Hyundai Motor Vehicles Tableau Report

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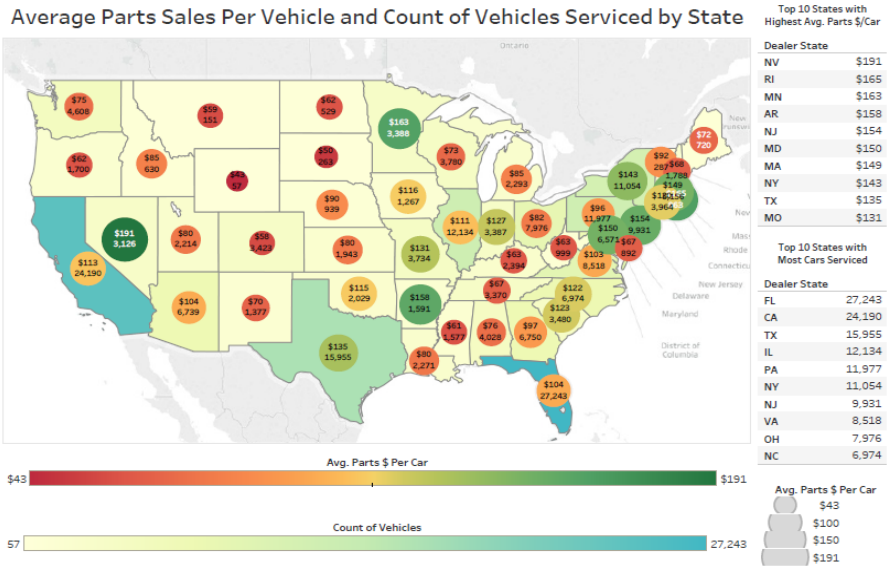
This assignment focuses on enhancing reporting and analyzing parts sales key performance indicators to help Hyundai Motor America (HMA) develop ways to increase parts sales revenue. Established in 1986, HMA has been marketing and selling new Hyundai vehicles in the US through its network of over 835 Hyundai dealerships. HMA also supports and services its franchise dealers and customers by distributing and wholesaling vehicle parts to Hyundai dealers. Parts sales is not only an integral component in helping Hyundai owners maintain and repair their Hyundai vehicles, but also an important profit center for HMA. Thus, increasing parts sales is one of the top objectives for HMA's Service Division every year and improving reporting and analysis of parts sales will help HMA achieve its parts sales goals.

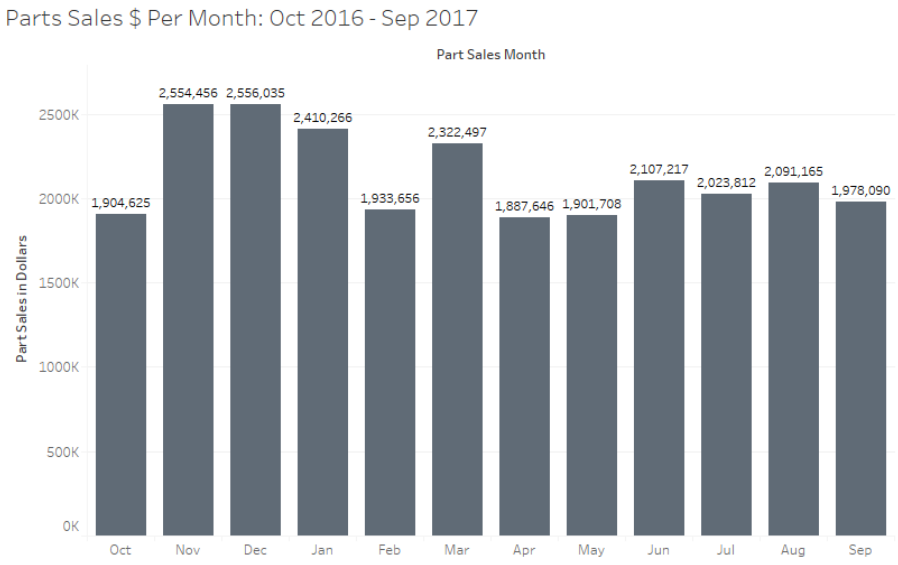
The following table describes the variables included in the dataset:

Variable	Description	Variable	Description
Dealer_Number	Dealer's ID number	Part_Number	Part number that was sold
Dealer_Region	Region where dealer is located (CE: Central; EA: Eastern; SC: South Central; SO: Southern; WE: Western	Part_Number_Description	Part number's description
Dealer_State	State where dealer is located	Part_Product_Line_Description	Part product line's description
Dealer_Service_District	District where the dealer services	Part_Sales_Date	Sales date for part
Dealer_Name	Dealer's name	Part_Sales_Year	Sales year for part
Customer_City	City where customer is locate	Part_Sales_Month	Sales month for part
Customer_State	State where customer is located	Part_Sales_Day	Sales day for part
Customer_Zip	Customer's zip code	Part_Sales_Week	Sales week for part
Vehicle_ID_Number	Vehicle's ID number (VIN)	Part_Pay_Type	Part's pay type (C = Customer Paid, W = Warranty Paid, I = Internal/Dealer Paid)
Vehicle_Model_Year	Vehicle's model year	Part_Price	Part's price
Vehicle_Model_Name	Vehicle's model name	Part_Quantity	Part quantity sold
Vehicle_Retail_Date	Vehicle's retail sale date	Part_Sales	Total part sales revenue (price x quantity)
Part_Sales_Invoice_Number	Invoice number for part sales		

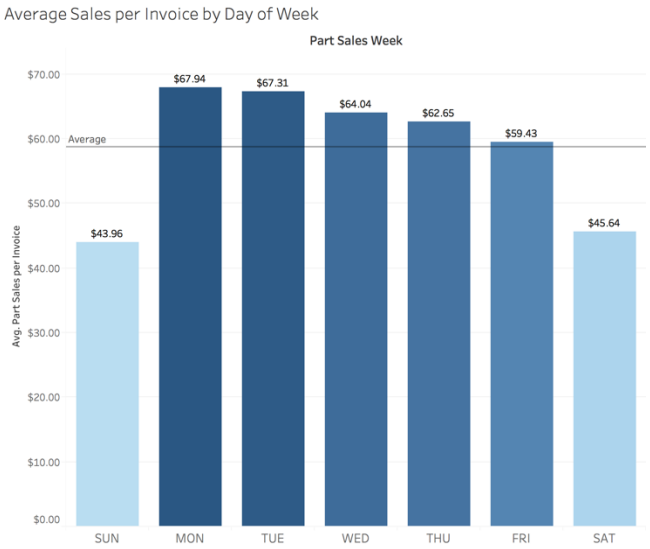
The final HMA Parts Sales dataset analyzed in this project underwent sampling and cleaning process to reduce hundreds of millions of parts sales line items down to a Microsoft Excel friendly dataset containing 879,126 rows. Sampling rules selected: 12 months of parts sales invoices dating from October 1, 2016 to September 30, 2017, 10% of HMA's vehicles, only valid VINs from HMA's Vehicle MDM and only valid part numbers from HMA's Parts MDM categorized as "Maintenance and Light Repair" parts. Cleaning rules included only parts sales line items where both price and quantity are greater than zero and not missing customer information (city, state and zip).



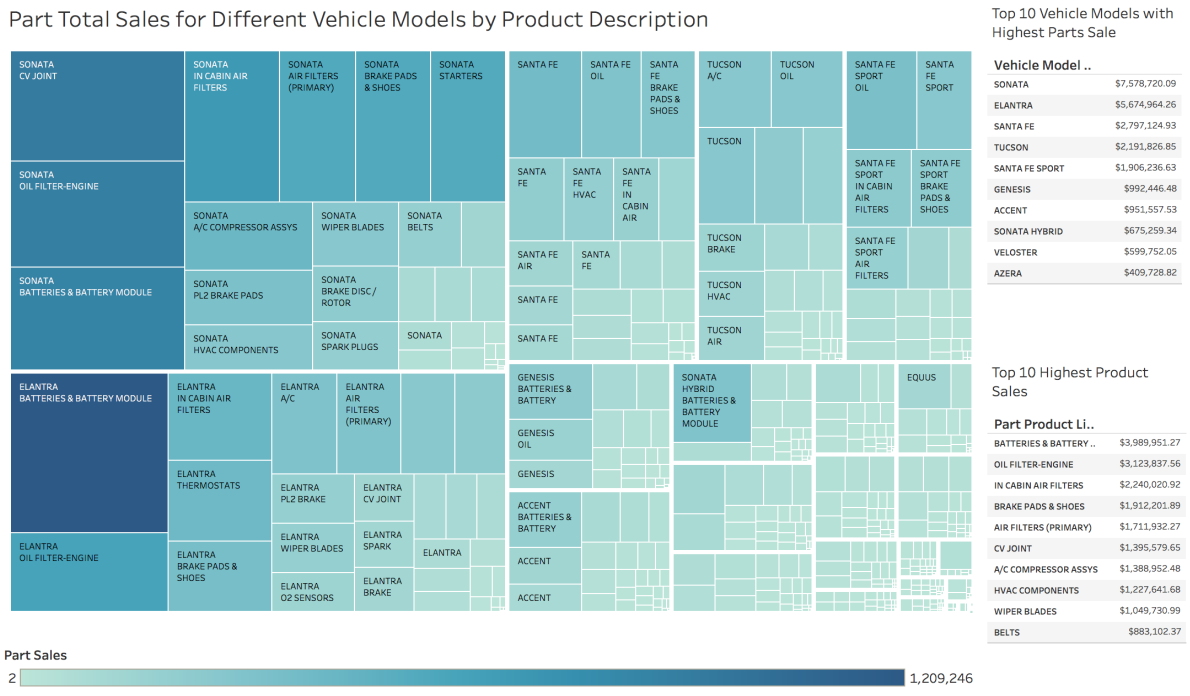
The first KPI, we analyzed parts sales per vehicle by state to identify geographical areas where Hyundai dealers have potential to sell more parts when servicing cars. HMA can learn from dealers in NV, RI, MN, AR, and NJ because these dealers are most successful at maximizing parts sales when servicing cars. Dealers in CA and FL have highest sales opportunity since they serviced the most cars. Since only TX, NY and NJ made Top 10 list for both Parts Sales per Car and Most Vehicles Serviced, HMA can motivate dealers in the other seven states with most cars serviced (FL, CA, IL, PA, VA, OH, and NC) to attain TX's parts sales performance of $135 per car. For example, if FL dealers increased Avg. Parts Sales from its current $104 per car to an attainable $135 per car, parts sales revenue from FL dealers will increase by up to $844,533 (($135-$104)×27,243) in this sample population.



The chart on the left represents the second KPI of parts sales (in dollars) per month for the reporting period Oct 2016 - Sep 2017. The purpose of this KPI is to determine which months have the highest and lowest gross sales in order figure out and implement corrective action plans for the months with the lowest sales to try and improve sales in those months in future periods. Looking at the chart on the left, it is apparent that January, March, November, and December have the highest relative sales volumes, while from April through October the volume stagnates on the lower side of the trend line. A follow-up analysis to drill-down and pinpoint more specific time periods with low sales would be to break down the sales volumes by week number instead of month. With the chart shown above, it is a good high-level overview of sales to assist in realizing the months that require increases in marketing attention. One potential marketing plan using this chart would be to implement a coupon program, that if a customer makes a purchase between the months of November and March, they receive a coupon valid for six-months that will give a discount on any purchase they subsequently make. The idea of this program, or another similar program, would be to use the high-sales volume period (Nov – Mar) to drive more sales in the succeeding lower period (Apr – Oct).



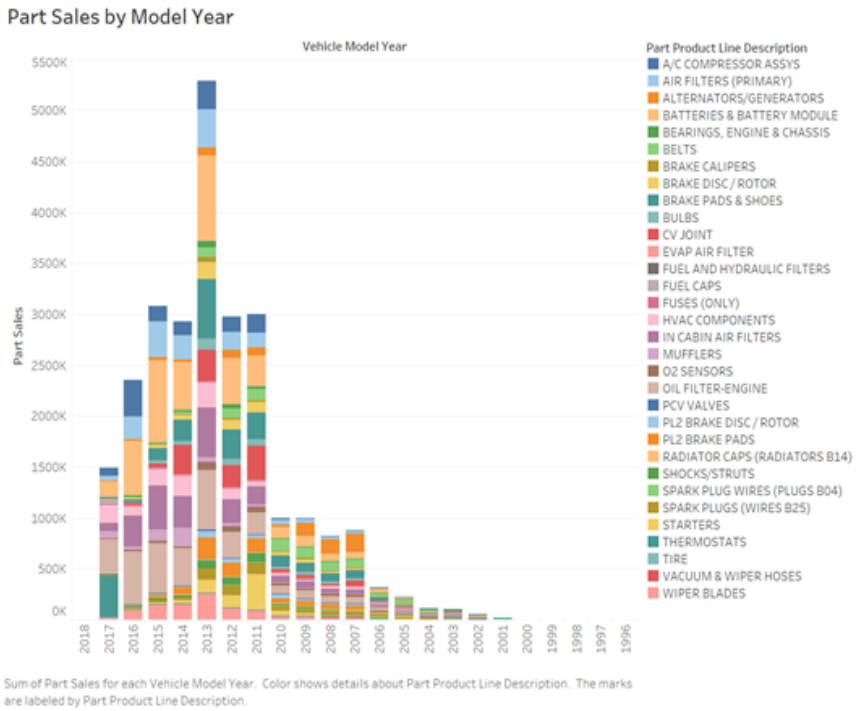
The third KPI is the Average Sales per Invoice by Day of Week. This chart demonstrates that there is a strong day-of-week cycle. Monday through Wednesday over-index for sales while Saturday and Sunday under-index significantly. The analysis of this KPI on a dashboard will inform decisions made about daily sales goals, staffing needs, Service Advisor performance, supply schedules, marketing efforts, and



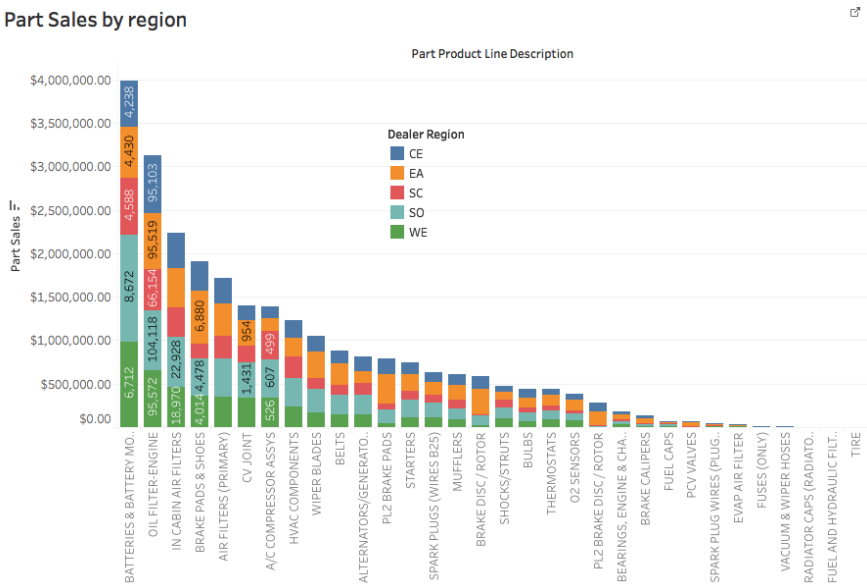
promotional strategies. For example, a promotional strategy could be developed to increase sales on the weekend. Another example: Service Advisors that consistently fall below goals on a particular day could receive training to boost sales. It's a critical KPI to managing on a granular level.

The dashboard above shows the fourth KPI for total parts sales for different vehicle models categorized by product description. We see that Sonata and Elantra are among the vehicle models that have the highest part sales. We also analyzed the sales of different part products and found that batteries and oil-

filter engine are the products that have the highest sales, and on the tree map we see that Sonata and Elantra both have the a good amount of batteries and oil-filter engine parts sold. With this analysis, we could have a better forecast for the parts that are most needed for repair and maintenance, and could keep a better inventory on these parts that are needed on a high demand. Hyundai could also use this dashboard to see which are the parts that got replaced and repaired most frequently, and could readjust its warranty policy to ensure that the company could still maintain a healthy gross margin from these repairs and maintenance.



The stacked bar chart on the left shows the KPI of total part sales for each vehicle model year. Color is used to show the dimension of part product line. We see that the part sales is mainly from the vehicle model of 2011 to 2017, and the sales from model 2013 is extremely high. This indicates that relatively new car owners tend to have vehicle inspection and maintenance service. Drilling down to a more detailed level, we see that “batteries & battery module”, “in-carbin air filters”, “oil filter-engine”, and “break pad & shoes” are the four highest sales parts for vehicle 2011 to 2017. By analyzing this chart, Hyundai could better forecast their part sales and prepare sufficient inventory for future sales. Hyundai could also build a membership program that provide regular maintenance and light repairs for customers, and the company could promote this program targeting to new car and relatively new car owners.



This KPI is part sales by dealer regions. The stacked bar chart gives an illustration of each part product line, part quantity and sales for five dealer regions of the united states. From the chart, Batteries and battery modules have the highest sale. Also, for each region the quantities and sales revenue is shown when hovered on the stacked bar. The Y axis shows the total parts sales revenue for each product line (plotted on X axis). This chart would be helpful in analyzing current sales and estimating future sales to achieve the targeted sales for each product line by regions. The yearly reports of part sales by region gives an exact idea to store the inventory for dealers. Thus, Hyundai Motor America (HMA) would save inventory cost and increase sales and revenue by regions.