

# Volkswagen Konzern Vehicles Buying Pattern On Bosnian Market Impact Of Vehicle Additional Equipment Level On Days Vehicle Spent On Stock Before Sales

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**Abstract:** Bosnia and Herzegovina has a long tradition in the automotive industry. First steps were made in early 1950s by producing different parts and components for passenger cars and the production of first vehicles in BiH began at the beginning of the 1970s. However, the automotive industry was damaged by the war and until today it's still on the way to it rebuild.

In the last ten years, this industry has experienced dynamic development and has become strongly export-oriented, exporting an average of 90% of its production (vehicle parts and components) to 30 countries around the world. When it comes to sales, market of new vehicles is constantly growing but still mayor percentage of vehicle sales goes to used vehicles.[1]

Vehicles have become essential in the age of modern world. A car became part of our day to day lifestyle which is why creation of new models is targeting the common men segment.

Buying a vehicle is not simple decision. Many parameters have impact in final decision and this research paper aims to show customer buying pattern of Volkswagen Konzern (VW, VW util, Audi, Seat and Porsche) vehicles in Bosnia and Herzegovina in matter of selling stock vehicles with more additional equipment.

Data which is used in this research paper is taken from authorized importer of Volkswagen Konzern vehicles in Bosnia and Herzegovina. Data is protected with non-disclosure agreement and it will be not seen, shared nor used by no one expect the researcher itself.

**Keywords:** Automotive industry, car, buying patterns, purchase decision, Volkswagen Konzern, well equipped vehicles

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## I. INTRODUCTION

Human wants and expectation are growing daily, and it seems more like they are unlimited. Car Manufactures and Car Models are no exception to this behavior. Customer expectation of a car are growing together with its life expectation.

Decision about buying a car implies a high level of social and psychological involvement leading to complex customer behavior. Customer buying behavior is a mix of natural factors, technological, political, cultural, demographic as well as Customer's own characteristics such as attitude, motivation, personality, knowledge, perception and lifestyle.[3]

Growth of expectation lead to constant modification of car models and its features. This result in new models coming into the market almost every quarter.

In order to stay competitive on the market, car manufacturers need to recognize customer needs and to be able to satisfy them. For any successful organization, marketing theory about studying customer behavior is the central key point of their professional activity. This theory can reveal very significant aspects because its emphases how individual person is spending existing income by consuming some of the related objects.

By understanding customer needs, vehicle companies can prepare their stock with targeted vehicles which could fulfil customer expectation. This research aims to answer do stock vehicles with more additional equipment and higher price stay less on stock.

## II. LITERATURE REVIEW

Liu Dongyan and Bai Xuan in their master thesis are doing an empirical investigation on topic of car purchasing in Beijing. In comparison with Wester culture, culture in China differs a lot, so as purchasing behavior. Research is focusing young people in Beijing as the capital of China and few additional reasons such

as: Beijing being recognized as the political, educational and cultural center of China, Beijing is having high income in the basis of motorization, number of car owners is increasing overnight, many famous universities are located in Beijing and high percentage of graduates settle down in Beijing with good purchasing power. Quantitative approach was used in order to create conclusions from the samples and data was collected from questionnaires. Questionnaires, including 24 questions, were created and distributed via e-mails. First part of questionnaire is focusing on car purchasing and factors which may affect purchase decision, while second part was focusing on demographic data. Result of this research shows which characteristic, people of China, take in consideration when making car purchase decision. These characteristics are mainly connected with equipment level on the vehicle. Starting from the top 1 position, young people in Beijing, will go for "safety" as the most important factor in their decision-making process. This factor is than follow by "value for the money" and "riding comfort". From the other hand, as factor which has less or no importance at all is "resale value" which was followed with statement that used vehicle market is not well developed in China. Results also indicate that people in China are status – seeking and they prefer to buy big cars, which lead to conclusion that customer pay more attention on exterior than on interior, i.e. performance of the vehicle.[4]

Mohamed Khalifa, in his descriptive analysis in decision-making factors for purchasing a new car in Algeria is searching answer on 2 hypotheses. First that variables linked to the brand equity are seen as variables for purchase decision, and second that variables linked to the product are studied as variables of the purchase decision. Study was made on data collected from a survey which was performed in 2013 among random sample of respondents from which 748 were taken as valid questionnaires. Questionnaires contained socioeconomic factors of buyers and perceived quality after purchase decision. Results showed that 80% of buyers are male with the age less than 40 years. When it comes to brand preferences, French brands are dominating with 20% for Renault on first position, followed by Peugeot 17.25%. However, when it comes to the loyalty to the brand, results are showing highly 87.7% of non-loyalty to a brand. This high percentage is mainly due to young age of car buyers. Going further with research, Mohamed shows that brand awareness and its reputation does not make a buyer attached to the brand. This leads to another conclusion, that there are other factors which may influence purchasing decision too.[5]

A study of consumer preferences for buying passenger cars is giving an overview of automotive industry on Indian market, plus the researchers, Dr. Poornima Tapas and Ms. Rita Dangre, are investigating few objectives: why customer needs a car, what are the major parameters for purchasing a car and what are the customer perception when it comes to electronic components used in a car. Data was collected using structured questionnaire on a sample size of 250 respondents combined with data collected from various sources such as web sites, auto magazines and government official statements about automotive industry. Results are showing that Indians are trusting their domestic manufacturers and they are purchasing Maruti-Suzuki and Tata Motors as the top 2 vehicle purchased brands. When it comes to electronic components and infotainment systems used in a car, research was made too, but the sample on which survey was performed is small to give an overall overview about Indian market and their preferences when it comes to those components. However, interesting fact was that 94% of respondent would rather choose vehicle with manual transmission instead of automatic one.[6]

Pooja G.Luniya and Dr. Manoj Verghese are using descriptive and casual research design in order to try to establish relationship between purchase preference, which is seen as dependent variable, and independent variables such as price, resale value, model, mileage. Data was collected using survey technique. A total of 100 consumers were surveyed in Bhilai and Raipur city. They study several factors which are influencing customer in purchase decision of a car, such as mileage, easy mode of financing and model itself. It has been observed that customers will generally prefer to buy vehicles with higher resale value as well as easy financing concept. Loans introduction are bringing another change in customer buying pattern. Various financial and non-financial organization providing special and easy financing are influencing customer in their purchase decision process. Car can be bought by simple down payment, instead of full amount payment. As already mentioned, manufacturers are trying to fulfil customer needs which lead to creation new models periodically. As the new models are showing, customers are trying to adopt to new product design. Model and its design are something that distinguish not just specific model from another model, it also distinguishes its owner. Therefore, customer would rather choose unique design in order to have car different from the others.[7]

### **III. METHODOLOGY**

#### **3.1. Data collection**

Data used in this research is overtaken from authorized importer for Volkswagen Konzern vehicles in Bosnia and Herzegovina, Porsche BH doo Sarajevo. Volkswagen Konzern brands existing in Bosnia and Herzegovina are: Audi (short A), Volkswagen Passenger vehicles (short V or VW PKW), Volkswagen Commercial vehicles (short N or VW LNF), Seat (short S), Skoda (short C) and Porsche (short P). Database is containing order management data for entire country regarding vehicles from mentioned brands. All details about

i.e., vehicles, their building, ordering, pricing, movements, logistic, invoicing and selling is contained in this database. Data is protected and cannot be shared due to company privacy principles.

### 3.2 Sampling

Analysis is performed on data which is collected in last 5 years, starting from July 2015 till June 2020 and its containing data from all authorized resellers on Bosnia and Herzegovina territory. For purpose of this study only sold vehicles were observed which is in total 18 191 vehicles as sample size.

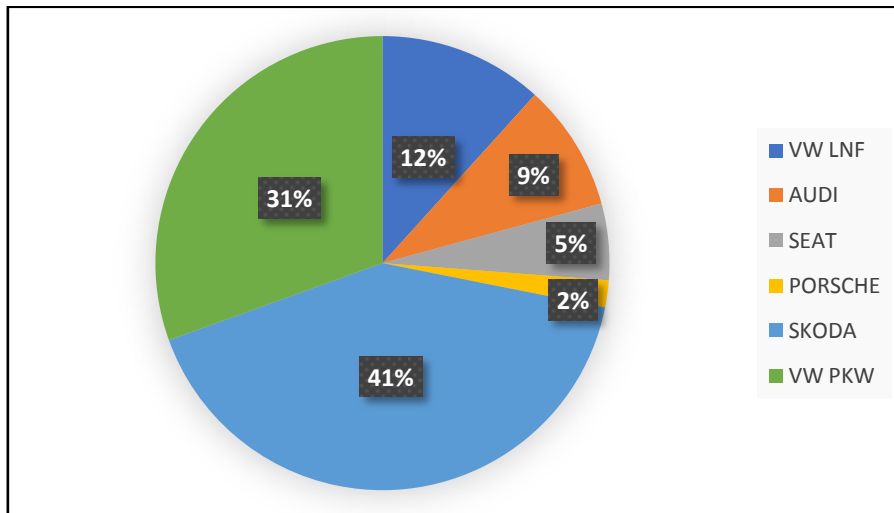
### 3.3 Data analysis

Quantitative analysis was performed on sample data and descriptive analysis was used to explain certain behaviors.

### 3.4 Data sales overview and analysis

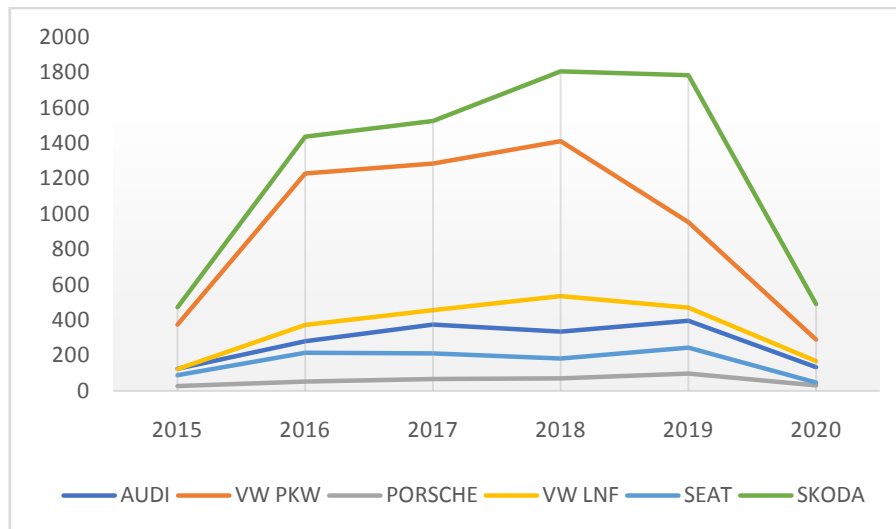
Volkswagen Konzern brands are having high reputation in Bosnia and Herzegovina which can also be seen in market share results over last 5 years. However, they are not present on the market equally. In order to understand stock sales, general sales overview is given. Although, Volkswagen factory existed in the past, our sample indicates that on Bosnian market Skoda brand is on top 1 position with 41% of sales, followed with Volkswagen on second place.

**Figure1: Sold vehicles per brand over last 5 years**



Even the numbers are oscillating trough last 5 years, which can be seen on the graph Figure2: sold vehicles per year and brand, the brands are still keeping their share in nearly the same ratio. A headlong fall in 2020 is caused by global pandemic COVID-19 which deeply influenced automotive industry.

Figure2: Sold vehicles per year and brand



Most purchased models are:

- Skoda Octavia with a share of 54,82% of Skoda sold vehicles
- VW Golf with a share of 35,62 % of VW PKW sold vehicles
- Audi A3 with a share of 41,71 of Audi sold vehicles
- Seat Leon with a share of 22,12 of Seat sold vehicles
- Porsche Cayenne with 41,83% and of Porsche sold vehicles
- VW Caddy with 60,15% of VW LNF sold vehicles

These figures are also followed with market request which can be observed on the graph below.

Figure 3: Ratio between sales and offers



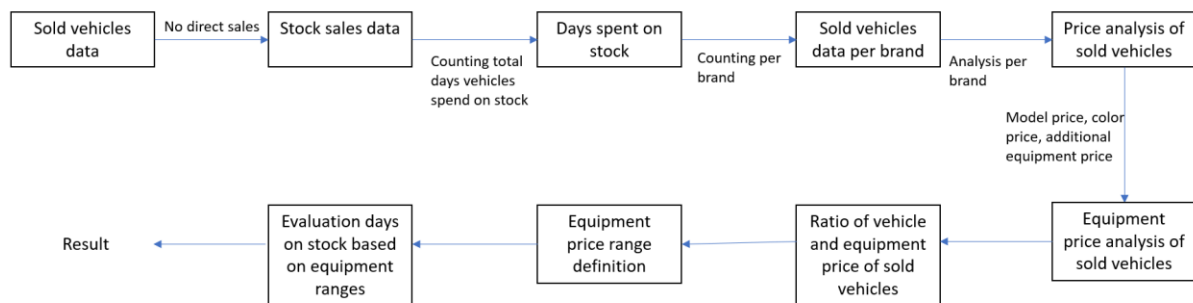
Graph is showing top 3 most purchased models per brand compared with market request which are represented with all offers generated on those specific models. Furthermore, graph indicates that market request is generally followed by achieved sales. However, irregularity can be observed for brand Seat. The highest market demand is for models Ateca and Arona which are on 3rd and 4th place as most purchased models. This can be explained by the fact that these 2 models are first Crossover models that were introduced by brand Seat and that there is huge hype on the market for them. This irregularity is also showing that sales of this segment can be expected to grow in the future too. Another fact that testify this is that model Ateca is existing since September 2016 and it already reached position 3 of most purchased Seat models on our market.

According to Volkswagen Group – Global Vehicle Segmentation List – PR 67[8], the most purchased vehicles are from segment A (Octavia, Rapid, Audi A3, Golf, Leon, Ateca) with average price of 17.021,13 € (No VAT). On the other side, vehicles from this segment are usually basic models with no or less additional equipment. Only 4% of vehicle price is spent on additional equipment. This is followed with the fact that these vehicles are mainly for fleet customers, where basic models are chosen. Such vehicles also do not stay long on stock, they are immediately delivered to end customers.

Since delivery for these vehicles is known, it's interesting to observe stock vehicles and check how many days they spent on stock before they are sold and delivered to end customer.

Direct order sales do not have impact on our study, so these vehicles were excluded from our sample in order to reach better results. Stock sales term is referred to vehicles which have spent at least one day on custom cleared stock. Few things were observed for such vehicles:

- stock age analysis: evaluating average, minimum and maximum days that vehicle stay on stock until is sold; analysis performed on all stock and per each brand
- stock vehicle additional equipment price analysis, analysis performed on all stock and per each brand
- the ratio of total equipment price to total vehicle price of stock and the ratio of total equipment price to total vehicle price per brand
- additional equipment pricing analysis on stock and per brand; defined equipment ranges in pricing based on which days on stock will be observed
- financing analysis of stock vehicles

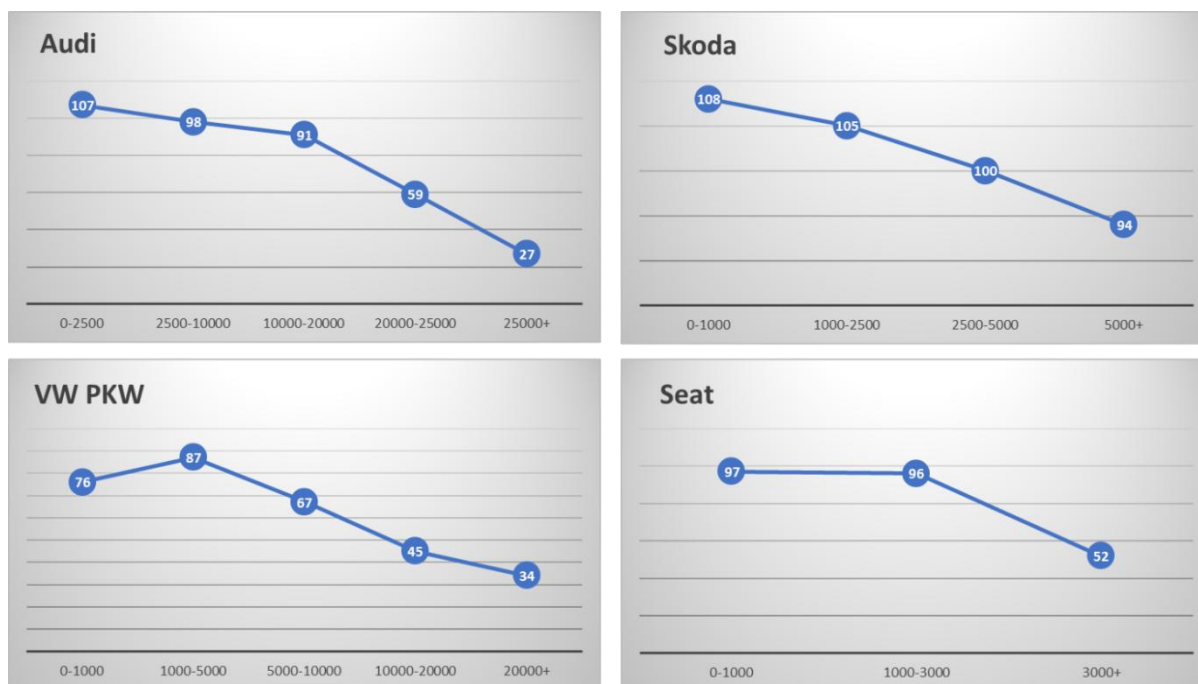


#### IV. RESULTS

Study indicates that people in Bosnia are willing to spend 9.82% of vehicle price for additional equipment on vehicle. Tracking additional equipment ranges, according to equipment levels of each brand, this study indicates further that with equipment level increase, days on stock are decreasing.

This behavior cannot be seen for brand Porsche since these vehicles are special category, and can't be compared with any equipment level from other brands.

Figure 4: Stock days per brand and equipment range



For Volkswagen commercial vehicles there are irregularities and our hypothesis can not be proved. This can be explained with the fact that commercial vehicles are usually bought from fleet customers, plus commercial vehicle are also rebuilt into special vehicles i.e., ambulance vehicles. These equipment levels can't be compared too.

Vehicles sold via some leasing company or financial organization stay slightly less on stock in regards to regular sale. Furthermore, study shows that there is indication that well equipped vehicles are finance through some financial organization instead of direct customer payment. This indication is visible in little higher percentage of ratio equipment price to vehicle price which indicates that people are willing to give more money for additional equipment if they are having financing deal for it.

Table1: The ratio of total equipment price to total vehicle price per financing module

	A	C	N	P	S	V
Regular sale	16.82 %	5.68 %	13.68 %	18.23 %	2.88 %	6.99 %
Financial sale	18.67 %	6.22 %	11.88 %	19.92 %	3.24 %	7.12 %

## V. DISCUSSION AND FUTURE WORK

It has been shown that market demand in Bosnia and Herzegovina is followed by achieved sales with some irregularities which can be explained how different segment of specific brands are growing faster with introducing new brand model which was not present on the market. Furthermore, it has been shown that for most purchased vehicles only 4% of vehicle price is spent on additional equipment.

This study investigated do well equipped vehicles stay less on stock before they are sold. Used sample data is cleaned and only stock sale vehicles were observed. Since data contained in sample is for Volkswagen Konzern brands, results of the study are also referring to it and are not generalizing behavior for other brands or complete industry. However, it can be said that people in Bosnia are interesting in well equipped vehicles. This can be confirmed with the fact that vehicle having highest price for equipment, a little bit above 31 000 €, was sold. This is not representing vehicle price, just price of the equipment on the vehicle. Nevertheless, it was observed that certain percentage people are wiling to spend on equipment, and that this percentage is higher if vehicle is purchased via leasing company or another financial organization.

Limitation of this study can be seen in Porsche vehicles where sample size for this brand is not enough to make some conclusion, plus Porsche represent luxury brand which can't be compare neither observed like others.

This study can contribute to authorized Volkswagen Konzern resellers for better stock planning activities and sales actions. One of the marketing campaigns that often that be seen or heard are “stock cleaning campaign” in which vehicles prices are reduced for vehicles which are staying long on stock. Such vehicles are usually having less equipment or are basic models. With result of this study better stock ordering can be performed which at the end wouldn't lead to vehicles long staying on stock. However, this shouldn't be golden rule as there are many other factors which can influence stock sales and vehicle stock days.

Study indicates that best behavior is seen for brand Audi due to huge range of additional equipment which significantly reduce stock days for well-equipped Audi vehicles. Since Audi is Premium brand, it would give better overview if it would be compared with some other Premium brands as BMW and Mercedes.

Another idea would be to investigate hint for financing stock vehicles. To perform some deep analysis for types of financing contracts and type of customers which are preferring financial loans. Of course, data gathering could cause troubles, but in case written confirmation is received from one of financial organization, study indication than could be further developed.

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