the benefits of this trend should be a foundational guideline for company in the near future. As for the profitability, the general direction for the company to track is to reduce unprofitable products by any means possible. This advice should be taken with an emphasis on regional performance where the best-selling regions are not profiting efficiently, especially for the central and the east. 2 extreme cases of Birmingham and Sheffield should also be dealt with due to extensive loss of profit. The company also must notice a particular trend of performance vs season. Unprofitable orders are often centred around Spring and Fall. For the products performance, the company should notice the extreme case of Dr Marten which is a brand that constantly producing heavy losses on profit in Men's Shoe Category. The company should pull the brand's Man's products out of market entirely or using the high purchase affiliation characteristics of Hunter to sell out all the stock. Hunter as a brand with decent profiting capability should also utilize its aforementioned characteristic to carry more product from other brand with higher profits. In addition, the company should notice some brand exhibits different profitability character based on gender, thus should pay more attention when reshuffling the product structure. Given the context of the customer performance, the company should work on retaining the customer from the previous year as the current retention is barely running at optimal. This could be done by introducing special services or giving discounts to returning customer to boost the customer loyalty.