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Welcome to the Sales Optimization Project!

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Table Of Contents



1. Project Overview

2. Executive Summary

3. Sales Channels &
demographics analysis

4. Profitability analysis and areas
where the client can improve.

5. Forecasting and Market
Basket Analysis

6. Competitive Analysis

7. Recommendations

8. Actionable Steps

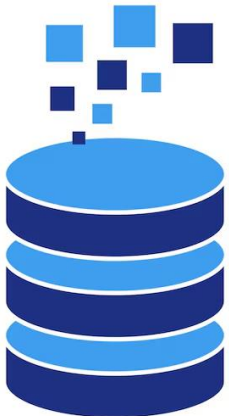
Project Overview



Client Y is currently facing a significant market shift towards digital platforms, coupled with changes in customer demographics, potentially resulting in declining store sales. Client Y has partnered with StackwisR to address this challenge. The solution aims to analyse trends over time and automatically update with new data sources. Key objectives include:

- Establishing a structured solution framework and methodology to address challenges effectively.
- Conducting extensive data discovery to identify focus areas, propose action steps and gain buy-in from stakeholders before proceeding.
- Developing a solution plan encompassing:
 1. Identifying areas for process improvement within client Y, such as cost reduction and operational quality enhancement.
 2. Creating a five-year forecast of quarterly sales for each region to enhance market position.
 3. Analysing product and regional performance against competitors to identify strengths and improvement opportunities.
 4. Conducting association analysis to aid product shelving decisions.
 5. Formulating the client's digital strategy, including the feasibility of migrating fully online and conducting a cost-benefit analysis.

Tools



SQL:

Data extraction from databases by writing queries. Performing basic transformations (e.g., filtering, joining, aggregating data) before analysis.

Power BI:

Data transformation using Power Query (e.g., cleaning, reshaping data). Data loading for visualizations and dashboards after the transformation.

Excel:

Used for long-term sales forecasting and trend analysis across regions, specifically forecasting for the next five years. Excel provided a practical solution for generating quick insights and actionable results tailored to the project's scope.

Note: Due to GDPR and confidentiality reasons, the client's name has been replaced with 'Client Y'.



The client specialises in manufacturing Mountain, Road, and Touring bikes, along with some of its components, and operates independently across global markets, with bike sales as its primary revenue source.

Sales Dynamics:

Between 2012 and 2014, significant shifts occurred in sales dynamics, notably between online and reseller channels:

- Online total quantity ordered surged by approximately 902%, while the reseller channel declined by 48%.
- Online transactions rose by around 306%, contrasting with a 46% decrease in the reseller channel

Correlation with Product Categories?

The introduction of Accessories and Clothing to online platforms in May 2013 notably contributed to the rise in online sales transactions. Furthermore, bike sales online consistently outperformed those in the Reseller Channel throughout the observed period since 2011.

Influence of Country?

Australia emerged as the second-highest-performing region in online sales quantities, significantly influencing the increase in online sales. However, its performance in the Reseller channel during the same period was comparatively lower.

Impact of Customer Demographics?

- A significant surge in demand was observed from the elderly population aged 61-80 and above 80, totalling a remarkable increase of 1026% in sales quantities between 2012 and 2014.
- Additionally, between 2012 and 2014, the combined "High Income" and "Wealthy" segments showed a notable surge in online sales quantities, marking a 900% increment."



Profitability Overview

- Client's profitability primarily relies on the Reseller channel, which outperforms the Online channel in sales.
- However, the Online channel contributes significantly to overall profitability, with profits amounting to £12.08 million.
- The Reseller channel faces challenges due to high associated costs, accounting for approximately 82% of total expenses, leading to losses in both 2013 and 2014.
- **Profitability Challenges in the Reseller Channel:**
- High procurement costs of Jerseys have led to losses in this category.
- The cost has exceeded the selling price for Caps (Clothing), Touring Bikes, Road Bikes, and Frames (Components).
- Significant promotional discounts of 15% and 20% on Touring 1000 and Touring 3000, combined with volume discounts, resulted in cumulative losses on Touring bikes and Road bikes in the Reseller channel in both 2013 and 2014.

Client Y can enhance its operational efficiency and supply chain resilience by implementing the following recommendations:

- Initiate discussions with suppliers like International Trek Centre and Integrated Sport Products to address delays and devise preventive measures.
- Diversify the supplier base for critical products to mitigate risks associated with high rejection rates.
- Implement regular quality audits and strengthen communication channels with suppliers to facilitate swift resolution of quality concerns and optimise inventory management to prevent stockouts or excess inventory, ensuring a streamlined procurement process.
- Evaluate reducing manufacturing days for high-demand products like ML Handlebars to improve responsiveness and customer satisfaction.
- Negotiate terms with suppliers, especially for products like Jerseys to secure more favourable deals and reduce production costs.
- Recalibrate pricing strategies for competitive market positioning and evaluate profit margins for sustainability, especially during promotional discounts.



Forecast for the next 5 years(2015-2019)

Online Channel:

- Growth was observed in Germany, the UK, Australia, and France (203% to 217%).
- Slower growth in the USA and Canada (148% and 124% respectively).
- Overall, Online channel performance is strong across countries.



Reseller Channel:

- Significant revenue growth in the USA, UK, Canada, and France (152% to 689%).
- Limited growth in Australia(3%) and decline in Germany(-1016%)
- France shows substantial growth in online and reseller channels (217% to 689%).

Market Basket Analysis:

Best Product Combination (Highest Lift):

- Touring Tire Tube and Touring Tire

Second Best Product Combination (Increased Basket Profit Percentage):

- Sport-100 Black/Blue Helmet and Long Sleeve Jersey, L



Executive Summary



Client Y VS Halfords(Competitive Analysis):

- Halfords consistently surpassed client Y in revenue, attributed to a broader product range.
- Halfords' increasing Cost of Sales indicates higher expenses for goods, likely due to factors like rising production costs or increased sales volumes, while the client's lower costs stem from its smaller scale of operations.
- Client's gross profit fluctuated due to Reseller Channel challenges, resulting in losses in 2013 and 2014, while Halfords maintained consistent gross profit levels despite a 2014 decline.
- Client's market share grew modestly but lagged Halfords, indicating room for improvement.

Key recommendations(overall):

- Balanced female interest in bikes and increased demand from individuals with children signal untapped product range opportunities.
- Comprehensive kids' selection will boost cross-selling, raising transaction values.
- Targeting the elderly demographic will capitalise on shifting trends.
- Introducing Components, Bib Shorts, Gloves, Women's Shorts, and Tights online will expand the customer base.

Should the Client Close Its Stores And Migrate Fully Online?

Considering strong performance across regions except Australia and Germany, migrating fully online in these countries seems advisable.

Actionable steps:

- Price adjustments are needed for Touring and Road bikes, Jerseys, Caps, and Road Frames in the Reseller channel.
- Urgent renegotiation for Jerseys due to high costs, compounded by client selling below cost.
- Implement competitive pricing
- Prioritise online transition in regions like Australia and Germany.
- Proactive 'Red Alert' system for suppliers to address high rejection rates.
- Expand the product range to cater to diverse demographics, including higher-income, elderly, and children.



Is there a shift
towards Online?



Is There A Shift Towards Digital?

Traditional Shopping Experience



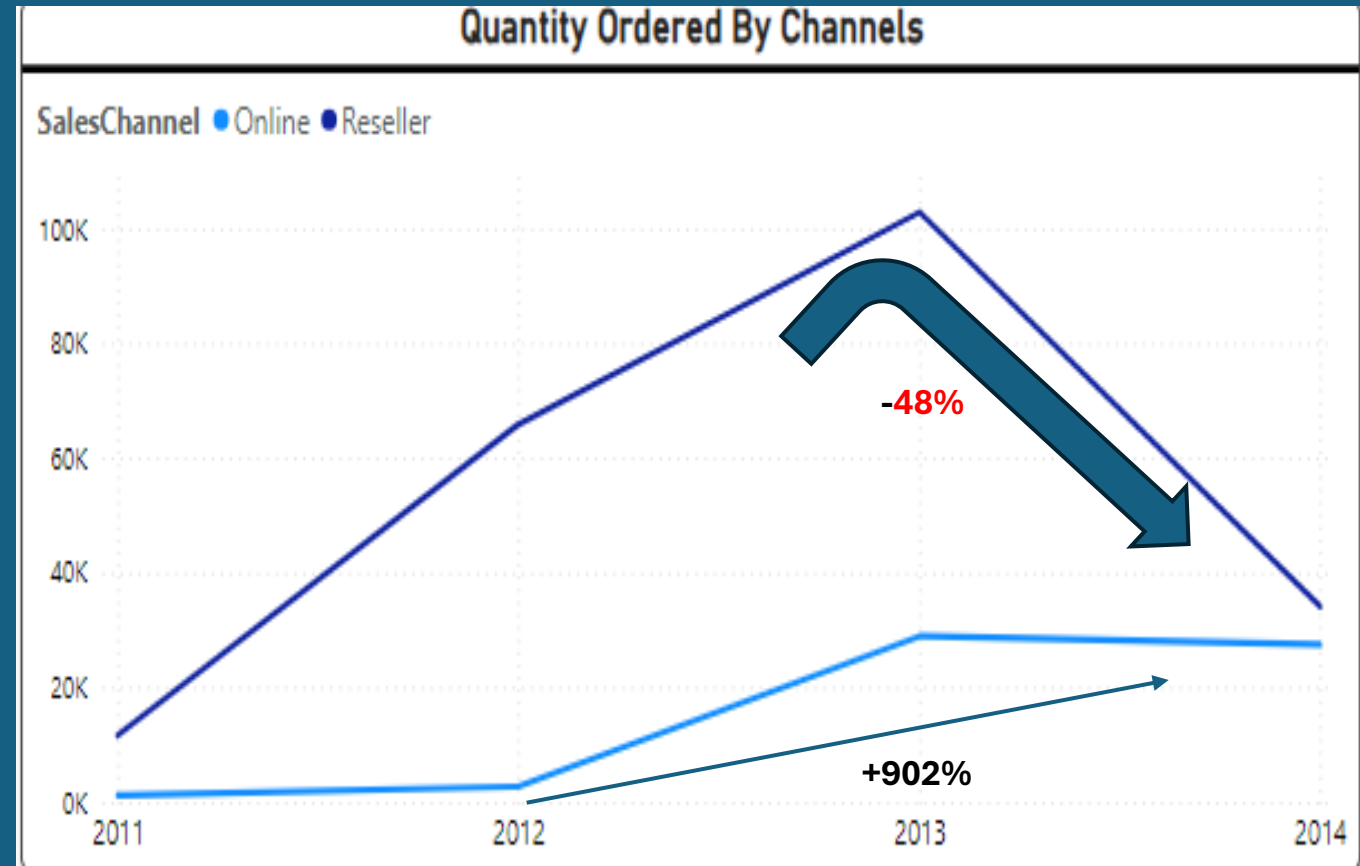
SHIFT

The Rise of Online Retail

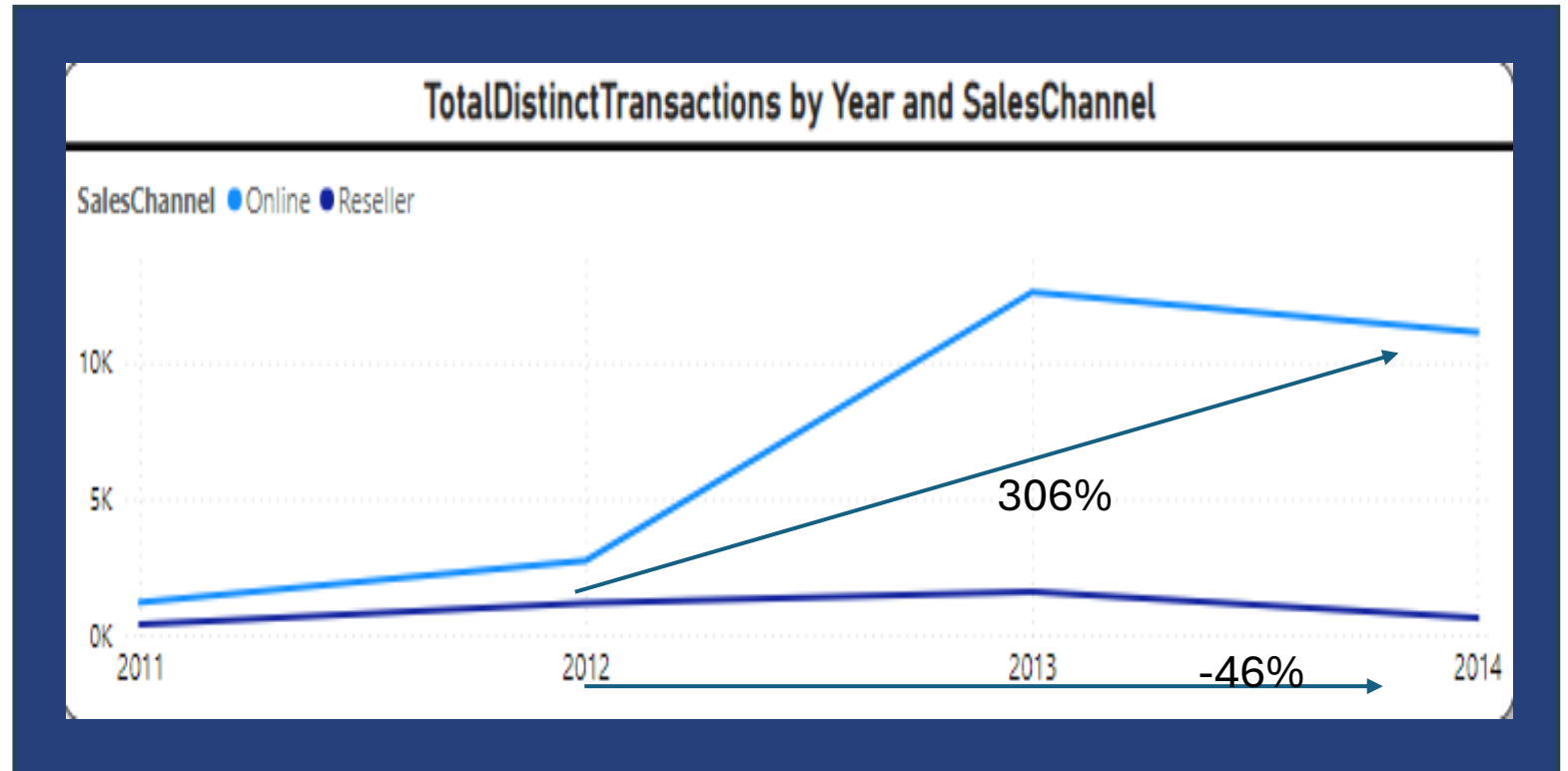


Is there a shift towards digital?

Quantity Ordered By Channels		
SalesChannel	TotalOrderQty	
[-] Online	60398	
[+] 2011	1201	
[+] 2012	2743	
[+] 2013	+902%	28959
[+] 2014	27495	
[-] Reseller	214516	
[+] 2011	11687	
[+] 2012	65836	
[+] 2013	-48%	102829
[+] 2014	34164	
Total	274914	



Is there a shift towards digital?



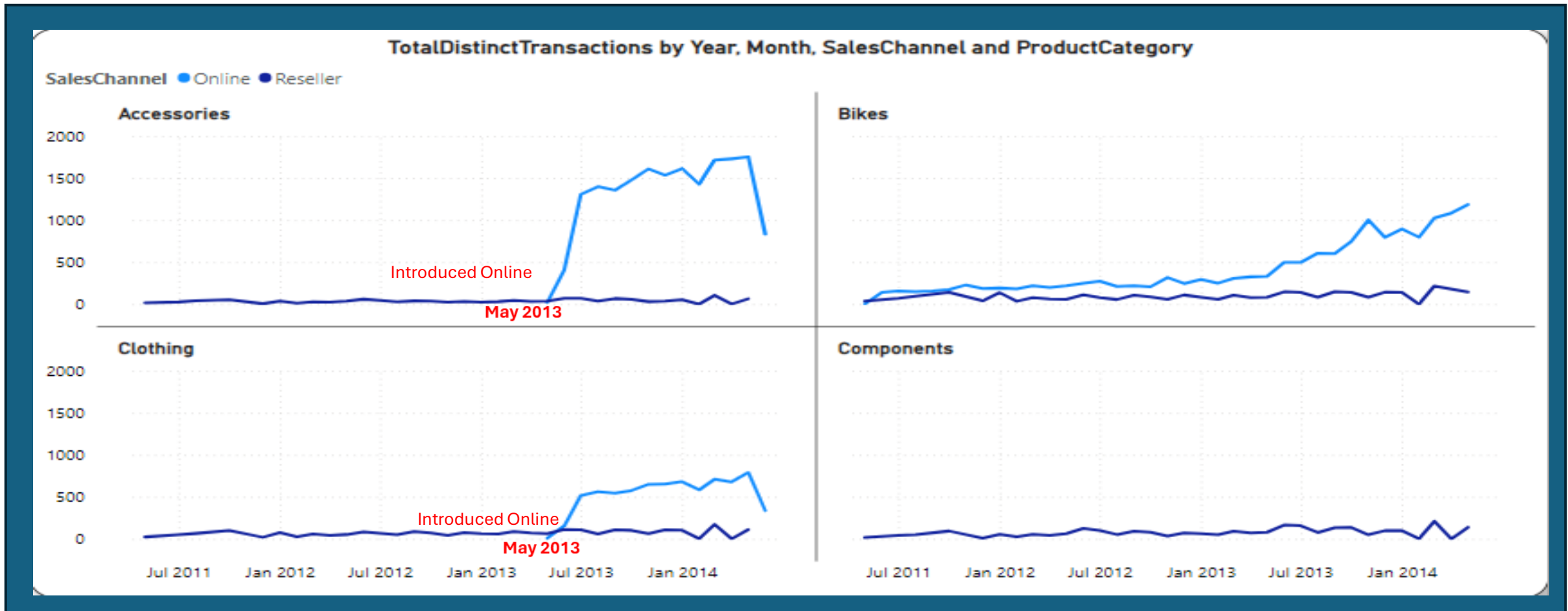
Online transactions have consistently outperformed those through the reseller channel, with a notable surge observed since 2012.

Online transactions increased by approximately 306%, while the reseller channel experienced a decrease of 46%.



What's causing the Digital Transition?

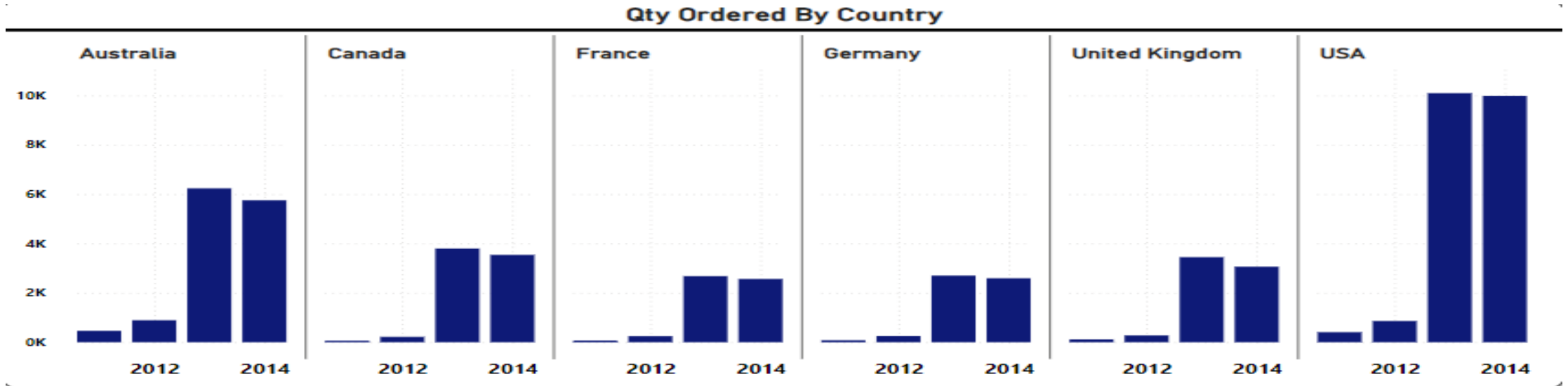
Is the Digital Transition Driven by Product Categories?



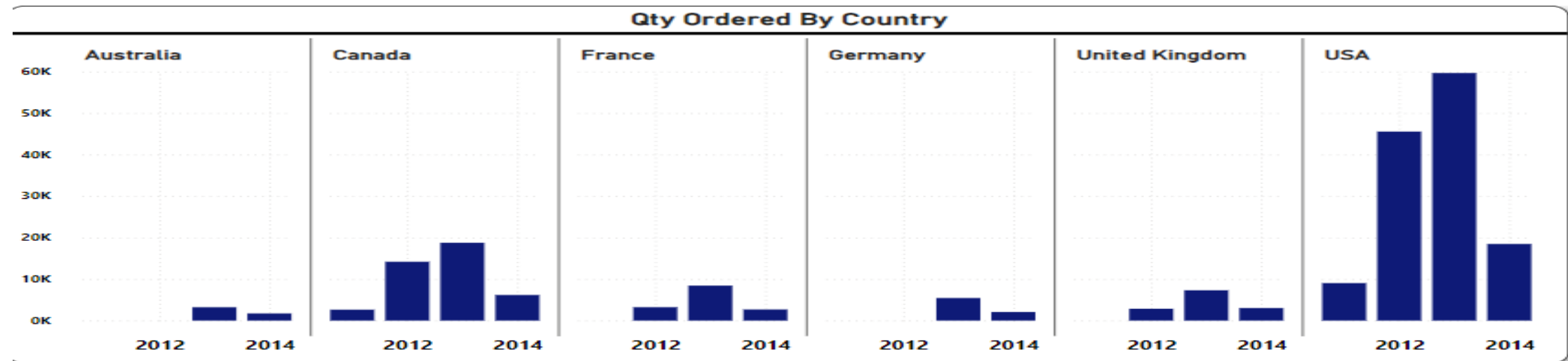
- A distinct change in sales transaction count is evident, notably in the Accessories and Clothing categories since their introduction online in May 2013.
- Throughout the business's history, online sales transactions for bikes consistently surpassed those in the Reseller Channel.
- Notably, Components have yet to be introduced online, presenting an opportunity for the company to enhance revenue by making them available through digital channel.

Is the Digital Transition Driven By Country?

Online



Resellers

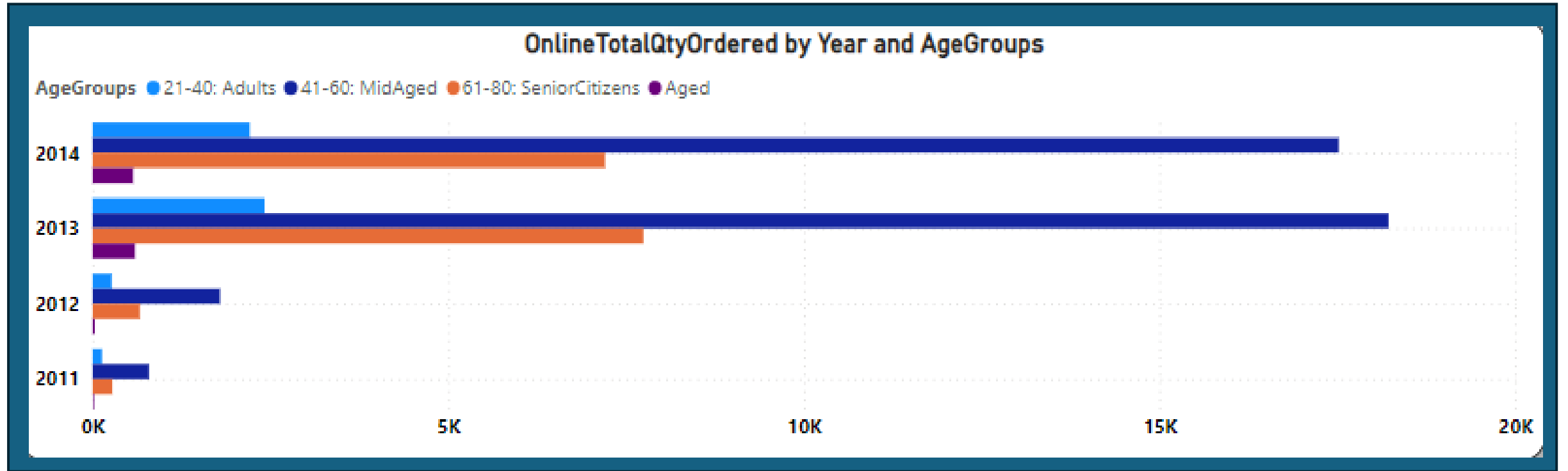


Between 2012 and 2014, Australia demonstrated strong performance as the second-highest-performing region in the Online Channel(an increase of 545%) while concurrently exhibiting the lowest performance in the Reseller channel.

**Demographic Dynamics:
Unraveling the Forces
Behind Client Y's Evolving
Sales Landscape**



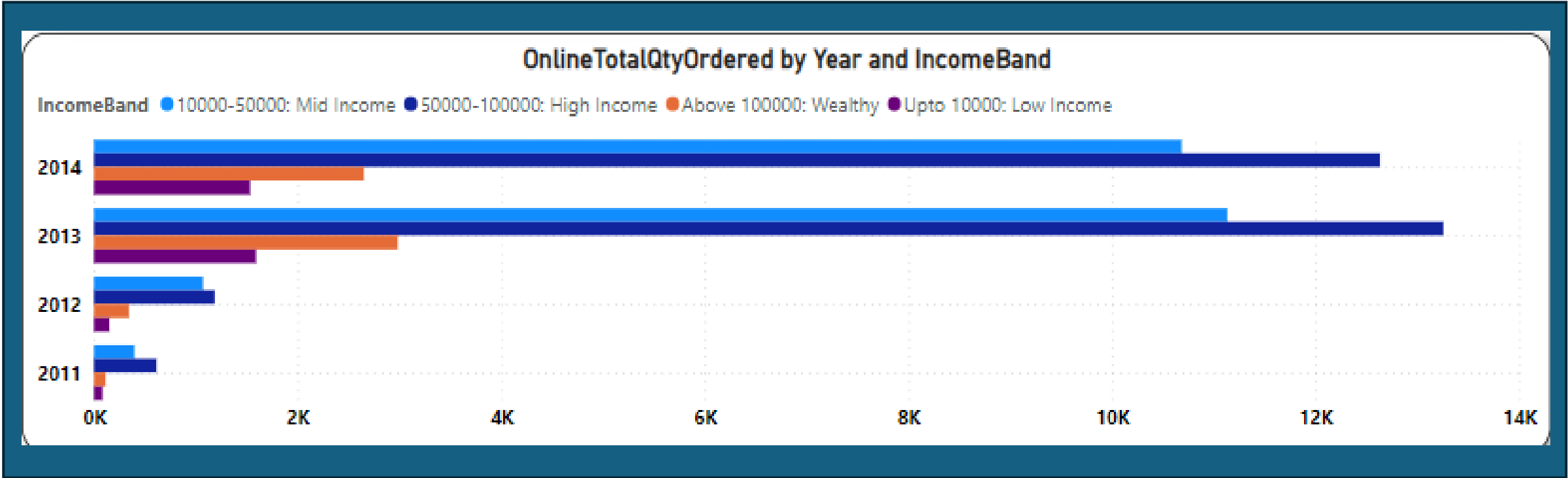
Analysing Demographic Shifts Impacting the Increase in Online Sales



Insight: The investigation aimed to uncover the factors contributing to the surge in demand in the Online channel, despite the absence of discounts. The noteworthy finding was a significant increase in demand from the elderly population aged 61-80(Senior citizens) and above 80(Aged), constituting a total of 1026%.

Implication: The convenience and accessibility of a diverse product range through online shopping appear to be key drivers behind the shift in preference among elderly individuals, leading to increased demand in the Online channel.

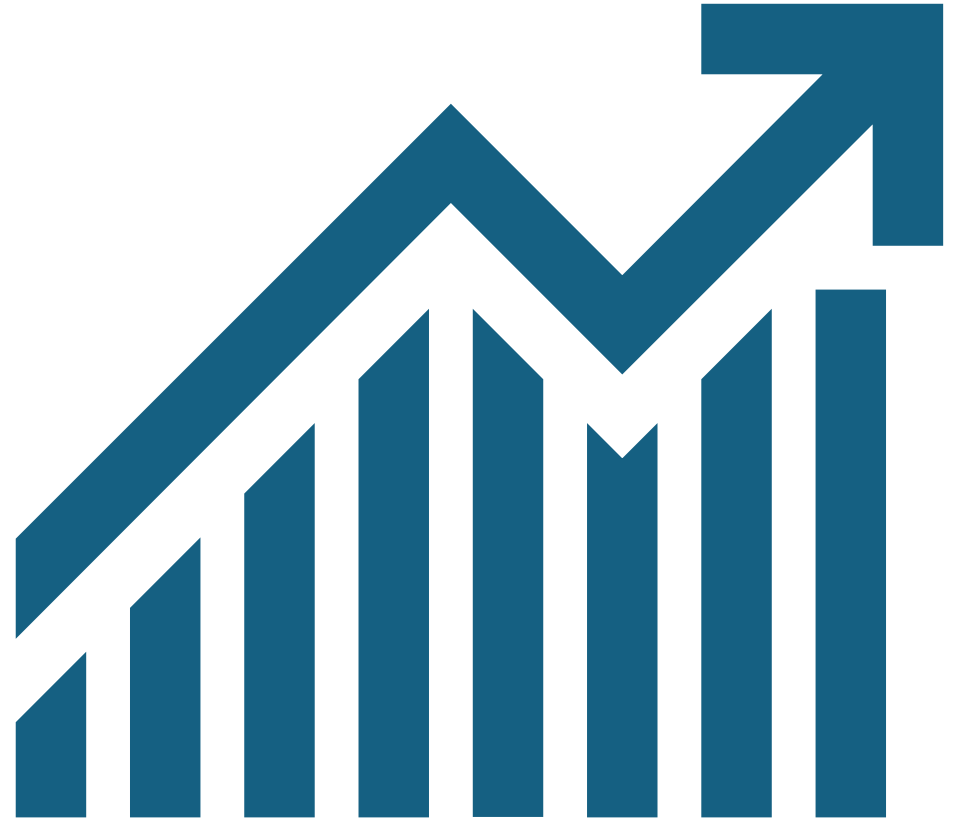
Analysing Demographic Shifts Impacting the Increase in Online Sales



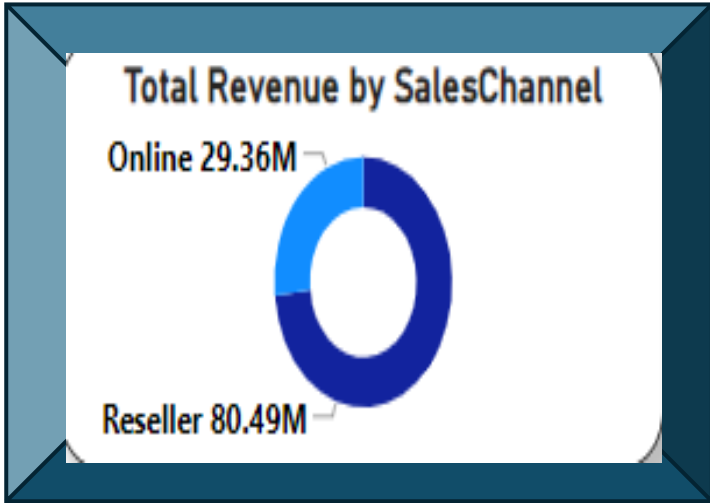
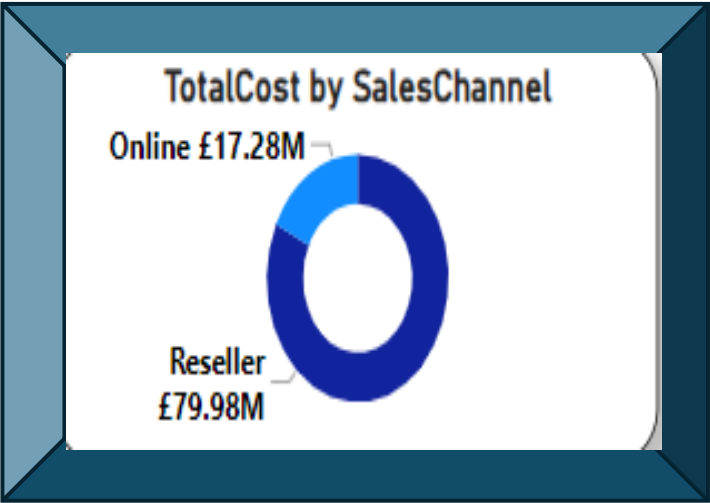
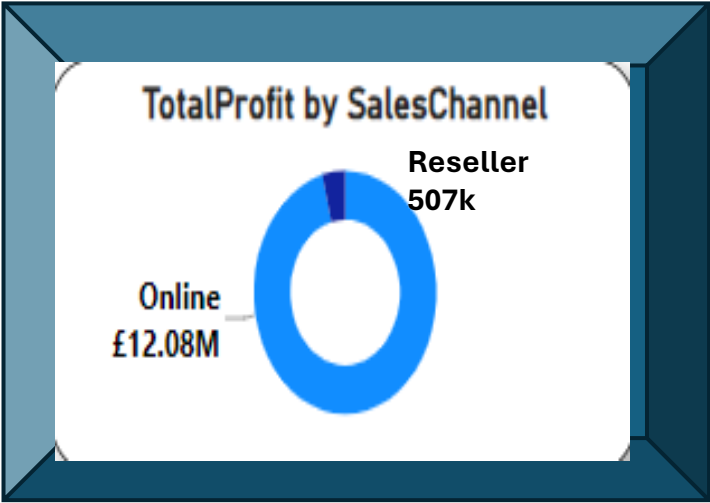
Insight: The combined "High Income" and "Wealthy" segments have shown a considerable increase in online sales by a 900% increment.

Analysis: Affluent individuals, represented by the "High Income" and "Wealthy" segments, have demonstrated a significant preference for online shopping, likely due to the convenience it offers.

Is the
business
generating a
profit?



Profitability Overview: Y's Revenue Streams and Cost Analysis



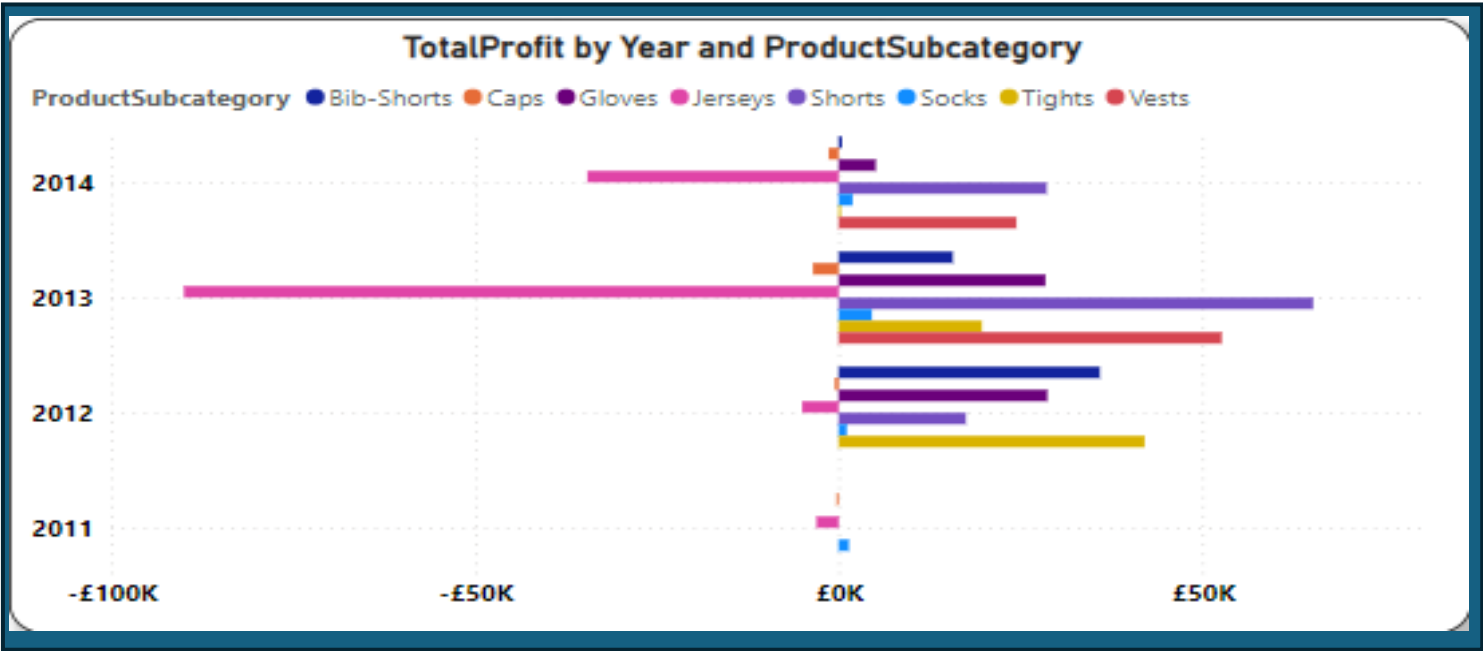
Reseller Profit By Year

Year	Reseller Profit
2011	351,610.07
2012	427,586.20
2013	-251,068.08
2014	-20,626.36
Total	507,501.83

1. Client Y is consistently profitable, with most of its profits generated through the Online channel, totalling 12.08 million. In contrast, the Reseller channel contributes a smaller portion, accounting for only 0.4% of the total profit. The Reseller channel faced losses in 2013 and 2014.
2. Despite the substantial profits from the Online channel, the company's sales in this channel are lower than those in the Reseller channel. Reseller sales make up 73% of the total sales.
3. The primary reason for the lower profitability in the Reseller channel is the significant cost associated with it, representing approximately 82% of the total cost.

Profitability Analysis: Impact of High Procurement Costs on Jerseys in the Reseller Channel

Reseller



Short Sleeve Jerseys-Reseller

Year	UnitPrice	RealStandardCost
2013	29.69	41.57
2014	29.69	41.57
2013	31.31	41.57
2014	31.31	41.57
2013	32.39	41.57
2014	32.39	41.57

Long Sleeve Jerseys-Reseller

Year	UnitPrice	RealStandardCost
2013	27.49	38.49
2014	27.49	38.49
2013	28.99	38.49
2014	28.99	38.49
2013	29.99	38.49
2014	29.99	38.49
2011	26.44	31.72
2012	26.44	31.72
2011	27.88	31.72
2012	27.88	31.72
2011	28.84	31.72
2012	28.84	31.72
2012	24.03	29.08
2012	26.44	29.08
2013	26.44	29.08
2012	27.88	29.08
2013	27.88	29.08
2012	28.84	29.08
2013	28.84	29.08

In the reseller channel, Y faces losses on Jerseys due to high procurement costs and selling below the cost price.

Profitability Analysis: Is Y selling below the cost price?

Touring Bikes

Year	UnitPrice	RealStandardCost
2013	334.06	461.44
2013	408.29	461.44
2014	408.29	461.44
2013	430.56	461.44
2014	430.56	461.44
2013	445.41	461.44
2014	445.41	461.44
2013	668.17	755.15
2013	704.61	755.15
2014	704.61	755.15
2013	728.91	755.15
2014	728.91	755.15
2013	953.63	1,481.94
2013	1,192.04	1,481.94
2013	1,311.24	1,481.94
2014	1,311.24	1,481.94
2013	1,382.76	1,481.94
2014	1,382.76	1,481.94
2013	1,430.44	1,481.94
2014	1,430.44	1,481.94

Road 350

Year	UnitPrice	RealStandardCost
2013	935.54	1,082.51
2014	935.54	1,082.51
2013	986.57	1,082.51
2014	986.57	1,082.51
2013	1,020.59	1,082.51
2014	1,020.59	1,082.51

Road 550

Year	UnitPrice	RealStandardCost
2013	649.88	713.08
2013	672.29	713.08
2014	672.29	713.08
2012	580.25	605.65
2012	600.26	605.65
2013	600.26	605.65

Road 750

Year	UnitPrice	RealStandardCost
2013	313.19	343.65
2014	313.19	343.65
2013	323.99	343.65
2014	323.99	343.65

Road 250

Year	UnitPrice	RealStandardCost
2013	1,466.01	1,554.95
2014	1,466.01	1,554.95
2012	1,265.31	1,320.68
2012	1,308.94	1,320.68
2013	1,308.94	1,320.68

The cost exceeds the selling price (Unit Price), for Touring Bikes and Road Bikes in Reseller Channel

Profitability Analysis: Is Y selling below the cost price?

Year	ProductSubcategory	UnitPrice	RealStandardCost
2012	Caps	4.32	5.23
2012	Caps	4.75	5.23
2013	Caps	4.75	5.23
2012	Caps	5.01	5.23
2013	Caps	5.01	5.23
2012	Caps	5.19	5.23
2013	Caps	5.19	5.23
2012	Caps	4.75	5.71
2011	Caps	5.01	5.71
2012	Caps	5.01	5.71
2011	Caps	5.19	5.71
2012	Caps	5.19	5.71
2013	Caps	4.50	6.92
2013	Caps	4.94	6.92
2014	Caps	4.94	6.92
2013	Caps	5.21	6.92
2014	Caps	5.21	6.92
2013	Caps	5.39	6.92
2014	Caps	5.39	6.92

Component-LL Road Frames

Year	ProductSubcategory	UnitPrice	RealStandardCost
2012	Road Frames	177.81	170.14
2012	Road Frames	183.94	170.14
2013	Road Frames	183.94	170.14
2011	Road Frames	178.58	176.20
2012	Road Frames	178.58	176.20
2013	Road Frames	195.59	204.63
2013	Road Frames	202.33	204.63
2014	Road Frames	202.33	204.63

Component-ML Road Frames

Year	ProductSubcategory	UnitPrice	RealStandardCost
2012	Road Frames	313.64	300.12
2012	Road Frames	324.45	300.12
2013	Road Frames	324.45	300.12
2013	Road Frames	327.16	360.94
2013	Road Frames	356.90	360.94
2014	Road Frames	356.90	360.94

The cost exceeds the selling price (Unit Price), for Caps(Clothing) and Road Frames(Components) in Reseller Channel

What Areas
client Y
improve its
existing
processes?



Mitigating Procurement Delays for Seamless Operations

Supplier	Year	Month	Day	ProductName	ProcurementLeadTime	DelayIn Procurement
International Trek Center	2014	February	12	Cable Lock	25	32
International Trek Center	2014	February	12	Headlights - Dual-Beam	25	32
International Trek Center	2014	February	12	Headlights - Weatherproof	25	32
International Trek Center	2014	February	12	Minipump	25	32
International Trek Center	2014	February	12	Mountain Pump	25	32
International Trek Center	2014	February	12	Taillights - Battery-Powered	25	32
Integrated Sport Products	2014	June	8	Long-Sleeve Logo Jersey, S	25	187

1. Two isolated incidents involved delays in procuring products from International Trek Centre and Integrated Sport Products. The client should initiate discussions with these suppliers to delve into the specific reasons behind these incidents and devise preventive measures for the future.
2. Diversifying the supplier base by engaging multiple reliable suppliers for critical products can enhance the resilience of the client's supply chain.
3. Implementing a robust system for ongoing monitoring of supplier performances is crucial. This system should include the establishment of alerts or notifications to promptly address any deviations from the expected lead times.

Opportunities for Supplier Improvement: Addressing High Rejection Rates

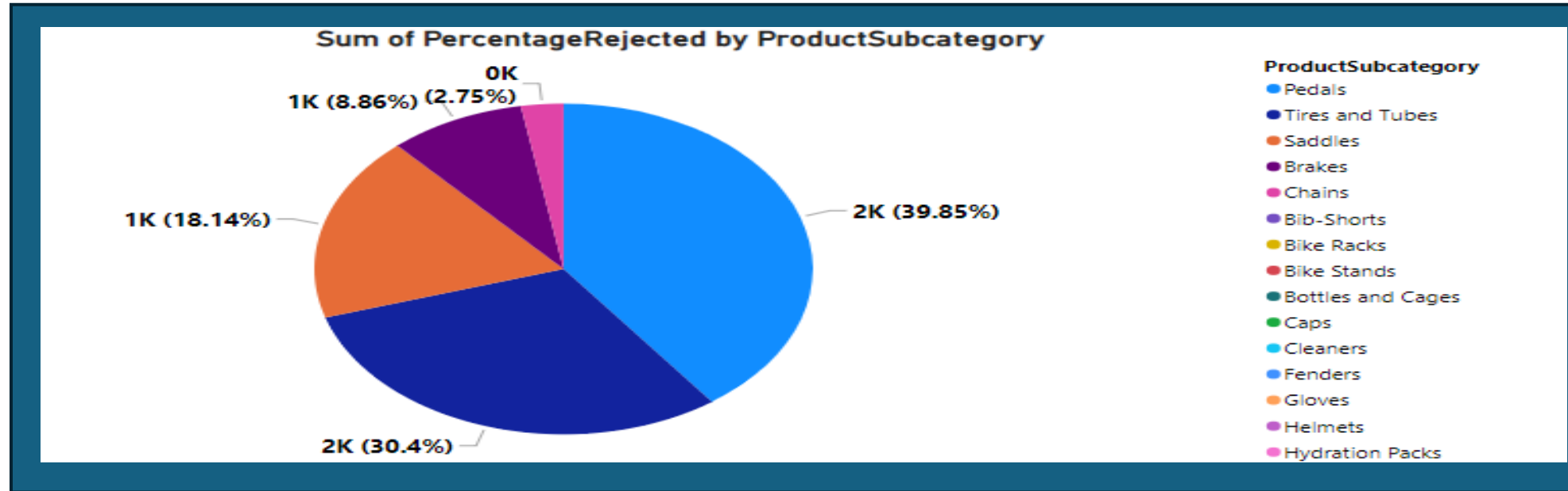
Supplier	ProductName	ProductCategory	ProductSubcategory	Sum of PercentageRejected
Vista Road Bikes	LL Mountain Tire	Accessories	Tires and Tubes	184
Vista Road Bikes	ML Mountain Tire	Accessories	Tires and Tubes	160
Superior Bicycles	Front Brakes	Components	Brakes	256
Superior Bicycles	Rear Brakes	Components	Brakes	260
Signature Cycles	LL Road Tire	Accessories	Tires and Tubes	270
Signature Cycles	ML Road Tire	Accessories	Tires and Tubes	260
Mitchell Sports	LL Road Pedal	Components	Pedals	270
Mitchell Sports	ML Road Pedal	Components	Pedals	250
Greenwood Athletic Company	LL Mountain Pedal	Components	Pedals	270
Greenwood Athletic Company	ML Mountain Pedal	Components	Pedals	240
First Rate Bicycles	LL Mountain Seat/Saddle	Components	Saddles	170
First Rate Bicycles	ML Mountain Seat/Saddle	Components	Saddles	150
Chicago City Saddles	HL Road Seat/Saddle	Components	Saddles	56
Chicago City Saddles	LL Mountain Seat/Saddle	Components	Saddles	114
Chicago City Saddles	ML Mountain Seat/Saddle	Components	Saddles	140
Chicago City Saddles	ML Road Seat/Saddle	Components	Saddles	4
Total				3054

Suppliers such as Mitchell Sports (520%), Signature Cycles (520%), Greenworld Athletic (510%), Superior Bicycles (506%), First Rate Bicycles (320%), and Chicago City Saddles (314%) exhibit high rejection rates, indicating potential quality concerns.

Recommendations:

1. Diversify the supplier base for critical products to mitigate risks associated with high rejection rates.
2. Implementing regular quality audits or inspections at key stages of the supply chain would proactively identify and address quality issues.
3. Strengthen communication channels with suppliers to facilitate swift resolution of quality concerns.

Improving Quality and Reliability: Addressing High Rejection Rates in Key Products



1. Pedals, Tires & Tubes have high rejection rates.
2. Tires & Tubes, popular online, might struggle to meet demand.

Suggestions:

1. Implement enhanced quality assurance measures for products with high rejection rates, such as Pedals, tires and tubes.
2. Implement a robust inventory management system to maintain optimal stock levels, preventing stockouts or excess inventory, and ensuring a streamlined procurement process.

Optimising ML Handlebars Production for Demand Efficiency

ProductCategory	ProductSubcategory	ProductName	AverageDaysToManufacture	Average Days to Deliver	LeadTime
Components	Handlebars	HL Mountain Handlebars	12	7	19
Components	Handlebars	HL Road Handlebars	12	7	19
Components	Handlebars	HL Touring Handlebars	12	7	19
Components	Handlebars	LL Mountain Handlebars	13	7	20
Components	Handlebars	LL Road Handlebars	12	7	19
Components	Handlebars	LL Touring Handlebars	12	7	19
Components	Handlebars	ML Mountain Handlebars	16	7	23
Components	Handlebars	ML Road Handlebars	12		12
Total			12	7	19

ProductCategory	ProductName	TotalOrderQty
Components	LL Road Frame - Black, 52	1581
Components	ML Mountain Handlebars	1465
Components	ML Road Frame-W - Yellow, 44	1435
Components	HL Mountain Frame - Silver, 38	1206
Components	HL Mountain Frame - Black, 42	1181
Components	LL Road Frame - Red, 60	996
Components	LL Road Frame - Red, 44	991
Components	ML Mountain Frame - Black, 48	858
Total		49044

Observation:

ML Handlebars with a 16-day manufacturing time face high demand in the component category.

Suggestion:

Explore options to shorten the manufacturing lead time for ML Handlebars to better meet demand, improve responsiveness, and enhance customer satisfaction.

Reduction in Procurement Cost

Online –Long Sleeve Jerseys

Year	UnitPrice	RealStandardCost
2013	49.99	38.49
2014	49.99	38.49



Halford's Price: £25

Reseller –Long Sleeve Jerseys

Year	UnitPrice	RealStandardCost
2013	27.49	38.49
2014	27.49	38.49
2013	28.99	38.49
2014	28.99	38.49
2013	29.99	38.49
2014	29.99	38.49
2011	26.44	31.72
2012	26.44	31.72
2011	27.88	31.72
2012	27.88	31.72
2011	28.84	31.72
2012	28.84	31.72
2012	24.03	29.08
2012	26.44	29.08
2013	26.44	29.08
2012	27.88	29.08
2013	27.88	29.08
2012	28.84	29.08
2013	28.84	29.08

1. The client incurred substantial losses on Jerseys within the clothing category in the Reseller channel.
2. This was attributed to the exceedingly high procurement cost from the supplier.
3. Additionally, in the online channel, the client is retailing the jerseys at £50, while a competitor offers the same product for £25.
4. The client must renegotiate terms with its supplier to secure a more favourable deal or consider exploring alternative suppliers. Given the high demand for Jerseys in both online and reseller channels, bulk purchasing may provide the client with an opportunity to negotiate better terms.

Reduction in Cost of Production



Year	ProductSubcategory	UnitPrice	RealStandardCost
2013	Touring Frames	183.38	199.85
2013	Touring Frames	193.38	199.85
2013	Touring Frames	200.05	199.85
2014	Touring Frames	200.05	199.85
2013	Touring Frames	552.15	601.74
2013	Touring Frames	582.27	601.74
2013	Touring Frames	602.35	601.74
2014	Touring Frames	602.35	601.74

- The manufacturing expenses for Touring Frames (Components) are unreasonably high, with the production cost reaching £601.74 in 2014. Currently, Spa Cycles is offering Touring frames for £415. It is imperative to reduce the cost of production.

Areas where client could improve existing processes



Client Y has been pricing products such as Road bikes, Touring Bikes, Jerseys, Caps and Frames(Components) below the cost price.

It is advisable to recalibrate these prices to ensure competitiveness in the market.



Significant promotional discounts of 15% and 20% on Touring 1000 and Touring 3000, along with volume discounts, led to cumulative losses on Touring bikes and Road bikes in the Reseller channel in both 2013 and 2014.

It is crucial to conduct a thorough evaluation of the profit margins for each product category, ensuring that any discounts provided still maintain a reasonable and sustainable profit margin.



Forecast

Forecasted Sales Growth Over The Next Five Years

Channel	UK	USA	Germany	Canada	Australia	France
Online	205%	148%	203%	124%	156%	217%
Reseller	232%	152%	-1016%	206%	3%	689%

Online Channel

1. Germany, UK, Australia, and France show positive growth trends ranging from 203% to 217%.
2. The USA and Canada are also growing, but at a slower pace compared to the other countries, at 148% and 124%, respectively.
3. Overall, the Online channel seems to be performing well across all countries, with varying growth rates.

Reseller Channel:

1. The USA, UK, Canada and France are all experiencing significant growth in revenue through the Reseller channel, ranging from 152% to 689%.
2. The limited increase in forecasted revenue for Australia and the significant decline for Germany in the Reseller channel are likely due to their poor performance in previous years. This underperformance has directly impacted the forecasted revenue.
3. The figures for France indicate a substantial increment in forecasted sales for both the online and reseller channels, with percentages ranging from 217% to 689%. This suggests a positive outlook for the market in France across various channels.



Market Basket Analysis

Market Basket Analysis

												% increase in Revenue	% increase in Profit
Product1	Product2	SupportBasket	Confidence of Product1	Confidence of Product2	Lift	Product1Price	Product2Price	Product1Profit	Product2Profit	BasketRevenue	BasketProfit	e	in Profit
Touring Tire Tube	Touring Tire	2.57%	54.30%	86.42%	18.27	4.99	28.99	3.12	18.15	33.98	21.27	17%	17%
Mountain Tire Tube	HL Mountain Tire	3.04%	30.92%	68.55%	6.97	4.99	35.00	3.12	21.91	39.99	25.03	14%	14%
Long Sleeve Logo Jersey	AWC Logo Cap	3.72%	71.68%	34.65%	6.67	49.99	8.99	11.50	2.07	58.98	13.57	18%	18%
Water Bottle-30 oz	Road Bottle Cage	4.83%	32.44%	88.84%	5.96	4.99	8.99	3.12	5.63	13.98	8.75	56%	55%
Sport-100 Helmet Blue	Long Sleeve Logo Jersey, L	2.88%	29.29%	55.35%	5.64	34.99	49.99	21.90	11.50	84.98	33.40	70%	190%
Sport-100 Helmet Black	Long Sleeve Logo Jersey, L	2.80%	29.27%	53.82%	5.63	34.99	49.99	21.90	11.50	84.98	33.40	70%	190%
Water Bottle-30 oz	Mountain Bottle Cage	5.38%	36.09%	83.56%	5.61	4.99	9.99	3.12	6.25	14.98	9.38	50%	50%

Best Product Combination (Highest Lift):

Touring Tire Tube and Touring Tire

Second Best Product Combination (Increased Basket Profit Percentage):

Sport-100 Black/Blue Helmet and Long Sleeve Jersey, L

Market Basket Analysis Observation



Best Product Combination (Highest Lift):

Touring Tire Tube and Touring Tire:

With a lift of 18.27, this combination indicates a strong association between Touring Tire Tube and Touring Tire.

Offering these products together can potentially result in a 17% increase in revenue and a 17% increase in overall basket profit.

Second Best Product Combination (Increased Basket Profit Percentage):

Sport-100 Black/Blue and Long Sleeve Jersey, L:

Although the lift is lower at 5.64, this combination exhibits a significant boost in revenue and profit.

Recommending Sport-100 Black/Blue along with Long Sleeve Jersey, L, can lead to a substantial 70% increase in revenue and an impressive 190% increase in basket profit.

Direction of Sale:

Higher confidence in Touring Tire (86.42%) compared to Touring Tire Tube (54.3%) suggests a strong correlation. Recommending Touring Tire Tube when customers purchase Touring Tire can capitalise on this association.

Similarly, the higher confidence in the Long Sleeve Jersey (55%) compared to the Sport-100 Black/Blue Helmet (29%) implies a potential cross-sell opportunity. Recommending the helmet to customers buying the Long Sleeve Jersey may enhance sales.

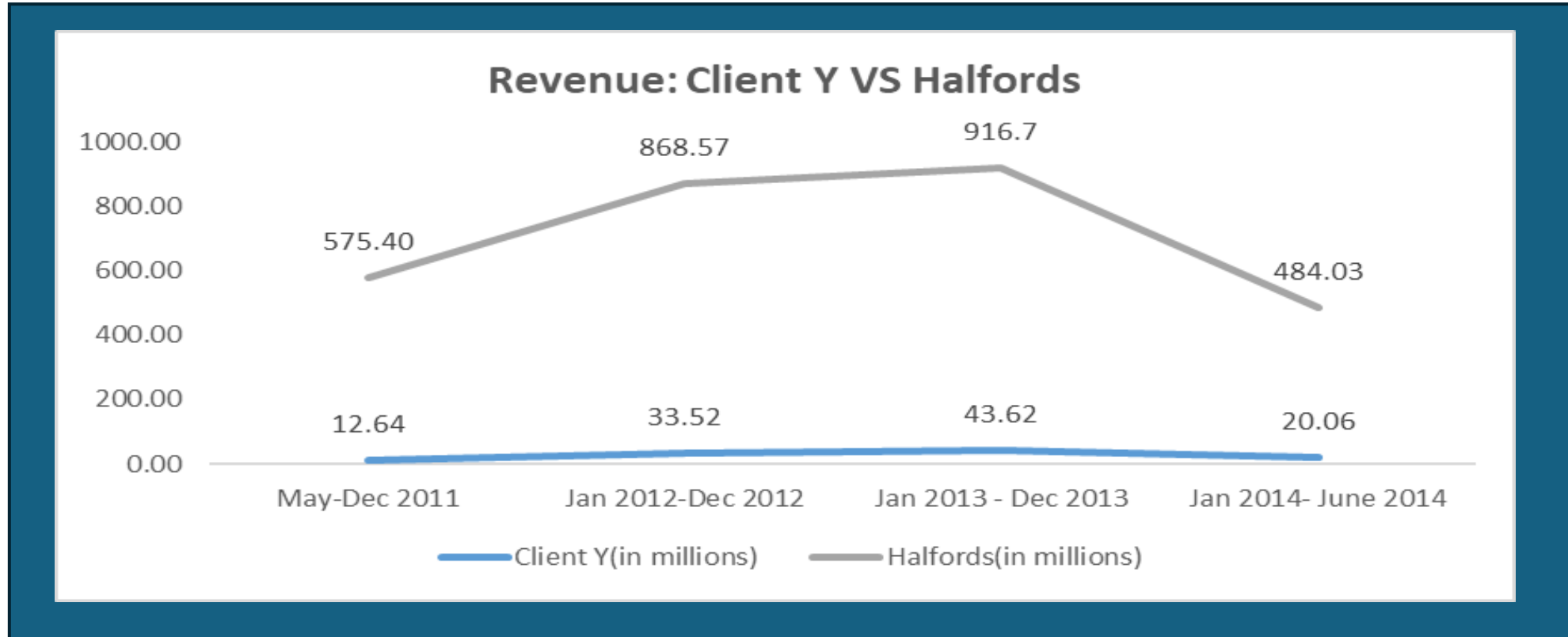
Client Y

VS

Halfords

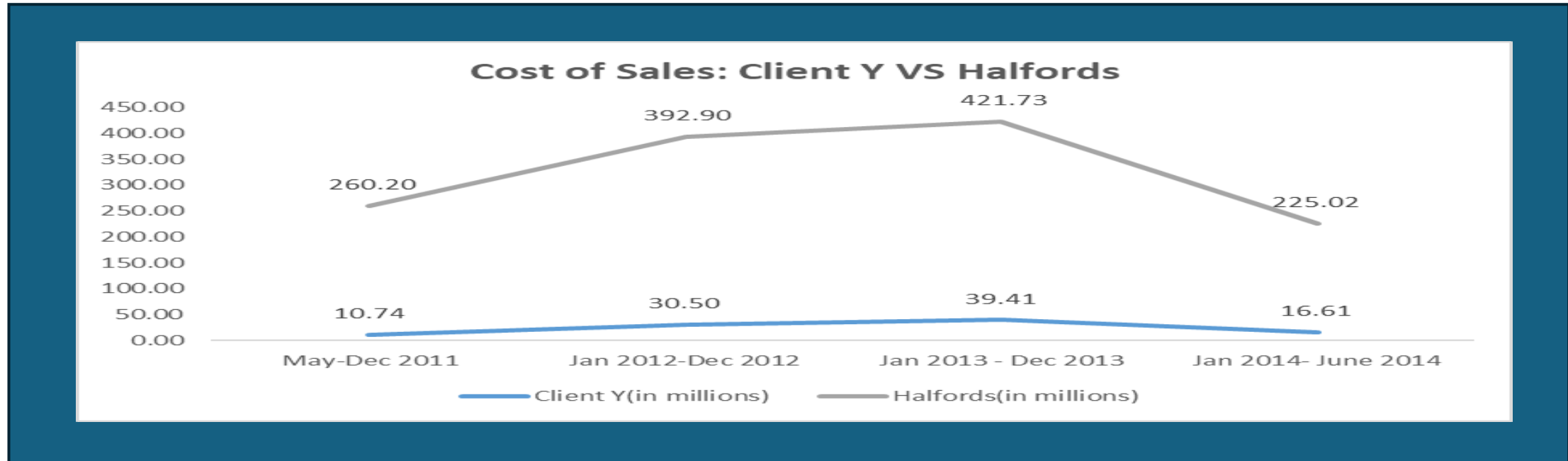


Revenue Comparison: Client Y VS Halfords



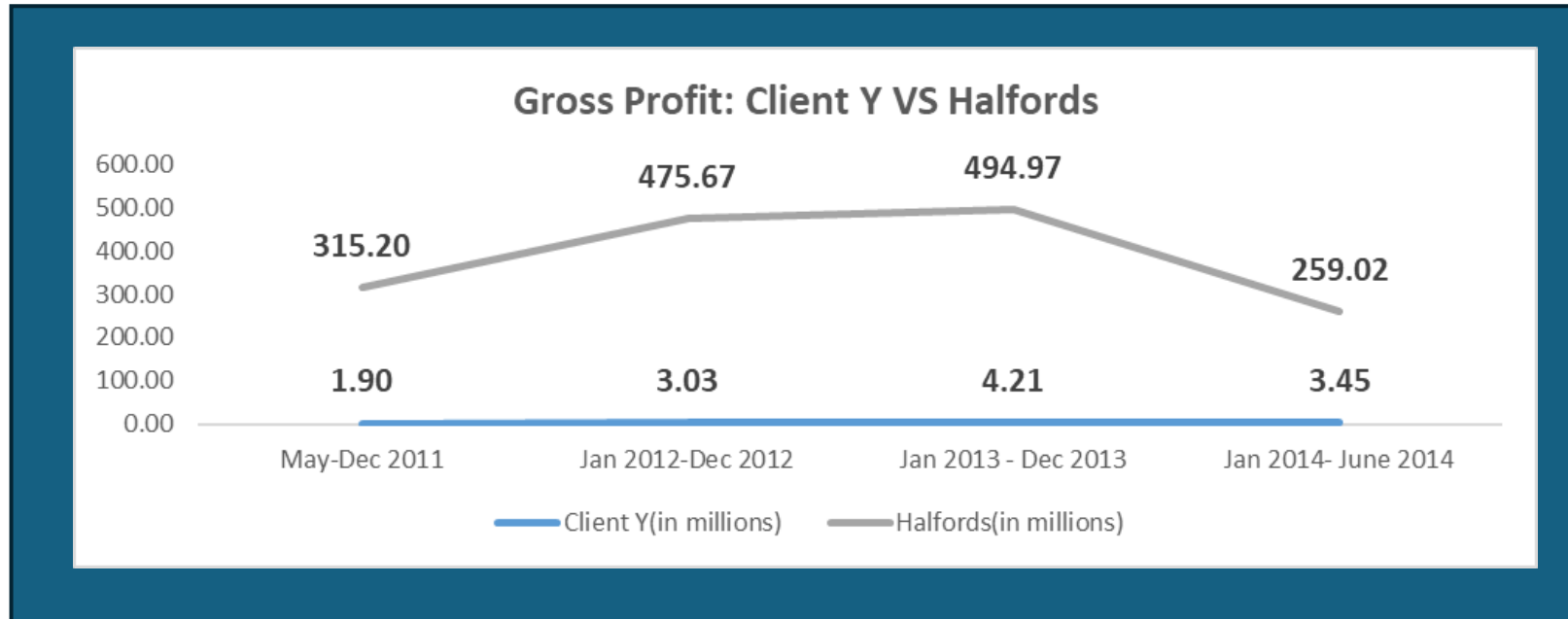
- Overall, Halfords consistently had much higher revenue figures compared to Client Y throughout the period(2011-2014)
- The higher revenue of Halfords is attributed to a more comprehensive product and service portfolio.

Cost of Sales Comparison: client Y VS Halfords



1. Halfords experienced an increasing trend in Cost of Sales from 2011 to 2014. This upward trend suggests that the company's expenses related to producing or purchasing goods sold increased over the specified period. This could be due to factors such as rising production costs, higher raw material prices, or increased sales quantities.
2. In contrast, client Y has a lower cost of sales compared to Halfords due to the limited scale of business.

Gross Profit Comparison: Client Y VS Halfords

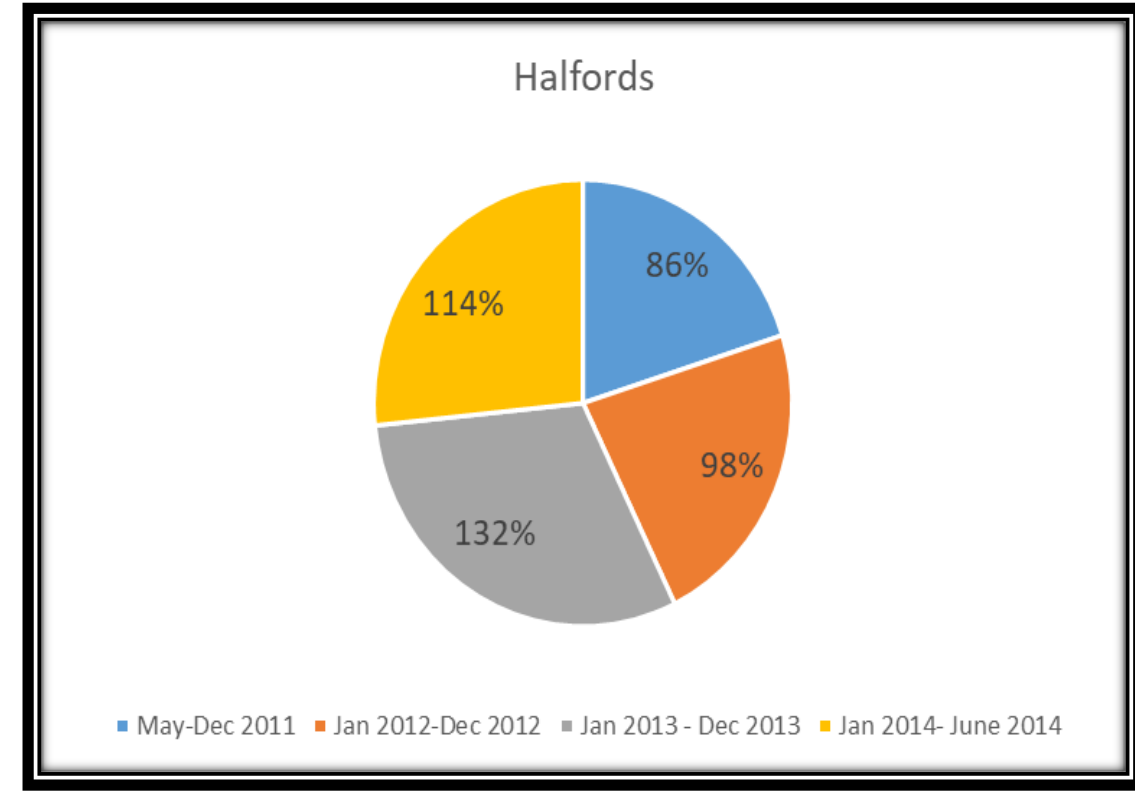
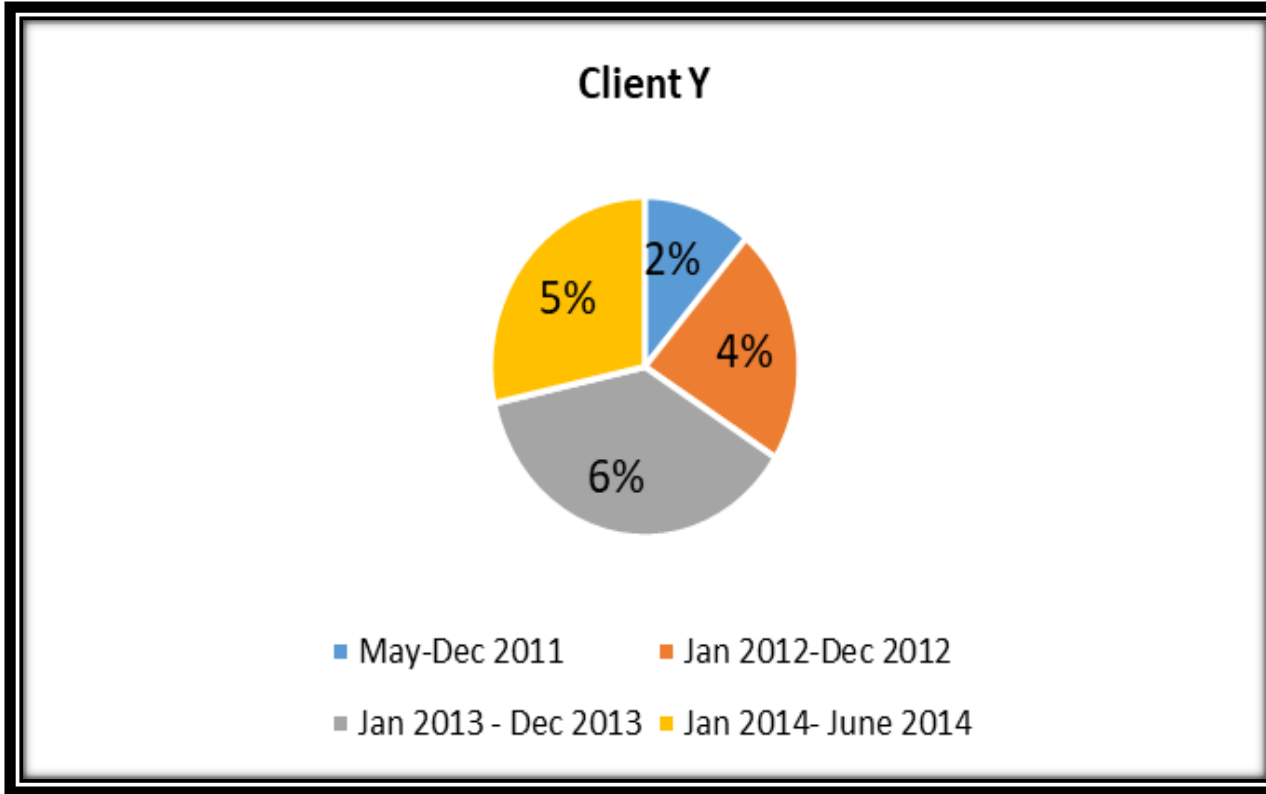


1. While client Y's gross profit lags behind Halford's, it displays fluctuations across the years. The company encountered difficulties in the Reseller Channel, witnessing losses in both 2013 and 2014, contributing to the variability in the client's overall profit.
2. Halfords has sustained a consistent gross profit, showcasing effective cost management. Yet, a 2014 decline resulted from a shift in product mix, with higher sales in lower-margin items affecting overall profitability.

Client Y

SalesChannel	TotalProfit
Online	£12,080,819.83
2011	£1,551,931.03
2012	£2,597,869.62
2013	£4,460,567.15
2014	£3,470,452.03
Reseller	£507,501.83
2011	£351,610.07
2012	£427,586.20
2013	-£251,068.08
2014	-£20,626.36
Total	£12,588,321.66

Market Share Comparison: Client Y VS Halfords



1. The market share data indicates that Halfords consistently outperforms Y, holding a dominant share throughout various periods.
2. Y's market share shows modest growth but remains significantly lower.
3. This raises questions about Y's competitiveness and prompts considerations for improvement. In contrast, Halfords' sustained high market share reflects strong market presence and performance.

Products & Services
Range:
client Y



Accessories	Bikes	Clothing	Components
Bike Racks	Mountain Bikes	Bib Shorts	Bottom Brackets
Bike Stands	Road Bikes	Caps	Brakes
Bottles & Cages	Touring Bikes	Gloves	Chains
Cleaners		Jerseys	Cranksets
Fenders		Shorts	Derailleurs
Helmets		Socks	Forks
Hydration Packs		Tights	Handlebars
Lights		Vests	Headsets
Locks			Mountain Frames
Panniers			Pedals
Pumps			Road Frames
Tires and Tubes			Saddles
			Touring Frames
			Wheels

Product Offerings: Client Y



Observations

Diverse Product Range: The client offers a wide range of products, including accessories, bikes, clothing, and components. The product categories cover everything from bike racks to helmets, catering to the various needs of cyclists.

Focus on Components: The client seems to emphasise components like bottom brackets, brakes, chains, derailleurs, forks, handlebars, pedals, saddles, and wheels, providing a comprehensive selection for bike customisation.

Product Line Gap Analysis: Despite the diverse product range, there are noticeable gaps in the client's offerings. Currently, there is a lack of products designed for specific age groups, and the absence of gender-specific bikes, kids' bikes, and models catering to older individuals. Additionally, client Y does not feature electric bikes in its current lineup.

Opportunities for Expansion: To address these gaps, the client could explore introducing products tailored to different age demographics and gender preferences. The inclusion of electric bikes could tap into the growing market demand for sustainable transportation alternatives. Moreover, incorporating repair services and fitting solutions would enhance the overall customer experience, providing additional value and attracting a broader customer base.

Products & Services Range: Halfords



Bikes	Vehicle Tyres	Tyre Inflators & Pressure Gauges	Services	Bikes Accessories	Bike Parts	Scooters	Clothing
Road Bikes	Winter	Foot Pump	MOT	Bike Lights	Bike Tyres	Kids	Jerseys & Tops
Mountain Bikes	Summer	Tyre Accessories	Car Servicing	Bike Helmets	Gears, Drivetrain & Cables	Electric	Cycling Shoes
Adventure Bikes	All season	Tyre Inflators	Car Repairs	Mudguards	Pedals & Pegs	Second Hand	Jackets & Gilets
Kids Bikes	Tyre Pressure & Depth Gauge		Mobile Fitting Services	Bike Locks	Bike Brakes	3 Wheel Scooters	Base Layers & Thermals
Electric Bikes		Valve Caps	Cycling Services	Cycling Technology	Bike Wheels	stunt	Cycling Socks
Electric Bikes Trials			Combined MOT & Service	Turbo Trainers	Handlebars	Adult Scooters	Caps & Hats
Hybrid Bikes			Car checks	Inner Tubes	Handlebars Ends, Grips & Tape	Electric Scooter Parts	Shorts & Trousers
BMX Bikes			Seasonal Services	Bike Pumps	Forks & Suspension	Parts & Accessories	Gloves
Junior Bikes				Bike Reflectors	Headsets & Stems	Electric Ride Ons	HI Vis
Balance Bikes				Bike Bottle Cages	Stands	Skateboards & Skates	Sunglasses
Mens Bikes				Bike Hydration Packs	Electric Bike Parts	Trikes	Kids Cycle Clothing
Womens Bikes				Bike Cleaning	Electric Bike Batteries	All Rides on Toys	Adult Cycle Helmets
Second Hand Bikes				Bike Maintenance		Ride on Cars	Kids Cycle Helmets
Folding Bikes				Bike Racks			
				Stands			
				Sports Nutrition			
				Saddles & Seat Posts			
				Kids Bike Accessories			
				Bike Water Bottles			
				Panniers Racks			



Observations:

- 1. Emphasis on Bikes:** Halfords places a significant emphasis on bikes, categorising them by type such as road bikes, mountain bikes, adventure bikes, and electric bikes. The range includes bikes for various purposes, including kids, electric, hybrid, and BMX. By providing products for various age groups, including kids and adults, Halfords positions itself as a family-friendly destination. This strategy encourages families to make multiple purchases during a single visit.
- 2. Comprehensive Bike Accessories:** Halfords offers a variety of bike accessories, covering essentials like lights, locks, pumps, and helmets. The inclusion of electric bike parts and accessories reflects the growing market for electric bikes.
- 3.** The inclusion of services such as car servicing, bike servicing, and repairs adds a layer of convenience for customers.
- 4.** Services like car servicing and bike repairs provide opportunities for direct interactions between staff and customers. These interactions enhance the overall customer experience and build relationships.
- 5.** Interactions during service appointments create natural opportunities for upselling additional products or services. For example, suggesting accessories or maintenance packages can contribute to higher average transaction values.
- 6.** Offering a combination of products and services diversifies Halfords' revenue streams. This diversification can help the company navigate fluctuations in specific product categories or market trends.

Price Comparison: Client Y VS Halfords



Client Y

<u>Mountain Bikes</u>	Online	Reseller
Min Price	539.95	323.99
Avg. Price	1122.38	673.43
Max. Price	2319.99	1391.99

Halfords

<u>Mountain Bikes</u>	£
Min Price	145
Avg. Price	695
Max. Price	4399

Minimum Price:

The client's minimum price for Mountain Bikes is comparatively higher than Halford's, suggesting that the client might not be catering to customers with lower budgets. If capturing a broader market is a goal, the client may need to consider offering more budget-friendly options.

Average Price

The average price for a client's Mountain Bikes(online) is higher suggests that, on average, the client's products are positioned at a higher price point compared to Halford's.

Maximum Price:

The client's maximum prices are relatively lower than Halford's, suggesting that the client may not be targeting the ultra-high-end market.

Price Comparison: Client Y VS Halfords



Client Y

<u>Road Bikes</u>	Online	Reseller
Min Price	1120.49	323.99
Avg. Price	1120.49	672.29
Max. Price	1700.99	1020.59

Halfords

<u>Road Bikes</u>	£
Min Price	230
Avg. Price	1020.11
Max. Price	3950

Minimum Price:

Y's minimum price for Road Bikes is considerably higher than Halford's minimum price. This suggests that the client may not be catering to budget-conscious customers looking for lower-end products.

Average Price

Once again, Y's average price (online) for Road Bikes surpasses that of Halford, indicating that Y's pricing strategy tends towards the higher end of the market.

Maximum Price:

Y's maximum prices are relatively lower than Halford's, suggesting that Y may not be targeting the ultra-high-end market.

Price Comparison: Client Y VS Evans Cycles



Y

Touring Bikes	Online	Reseller
Min Price	742.35	445.41
Avg. Price	1425.25	855.15
Max. Price	2384.07	1430.44

Evans Cycles

<u>Touring Bikes</u>	<u>£</u>
Min Price	959
Avg. Price	1907
Max. Price	5599

1. Y's minimum prices for Touring Bikes are notably lower than Evans Cycles. This suggests that Y may be offering more budget-friendly options for customers looking for affordable touring bikes.
2. Y's average prices for Touring Bikes are lower than those of Evans Cycles. This reinforces the notion that Y provides competitive pricing, potentially appealing to a broader customer base.
3. Max Price: Y provides a more budget-friendly option for customers seeking high-end touring bikes.

While Y's online prices appear to be competitive, the reseller prices are inaccurately reflected, being offered below the cost price. Consequently, the company is experiencing a loss in this category.

Conclusion: Pricing strategy: Client Y VS Halfords

1. Client Y might want to assess its pricing strategy to align with its target market.
2. Offering a range of products with diverse price points could attract a wider customer base and enhance competitiveness in the market.
3. Additionally, understanding customer preferences and budget considerations can guide Client Y in adjusting its pricing strategy for better market penetration.

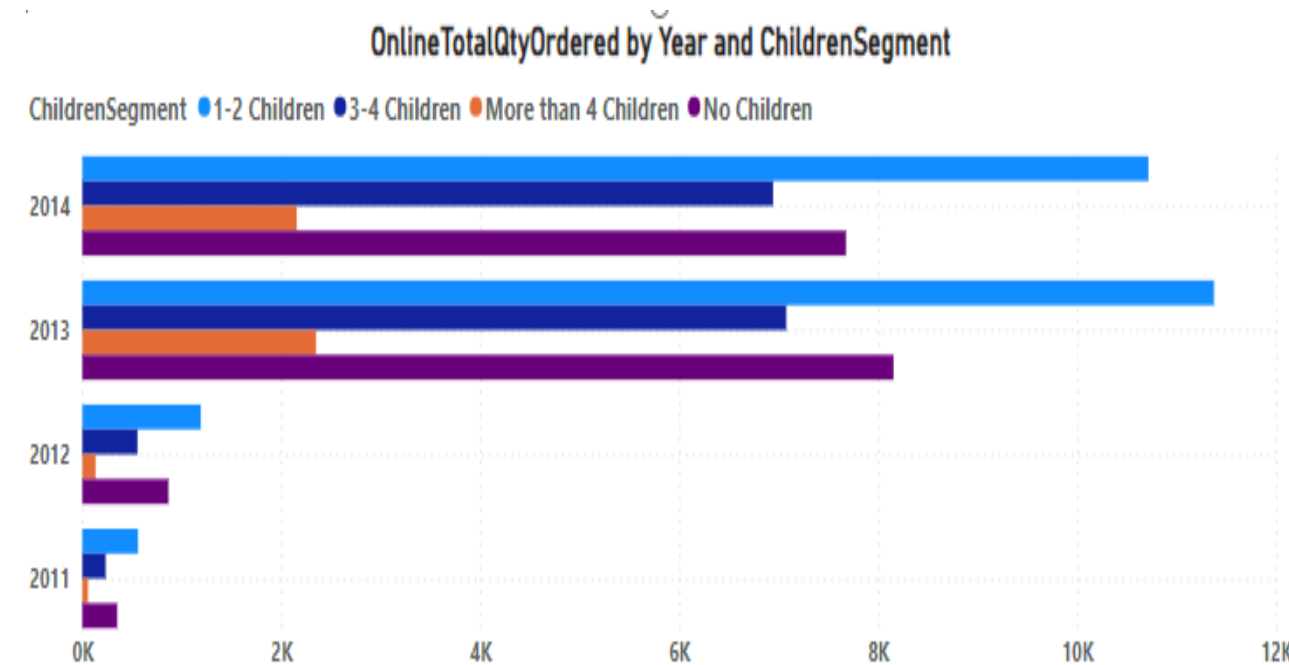
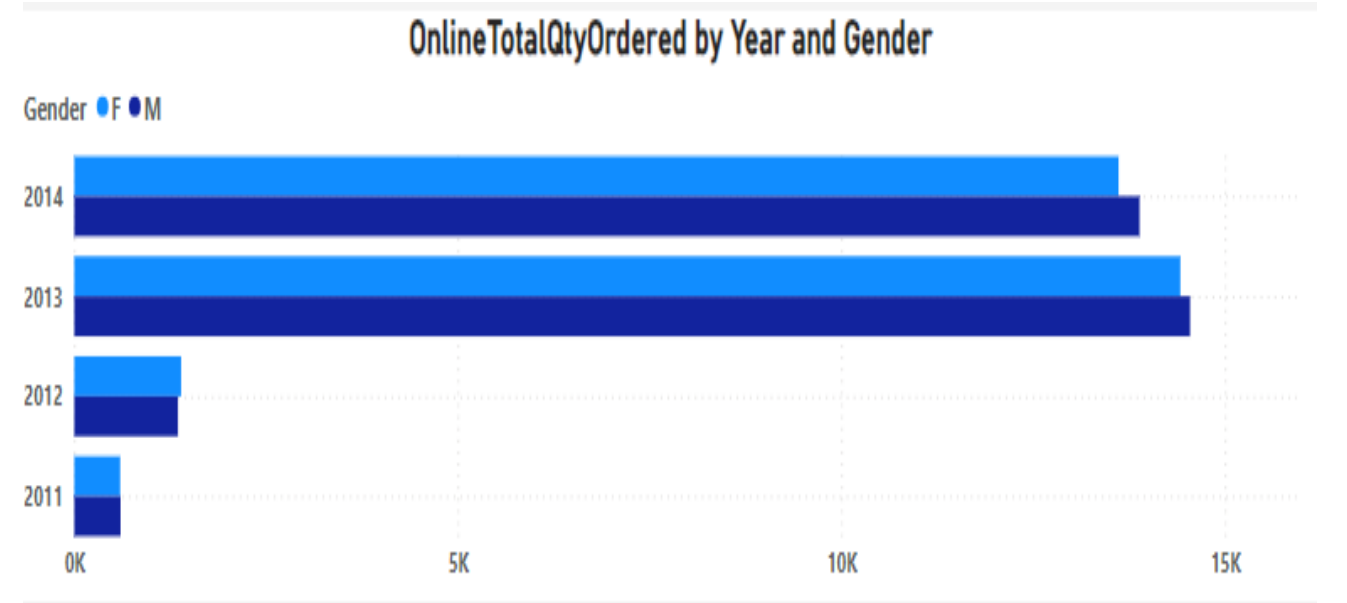


Key Recommendations



Targeted Growth: Expanding Product Lines for a Diverse Customer Base

1. The gender chart indicates a balanced interest among females in bikes and related products, while the children's segment chart reveals untapped opportunities for expanding the product range.
2. A comprehensive kids' selection will not only cater to families but will also open doors for cross-selling, leading to higher transaction values e.g., bikes and helmets
3. Additionally, tapping into the elderly demographic with specific products can capitalise on the shifting trends in this category.
4. Components, Bib Shorts, Gloves, Women's Shorts and Tights are not currently sold online; introducing them online will increase the customer base.



Should Client
Y Close Its
Stores And
Migrate Fully
Online?



Country Cost Benefit Analysis



Australia ▼	Online ▼	Reseller ▼
Projected Revenue	34,317,784.22	5,139,551.07
(for next 5 years)		
Projected Cost	9,698,121.99	- 4,054,701.64
(for next 5 years)		
Projected Profit/(Loss)	24,619,662.23	1,084,849.43

Canada ▼	Online ▼	Reseller ▼
Projected Revenue	9,170,243.30	25,764,632.08
(for next 5 years)		
Projected Cost	2,565,896.66	13,643,782.00
(for next 5 years)		
Projected Profit/(Loss)	6,604,346.64	12,120,850.08

France ▼	Online ▼	Reseller ▼
Projected Revenue	15,980,295.37	15,785,482.92
(for next 5 years)		
Projected Cost	4,638,473.45	7,252,902.49
(for next 5 years)		
Projected Profit/(Loss)	11,341,821.92	8,532,580.43

Australia:

The Reseller channel, although projecting a profit of 1,084,849.43, is associated with a cost of -4,054,701.64, indicating a loss. Closing the Reseller channel could enhance overall profitability.

Canada:

Both channels are projected to be profitable, with the reseller channel showing a higher projected profit. Therefore, the recommendation would be to continue with both channels.

France

Both channels show profitability, with the online channel having a slightly higher projected profit. Recommendation: Continue with both channels.

Country Cost Benefit Analysis



Germany ▼	Online ▼	Reseller ▼
Projected Revenue	17,748,590.08	- 12,166,172.75
(for next 5 years)		
Projected Cost	5,172,836.86	- 9,138,226.43
(for next 5 years)		
Projected Profit/(Loss)	12,575,753.23	- 21,304,399.18

United Kingdom ▼	Online ▼	Reseller ▼
Projected Revenue	20,552,516.34	21,826,067.82
(for next 5 years)		
Projected Cost	5,809,816.53	8,690,749.07
(for next 5 years)		
Projected Profit/(Loss)	14,742,699.81	13,135,318.76

USA ▼	Online ▼	Reseller ▼
Projected Revenue	48,292,324.67	76,497,922.89
(for next 5 years)		
Projected Cost	13,611,519.76	13,963,904.97
(for next 5 years)		
Projected Profit/(Loss)	34,680,804.90	62,534,017.93

Germany

The online channel is projected to have a significantly higher profit compared to the reseller channel.
Recommendation: Strongly consider migrating fully online in Germany for better profitability.

United Kingdom:

Both channels show profitability, but the online channel has a higher projected profit.
Recommendation: Continue with both channels.

USA

Both channels show profitability, with the reseller channel having a higher projected profit.
Recommendation: Continue with both channels.

Note: The sales forecasting and cost benefit analysis were based on historical selling prices. It is recommended that the pricing strategy be revised based on competitive market analysis, as this could significantly impact profitability projections and channel performance.



Actionable Steps



1. Price adjustments are required for Touring and Road bikes, Jerseys, Caps, and Road Frames in the Reseller channel.
2. Immediate renegotiation with Integrated Sports Products is necessary as the procurement prices for Jerseys are excessively high.
3. Adopt a competitive pricing strategy and include products that satisfy the needs of different income categories.
4. Adopt competitive pricing first, then re-evaluate the cost-benefit analysis for the potential full transition to online in Germany and Australia.
5. Implement a proactive "Red Alert" system for key suppliers—Mitchelle Sports, Signature Cycles, Greenworld Athletic, Superior Bicycles, First Rate Bicycles, and Chicago City Saddles.
6. Identify opportunities to expand the product range to cater to diverse demographics, including higher-income individuals, the elderly, and children.

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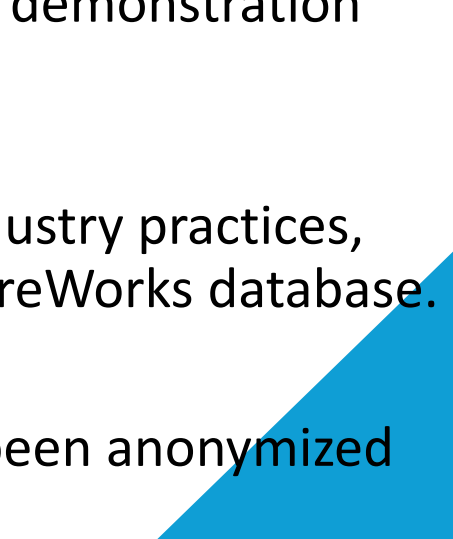


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Disclaimer

- This project simulates a real-world client scenario with StackwisR, focusing on sales optimization and market analysis for a retail client.
 - AdventureWorks database (provided by Microsoft) was used for demonstration purposes, as actual client data cannot be shared.
 - The problem statement, techniques, and analysis reflect real industry practices, and the metrics presented are illustrative based on the AdventureWorks database.
 - Actual results achieved for the client are confidential and have been anonymized to comply with GDPR guidelines.
- 
- A solid blue triangle is positioned in the bottom right corner of the slide, pointing towards the top right.

A spiral-bound notepad with a white cover and a black spiral binding is placed on a rustic wooden surface. The notepad is open, and the words "Thank you!" are written in a black, cursive script on the right page. To the left of the notepad, three bright yellow daisies with dark brown centers are visible. The wooden background has a weathered, greyish-brown texture with visible grain and knots.

Thank
you!

