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A STUDY ON CONSUMER BEHAVIOUR USING BIG DATA ANALYTICS

[1]LEANN DAVIS, [2]GEETHU WILSON

[1]M.Sc. Scholar, [2]Assistant Professor

[1,2]Department of Computer Science

[1,2]St.Joseph's College (Autonomous), Irinjalakuda, Thrissur, India

ABSTRACT: There is no doubt that data is the new oil in the 21st century. Just like oil, data grows in value when refined. It offers tremendous potential for unravelling the mysteries of any data set and drawing valuable insights from it. When correctly assessed & addressed, these insights can lead to positive results. The purpose of this paper is to describe the meaning and characteristics of big data, as well as analyse the characteristics of consumer behaviour within the context of big data analysis. Based on the results, external factors and internal perception are major factors that affect consumer decision making, while big data impacts consumer perception through external factors.

KEYWORDS: Consumer behaviour, Big Data, Business, Technology

INTRODUCTION:

Data is generated every fraction of a second in the modern digital age. Every individual contributes in some way to this data pile, whether they are browsing e-commerce websites or using social media. Consumers play a pivotal role in a market-based economy. Modern market economies have made it a priority to put consumer demand at the centre. As a result, it is vital to discuss consumer behaviour in light of big data.

In the past, if someone wanted to buy a book that they had probably heard about from friends or family, they first had to visit several book stores to see if the book was actually available, and then they had to compare prices in order to decide where to buy it. These activities required time and money. The situation has fundamentally changed. The individual can now learn how to promote a book effectively via informal networks, and by just visiting an internet retailer like Amazon.com, they can purchase the book by pressing a button, thereby saving time and energy. Accordingly, the process of buying anything got better in terms of time and money spent, but it got harder in terms of basic leadership, which has become more difficult. This study is primarily concerned with the construction of the online consumer behaviour model and its analysis.

CONSUMER BEHAVIOUR AND THE NEED FOR BIG DATA

Consumer behavior refers to the actions that an individual undertakes to purchase a particular product. Analyzing such behaviors can provide a marketing analyst with valuable insight into a consumer's buying pattern based on their behavior.

As digitalization grows, trillions of pieces of data related to consumer buying behavior are generated every second. In addition, since the consumers are of varied natures, the buying behavior of one consumer may differ greatly from that of another. The data is therefore much diversified. Data becomes increasingly complex, making conventional methods of data analysis extremely difficult to use. It is at this point that the Big Data technology comes into play, which is capable of extracting, processing, and analyzing very large and complex datasets.

TYPES OF ANALYTICS FOR ANALYZING CONSUMER BEHAVIOR IN BIG DATA

There are three general subcategories of Big Data Analytics in big data technology:

Descriptive

By analyzing data in this way, we can get a much clearer picture of what has already taken place. The descriptive data analytics process uses historical data, i.e. data from the past. In addition to providing a better understanding of the past events, effective analysis and interpretation of past data can prove to be a valuable tool for identifying and preventing future mistakes. An analysis of what products consumers purchased from a business in the past two months falls under this category of data analytics.

Predictive

Predictive analytics is generally used to predict the future events. Statistics and mathematics are extensively used with information technology in Predictive Analytics. Businesses could benefit from predictive analysis by being able to anticipate future situations and avoid them. If a retail outlet wants to know what products consumers are likely to buy the next month based on the past six months of buyer behavior, then Predictive Data Analytics might be used.

Prescriptive

Based on the information collected about the consumers' buying behavior, prescriptive data analytics can provide personalized suggestions for buying. Consumer preferences and ultimately consumer demand can be stimulated significantly by the suggestions thus provided. As an example, today it is quite normal for customers to receive advertisements from different four-wheeler brands on e-commerce websites after entering a four-wheeler showroom. A reason for this is that the Global Positioning System (GPS) collected the data of the customer.

AISAS MODEL FRAMEWORK BASED ON BIG DATA ANALYSIS

The AISAS model proposed by Dentsu Company is more appropriate for analyzing consumer behavior choices in the network economy era. The theory states that a consumer undergoes five stages from the moment he or she becomes aware of a product or service to that point when they complete the purchase process. These stages are Attention, Interest, Search, Action and Share. This model is developed from the traditional AIDMA model. Both the models describe a series of behavioral changes in consumers in the process of selecting a product or service. The difference between these models is that, in AISAS model two ‘s’ have been added – search and share - which has a network characteristic, these words reflects the importance of search and share in the Internet era, rather than unilaterally transmitting information and ideas to consumers, which emphasizes the Internet's influence on people's lifestyles and consumer habits.

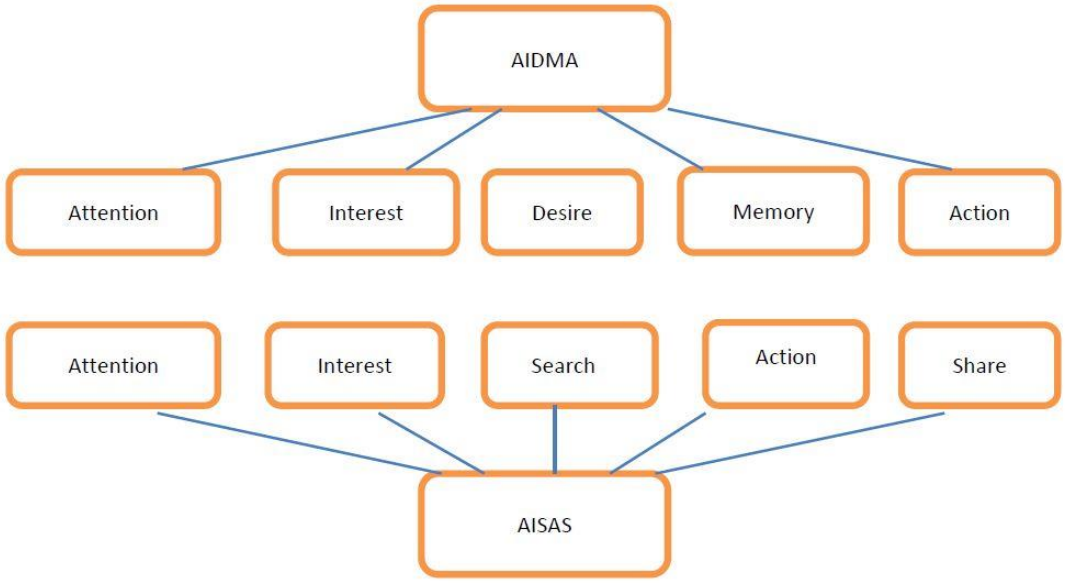

Figure 1: Consumer Behavior Models

Stimulation of external forces and internal perception are the two factors that affect consumer behavior. There are several external factors that influence consumer's purchase decisions, such as product promotion, marketing methods, product price, sales volume, brand, user evaluation, and so on. These external factors influence consumer's internal perception and value judgment, which affects consumer's decision-making to a certain extent. A big data analysis's value lies in transforming complex and enormous low-density information data into reference data with high commercial value. Enterprises can benefit from big data analysis in a variety of ways, from understanding consumer demand to developing clear and targeted market strategies to creating more competitive advantage; On the other hand, big data analysis can also be used to guide consumers to make optimal decisions and maximize their utility by improving and optimizing external factors influencing their behavior.

MAJOR TYPES OF CONSUMER BEHAVIOUR MODELS

1. **RFM Model**

   RFM analysis is a strategy for consumer behaviour segmentation that examines customer value.
   RFM is an acronym for Recency, Frequency, and Monetary. Customer behavior can be predicted by these RFM metrics because frequency and monetary value affect customer lifetime value, and recency impacts retention. By applying RFM Analysis, businesses will be able to segment their customers into homogenous groups and target marketing strategies differently to each group.
   These facts are shown by RFM factors:

   - A recent purchase increases a customer's likelihood of responding to promotions
   - The more often a customer purchases, the more satisfied and engaged they are
   - Heavy spenders and low-value buyers differ based on their monetary value

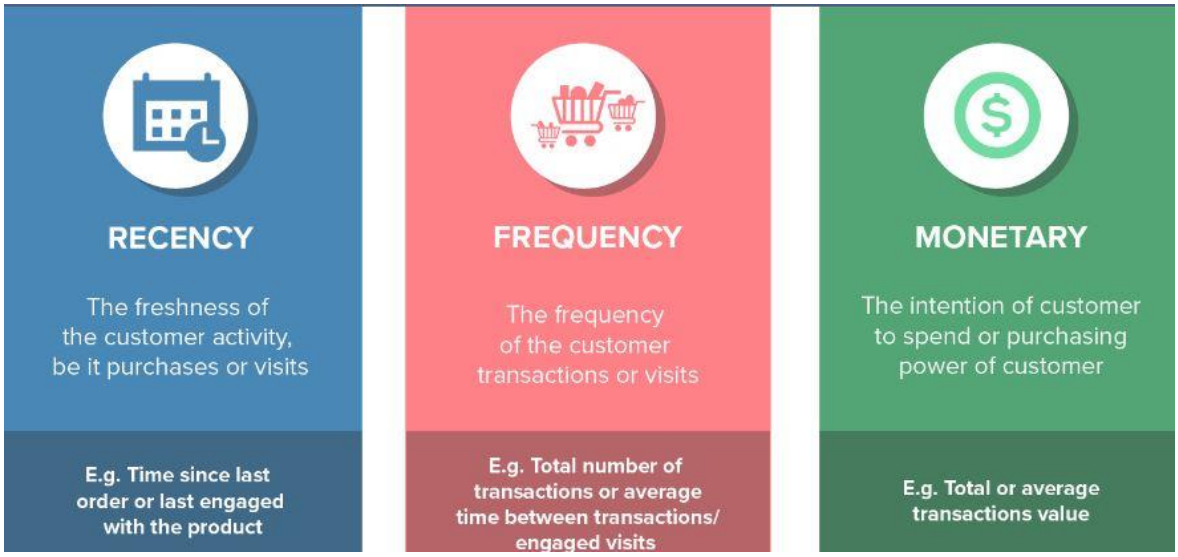

Figure 2: RFM Metrics

2. Black-Box Model

Black box theory explains consumer behavior by identifying the stimuli that motivate purchasers. Black box handles the stimuli (advertisements and other forms of promotion about the product) that are presented to a buyer by the marketer and the environment. A model consists of three major components: the environment, the buyers' black box, and the buyers' responses.

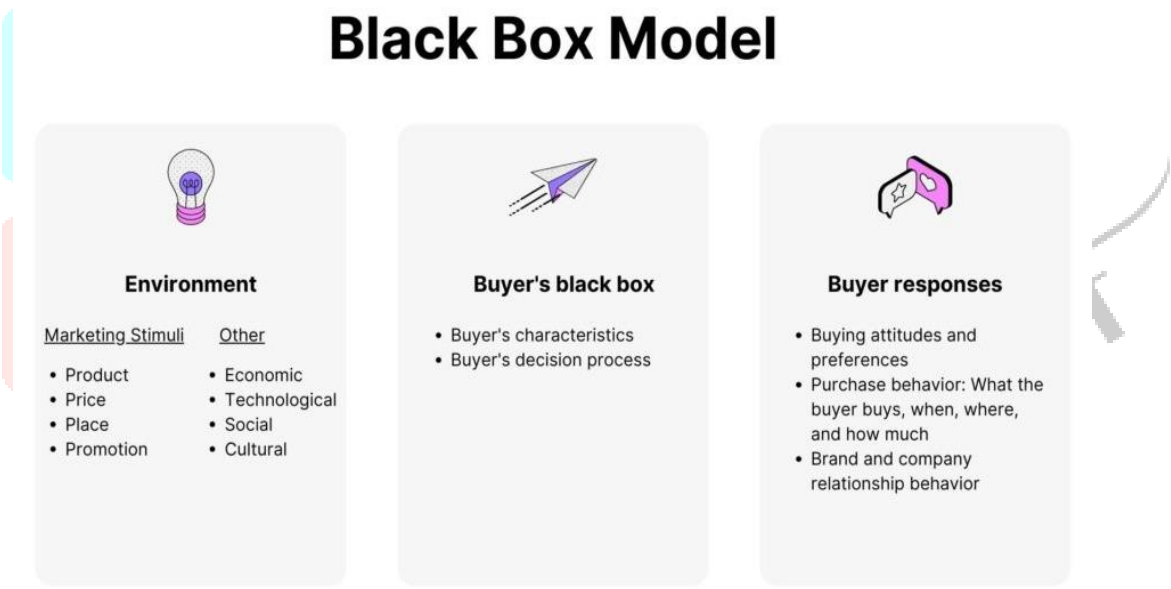

Figure 3: Components of the Black Box Model

Environment: This model considers both firm-provided stimuli and external stimuli as part of the environment. The marketing mix is the firm's marketing stimuli. As an example, the company might send out product advertising messages. External stimuli refer to the marketing environment that indirectly influences customers.

Buyer's black box: A consumer's internal factors are referred to as the "black box." It contains a variety of factors that exist inside the mind of the individual. Among them are characteristics associated with consumers, such as lifestyle, values, motivations, and beliefs. Black boxes also contain the decision-making process, in which consumers recognize that they need to deal with a problem and consider how a purchasing decision might resolve it.

Buyer's responses: Buyers' reactions can also be affected by the product performance after purchase. Buyer's remorse can result in someone wanting to revise a past event in order to decrease this negative feeling. For example, if the person is angry or upset after an experience, they may be inclined to purchase to revise it.

3. Howard–Sheth Model

The buyer model was introduced in 1969 by John Howard and Jagdish Sheth. It adopts an input-output or system approach in buying and uses a problem-solving approach. Learning process in buying was introduced by Howard. Brand loyalty is based on customer satisfaction. Buyers switch brands when they are dissatisfied.

To put it another way, the logic of this paradigm is that there exist stimuli as inputs. There are outputs ranging from attention to specific stimuli to purchase. Variables impacting perception and learning exist between these inputs and outputs.

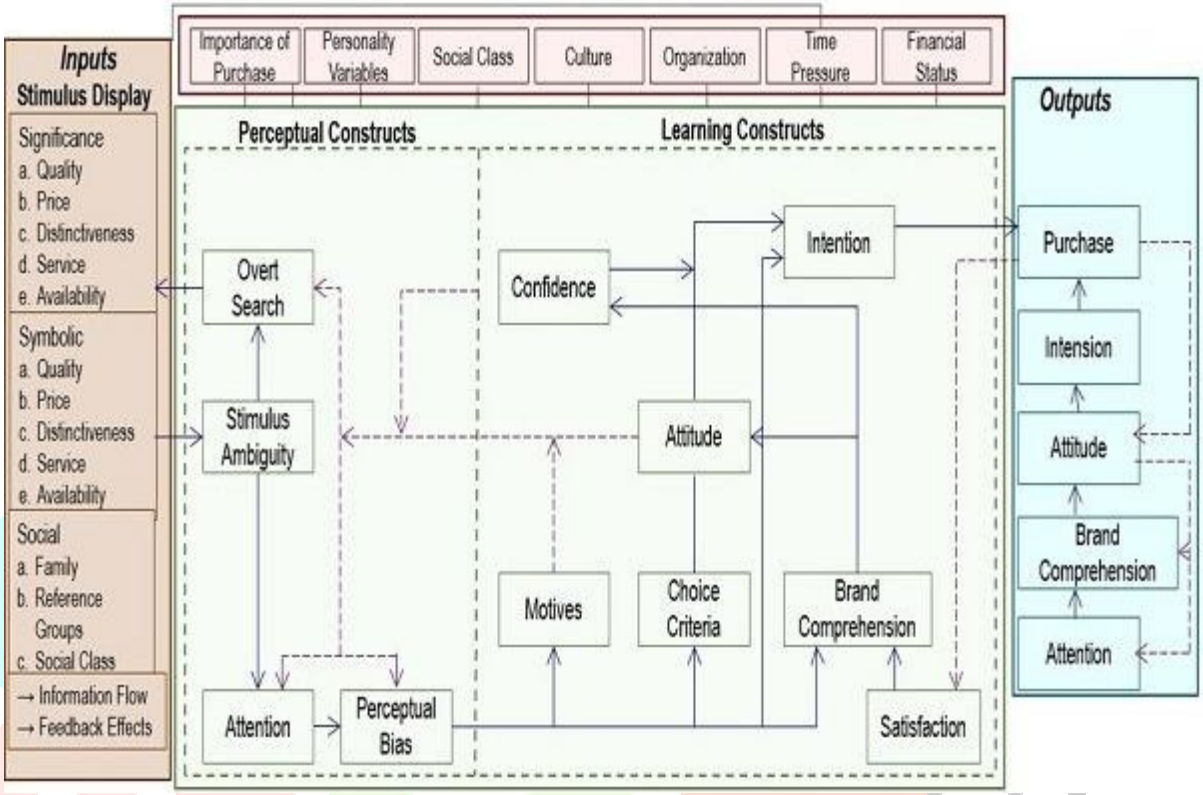

Figure 4: Howard–Sheth Model

These variables are "hypothetical" in the sense that they can't be quantified immediately at the point of occurrence. It elucidates a consumer's complicated decision-making process.

a) Inputs Stimulus Display

Three different types of information sources in the consumer's environment make up these input variables.

Significant: Information provides physical brand attributes such as quality, pricing, uniqueness, service, and availability.

Symbolic: Quality, price, distinctiveness, service, and availability are all verbal or visual product attributes.

Consumer's social environment: This refers to information about a product or service that originates from the consumer's social environment, such as family, groups, society, and culture in general.

b) Perceptual Constructs

The perceptual constructs are concerned with how a consumer acquires and processes data from the input variables. When a buyer is exposed to information, he or she pays attention to it; this attention is based on the buyer's sensitivity to information in terms of his desire and receptivity to it. Not all information is digested, and the intake of information is hampered by perceived ambiguity and a lack of relevance; this is referred to as stimulus ambiguity.

The learning constructs are concerned with buyer knowledge, the creation of attitudes and beliefs, and the ultimate decision.

The seven learning constructs vary from a buyer's motivation for a purchase to eventual satisfaction from a purchase; the combination of these constructs leads to a response output or a purchase. The motives are the aims that drive people to take action or make purchases.

c) Response Outputs (Output Variables)

The buyer's response to stimulus inputs is referred to as the buyer's action or output variables. The five components of the response outputs, according to Howard and Sheth, are attention, comprehension, attitude, intention, and purchase.

These might be organised in a hierarchy, with purchase at the top and attention at the bottom.

- The degree or level of information that a consumer accepts when exposed to a stimulus is referred to as attention. It indicates how much information the buyer took in overall.
- The amount of information a person really absorbs and stores is known as comprehension; in this context, it relates to brand understanding, or a customer's familiarity with a brand's product or service category.
- His judgement of the brand and his likes and dislikes based on the brand's potential are reflected in his attitude, which is a composite of cognition, affect, and behaviour toward the offering.
- The buyer's intention to purchase or decline to purchase a specific item is referred to as intention.
- The act of purchasing itself is referred to as purchase behaviour. The other four components work together to produce the buying behaviour.

4. Nicosia Model

The Nicosia model of customer behaviour was put forth by Nicosia (1976). This model focuses on the choice to purchase a new product. Human behaviour is analysed as the output of a system in which stimuli serve as the input. From a marketer's standpoint, the Nicosia model explains how consumers behave while making purchases.

Stage I

Firm’s Attributes and Consumer’s Attributes: The firm's attributes and the consumer's attributes are the two sub-stages that make up the first stage. A company's advertisement reaches the consumer's preferences. A specific attribute may emerge depending on how the consumer interprets the message, and this becomes the input for stage two.

Stage II

Search and Evaluation: Stage II entails looking for and assessing the advertised goods and other options. If the outcome of this process is a desire to purchase something, that desire becomes the third input.

Stage III

Decision: Motivation will lead to a decision through persuading the consumer to buy the firm's items from a particular retailer. The act of purchasing is the third field.

Stage IV

Feedback: Use of the purchased item is the fourth field. Following the purchase of the goods, both the company and the consumer may provide feedback.

- Firm’s feedback - Sales report from the company
- Consumer’s feedback - consumers' attitudes about future messages from a company depending on their experiences and predispositions.

CONCLUSION

The development of big data analysis technology in the modern network economy will allow many network platforms or enterprises participating in e-commerce to collect personalized behavior information about consumers, to integrate and extract effective information, and to make targeted recommendations to consumers. The "tailor-made" promotion mode and marketing methods encourage consumers' interest and even change their demand preferences, improving the substitution effect of related products. In parallel, the era of big data makes product information quantitative, transparent, and easily accessible, so consumers can independently gather relevant information about intended products, read relevant big data analysis conclusions, and achieve the expected utility value to a great extent.

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