Advanced Data Visualization – C745

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Recently I was hired as a data analyst. I have been tasked with selecting a company car for myself out of four SUVs. This is the report summarizing the findings of my analytics that I will be presenting to my manager. Six criteria were chosen as important measures and metrics. Safety, Maintenance Cost and MSPR were metrics chosen by my manager. I also included Insurance Cost, Fuel Economy and Resale Value as additional metrics. The four SUVs that were given as possibilities were all 2019 models: Ford Escape; Honda CR-V; Hyundai Santa Fe; and the Toyota RAV 4. At the end of calculating all the criteria I also gave each SUV a weight scoring based upon all criteria.

One of the most nationally recognized measures in the car industry is its safety rating. The National Highway Traffic Safety Administration (NHTSA) is by far the most identifiable among car safety measures. According to NHTSA (2020, January 10) they utilize: Frontal Crash Tests; Side Barrier Crash Tests; Side Pole Crash Test; and Rollover Resistance Test. These tests determine the plausible injury to various parts of the human body. This rating was the most important measure to my manager and subsequently came with the highest weighting of all the metrics. While this was an important measure, it's worthy to note that because all four vehicles were deemed with the highest safety rating (5 stars), there wasn't any variable difference to the end weighting by adding this measure.

The second largest weight was the weight of Fuel Economy, which was given this weight by me. Considering that most of the cars were relatively close in MSRP, I gave more of a weight to fuel economy considering that the compound costs incurred could be even greater than a minimal difference in MSRP. The data for Fuel Economy and the rest of the metrics as seen below was pulled from Edumunds.com (Edumunds.com Inc., 2020).

Make	Model	CityFuel_Economy	HwyFuel_Economy	AverageFuel_Economy	FuelEconomy_Score
Ford	Escape	23	30	24.7	4
Honda	CR-V	28	34	27.7	8
Hyundai	Santa Fe	22	29	25.15	6
Toyota	RAV 4	26	35	24.7	4

The measure with the next highest weighting is a tie between MSRP and Resale Value metrics. You can see those metrics below.

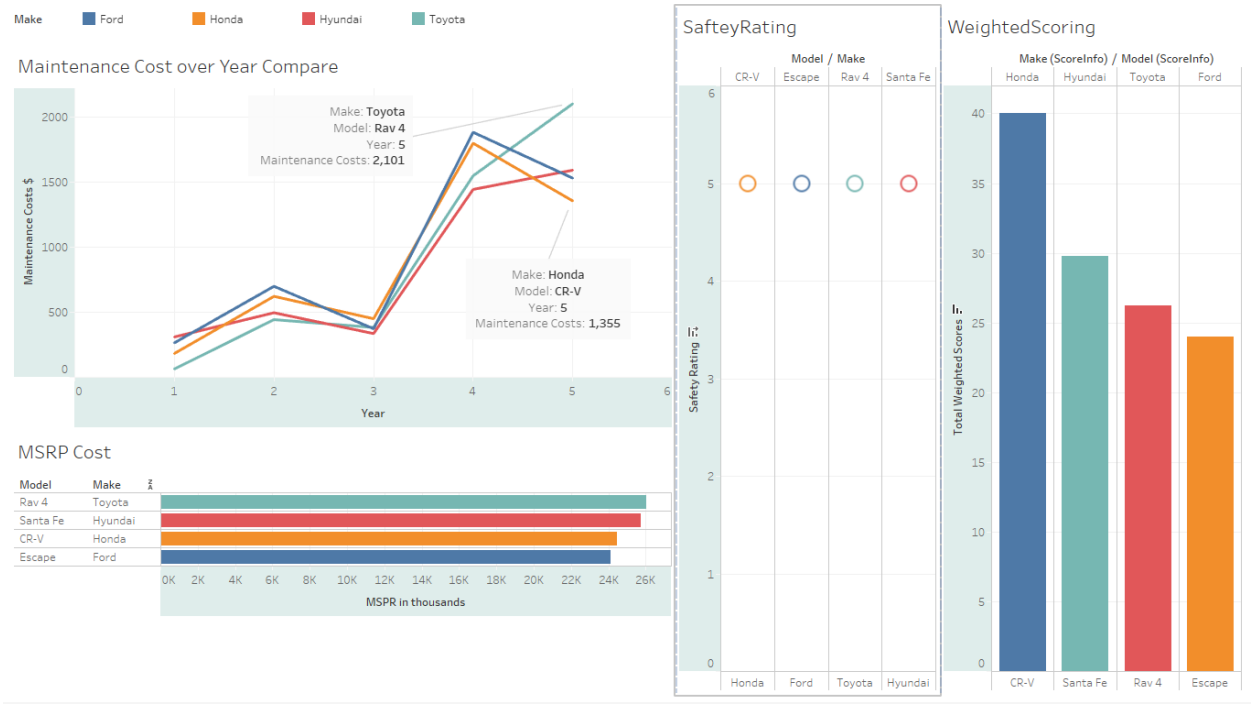
Make	Model	MSRP	MSRP_Score
Ford	Escape	$24,105	7
Honda	CR-V	$24,450	5.25
Hyundai	Santa Fe	$25,750	3.5
Toyota	Rav 4	$26,050	0

Make	Model	Resale Value	ResaleValue_Score
Ford	Escape	$18,480	0
Honda	CR-V	$22,998	7
Hyundai	Santa Fe	$21,000	5.25
Toyota	Rav 4	$21,000	5.25

The other weights were for Maintenance and Insurance, which Insurance had the slightly heavier weight. Those two weightings in addition to the total weights can be found below and within the Vehicle Dashboard itself.

Make	Model	Insurance_Score	Maintenance_Score	Total Scores
Ford	Escape	3	0	24
Honda	CR-V	6	3.75	40
Hyundai	Santa Fe	0	5	29.75
Toyota	Rav 4	4.5	2.5	26.25

In my analysis as seen above and within the Tableau PDFs and Dashboard it is clear that the Honda CR-V is the best choice. It is tied with all with the other in highest safety rating, it has the best fuel economy, the second cheapest in MSRP and has the highest resale value. With a net weight score of 40 it blows the rest of the competition out of the water. By conveying this through effective storytelling, my manager agreed. She mentioned that the data was clearly presented and easy to understand in the dashboard. She also thought that the dashboard was effective at bringing actionable-insights and decision-making ability to the forefront of this business process. By showing the differing maintenance cost and MSPR cost, it was an easy sell.



References

Ratings: Vehicle Safety, Car Seat, Tire. (2020, January 10). NHTSA. Retrieved from: https://www.nhtsa.gov/ratings

Edmunds.com Inc. (2020, September 25). Retrieved from: https://www.edumunds.com