Huskie Motor Corporation: Visualizing the Present and Predicting the Future

BUSINESS REPORT

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Executive Summary

Problem Statement

Huskie Motor Corporation (HMC) faces challenges in utilizing its vast data resources effectively to analyze costs, profitability, and sales trends. Executives require actionable insights to make data-driven decisions and maintain HMC's competitive edge.

Key Findings

1. Global Performance: Identified varying profitability and sales performance by region and model.
2. Brand and Model Insights: Most and least profitable models identified for strategic focus.
3. Financial Analysis: Contribution margins (CM) and variable costs assessed by model and sales channel.
4. Operational Insights: Determines the sales dynamics of top and bottom-selling models and lot durations.
5. Forecasting: Sales volumes and margins projected for four quarters ahead.

Recommendations

1. Focus production and marketing on profitable models and regions.
2. Optimize pricing and cost control for models with high variable cost variability.
3. Discontinue or restructure underperforming models and options.
4. Invest in real-time dashboards to streamline decision-making across departments.
5. Leverage predictive analytics for better production planning and demand forecasting.

Introduction

Huskie Motor Corporation (HMC) is a relatively new entrant in the highly competitive global automotive industry. With operations spanning 30 countries and six regions, HMC has achieved early success through popular vehicle brands and high customer satisfaction. However, as the company grows, so does the complexity of managing its operations, profitability, and strategic planning.

HMC's management faces challenges in harnessing the power of its extensive data. Despite capturing detailed information across production, sales, and customer preferences, the lack of integrated analysis and visualization tools has hindered effective decision-making. This report aims to address these issues by leveraging advanced analytics and interactive dashboards to uncover actionable insights.

The primary objectives of this report are to:

- Evaluate global and brand-specific performance.
- Analyze financial metrics, including contribution margins and variable costs.
- Assess operational efficiency through sales channel performance and inventory management.
- Provide forecasting insights for sales and profitability to support production planning.

By addressing these areas, this report will empower HMC to make informed, data-driven decisions to enhance its competitive position and achieve long-term profitability.

Main Body and Data Visualizations

1. Overall Performance Analytics:

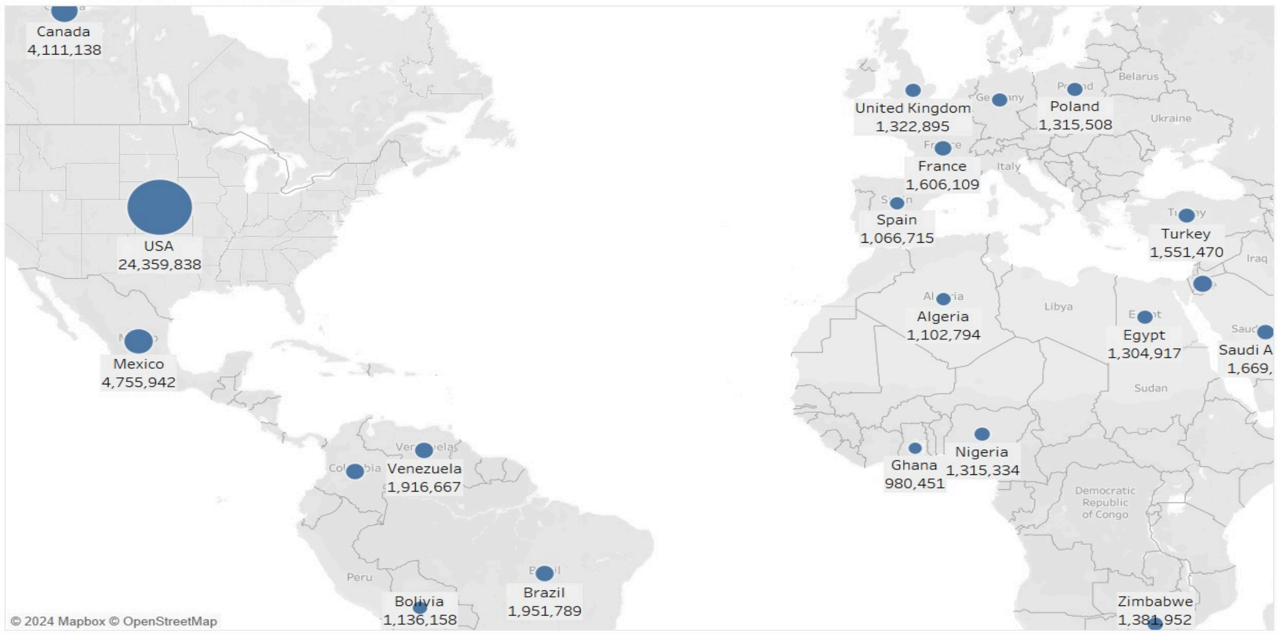
1.1 How is HMC performing globally?

- Top Performing Region:
    - The USA stands out as the largest contributor with 24,359,838 units of revenue.
    - This is significantly higher than other countries, indicating a strong market presence in North America.
- Other High-Performing Regions:
    - Mexico: 4,755,942 units/revenue, a notable performance in North America.
    - Canada: 4,111,138 units/revenue, contributing well to the North American total.

Conclusion:

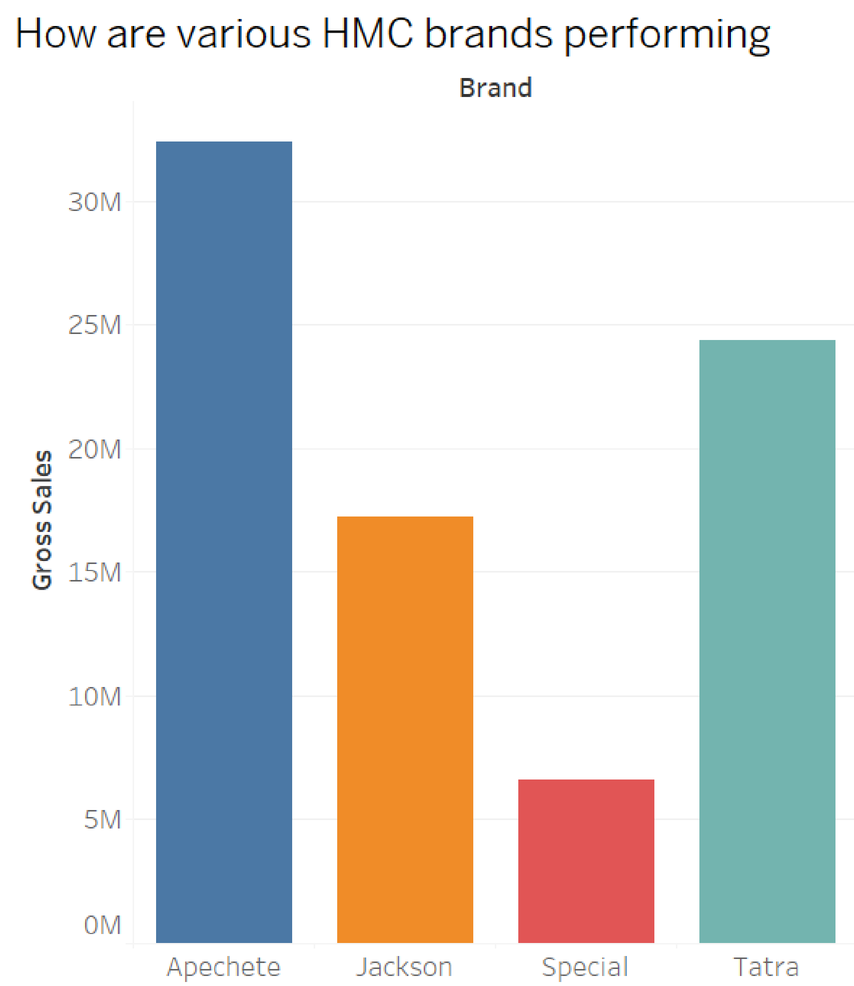
HMC's performance is strongest in North America, with the USA being the primary driver. Other regions like Europe, South America, and parts of the Middle East also show steady contributions, but to a lesser extent. African regions and some parts of Europe contribute the least, indicating potential opportunities for growth.

How is HMC performing globally



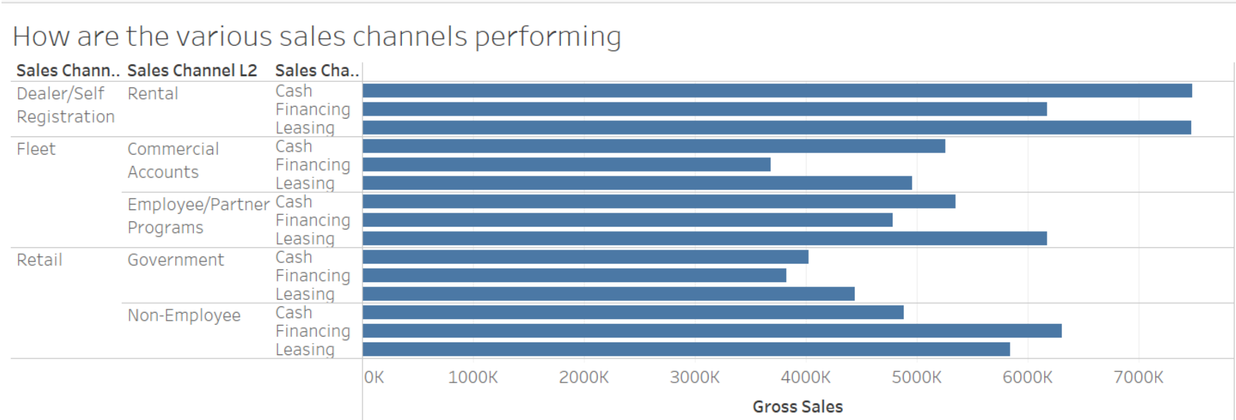
1.2 How are various HMC brands performing?

- HMC brands based on their Gross Sales:
  - Apechete: Leading with gross sales over 30 million.
  - Tatra: Second highest performer with sales nearing 25 million.
  - Jackson: Mid-tier performer with sales around 17 million.
  - Special: Lowest performer, with sales just above 6 million.
- Key Insights:
  - Apechete and Tatra dominate in gross sales.
  - Jackson performs moderately, but significantly lower than the top brands.
  - Special lags far behind the other three brands.



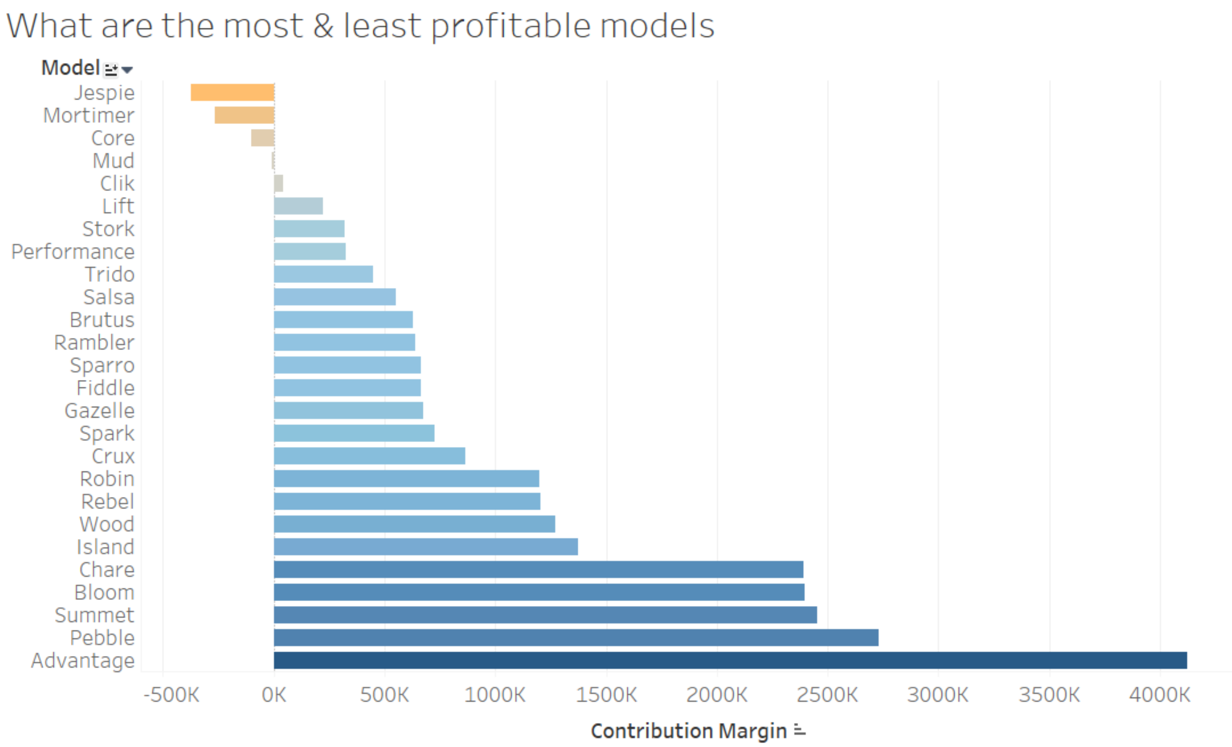
1.3 How are the various sales channels performing?

- **Dealer/Self Registration - Rental** stands out with the highest gross sales, particularly in **Cash Leasing** and **Financing Leasing**, exceeding **7,000K**.
- **Fleet - Commercial Accounts** performs moderately, but **Financing** under this channel lags behind others.
- **Retail - Government** and **Non-Employee** channels:
  - The **Non-Employee Leasing** channel also shows strong performance, nearing **6,000K**.
- **Employee/Partner Programs** perform well in Leasing and Financing but not as strongly as Dealer or Retail channels.
- Overall, **Dealer/Self Registration** channels lead across all categories, while Fleet and Employee programs contribute moderately.



1.4 What are the most & least profitable models?

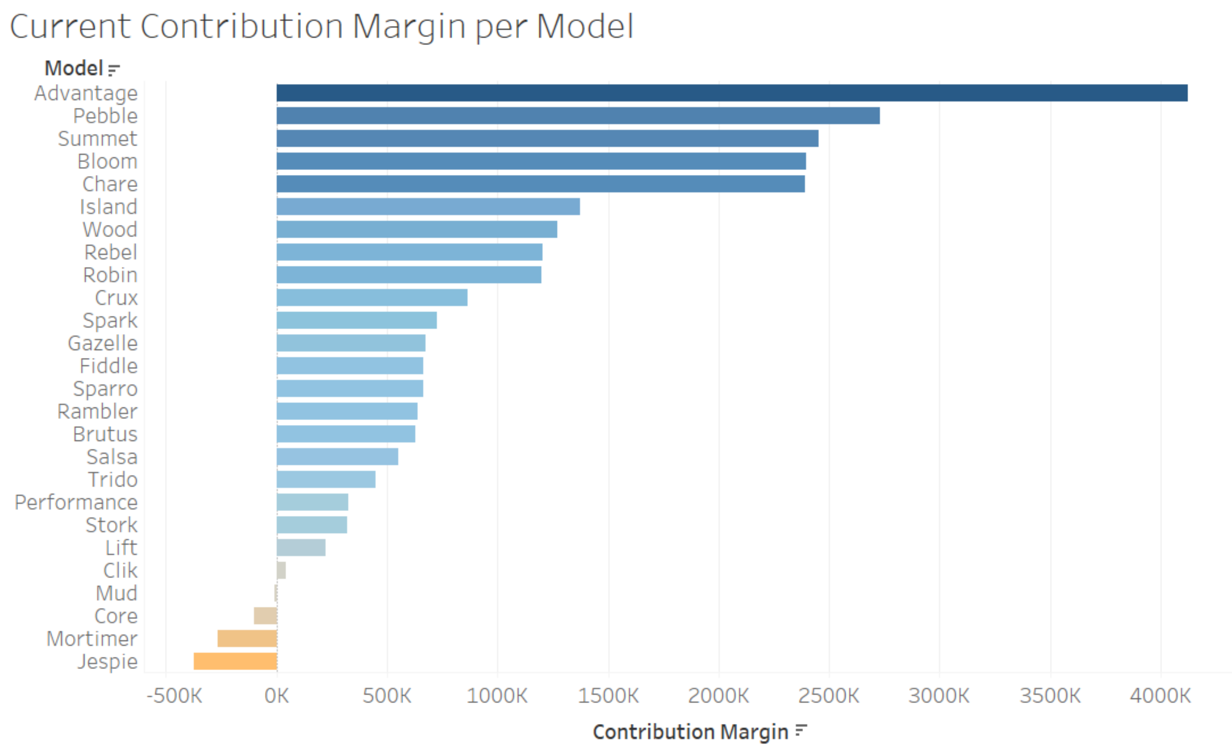
- **Most Profitable Models**:
  - **Advantage** is the most profitable model, with a **Contribution Margin** exceeding **4,000K**.
  - Other top-performing models include:
    - **Pebble**
    - **Summet**
    - **Bloom**
    - **Chare**
- **Least Profitable Models**:
  - **Jespie** is the least profitable model, with a **negative Contribution Margin** of approximately **-374,662**.
  - Other underperforming models include:
    - **Mortimer**
    - **Core**
    - **Mud**
- The majority of models fall within the positive Contribution Margin range, but a few outliers perform negatively.



2. Financial Analytics

2.1 What is the current CM per model?

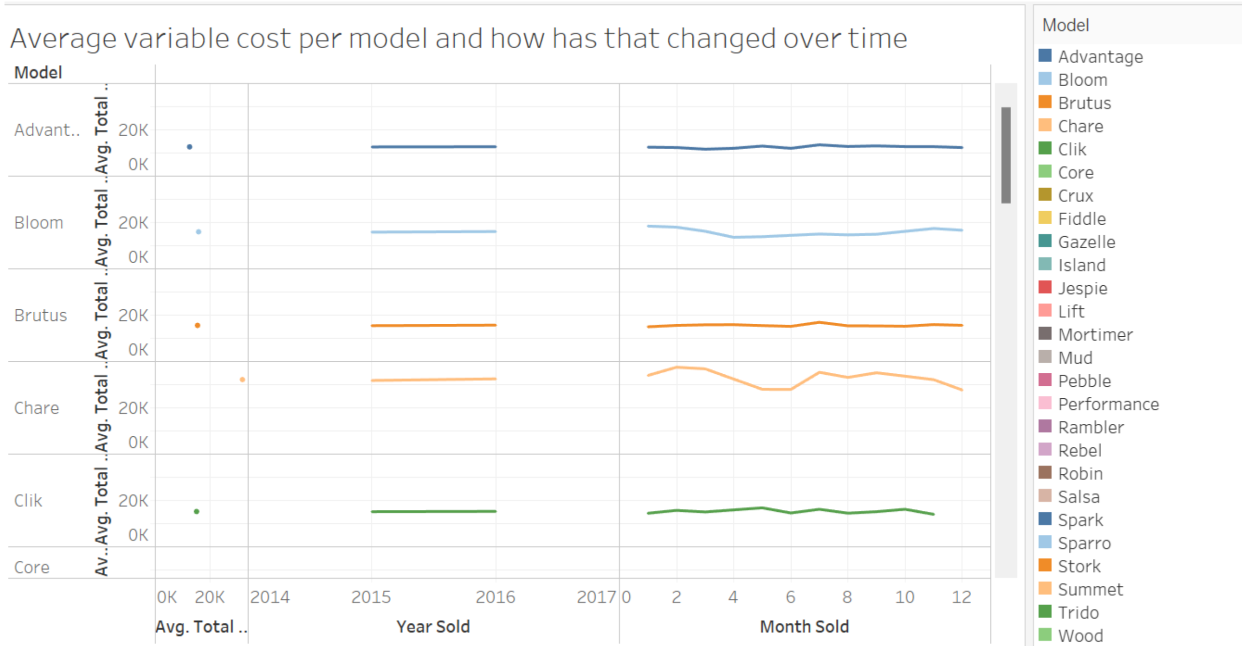
- Top 5 Models (Highest Contribution Margin):
  - Advantage: ~4,000K
  - Pebble: ~2,500K
  - Summet: ~2,200K
  - Bloom: ~2,000K
  - Chare: ~2,000K
- Bottom 5 Models (Lowest Contribution Margin):
  - Jespie: ~-500K
  - Mortimer: ~-400K
  - Core: ~-250K
  - Mud: ~-100K
  - Clik: ~0K
- General Observation:
  - Models above “Lift” are contributing positively to margins.
  - Models below “Lift” contribute negatively (e.g., Jespie being the most unprofitable).



2.2 What is the average variable cost per model and how has that changed over time?

- Advantage (Dark Blue)
  - The average variable cost has remained relatively steady over time at around 20K.
- Bloom (Light Blue)
  - The cost decreased slightly early in the year but then stabilized, staying below 20K.
- Brutus (Orange)
  - Costs remained fairly consistent, hovering slightly below 20K with minimal fluctuations.
- Chare (Yellow-Orange)
  - Notable decline in cost over time, with a downward trend towards the end of the observed period.
- Clik (Green)
  - Costs remained low and steady across the entire period, consistently below other models.
- Core (Green)
  - The cost stayed flat at the beginning and maintained low levels throughout.

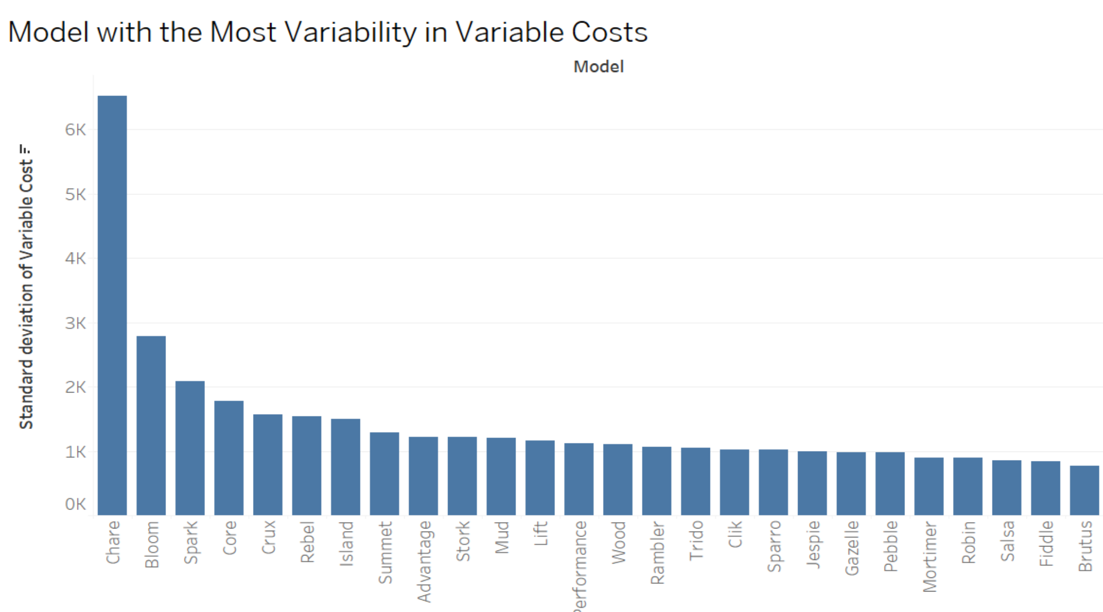
Models like **Advantage** and **Bloom** have high and stable variable costs. **Chare** showed a decreasing trend over time. **Clik** and **Core** consistently had the **lowest variable costs**.



2.3 Which model has the most variability in variable costs?

The model with the most variability in variable costs is Chare, as it has the highest standard deviation (over 6K), significantly greater than all other models.

- Bloom and Spark follow, but their variability is much lower, around 3K and 2K, respectively.
- Other models show a steady decline in variability, with Brutus having the least variation.

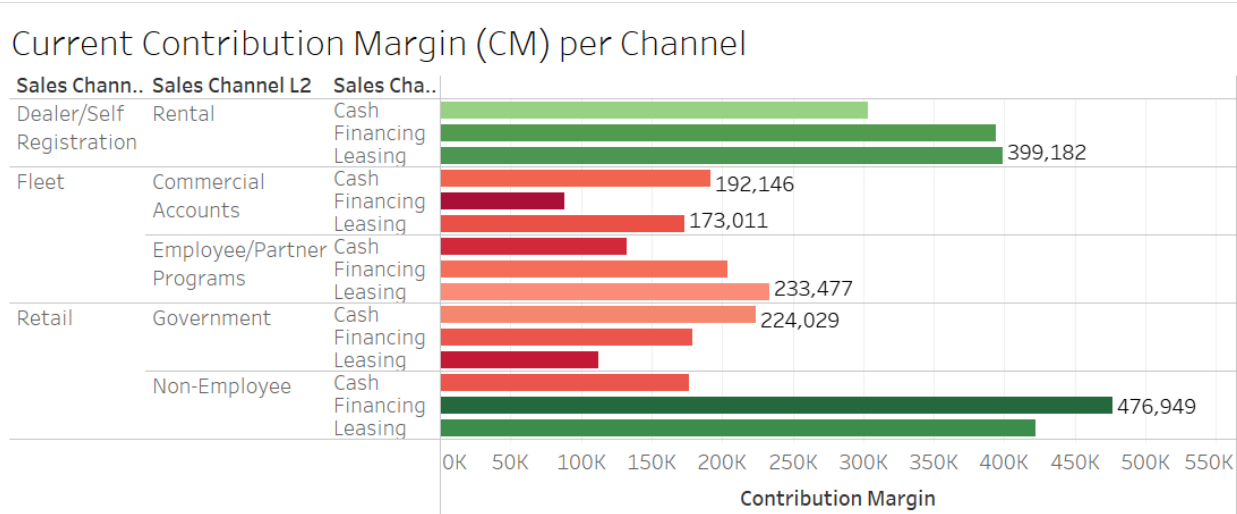


2.4 What is the current CM per channel?

- Dealer/Self Registration (Rental)
  - Highest CM: Cash (≈ 399,182)
  - Financing and Leasing are close but slightly below.
- Fleet (Commercial Accounts)
  - Highest CM: Cash (192,146)
  - Financing and Leasing have significantly lower margins, with Leasing being the lowest.
- Employee/Partner Programs
  - Highest CM: Cash (233,477)
  - Financing and Leasing follow, with Leasing being the lowest.
- Retail (Government)
  - Highest CM: Cash (≈ 230K)
  - Financing is slightly lower, with Leasing trailing further.
- Non-Employee
  - Highest CM: Cash (476,949)
  - Financing and Leasing are also strong, but lower than Cash.

Key Insights:

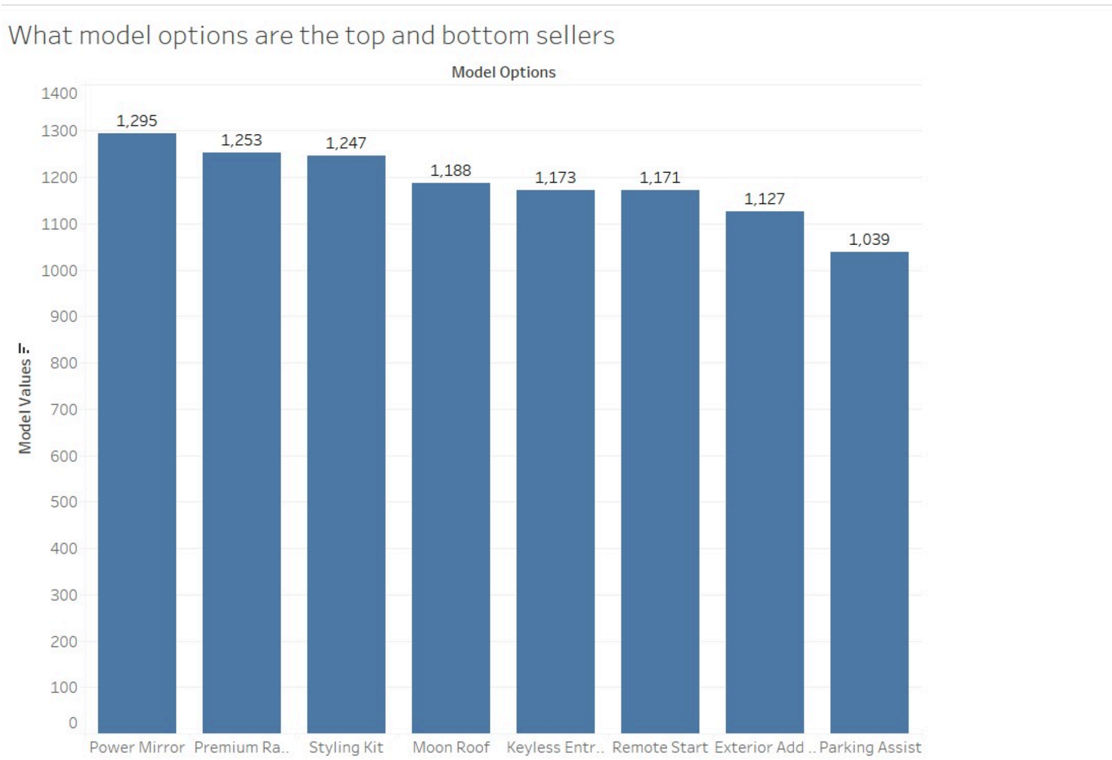
- Across most channels, Cash generates the highest Contribution Margin.
- Non-Employee channel stands out as the most profitable overall, with the highest CM across all methods.
- **Leasing** tends to have the lowest CM in most channels.



3. Operational Analytics

3.1 What model options are the top and bottom sellers?

- Top Model Options (Best Sellers):
  - Power Mirror: 1,295 units sold (highest seller).
  - Premium Radio: 1,253 units sold.
  - Styling Kit: 1,247 units sold.
- Middle Sellers:
  - Moon Roof: 1,188 units sold.
  - Keyless Entry Keypad.: 1,173 units sold.
  - Remote Start: 1,171 units sold.
- Bottom Model Options (Least Sellers):
  - Exterior Add-On: 1,127 units sold.
  - Parking Assist: 1,039 units sold (lowest seller).
- Summary:
  - Power Mirror is the top-selling model option, with nearly 1,300 units sold.
  - Parking Assist is the lowest seller, at just over 1,000 units.
  - Most model options have relatively close sales numbers, showing a small spread across all options.

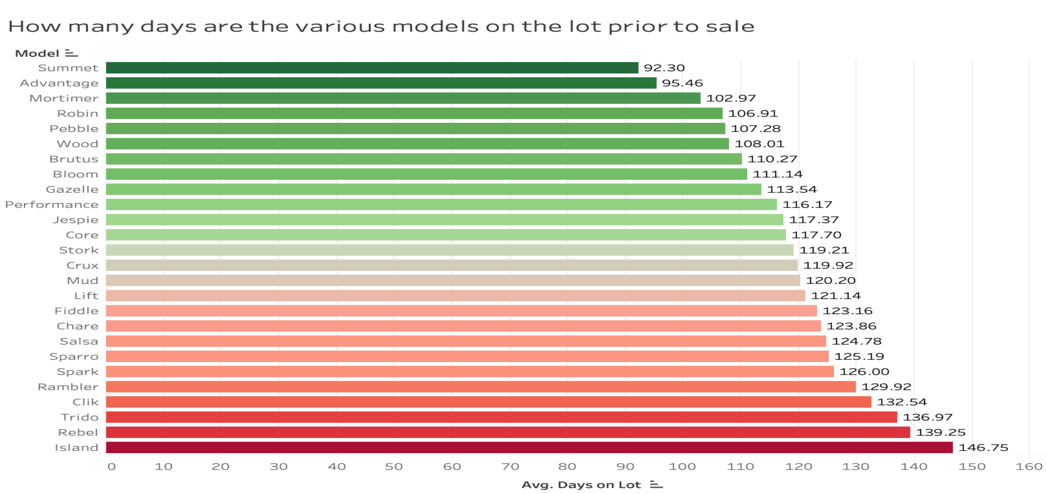


3.2 How many days are the various models on the lot prior to sale?

- **Top 5 Models with the Longest Average Days on Lot**:
  - **Island**: 146.75 days
  - **Rebel**: 136.97 days
  - **Trido**: 129.92 days
  - **Clik**: 125.19 days
  - **Rambler**: 123.86 days
- **Middle-performing Models** (Around 110–120 days):
  - **Lift**: 121.14 days
  - **Mud**: 119.92 days
  - **Crux**: 117.70 days
  - **Stork**: 116.17 days
  - **Core**: 111.14 days
- **Bottom 5 Models with the Shortest Average Days on Lot**:
  - **Bloom**: 108.01 days
  - **Robin**: 106.91 days
  - **Mortimer**: 95.46 days
  - **Advantage**: Below 95.46 days
  - **Summet**: Shortest, below Advantage.

Summary Insight:

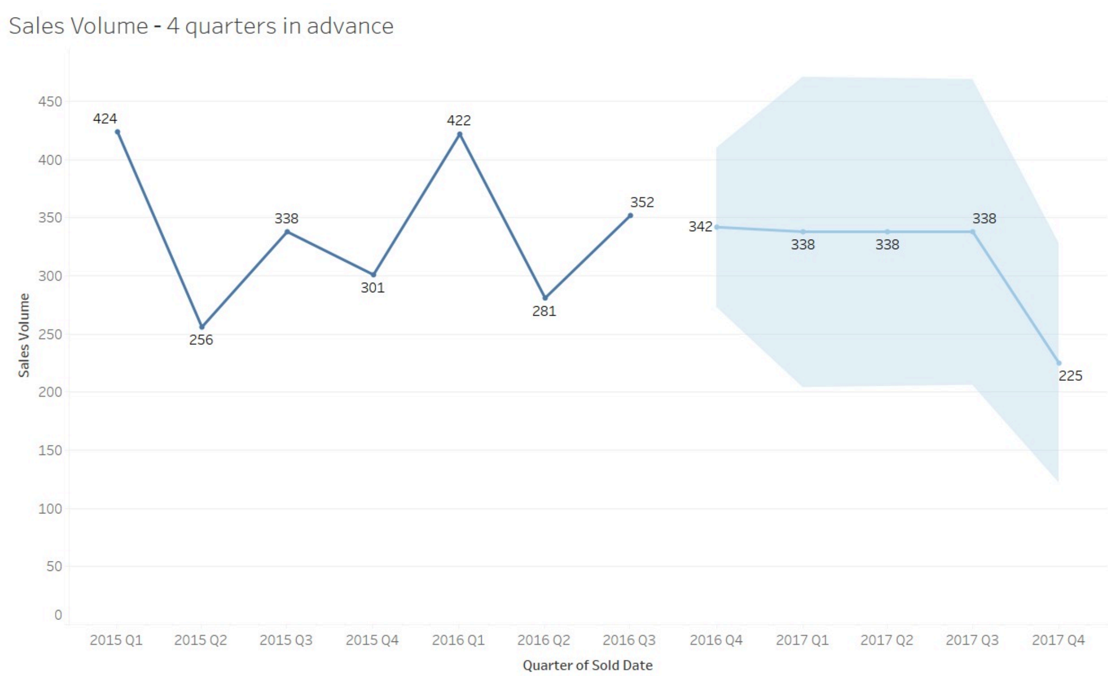
- The **Island** model has the longest average time on the lot at 146.75 days.
- The **Summet** model has the shortest average time, slightly below 95.46 days (Mortimer).
- Models like **Island, Rebel, and Trido** tend to stay significantly longer than others.



4. Forecast

4.1 Sales Volume – 4 quarters in advance

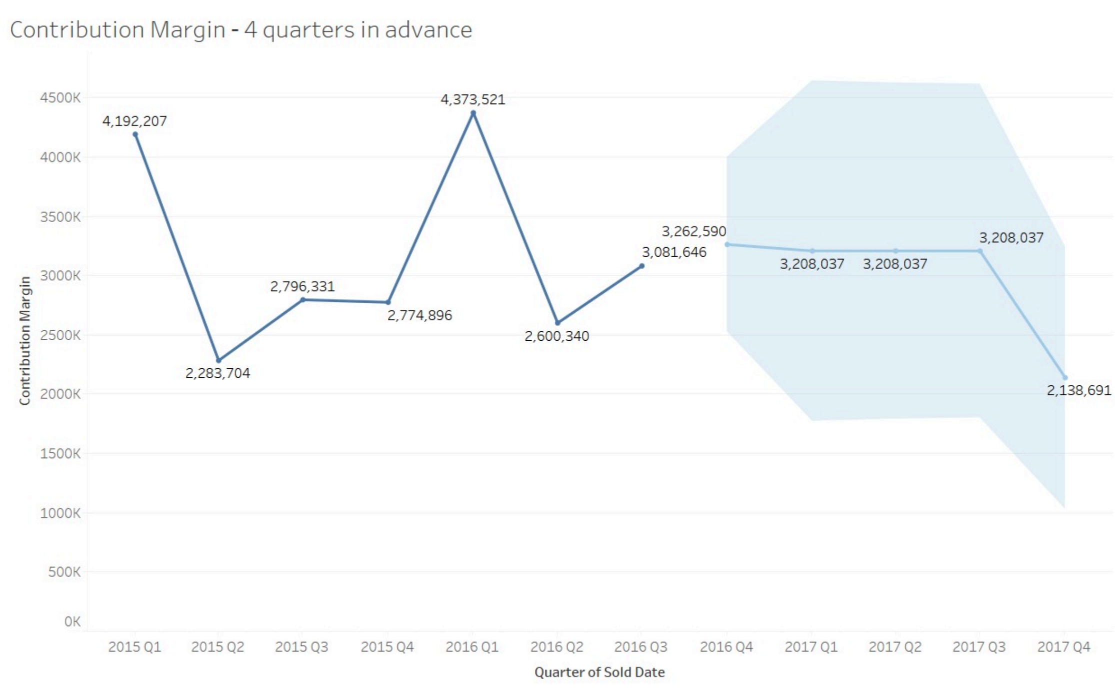
- Historical Sales Volume:
  - Peaks at 424 in 2015 Q1 and 422 in 2016 Q1.
  - Lowest recorded value is 256 in 2015 Q2.
  - Fluctuations are visible, indicating seasonal or market-related variations.
- Forecasted Data:
  - Sales are expected to stabilize at 338 for three quarters (2017 Q1 to 2017 Q3).
  - A sharp decline to 225 is projected by 2017 Q4.
  - The light blue shaded area represents the forecast's confidence interval, showing potential variability.



4.2 Contribution Margin – 4 quarters in advance

- Historical Contribution Margin:
  - The highest recorded margin is 4,373,521 in 2016 Q1.
  - The lowest margin was 2,283,704 in 2015 Q2.
  - Significant fluctuations are evident, with a steep rise between some quarters (e.g., 2015 Q2 to Q3) and sharp declines (e.g., 2016 Q1 to Q2).

- Forecasted Contribution Margin::
    - The forecast predicts stability around 3,208,037 from 2017 Q1 to Q3.
    - A sharp drop to 2,138,691 is projected by 2017 Q4.
    - The light blue shaded region reflects uncertainty, with increasing variability further into the forecast.



Recommendations

Recommended Course of Action for HMC

1. Increase focus on successful regions and brands:
    - Strengthen distribution and marketing efforts in North America, where sales are strongest.
    - Capitalize on high-performing brands (Apechete and Tatra) while reassessing strategies for Special.
2. Eliminate or reengineer unprofitable models and options:
    - Halt production of Jespie and other least profitable models unless there is a clear turnaround strategy.
    - Replace low-performing options like Parking Assist with features that align better with customer preferences.
3. Address cost inefficiencies:

    - Prioritize cost reduction efforts for models with volatile variable costs, such as Chare, to stabilize margins.
4. Align inventory with market demand:
    - Reduce production of slow-selling models with long lot times and focus on quick-sellers like Summet.
5. Prepare for financial and non-financial implications:
    - Financial implications: Streamlining underperforming models will reduce costs but may impact short-term revenues. Strengthening top-performing models could enhance profitability in the medium to long term.
    - Non-financial implications: Discontinuing models may affect dealer relationships and customer loyalty in certain segments. Strategic communication is necessary to mitigate these effects.

Potential Implications of the Recommended Actions

Financial Implications

1. Increased Profitability:
    - Focusing on profitable models like *Advantage* and *Pebble* will enhance contribution margins and improve overall profitability.
    - Prioritizing high-performing regions like North America can maximize revenue due to stronger market demand.
2. Cost Savings:
    - Discontinuing unprofitable models like *Jespie* and low-demand options like *Parking Assist* will reduce production and inventory costs, freeing resources for higher-margin products.
    - Cost-control measures for models with variable cost issues (*Chare*) can stabilize margins and reduce financial risks.
3. Revenue Impact from Model Restructuring:
    - Eliminating underperforming models could result in short-term revenue loss, particularly if those models serve niche customer bases or specific regions.
    - Properly managed, reallocating resources to higher-margin models should offset this loss over time.

Non-Financial Implications

1. Brand Perception and Customer Loyalty:
    - Discontinuing certain models or options may alienate a segment of loyal customers, especially if communication and transition plans are not well-executed.

    - Focusing on high-performing regions or models could risk neglecting emerging markets or customer groups, which may be vital for future growth.
2. Dealer and Partner Relationships:
    - Eliminating underperforming models or features could create friction with dealers and partners accustomed to selling those products. They may require incentives or support to transition smoothly to the new product lineup.
3. Operational Adjustments:
    - Shifting production focus to profitable models may necessitate retooling manufacturing facilities and retraining staff, which could create short-term disruption.
    - Streamlining inventory management for models with high lot times might require coordination across supply chains to ensure demand alignment.

Conclusion

The financial benefits of these actions, including improved margins, cost efficiency, and revenue optimization, outweigh the short-term risks if managed effectively. However, HMC must proactively address non-financial implications through strategic communication, dealer incentives, and careful planning to ensure stakeholder alignment and maintain its competitive edge.