"AI- AIDAS Convergence: A Predictive Framework for Modern Consumer Decision-Making"

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Abstract: In the era of innovation, Artificial Intelligence has become a foundational element nearly for every academic and professional discipline. AI integrated with any discipline be it healthcare and medicine, education, law, economics, marketing,agriculture, environmental science, etc., provides domain- specific expertise and reshapes the landscape of knowledge and innovation. The approach of Artificial Intelligence in solving problems and making decisions on the basis of massive database analysis, pattern recognition, etc. is making it an important tool to converge wide range of technologies, systems, complex tasks, frameworks to create more efficient and powerful outcomes from each field. In today's data-driven digital marketing eco- system, the integration of AI into classic consumer-behaviour model has become critical asset for the companies. This study predicts how AI enables marketers to predict the buying behaviour of consumers. As consumers do not follow a particular behavioural pattern, marketers need to understand the whys (i.e. reasons) for their behaviour in decision- making process so that marketers can offer such marketing stimuli which leads to the path of positive response of the consumers. To understand the background of buyer being behaving in certain way, the concept Stimulus- Response model has been used. This model gives insight about the Buyer black box which is referred to as human brain and also depicts various external- internal factors affecting buyer's purchase decision. This study explores how AI enables marketers to predict consumer buying behaviour when converged with AIDAS Model. AIDAS is one of the traditional models which describes the stages a consumer goes through in decision making process. So, the study discusses about the role of AI in influencing and predicting the buying behaviour of consumer in each step of decision making described in AIDAS Model.

Keywords: Artificial intelligence, Consumer Buying Behaviour, Black Box Model, AIDAS

Introduction:

As marketers have to identify the accurate ways of understanding the wants of their target customers, they need some predictive framework that can accurately forecast

their rising needs in future. By enabling real- time data analysis, hyper- personalization content distribution, and predictive analysis, artificial intelligence has changed the way how companies connect to their target audiences. This allows the companies to optimize their marketing efforts, improve customer experiences and drive business outcomes which best fits to meet their objectives. Consumers are being influenced through some digital marketing strategies now- a-days. Digital marketing is basically a technique of promoting goods or services to customers through digital platforms using internet enabled devices such as computers, smartphones, etc. which is completely in contrast to the traditional marketing of advertising through prints, television, radio, etc. Businesses can now employ AI tools for marketing their product digitally. Even utilizing the AI tools like machine learning, natural language processing (NLP), and predictive analytics, enormous volumes of real- time customer data can be collected and analysed, helping them to understand their customers behaviour and providing them more individualized and personalized experiences throughout the consumer journey. AI system examines user behaviour, preferences and interaction history in order to customize the information, personalized recommendations and promotional messages.

Consumer buying behaviour basically refers to the decisions and actions made by the individuals or groups while making purchases. It includes various factors of psychological, social, emotional and cultural elements that affects individuals throughout their path of being a customer who is trying to find the product which matches his needs, the information of it, various alternatives suiting his wants, purchase of the product and his satisfaction after the use of product. AIDAS (Attention, Interest, Desire, Action, and Satisfaction) is one of the structured models which provides insight into the steps a consumer takes before making some purchase decision. As this is the digital era where consumers they rely heavily on digital advertisements, digital reviews, influencer opinions, etc. and expect tailored offerings as per their needs, it becomes a crucial part of the activities of a company to design effective marketing strategies and provide seamless experiences. AI can provide the possibility to satisfy these demands of the consumers and help the company to build a long- lasting relation with their consumers.

So, AI is converged with AIDAS model can enable a company to move from a reactive to proactive marketing strategy leading to predict the buying behaviour of consumer near to accurate, enhance consumer targeting, improved conversion rate from the desire stage of AIDAS to Action stage, increased customer loyalty and finally building up a trustable relationship with the customer.

Meaning of Artificial Intelligence:

“Blending machine efficiency with human understanding to create meaningful, user-centred experiences is Artificial Intelligence.”

The use or study of computer systems or machines that have some of the qualities that the human brain has(such as the ability to interpret and produce language in a way that seems human, recognize or create images, solve problems and learn from data supplied to them)" is the definition given in Cambridge English dictionary. According to Oxford English dictionary Artificial Intelligence is "The capacity of computers or other machines to exhibit intelligent behaviour." Artificial Intelligence is about teaching machines to think, act either like skilled problem- solvers or like people themselves. Humans gather large sets of data that are relevant to the tasks and label the data that AI needs to learn. Then the machine learning algorithms are designed that can learn the patterns from the data. At a fundamental level, AI systems learn by processing vast quantity of labelled data. By analysing this data, the system identifies the pattern, relationships and statistical correlations. These learned patterns then form the basis of a predictive model, allowing AI to make informed decisions. The more quality data the system is trained, the more accurate and reliable its predictions become.

AI in Marketing:

Marketing, which is a major integral activity of any company, if merged with AI, encompasses a wide range of branches such as Machine Learning, Natural Language Processing, Deep Learning and many more which helps to introduce a powerful technological layer enhancing every stage of marketing process. Due to this ground breaking technology of AI, various opportunities are paving the way for businesses where these businesses can improve customer knowledge by matching their needs and hence, can retain a competitive edge. Companies can use various AI tools such as chatbots and AI assisted virtual assistants, personalized recommendations, augmented reality, predictive analytics, comparison tools, etc. So, Artificial Intelligence helps companies in their marketing activities by compiling the vast amount of data and producing the relevant content which should be furnished to the consumers.

What is Consumer Buying Behaviour?

Consumer Buying Behaviour talks about the perspective of a person, how he feels and behaves when deciding about whether to buy or not to buy something. It covers every stage a person goes through, starting from recognizing their want or need for something, considering alternative choices and then deciding whether to buy a product or not. According to Philip Kotler, "Buying behaviour is the decision process and the acts of customers involved in buying and using products." According to Walters and W.G. Paul, "Consumer Behaviour is the process whereby individuals decide what, when, where, how and from whom to purchase goods and services." So, we can analyse that consumer buying behaviour is the process where people make decisions regarding what, when, how to buy and use the products. Basically, buying behaviour of the consumer is the stimulus of marketing process which helps the marketers to understand what product or service, a customer is in need of. On this basis, marketing

strategies can be decided by the marketers which leads to fulfilling buyers' needs along with survival of the company is the competitive markets.

Model of Consumer Behaviour:

On the basis of the consumer buying behaviour which includes decision making by consumer regarding what, when, how for the products, this generates requirement for the marketers to study and understand these questions and focus on the areas like what customers like to buy? When do they buy the products or services? How do they buy the product or service? Where do they buy from? How often they use them? etc. Getting the answers for these questions allows the companies to understand their customers, merchandise and sell their products and services that satisfies the customer needs. Without understanding the buying behaviour of consumers, it isn't possible for the companies to come up with tailored offerings as per the demands of the potential buyers. So, the study of consumer behaviour constructs an essential part for the company's survival and for studying it, insights from various disciplines such as sociology, psychology, anthropology, etc. has to be involved.

But often customers also don't exactly know what influences their purchase. So, learning about the 'whys' of consumer buying behaviour has become a complicated but a crucial part of the activities of the marketers as human mind doesn't follow any sequential pattern and gets affected from various factors. The marketers need to have an idea about the type of response the consumer will give against the company's marketing efforts. Marketers need to have answers to the questions related to the consumer buying behaviour: How do buyers make purchase decision, what are the factors which influence their buying decision process, etc. To understand these questions, many models and theories are there using which marketers can get the answers and accordingly make their marketing strategies. This study explains the consumer decision making using Stimulus- Respond Model of Buying Behaviour given in the Figure1. The marketer tries to understand how to reach the path of buyer response from the marketing stimuli passing through the 'Buyer's Black Box' which explains 'whys' of consumer buying behaviour (i.e. the buyer's characteristics and the buyer's decision process which leads to a certain behavioural pattern). In this model, human brain is referred to as 'black box' which takes all decisions as a consumer. So, it becomes important for the company to understand the mind of the consumer.

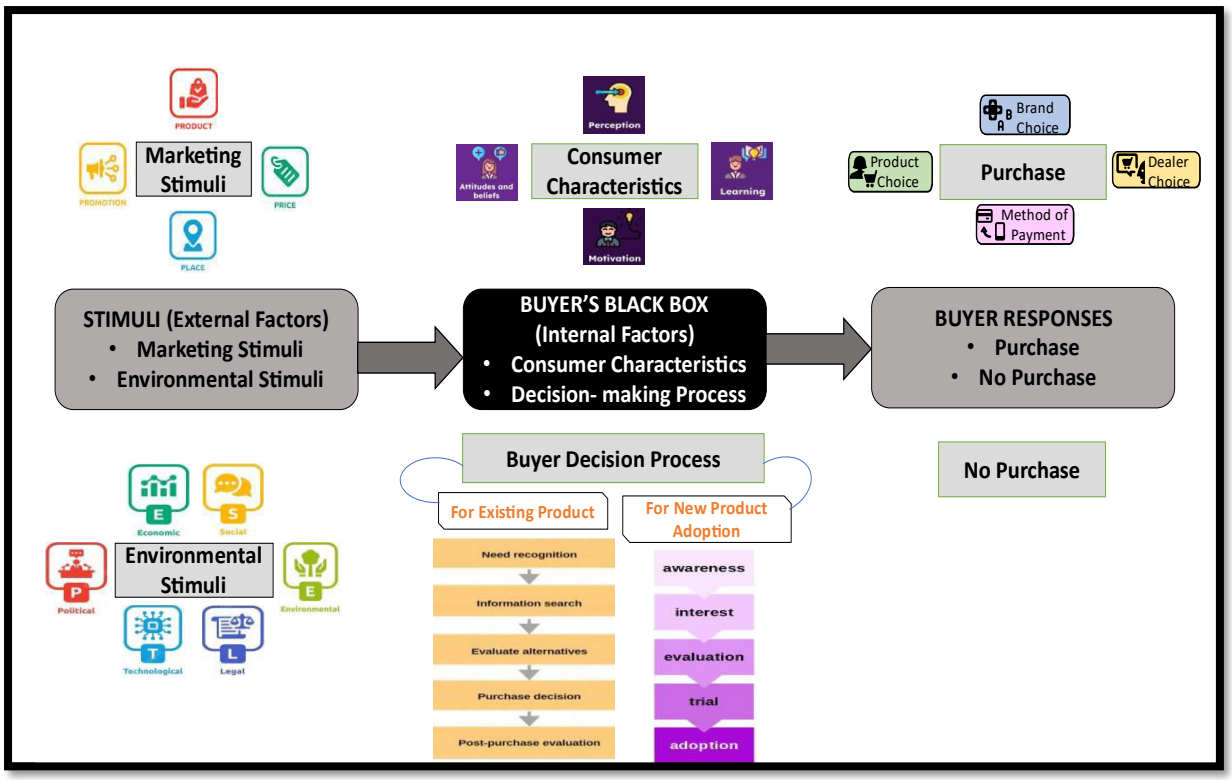

Figure 1:A modified framework of studying consumer behaviour, adapted from Principles of Marketing by Philip Kotler

As per the Stimulus- Response Model, there are some external factors of environment (marketing and other stimuli) which create stimuli in the consumer's mind (considered as black box in the model) by providing information about the product/ service which the consumer gives response to. With the help of marketing mix (i.e. product, price, place and promotion) and other stimuli (like economic, political, legal, environmental, technological, social, cultural factors), the marketers offer the details and elements and educate the customers about their product. Some internal factors of the consumer (i.e. their perception, attitude, motive, life style, etc.) and their decision-making process are there which affect their way of responding. So, the consumer takes decision depending on various factors and then respond positively (i.e. purchase) or negatively (i.e. no purchase). Marketers study the effect of this black box which impacts the response and try to provide stimuli where customers respond positively by making a purchase. Taking into consideration the decision-making process included in the Black box, this study focuses on AI convergence with one of the decision-making models.

What is AI powered Predictive Buying Behaviour?

Predictive Buying behaviour refers to forecasting the future customer behaviours with the usage of some techniques which require high quality data from accurate sources in order to have effective and precise prediction of buying behaviour. AI powered predictive buying behaviour refers to predicting the future behavioural patterns of the

consumers with the use of Artificial Intelligence. AI predicts future customers buying actions by analysing the past data and humans feed this data by prompting in various AI tools. AI algorithms then analyse vast amount of data; machine learning identifies patterns and understand the co-relation between various factors and then predicts the future buying behaviour. This provides opportunity to the businesses to have effective decision- making regarding their marketing strategies leading to matching the preferences of the consumers.

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Introduction to AIDAS Model in conjunction to AI

The AIDAS Model which stands for Attention, Interest, Desire, Action and Satisfaction, is a classic model which provides a hierarchal framework assuming that potential customer moves through a hierarchy of thought process to take decisions for making a purchase. This model helps the businesses to figure out the advertising strategies which will be most effective to lead the customer step by step from the stage of learning about the product to finally making the purchase decision. As more and more customers are actively engaging in online purchases by gathering information about the product, comparing alternatives, placing orders online, it becomes important for the businesses to be digitally active. So, businesses have now adopted new digital business models utilizing AI tools, pacing with the modernized digital retailer- consumer interaction. Hence, applying AIDAS model with the AI tools can help the businesses to better understand marketing strategies and the cognitive thinking leading more of purchases by consumers.

AI Powered Predictive Buying Behaviour Using AIDAS Model

This study uses AIDAS Model to understand the AI powered predictive buying behaviour of the consumer. Each stage of the AIDAS model which shows the marketing strategies to affect consumer decision making towards purchase is integrated with AI tools which supports in predicting their buying behaviour. So, AIDAS Model in conjunction to AI can throw light on various aspects which help the marketers to predict buying behaviour like: How AI tools at various stages of AIDAS can be used to move the customers from first stage to the last stage of the AIDAS Model leading to make purchases, how advertising efficiency can be achieved using AI tools, how AI predicts consumer buying behaviour at all the stages of AIDAS, what relevant actions to be taken in the whole consumer journey to make customers the loyal ones, etc. AI when meets at each stage of AIDAS, leads to AI powered marketing and AI driven decision making. Following are the various AIDAS stages powered by Artificial Intelligencein the figure 2.

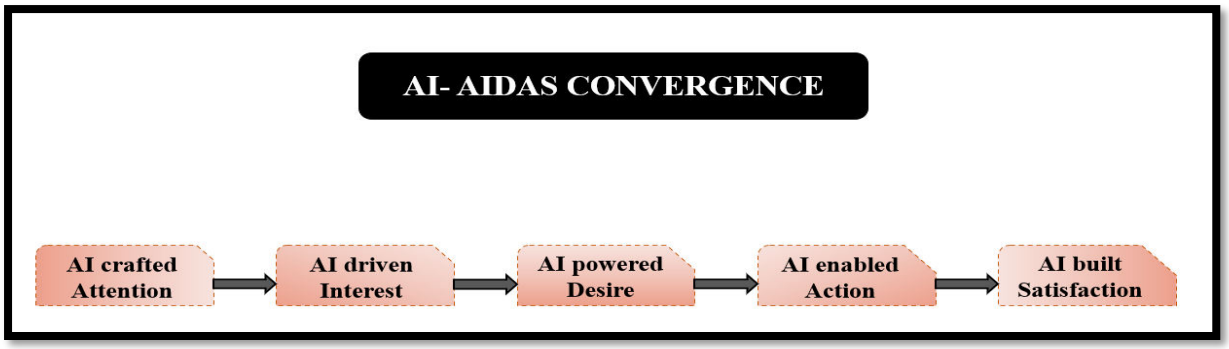

Figure 2: An AI-AIDAS Framework, adapted and elaborated from original AIDAS framework

1. AI crafted Attention:

Attention is the introduction stage of this marketing model where the marketers attempt to bring into notice and create awareness about their product amongst their targeted customers. A brand introduces its novelty and marketing message to the customer providing them the exposure to the product features. So, companies can use various AI enabled platforms to target their potential audiences based on their demographics, search history, etc. Display Advertisements such as Google Ads. And Meta Ads. are the ways to use AI driven advertising platforms which shows advertisements of product on Google and Instagram when someone searches for something specific or when any video ads. pop up. Marketers can provide awareness to the potential customers by providing them the real- time personalization. This is possible by providing tailored content to the right person at right time. NaturalLanguage Processing (NLP), AI in content marketing, social media monitoring and predictive analysis helps to predict the buyer's behaviour at the attention(awareness) stage as AI analyses the search history, demographics, observes social media choices and predicts which visuals or messages are likely to grab the attention of the potential customer. So, companies can effortlessly identify that how much attention their adopted marketing strategies are creating through their AI driven advertising platforms as AI can provide perfect content marketing strategy for searching and engaging the consumers by using AI generated content and curation. Business create ads that appear in google search results and with the help of AI tool of predictive analysis, businesses can reach users who are searching for the product related to their business and can predict their decision making. A clothing store showing advertisement for 'Summer Dresses' when someone searches for clothes on Google.

2. AI driven Interest:

Once the buyer's interest is captured and he finds the product interesting, he tries to look for more information about the product or compares it with other alternatives. As the potential buyer has now reached the website or explored much about the product through various platforms, the company now knows that narrower group of people who

can now be converted from a potential buyer to a customer. So, now the company should be thoroughly involved in understanding buyer's needs by tracking the clicks, scroll behaviour and time spent on particular content. Machine learning, AI chatbots, virtual assistants, content personalization are the tools of AI which provide tailored content, increase customer engagement by answering questions 24*7 and provides such information in real time which helps in answering the user queries or interests in a natural way. AI driven chatbots have the ability to communicate with the users and real time response can be provided which gives satisfaction to potential customer about the product as proper and detailed information is required before making any purchase. So, at this stage of AIDAS, companies can predict the consumer buying behaviour by using AI collected data which tracks the number of clicks done by the consumer for searching their product, time spent on their website or the frequency of the visits on their page to get information about the product, etc. So, company can now provide personalized recommendations, advertisements of the comparison with other similar products, etc. and convert the interest of the potential buyer into desire for the product as real-time in-depth information about the product is being provided. For example, a user browsing for laptop, receives a chatbot suggestion to compare two models on the basis of his previous choices and searches.

3.AI powered Desire:

At this stage when the consumer is aware of the product and is interested in the product by going through the detailed information of the product, now the company needs to make the potential buyer feel that this is only the product which he was in search of or is the solution which he was looking for. This involves showing the uniqueness of the product or offering, using emotional triggers like fear of missing out, quality, status, value, etc. Using various AI tools for Google Cloud AI for predictive analytics, AI powered E-mail campaigns, Canva AI as visual AI tool, Sentiments Analysis tools, etc. helps the company to predict buyer intent, suggest best offer, send personalized e- mail to move the customer closer to buying. AI helps to understand the psychological behavioural pattern of the consumer with whom strong emotional connection and motivation to buy can be built up. The company at this stage of AIDAS can now predict the buying behaviour by using machine learning and data modelling, analysing consumer's replying texts, social media reviews, e-mail replies, etc. to see whether customer feels positive, negative or neutral about a product and can identify which customers are more likely to convert. With the help of AI predictive analysis, a company can analyse the movements of the consumer on website, pages, browsing history and based on their actions, it can predict whether the user is going to step forward for the next step of buying the product or not. Company can even try to influence customer if the customer's movement on digital platform seems to be irregular. For example: Using AI predictive analysis, an e-commerce store based on the past interaction or browsing history or frequency of revisits, can analyse if the

consumer is a high- score user and can use a targeted pop- up advertisement showing to the consumer that "Only 2 left in stock- hurry up" or those customers who only browse much but don't make purchases, company may send AI powered e-mail to a customer searching for sneakers for long, saying "Limited Edition sneakers going fast- complete your look today" and can create the desire to convert it into purchase.

4. AI enabled Action:

The action stage of AIDAS model means the move made by a customer to buy the product. The customer either makes a purchase or signs up for trial, makes a phone call or engages in live chat, etc. AI analytical tools track multiple touch points of the consumer and triggers the right message at right time like timely reminders, coupons, discounts, etc. Companies offer voice assistants and one- click purchasing to provide easy payment system and reduce buying friction. Conversational AI/chatbots guides the customer to resolve any last-minute doubt, product availability, shipping information, etc. AI powered smart checkout systems help the customer to autofill shipping details, payment issues, etc. AI enabled visual try on enables customers to visualize or watch the products before buying. Example: trying glasses, clothing virtually, uploading of photo by a customer to find similar type of product, etc. During purchase, even AI powered reviews highlight the feedback to evaluate product quality. For example: Amazon AI. AI guided personalized offers and discounts, pop-ups can be displayed based on user behaviour and they can receive the best price or deal.

Now, at this stage, machine learning algorithms can analyse the behaviour of the customer reflected during the decision making of purchase. The behaviour of customer of addition or removal from the cart, scroll depth, product comparison behaviour, time spent to click on buy, etc. helps company to predict the buying behaviour of consumer. AI prediction analysis can be done and customer can be grouped based on purchase readiness, price sensitivity, interest level, etc. For example: the customer who revisits the checked-out pages twice in a day and has added item in cart, get a purchase likelihood score of 90%, can be a strategy decided by a company to group type of customers. This helps a company to predict that who can be a loyal customer.

5. AI built Satisfaction:

The major role in customer retention and loyalty is of customer satisfaction. This stage of AIDAS ensures post- purchase satisfaction of the customer as his positive experience of purchase influences the brand perception, his future buying behaviour, etc. Long term relationship can be maintained with the prospect only if the company provides the follow- up after sales services as promised during the purchase phase. AI plays important role in monitoring the feedback using Natural Language Processing (NLP). Sentiment AI analyses post- purchase feedback for checking satisfaction levels of customers. Even AI enabled personalized follow-ups and e-mails help the companies to send 'thank you' messages, re-order reminders, etc. after making the purchases. At this

stage, a company collects data regarding how a customer interacts after their purchase and can predict future buying. Algorithms in AI tools can collect information about: does the customer opens follow- up emails? Does he provide reviews? Whether his reviews are positive? Is the product returned by him? etc. From the reviews provided by the customers, AI detects negative sentiments in reviews and tries to resolve by providing follow-up service and improve customer experience. AI chatbots handle post-sales support, analyse support chats and detect queries which help to identify which users are not purchasing again.

So, a company can predict the buyer's behaviour by tracking repeated purchases, referral activities, satisfaction level with reviews and can provide personalized follow-up and pot-purchase services leading to high value and satisfied loyal customer. For example: A customer who provides positive review about the product and makes repeated purchases can be predicted as a loyal customer by the company and he can be provided with personalized offers based on the level he will be satisfied. This satisfaction stage built up by AI becomes predictive engine to understand who will buy again and again.

Conclusion

AI has defined a whole new aspect of customer- relationship management. Be it the consumers, who are increasingly leveraging AI powered platforms for making online purchases or be it the sellers who have assisted consumers with AI driven applications for their customers journey full of opportunities, suggestions and solutions, AI technologies into e-commerce has completely revolutionized the way transactions take place. By embedding AI tools such as Machine Learning, Predictive Analysis, Sentiment Analysis, etc. at each stage of AIDAS model, marketers can get real time insights into customer decision making and understand their buying patterns. The customers also ge satisfaction because of customer- centric AI driven tools which leads to personalization, fast response, easy payment, etc. Integration of AI with AIDAS Model offers a powerful and adaptive marketing framework for predicting consumer behaviour which help marketers to remain competitive and innovative in this digital era.

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