

### **Remanufacture And Customer Satisfaction: A Conceptual Study**

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#### **Abstract**

The study assesses remanufacture and customer satisfaction with a particular reference to Automobile Industry in Nigeria. One of the problems is that Automobile Industry in Nigeria hardly develop skills in Nigeria to repair, dismantle, replace and clean used cars or accident cars to actually looked like the original cars to satisfy customers in terms of customer perceive value, customer perceive end result and customer perceive quality. The study used theoretical or conceptual issues and grounded in published research literature and used secondary sources in the form of a desk survey. The study concludes that remanufactured cars contribute to customer satisfaction in Automobile Industry in Nigeria. The study also concludes that remanufactured such as dismantling, repairing, cleaning and replacing can contribute to customers perceive values, customers perceive end result and customers perceive quality in Automobile Industry in Nigeria. The study therefore recommends that Automobile Industry should remanufacture their product in Nigeria to resemble the original product. They should dismantle the product correctly which will actually contribute to customers satisfaction in terms of customers perceive value, customer perceive end results and customer perceive quality.

**Keywords:** Remanufacture, Customer Satisfaction, Repair, Customers Perceive value and Cleaning

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## **Introduction**

Remanufacture product can help automobile industry in Nigeria to satisfy their customer's profitably. This implies that if firms within the industry realized the cost of production of new automobile cars are very expensive, they can remanufacture the cars and make it unique for customers. This process will minimize the firms spending much on producing a new car and will add to the firm profit. The Automobile industry in Nigeria should look inward to see opportunities that are within the Nigerian environment of business by creating opportunities out of it. The accidents cars pack at each mechanical engineering shops in Nigeria are so many and the Automobile industry can use these accidents cars and remanufacture them to look new and original and sale them to the customers and this tend to bring satisfaction to the customers profitable.

The cars are pack at the mechanical shop are so much and the owners of these forgot about them and there is no proper utilization of these pack cars in Nigeria. The Nigerian businessmen each day are importing cars from UK and USA and they imported accident cars from USA but fail to understand that Nigerian used cars can be remanufacture using the original parts and reproduced them to look original. One of the problems of automobile industry in Nigeria is that of inability of the manufacturers to remanufacture the used cars to its original state by dismantling them, cleaning them, repairing and replacing them in order to achieve customers satisfaction in terms of achieving perceive value, perceive end result and perceive quality expectation of the customer which in turn will increase performance of the firm.

There is no previous study that the researchers see in the cause of carrying out this conceptual study that linked the concepts together. The researchers observed that concept of remanufacture and concept of customer satisfaction were explained separately and the researchers fills the research gap by trying to link the two concepts together and ascertain their relationship by carefully studying the concepts and noting the determinants or indicants of the studied concepts.

The objective of this study is examines the relationship between remanufacture and customer satisfaction in Automobile Industry in Nigeria. The other specific objectives are: to examine the relationship between remanufacture and perceive customers value of Automobile Industry in Nigeria, to determine the relationship between remanufacture and perceive end result of customer expectation in Automobile Industry in Nigeria and to evaluate the relationship between remanufacture and perceive quality of the product in Automobile Industry in

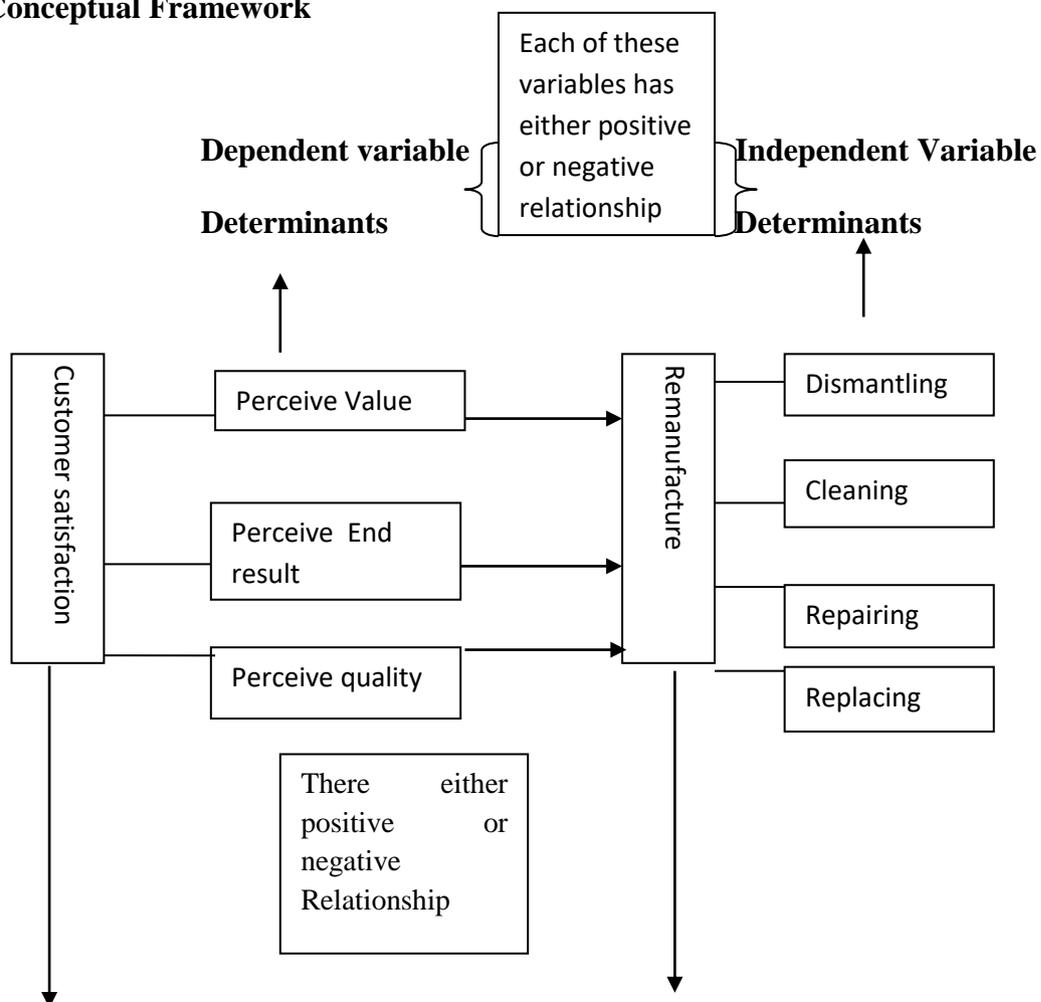
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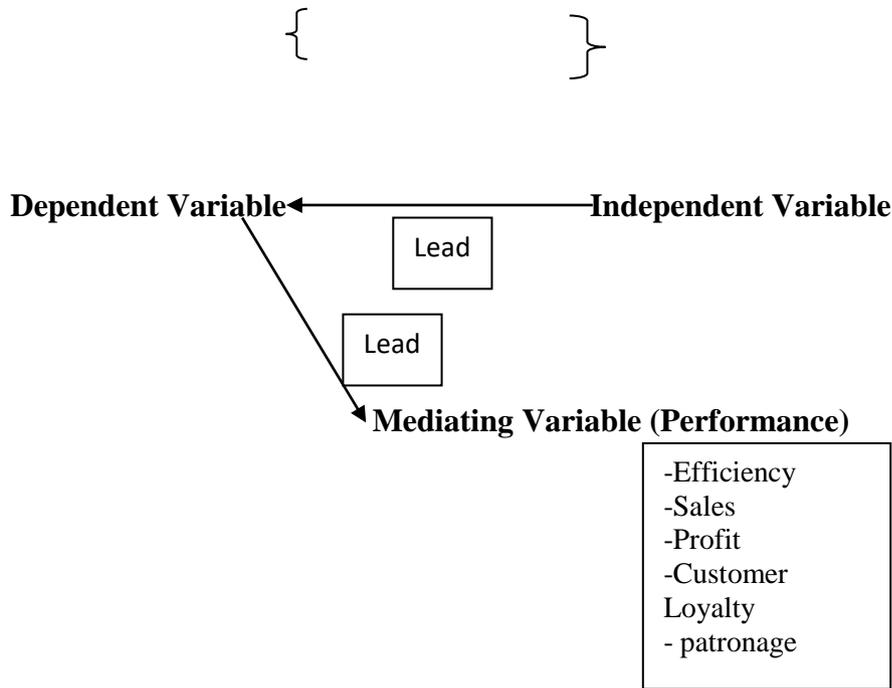
Nigeria. Also, to examine how remanufacture lead to customer satisfaction and in turn increases performance of Automobile Industry in Nigeria.

The scope of this study is restricted to remanufacture and customer satisfaction in Automobile Industry in Nigeria. The study covered all the Automobile industry in Nigeria such as Garu Technologies Nigeria Ltd. 20 Akinremi street, Anifowose Ikeja, Lagos, Germaine Auto Centre Ltd. 4th Roundabout, Lekki -Epe Expressway, Lekki, Lagos Nigeria. Globe Motors. Honda THP Limited, Hyundai Motors Nigeria Ltd, 6M-B Automobile Services Ltd, 7Road Truckers Nigeria Ltd and Abimbola Gbadegesin Auto Electrica. The period of this study is one year from May, 2016 to April, 2017 and this period was chosen by the researchers to enable them carried out the conceptual relationship of the concepts.

The study is significance to the firm because it reduces both the natural resources needed and the waste product, and also helps reduce the environmental or firm burden. The study shall help the firm to know that they can remanufacture a used car or accidents car in order to satisfy customer requirement profitably in Nigeria. The study will add to the existing literature and helps scholars who which to engage in remanufacturing and customers satisfaction. The study shall serve as foundation guide to scholars who which to research on remanufacture and customer satisfaction in Nigeria and the world over. The study can assist those scholar who which to develop this conceptual hypotheses more by adding empirical studies from this study or who can further adapt or adopt this model in this study.

### **Conceptual Framework**





### **Opnwbu C<sub>1</sub>P<sub>3</sub>R<sub>1</sub>DC<sub>2</sub>R<sup>2</sup>=P Model**

Using mathematical formula in broad sense to properly establish the cause and effects relationship between the dependent and independent variable and the linear model is stated below:

$$Y = \alpha + \beta x$$

Y= dependent variable (customers satisfaction),  $\alpha$  = intercept,  $\beta$ = coefficient and x is the independent variable (remanufacturing). However, the above model is expatiated in a multiple form. Thus, is expressed as:

$$CS = \alpha + \beta_1 DIS + \beta_2 CLN + \beta_3 REP + \beta_4 REPL + \mu \dots \text{equation 1}$$

Where: CS = Customer Satisfaction,  $\beta$ =coefficient,  $\alpha$ = Intercept,  $\mu$ = error terms, DIS =dismantling, CLN = cleaning, REP=repairing and REPL = replacing. This aggregate mode using customer satisfaction without concerning its determinant can be used and considered the determinants such as:

$$CPS = \alpha + \beta_1 DIS + \beta_2 CLN + \beta_3 REP + \beta_4 REPL + \mu \dots \text{equation 2}$$

$$CPER = \alpha + \beta_1 DIS + \beta_2 CLN + \beta_3 REP + \beta_4 REPL + \mu \dots \text{equation 3}$$

$$CPQ = \alpha + \beta_1 DIS + \beta_2 CLN + \beta_3 REP + \beta_4 REPL + \mu \dots \text{equation 4}$$

From the above linear equation it indicates that CPS is the customers perceive value meet, CPR is customers perceive end result meet and CPQ is customers perceive quality meet.

However, the mediating variable (performance) indicate that remanufacture of cars in Nigeria causes customer satisfaction and customers satisfaction causes performance of Automobile Industry in Nigeria in terms of efficiency, profit, customer loyalty and customer patronage. This implies that R causes C and C causes P in the organization (R=C=C=P).

### **Concept of Remanufacture**

According to Steve (2009) remanufacturing is the process of dismantling products, cleaning, repairing or replacing parts, and then reassembling them to a good working condition. To him, it is recycling by producing products that are as good as original products in look and capability, from used items. Remanufacturing is the process of returning a used product to at least original-equipment-manufacturer performance specification and giving the resultant product a warranty that is at least equal to that of a newly manufactured equivalent (Remanufacturing Institute, 2008)

According to BS8887-Part 2, remanufacturing is an industrial practice of: Returning a product to at least its original performance with a warranty that is equivalent or better than that of the newly manufactured product. Remanufacturing is a manufacturing process that involves dismantling a product, restoring and replacing components, and testing the individual parts and the whole product to its original design specifications (Atalay, Miklos & Luk, 2008). Remanufactured products are typically upgraded to the quality standards of a new product, so that they can be sold in a new product markets (Savaskan, Bhattacharya & Van Wassenhove, 2004).

However, remanufacture is the art of restructuring a product that have reach the decline stage and revive the product back to its originality by replacing, repairing, recycling, dismantling and returning it to former state. It is a process of new parts that would fit in existing product to bring back it originality. It is a process of recapturing the value added to the material when a product was first manufactured and this remanufacture can satisfy customers when the process is completed. The remanufacture in terms of dismantling, cleaning, repairing and replacing can lead to customer satisfaction in terms of achieving the perverse value, perverse end result and perverse quality expectation of the customer. It recovers value from used

products by replacing components or reprocessing used parts to bring the product to like-new condition.

### **Concept of Customer Satisfaction**

According to Saha and Zhao (2005) customer satisfaction is defined as a collection of outcome of perception, evaluation and psychological reactions to the consumption experience with a product/service. According to Pairot (2008) customer satisfaction is the company's ability to fulfill the business, emotional, and psychological needs of its customers. Customer satisfaction is seen to be a state of mind that customers have about a company when their expectations have been met or exceeded over the lifetime of the product or service (Kumbhar, 2010).

Customer satisfaction has been defined in various ways, but the conceptualization, which appears to have achieved the widest acceptance, is that satisfaction is a post-choice evaluative judgment of a specific transaction (Bastos & Gallego, 2008). Customer Satisfaction is seen as an indicator of the future financial success of the company (Kotler 2000). Customer Satisfaction is defined as a customer's overall evaluation of the performance of an offering to date. This overall satisfaction has a strong positive effect on customer loyalty intentions across a wide range of product and service categories (Gustafsson, 2005). Customer Satisfaction is considered to be one of the most important outcomes of all marketing activities in a market-oriented firm and become the most important predictor of future behavioural intention (Huber & Herman 2001).

Perceived value is the worth that a product or service has in the mind of the consumer and this can ascertain the satisfaction a customer receive from the said product or services rendered by a firm. Customer perceived end result is the outcome or expectation of the product. This implies that customers always expect a good result from a particular product. Perceived quality is customer's perception of the overall superiority of a product or service with respect to its intended aim, relative to alternatives.

However, customer satisfaction is the process of customers meeting up their expectation about a particular issues or product such that the product obtaining its meet customers value, perceive customers end result and customers perceive quality.

### **Concept of Performance**

Performance is link with quantity of output, quality of output, timeliness of output, presence or attendance on the job, efficiency of the work completed and effectiveness of work completed (Mathis & Jackson, 2009). It is the process of identifying the financial strengths and weaknesses of the firm by properly establishing relationship between the items of the balance sheet and the profit and loss account and it relates to the motive of maximizing profit both to the shareholders and on assets (Ishaya et al, 2014) and also performance is also concerns with growth and expansions in relations to sales and market value (Zeitun & Tian 2007).

However, performance is the relative increase in the value of goods and services sold and involve the efficiency as well as effectiveness of firm using their resources to achieve maximum customers loyalty and customer patronage in order to increase profit.

### **Opnwbu C<sub>1</sub>P<sub>3</sub>R<sub>1</sub>DC<sub>2</sub>R<sup>2</sup>=P Model**

This model is develop by the researchers, to guide explain the relationship between remanufacture and customer satisfaction. Opnwbu means model initiated by Opusunju, Nwaiwu and Buhari. It is of the viewed that when firm remanufacture a product such as car, they actually try to create value to customers, meet customers expectation and meet customers end results. The model believes that remanufacture in terms of dismantling the product, cleaning the product, repairing the product and replacing the product enhances customer satisfaction and in turn lead to firm achieving performance in terms of profit, increase in sales, increase in the number of customers patronage and increase in customer loyalty. The model also explained that remanufacture of a product can ensure that firm achieve great performance, if firms are able to identify the relationship that existed between the variables and ascertain that the customers that use a accident product needs the product to look like original. The model 'C<sub>1</sub>P<sub>3</sub>R<sub>1</sub>DC<sub>2</sub>R<sup>2</sup>=P' mean that C<sub>1</sub> represent customer satisfaction, P<sup>3</sup> represents perceive value, perceive end result and perceive output while R<sub>1</sub> represent remanufacture, D represent dismantling, C<sub>2</sub> represent cleaning, R<sup>2</sup> represent repairing and replacing of part. This implies that R<sub>1</sub> having a determinants of DC<sub>2</sub>R<sup>2</sup> enhances C<sub>1</sub> having a Determinants of P<sup>3</sup> in order for the firm to achieve P which is the performance.

## **Methodology**

As a conceptual or theoretical paper which is grounded in published research literature and used secondary sources in the form of a desk survey. The study employed relevant materials from journals, newspapers, internet material, textbooks and other publications on the subject matter.

## **Conclusion**

The study concludes that remanufactured product contribute to customer satisfaction and firm in turn can realized performance in terms of customer royalty, customer patronage, profit and increase in sales in Automobile Industry in Nigeria. The study also concludes that remanufactured such as dismantling, repairing, cleaning and replacing can contribute to customers perceive values, customers perceive end result and customers perceive quality in Automobile Industry in Nigeria.

## **Recommendation**

The study therefore recommends that Automobile Industry should remanufacture their product (cars) in Nigeria to resemble the original product. They should dismantle the product correctly with minimize error which will actually contribute to customers satisfaction in terms of customers perceive value, customer perceive end results and customer perceive quality. They should clean and replace and repair the product to satisfy customers in terms of customers perceive value, customer perceived end results and customer perceived quality.

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