

Sales Analysis Project

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Projects Goals

- Establish KPIs and relevant measurements based on the available data
- Based on introduced measurements present a clear overview of the company's sales performance over the last 3 years
- Conduct a sales performance analysis comparing the available years 2003 and 2004
- Perform a customer segmentation analysis
- Introduce interactive dashboard

Results and insights

Company Overview and Sales analysis

1. Company has shown significant growth by more than **30%** for most of the KPIs.
2. Classic cars drive revenue, constituting nearly **40%** of all sales. While cars being a mature market, smaller segments like ships and trains display remarkable relative growth.
3. USA accounts for one-third of sales, yet it remains the solo major customer in the Americas. Europe collectively drives half of the revenue, while the Asian market requires focused development.
4. The period from Sep to Nov demonstrates significant growth compared to other months, necessitating adjustments in supply and workforce to meet the higher than usual demand.
5. Increased attention should be directed toward order quality due to a rise in the number and diversity of orders that have not been shipped.

Results and insights

Customer segmentation

1. Throughout the available timeline, the company has interacted with a total of **92** distinct customers. This number continues to increase as the company successfully draws in new clients.
2. Based on the existing dataset, these customers can be categorized into **4** distinct clusters, each characterized by its unique purchasing behaviour.
3. Approximately **19%** of the entire customer base can be categorized as loyal patrons, while around **52%** exhibit a level of comfort with consistent buying patterns. About **29%** of customers seem to be at a juncture where further purchases are uncertain.
4. The company's customer spectrum features two outliers with significantly high t values in terms of total sales, buying frequency, and recency of transactions.

KPIs introduction

| Sales | Orders | |
|-------------------------------|------------------------------------|----------------|
| Total sales | Total quantity | KPIs |
| Total sales (shipped) + diff* | Total quantity (shipped) + diff* | |
| Average price per unit | Number of orders | |
| Sales by | Level of successful delivery (%)** | Other measures |
| Productline | Cancelled orders (%)** | |
| Dealsize | | |
| Country | | |
| Region | | |

* Relative difference between total and total (shipped)

** Ratio by all orders

Company overview

- KPIs and other measures overview
- Sales by chosen categories
- Quality of orders

Sales analysis 2003/2004

- KPIs and other measures comparison
- Trend analysis
- Categories comparison
- Quality of orders comparison

Company overview

Time period : 01/2003 – 05/2005

Total sales
\$10 032 628

Total sales shipped
\$9 291 501 (92.02%)

Avg price per unit
\$101.3

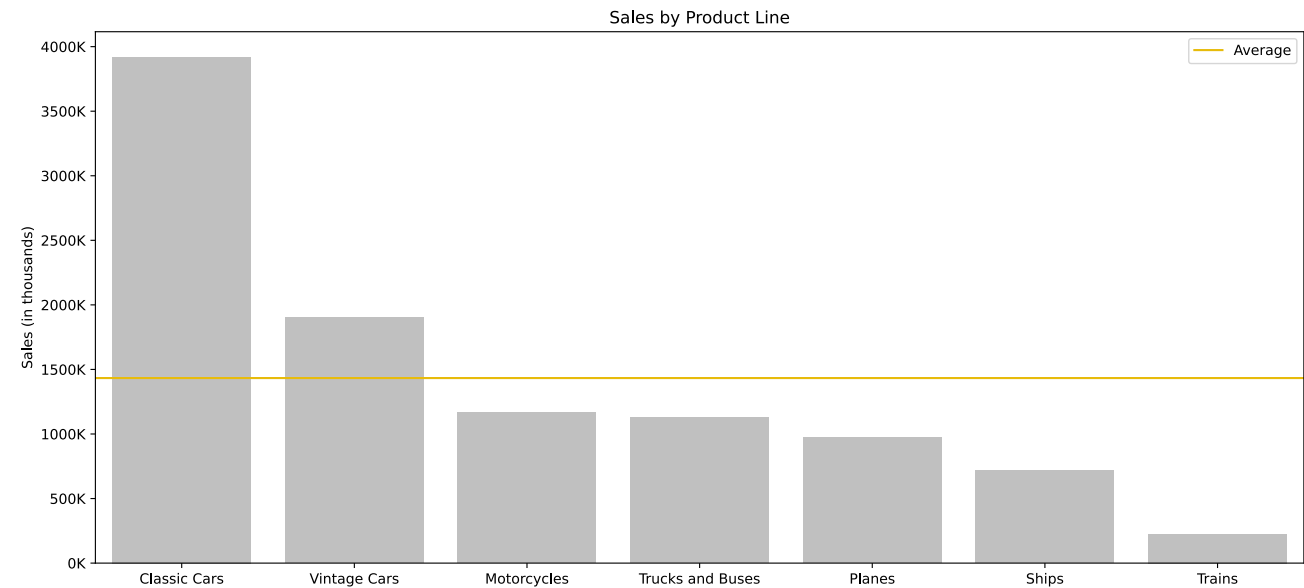
Total quantity
99 067

Total quantity shipped
91 403 (91.62%)

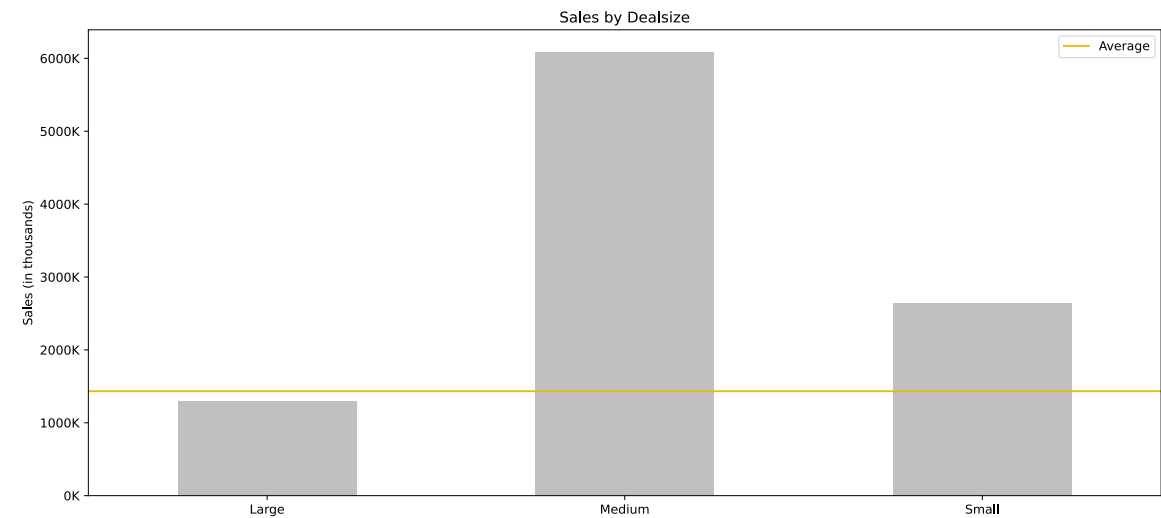
Number of orders
2 823

Company overview

Time period : 01/2003 – 05/2005



| PRODUCTLINE | PERCENTAGE |
|------------------|------------|
| Classic Cars | 39,07% |
| Vintage Cars | 18,97% |
| Motorcycles | 11,63% |
| Trucks and Buses | 11,24% |
| Planes | 9,72% |
| Ships | 7,12% |
| Trains | 2,26% |



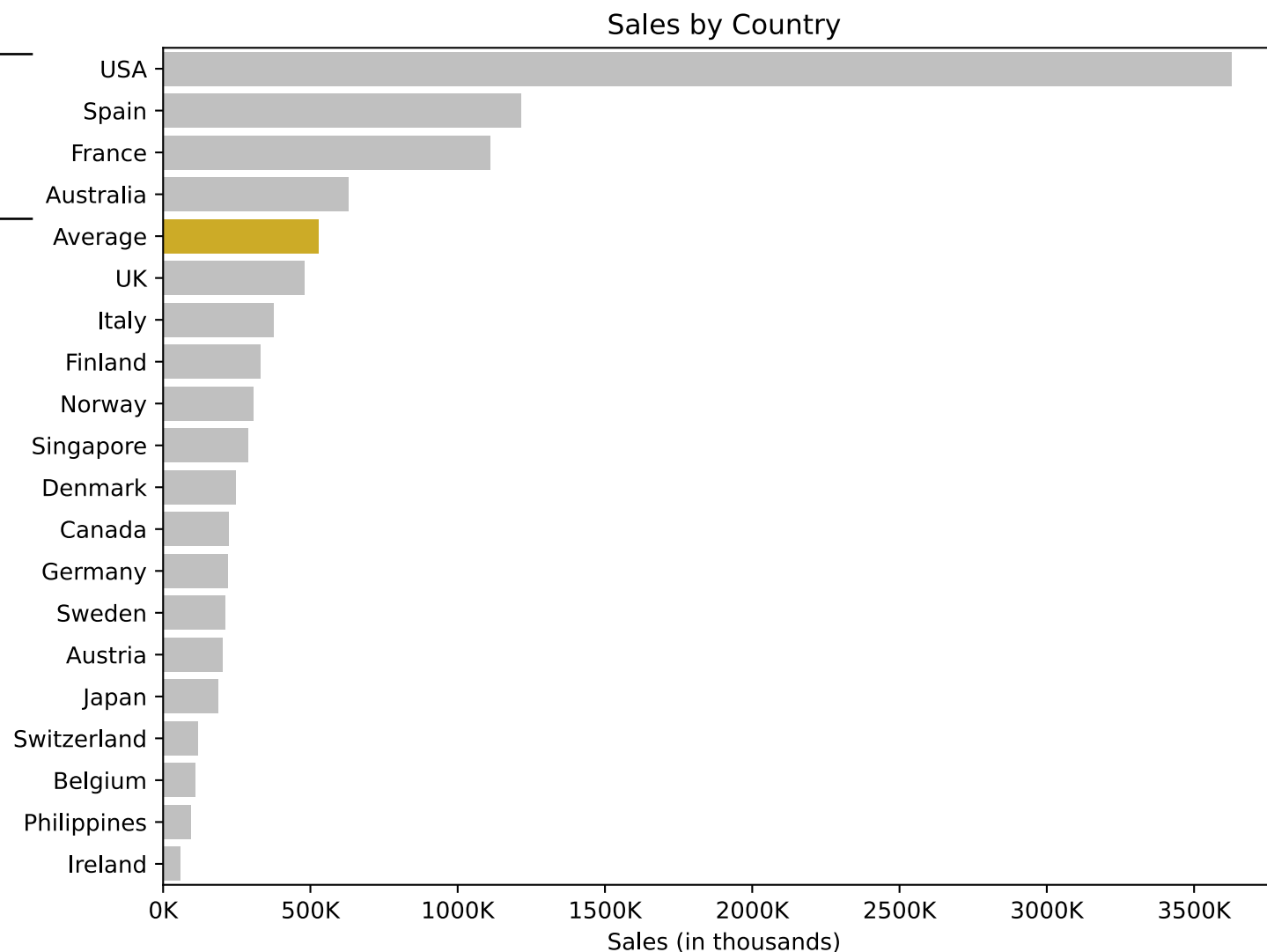
| DEALSIZE | PERCENTAGE |
|----------|------------|
| Medium | 60,68% |
| Small | 26,34% |
| Large | 12,98% |

Company overview

Time period : 01/2003 – 05/2005

Top 4 countries contribute
to **65,6%** of total sales

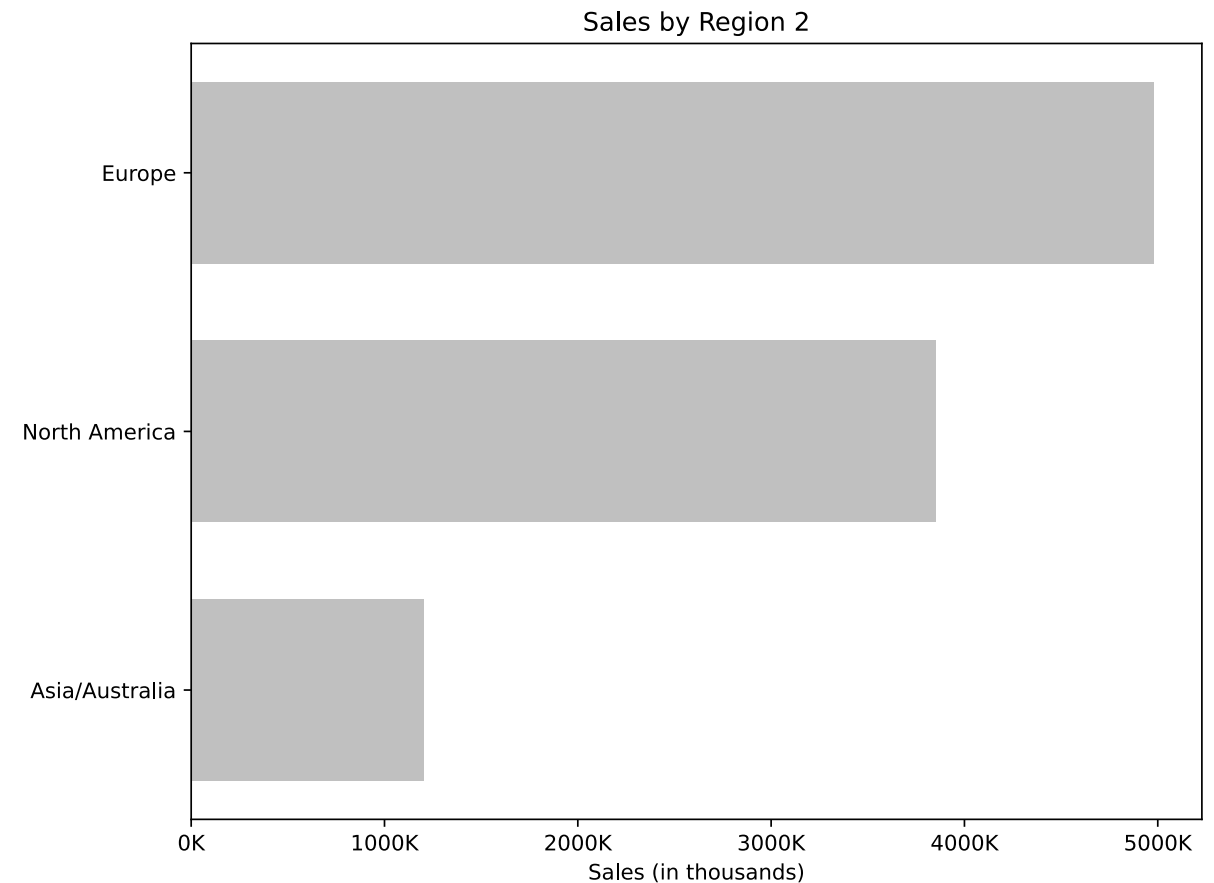
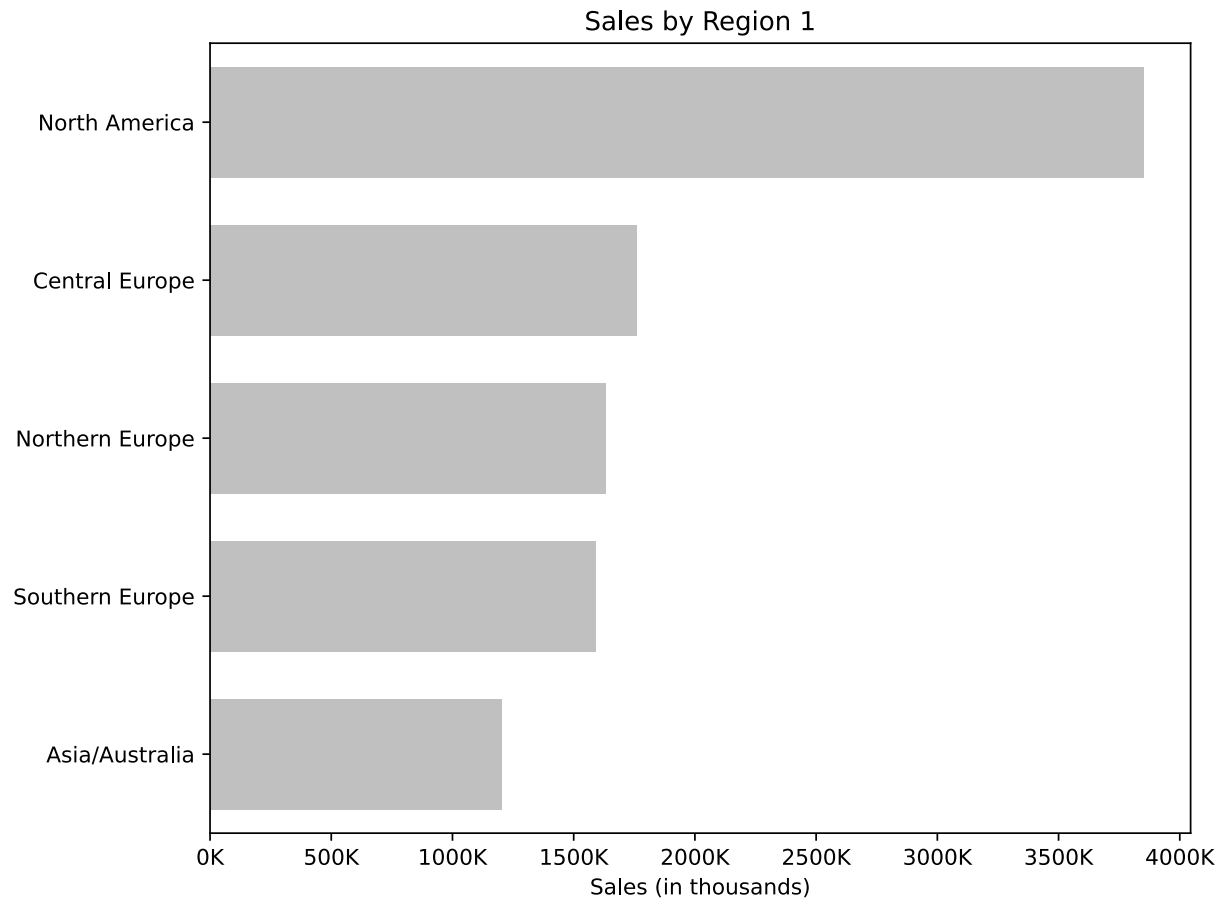
12 out of 19 countries
together generate **90%** of
total sales



Company overview

Time period : 01/2003 – 05/2005

Grouping countries by region levels:



Company overview

Time period : 01/2003 – 05/2005

Cancelled orders

2.13%

Level of successful delivery

92.7 %

| YEAR | STATUS | COUNT | PERCENTAGE |
|------|------------|-------|------------|
| 2003 | Resolved | 8 | 0.8% |
| | Cancelled | 16 | 1.6% |
| | Shipped | 976 | 97.6% |
| 2004 | On Hold | 6 | 0.4% |
| | Resolved | 8 | 0.6% |
| | Cancelled | 44 | 3.3% |
| | Shipped | 1287 | 95.7% |
| 2005 | Disputed | 14 | 2.9% |
| | Resolved | 31 | 6.5% |
| | On Hold | 38 | 7.9% |
| | In Process | 41 | 8.6% |
| | Shipped | 354 | 74.1% |

→ In 2004, orders with a "Not Shipped" status have undergone structural shift. The percentage of orders that were eventually cancelled has risen by **1.7** percentage points compared to the preceding year.

→ Considering 2005 a current year, orders with “Disputed”, ”On Hold”, “In process” might change its status

Sales analysis 2003-2004

| KPI NAME | KPI VALUE (2004) | KPI VALUE (2003) | Var absolute | Var relative(%) |
|----------------------------------|------------------|------------------|--------------|-----------------|
| Total Sales | 4 724 163 | 3 516 980 | 1 207 183 | 34,32% |
| Total Sales(shipped) | 4 528 047 | 3 439 718 | 1 088 329 | 31,64% |
| Sales diff(%) | 4,33% | 2,25% | 2,08% | - |
| Total quantity | 46 824 | 34 612 | 12 212 | 35,28% |
| Total quantity(shipped) | 44 866 | 33 774 | 11 092 | 32,84% |
| Quantity diff(%) | 4,36% | 2,48% | 1,88% | - |
| Average price per unit | 100,89 | 101,61 | -0,72 | -0,71% |
| Number of orders | 1345 | 1000 | 345 | 34,50% |
| Level of successful delivery (%) | 95,69% | 97,60% | -1,91% | - |
| Cancelled orders(%) | 3,27% | 1,60% | 1,67% | - |

Company has shown significant growth by more than **30%**

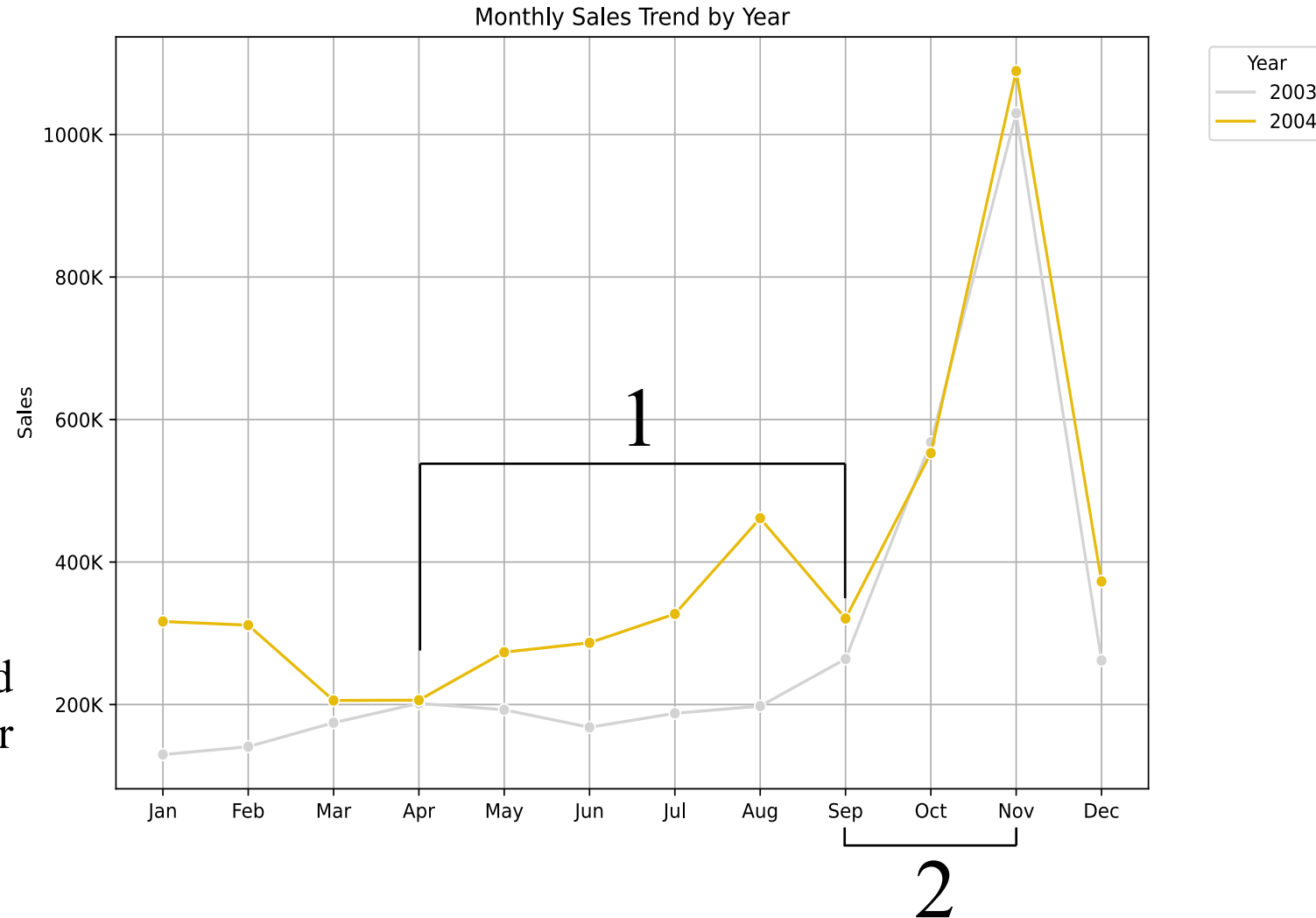
An insignificant drop indicates about a faster growth in quantity compared to sales

However, quality of deliveries has dropped
Due to that company has lost **4.33%** of all sales
(2 times more than previous year)

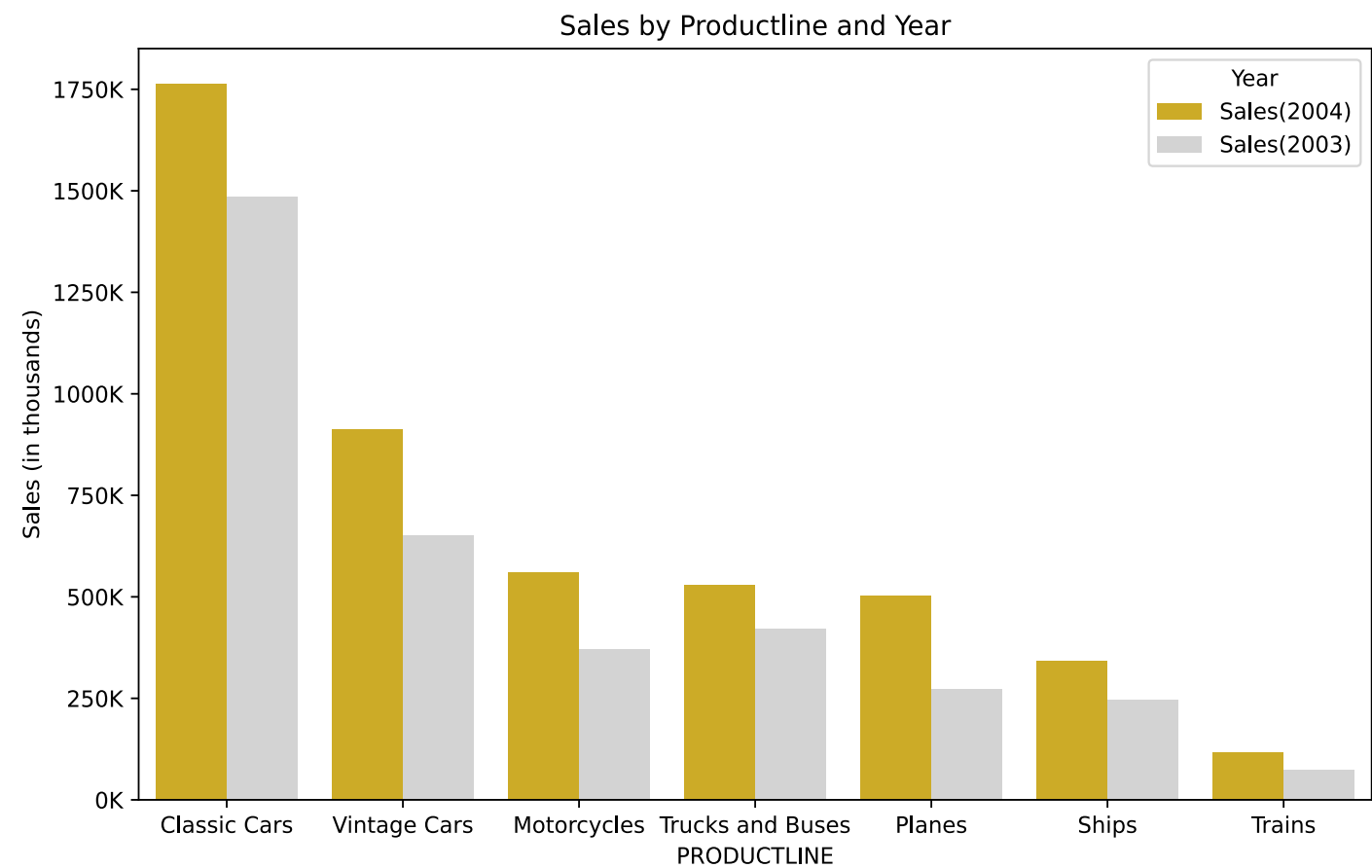
Sales analysis 2003-2004

In both years, there is a **consistent trend of growth**

1. During this period in 2003, a stable trend is evident. However, in the corresponding period of 2004, a notable upward trend is observed. This substantial growth contributes significantly to the positive difference in total sales between the two years.
2. Period demonstrates the highest sales and demand in both years, underscoring their significance for strategic considerations



Sales analysis 2003-2004



Product lines that have generated lower sales exhibit a greater potential for growth:

| PRODUCTLINE | Var relative(%) |
|------------------|-----------------|
| Planes | 84,63% |
| Trains | 60,06% |
| Motorcycles | 51,13% |
| Vintage Cars | 40,01% |
| Ships | 39,46% |
| Trucks and Buses | 25,90% |
| Classic Cars | 18,69% |

Sales analysis 2003-2004

| COUNTRY | Sales(2004) | Sales(2003) | Var absolute | Var relative(%) |
|-------------|--------------|--------------|--------------|-----------------|
| Belgium | 80 024,05 | 3 348,46 | 76 675,59 | 2289,88% |
| Canada | 135 776,09 | 54 609,50 | 81 166,59 | 148,63% |
| Germany | 150 418,78 | 70 053,31 | 80 365,47 | 114,72% |
| Sweden | 119 947,57 | 58 459,92 | 61 487,65 | 105,18% |
| France | 555 198,70 | 312 761,42 | 242 437,28 | 77,52% |
| UK | 257 656,10 | 180 421,55 | 77 234,55 | 42,81% |
| Italy | 192 235,60 | 140 928,77 | 51 306,83 | 36,41% |
| USA | 1 685 470,69 | 1 305 147,88 | 380 322,81 | 29,14% |
| Denmark | 120 431,56 | 99 192,72 | 21 238,84 | 21,41% |
| Spain | 483 545,36 | 405 343,39 | 78 201,97 | 19,29% |
| Australia | 232 396,68 | 253 134,45 | -20 737,77 | -8,19% |
| Finland | 91 575,69 | 111 154,51 | -19 578,82 | -17,61% |
| Singapore | 116 039,03 | 165 686,20 | -49 647,17 | -29,96% |
| Austria | 51 694,39 | 82 117,88 | -30 423,49 | -37,05% |
| Norway | 110 931,10 | 196 532,60 | -85 601,50 | -43,56% |
| Philippines | 15 928,75 | 78 086,98 | -62 158,23 | -79,60% |
| Japan | 149 422,47 | - | - | - |
| Switzerland | 117 713,56 | - | - | - |
| Ireland | 57 756,43 | - | - | - |

| REGION | Sales(2004) | Sales(2003) | Var absolute | Var relative(%) |
|-----------------|--------------|--------------|--------------|-----------------|
| North America | 1 821 246,78 | 1 359 757,38 | 461 489,40 | 33,94% |
| Central Europe | 955 049,48 | 468 281,07 | 486 768,41 | 103,95% |
| Northern Europe | 758 298,45 | 645 761,30 | 112 537,15 | 17,43% |
| Southern Europe | 675 780,96 | 546 272,16 | 129 508,80 | 23,71% |
| Asia/Australia | 513 786,93 | 496 907,63 | 16 879,30 | 3,40% |

Central Europe stands out with the most significant growth, with Belgium contributing notably to this expansion

In terms of sales volume, the USA, Spain, and Australia emerge as the top performers. However, while the USA and Spain demonstrate moderate growth, Australia has experienced a slight decline

The Asian market presents an underdeveloped landscape, necessitating dedicated efforts and strategic attention to tap into its potential.

Sales analysis 2003-2004

| YEAR | STATUS | SALES |
|------|-----------|-------|
| 2003 | Cancelled | 16 |
| | Resolved | 8 |
| | Shipped | 976 |
| 2004 | Cancelled | 44 |
| | On Hold | 6 |
| | Resolved | 8 |
| | Shipped | 1287 |

| COUNT | SALES | CITY | COUNTRY | CONTACT NAME |
|-------|----------|-------|---------|---------------|
| 16 | \$48 710 | Boras | Sweden | Larsson Maria |

| COUNT | SALES | CITY | COUNTRY | CONTACT NAME |
|-------|----------|------|---------|---------------|
| 8 | \$28 550 | Graz | Austria | Mendel Roland |

| COUNT | SALES | CITY | COUNTRY | CONTACT NAME |
|-------|----------|-----------|---------|-----------------|
| 16 | \$50 011 | Madrid | Spain | Freyre Diego |
| 14 | \$50 408 | Liverpool | UK | Devon Elizabeth |
| 14 | \$45 358 | NYC | USA | Yu Kwai |

| COUNT | SALES | CITY | COUNTRY | CONTACT NAME |
|-------|----------|------|---------|--------------------|
| 6 | \$26 260 | Lule | Sweden | Berglund Christina |

| COUNT | SALES | CITY | COUNTRY | CONTACT NAME |
|-------|----------|-----------|---------|----------------|
| 8 | \$24 079 | Kobenhavn | Denmark | Petersen Jytte |

Number of cancelled orders has increased by significant **75%** or **1,7** percentage points relatively to the total amount of orders.

Sweden accounts for the highest count of not shipped orders (totalling **22** orders with a value of **\$74 970**)

Customers segmentation

- Customers Overview
- Introduction to variables for segmentation
- Segmentation analysis

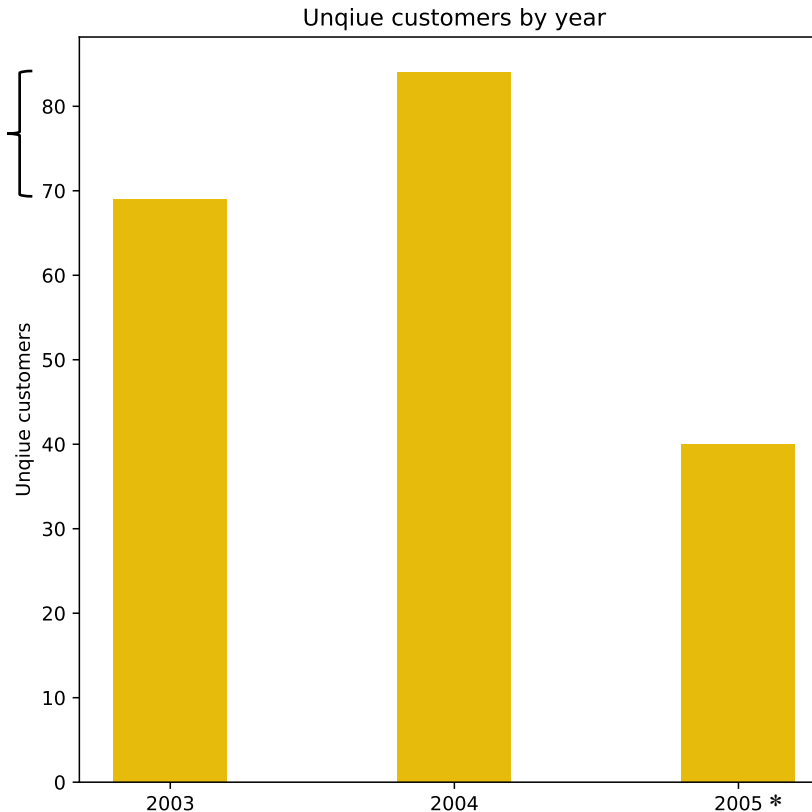
Customers segmentation

Time period : 01/2003 – 05/2005

unique “new coming”
customers (2004/2003)

$$\begin{array}{c} \uparrow \\ 23 - 8 = 15 \end{array}$$

unique “leaving”
customers (2004/2003)



Top 5 customers by sales:

| CUSTOMERNAME | SALES | PERCENTAGE** | COUNTRY |
|------------------------------|---------|--------------|-----------|
| Euro Shopping Channel | 912 294 | 19,31% | Spain |
| Mini Gifts Distributors Ltd. | 654 858 | 13,86% | USA |
| Australian Collectors, Co. | 200 995 | 4,25% | Australia |
| Muscle Machine Inc | 197 737 | 4,19% | USA |
| La Rochelle Gifts | 180 125 | 3,81% | France |

* Considering that 2005 is not a full year, there is no meaningful basis for comparison

Customers segmentation

Time period : 01/2003 – 05/2005

Variables for K-means clustering

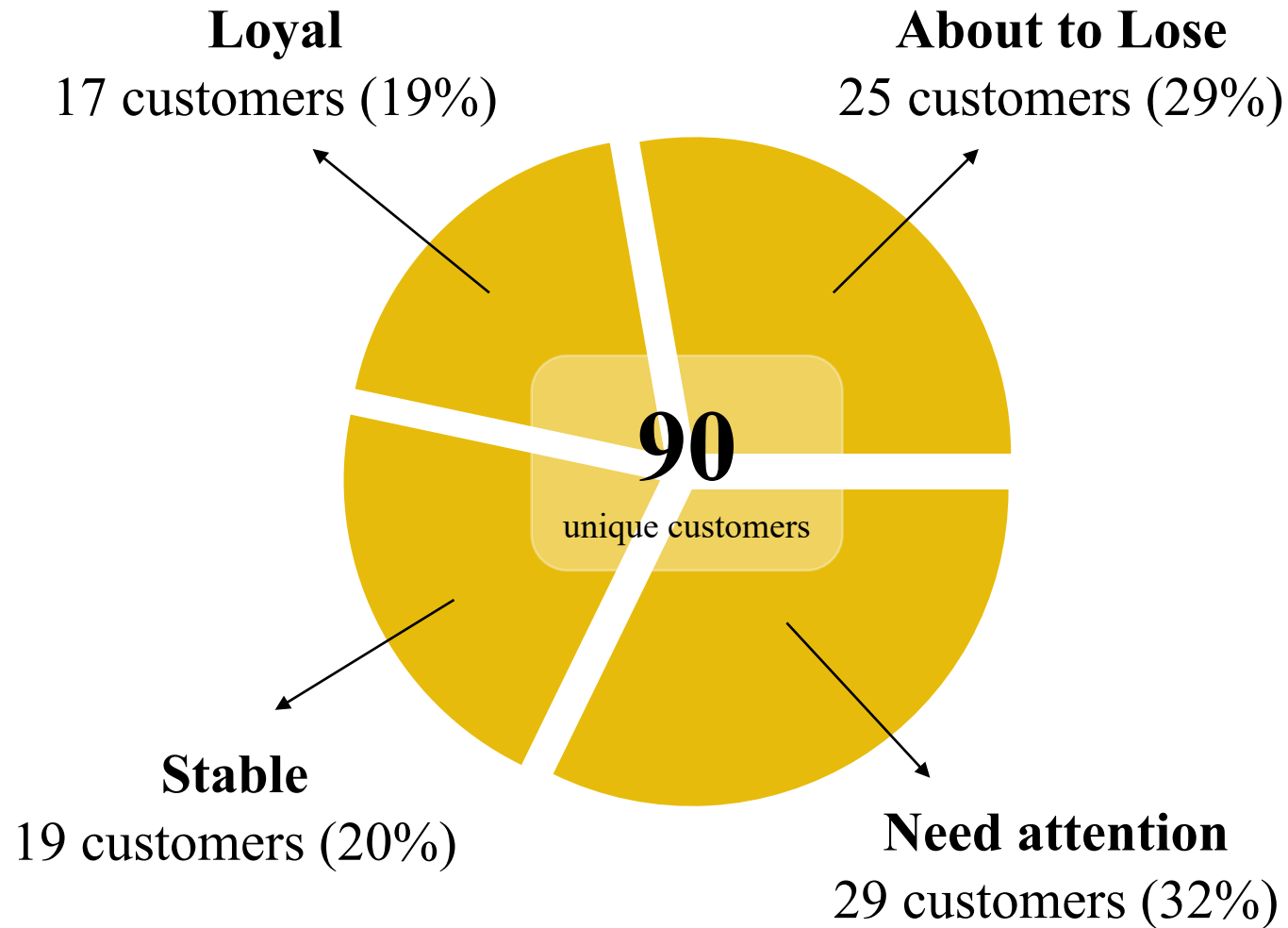
- **Recency:** How recently has the customer made a transaction
- **Frequency:** How frequent is the customer in ordering
- **Monetary:** How much does the customer spend on purchasing products

Count of purchased orders by product line:

- **Classic cars**
- **Motorcycles**
- **Planes**
- **Ships**
- **Trains**
- **Trucks and Buses**
- **Vintage cars**

Customers segmentation

Time period : 01/2003 – 05/2005



Due to the significantly high values of variables, the analysis excluded the top two customers:

Euro Shopping Channel and *Mini Gifts Distributors Ltd.*

These customers are considered outliers as their values deviate substantially and do not align with any of the established clusters

Customers segmentation

Time period : 01/2003 – 05/2005

Cluster 1 – Loyal customers (19%)

These customers have shown the highest monetary value

Their purchasing frequency is notably higher than that of other customers.

Their most recent transaction occurred within the range of **the last 0 to 207 days**, indicating they maintain relatively current engagement.

In terms of their transaction history, they tend to lean towards vintage and classic cars, displaying less interest in trains and ships.

Given their loyalty and consistency, it's crucial for the company to retain these customers, as they demonstrate strong brand loyalty.

| Average measures | |
|------------------|-----------|
| Recency | 82 days |
| Frequency | 4 |
| Monetary value | \$150 259 |
| Classic Cars | 13 |
| Motorcycles | 6 |
| Planes | 6 |
| Ships | 2 |
| Trains | 1 |
| Trucks and Buses | 6 |
| Vintage Cars | 8 |

Customers segmentation

Time period : 01/2003 – 05/2005

Cluster 2 – Stable customers (20%) & Cluster 3 - Need attention customers(32%)

2

| Average measures | |
|------------------|-----------|
| Recency | 146 days |
| Frequency | 3 |
| Monetary value | \$102 040 |
| Classic Cars | 6 |
| Motorcycles | 1 |
| Planes | 4 |
| Ships | 7 |
| Trains | 1 |
| Trucks and Buses | 3 |
| Vintage Cars | 10 |

Comparatively, both customer clusters exhibit lower activity compared to cluster 1, with the last transaction made **over 20 days ago**

This diminished activity corresponds to lower monetary value for both clusters

Cluster 2 customers showcase higher monetary value than cluster 3 customers due to the distinct nature of their purchases. Cluster 3 displays interest in classic cars, while cluster 2's preference for vintage cars, often pricier, contributes to their higher expenditure.

It's worth noting that cluster 2 appears to be the sole group showing interest in purchasing ships, setting them apart from the other clusters

3

| Average measures | |
|------------------|----------|
| Recency | 152 days |
| Frequency | 3 |
| Monetary value | \$90 752 |
| Classic Cars | 12 |
| Motorcycles | 5 |
| Planes | 1 |
| Ships | 0 |
| Trains | 1 |
| Trucks and Buses | 2 |
| Vintage Cars | 4 |

Customers segmentation

Time period : 01/2003 – 05/2005

Cluster 4 – About to Lose customers (29%)

| Average measures | |
|------------------|----------|
| Recency | 318 days |
| Frequency | 2 |
| Monetary value | \$55 487 |
| Classic Cars | 12 |
| Motorcycles | 5 |
| Planes | 1 |
| Ships | 0 |
| Trains | 1 |
| Trucks and Buses | 2 |
| Vintage Cars | 4 |

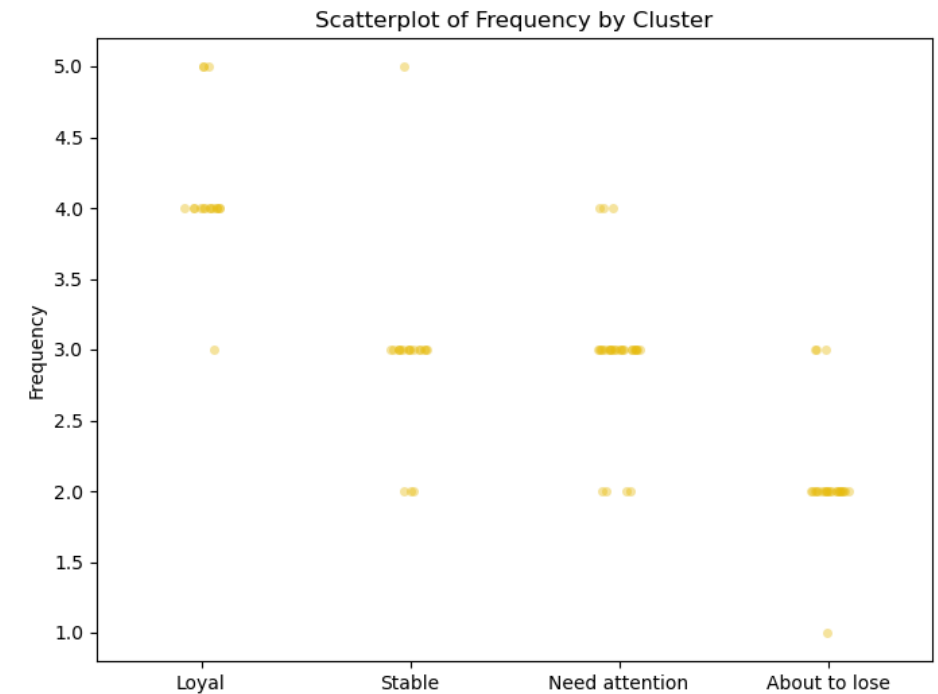
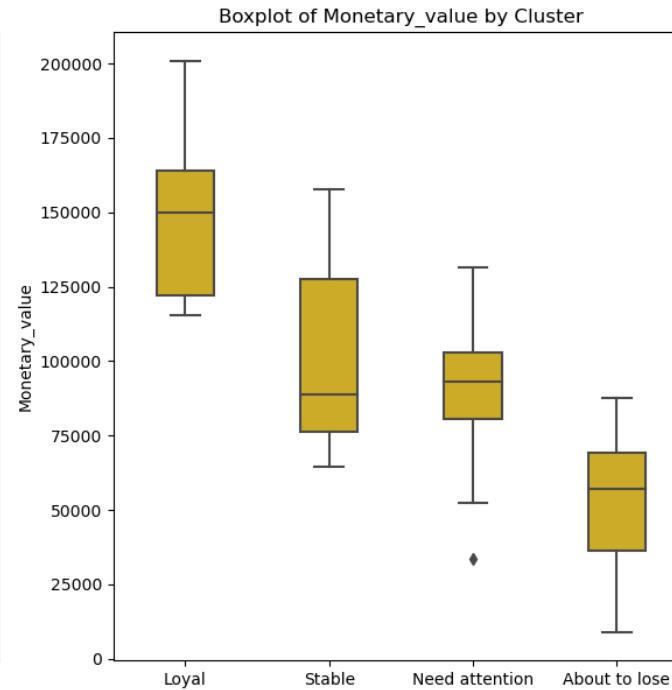
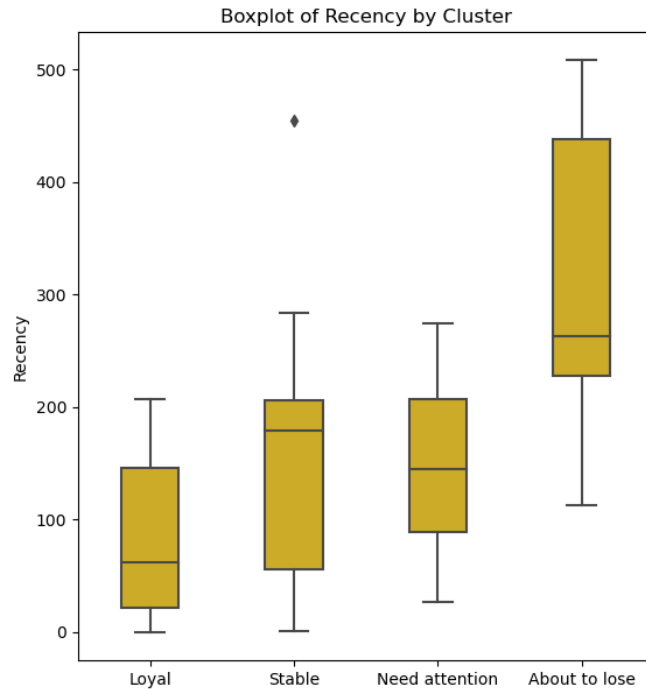
Customers falling into this category have not engaged in a transaction for more than 200 days. Remarkably, **46%** of them **made a purchase a year ago or even later**

In terms of expenditure, their spending is comparatively lower than that of other clusters

The majority of these customers have conducted transactions only twice, and it appears unlikely that they will do so again in the future

Customers segmentation

Time period : 01/2003 – 05/2005

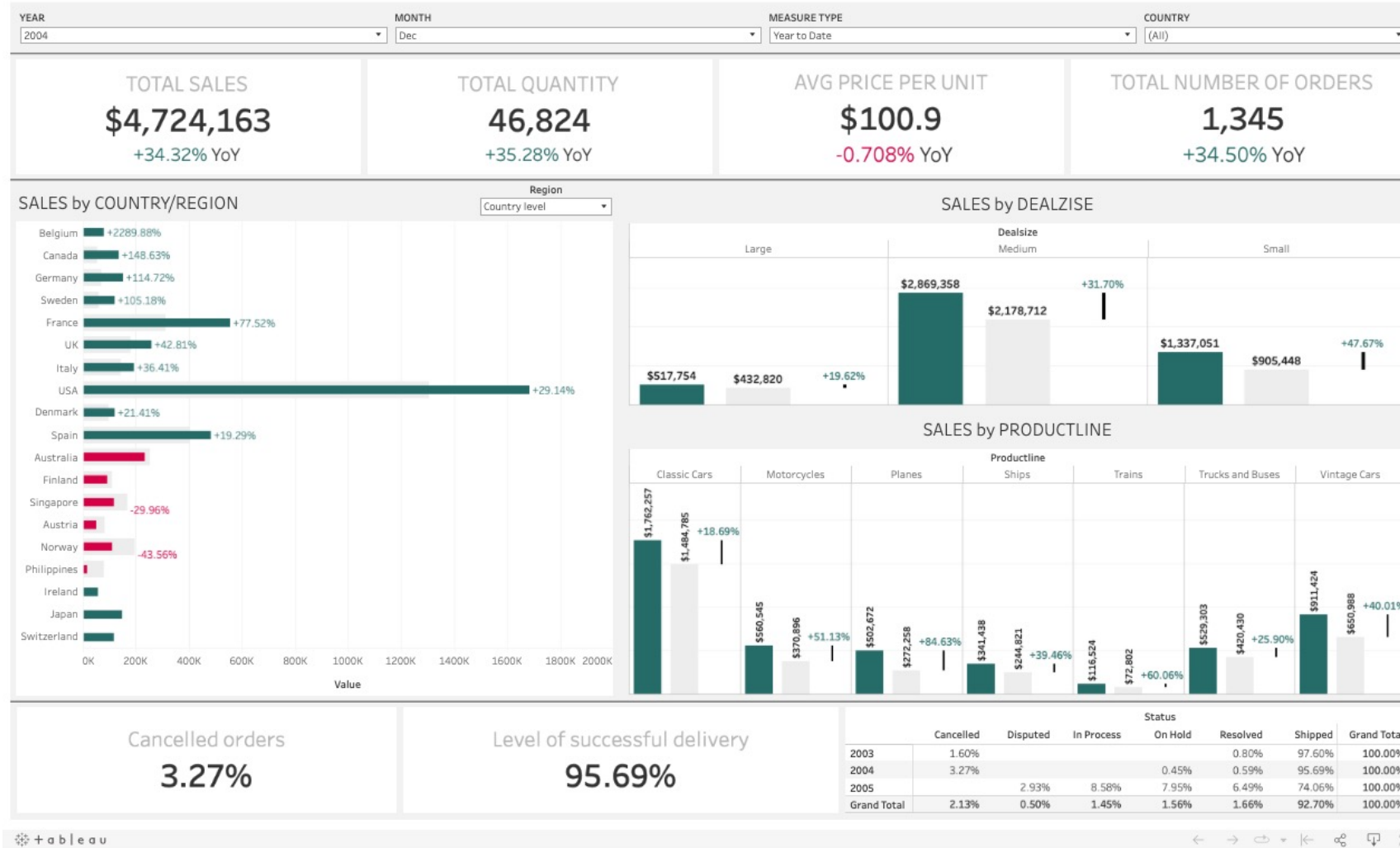


Introduction ot Dashboard

Sales analysis dashboard

Link to Tableau Public: [Dashboard](#)

SALES ANALYSIS | SALES DATA SAMPLE



Dashboard contains all KPIs and other measurements in the best fitting form.

In the top part of the dashboard there is a filter panel with year, month, measure type (YoY, MoM) and country filter.