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# APPLICATION OF ARTIFICIAL INTELLIGENCE IN TRANSFORMING THE BEHAVIOR OF ONLINE CONSUMERS IN CHENNAI CITY

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## Abstract

The main aim of this paper is to identify the impact of artificial intelligence factors on changes in consumer behaviour when they deal with online purchases. The researcher used a convenience sampling method to collect the sample of 375 online consumers from Chennai City. The application of linear multiple regression analysis, exploratory factor analysis and structural equation model found that artificial intelligence is a powerful and innovative tool for marketers to reach online consumers and they can understand their needs. Artificial intelligence is not a unique phenomenon in marketing whereas it depends upon the five predominant factors information, optimization, storage, distribution and attraction. Artificial intelligence can give more information, whereas other brand knowledge of the product of marketers and give optimized solutions for consumer preferences concerning the attributes they expect

Keywords: AI, Online Consumers.

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## 1. Introduction

The revolution in technology and innovations in marketing brought the importance of digital marketing and online trading. All the dynamic markets in the marketing arena get the assistance of powerful innovative technology namely Artificial intelligence (AI). It is a computer-based innovation particularly applicable to online consumers who are very much access to smartphones, computers and laptops. Particularly these consumers must have access to marketers through Internet connectivity. These technological augmentations brought artificial intelligence indispensable in understanding consumer expectations and satisfaction. It enables marketers to identify the attitudinal changes of the consumers and also to identify their needs in their domain of customization.

Ajay Agrawal, Joshua

S. Gans, Avi Goldfarb (2018)

Artificial intelligence is considered one of the innovative marketing tools useful for marketers to market their products based on customer expectations. Particularly online consumers and their purchases are carefully observed by the artificial intelligence tools and market the newly introduced products when again they go for purchase online. It is a powerful tool which can unite three objects namely consumers, marketers as well as society, particularly for the process of optimization of marketing, distribution of purchase and creation of needs in the marketing. Artificial intelligence is playing a pivotal role in the entire business venture particularly marketing the products of the marketers and searching the products for the consumers. Therefore it is useful to increase the global economy and its influence over global business. L Albertsen, KP Wiedmann, S Schmidt (2020)

The emerging trend of artificial intelligence is useful for marketers as well as consumers to interact through a social

media platform or Internet connectivity. Artificial intelligence motivates consumers to search for more optional products and also motivate marketers to send continuous information and advertisement to the consumers. Artificial intelligence creates significant changes and makes radical strategies in the marketing arena. It is useful to unite different fields of marketing under one domain so that online consumers can get one particular platform which can cover all the information they require regarding the products or services. It also paves the way for consumers to seek variety and depth in the existence of different types of products in the market. It also changes the behaviour of customers and also makes them focus continuously and the different types of products and information they receive. Artificial intelligence is making deep inroads into consumer behavioural aspects namely product attributes, preferences, information search, purchase decisions and satisfaction. Consumer behaviour sometimes confuses and hinders marketers to identify the expectation. Therefore in this paper, the researcher intended to identify the impact of artificial intelligence factors on changes in consumer behaviour when they deal with online purchases.

## 2. Literature Reviews

A. Androniceanu, J. Kinnunen, I. Georges cu, AM. Androniceanu (2020) This innovative study identified the factors of artificial intelligence namely browsing history, information search, product expectation, product attributes and optimisation. It is found that these five factors of artificial intelligence are influencing consumer expectations and behaviour. Particularly it changes the behaviour of consumers in terms of information search, product and as, preferences and purchase decisions. The research also identified that the attitudinal changes are completely changed without visual intelligence as they can get

maximum information through the application of artificial intelligence.

A.Sharma (2011) This particular research completely focused on the application of big data and addicts are not visual intelligence in collecting the maximum information of the customers to the marketers. Artificial intelligence is acting as a proof of distribution of information from marketers to the customers and also from customers to marketers through strategic ways. Artificial intelligence collected more information about the consumers and storied and appropriately use it in an optimized manner when the marketers need assistance to introduce their products in the market to maximize their consumers.

D.Belanche L V Casalo C Flavin (2018) This study focused on the consumer behaviour of online consumers when they are intervened by the notions of artificial intelligence. The consumers perceived in this research the door to visual intelligence is able to give them more information about the product and services they expected from the marketers. In liberalised globalised economic scenarios, artificial intelligence gives fascinating information to global customers from global marketers. Artificial intelligence comprises global consumer behaviour which is more suitable and appropriate for the distribution of customer expectations.

Erik Brynjolfsson D. Rock, C.Syverson (2017) The application of big data analytics is playing a pivotal role in boosting artificial intelligence networks. Online consumers continuously focus on websites during the purchase and they have the intention to purchase all the products online. This situation is exploited by artificial intelligence and it creates more possible information for the consumers who are willing to venture on the new innovative products. The optimisation of information is the main theme of artificial intelligence and it is

applied to consumers to create awareness and brand knowledge.

Ryan Calo (2017) The information search process and artificial intelligence of the marketers and awareness of consumers are simultaneous in creating significant influence over their preferences and purchase decision. Artificial intelligence generates the maximum number of information sometimes creating confusion among consumers in the form of excessive choices. It also gives global information to consumers and the possibility of getting branded products at cheap prices. Social media platforms are considered a powerful domain without artificial intelligence to have touch with the consumers and their motivation.

K. Chopra (2018) This research particularly focused on validating the factors of artificial intelligence namely information, optimisation, distribution, storage and attraction. The researchers applied confirmatory factor analysis to confirm these five factors of artificial intelligence. The influence of these five factors particularly information creates more on the preference of consumers and optimisation makes them have a dynamic purchase decision. Consumer satisfaction depends upon the distribution and storage of information about the products. Attraction is always acting as an advertisement for marketers to reach consumers.

F.D. Davis (1989) It is found from the research that artificial intelligence is very powerful in changing the psychology of consumers and their attitudes. It also creates confidence among online consumers that many choices are available on the internet and online market. It can be identified from the research that the consumer attitude towards technology makes them welcome the application of artificial intelligence and also they're willing to change their behaviour for their reasons of cheap price and good quality.

Y.K. Dwivedi, N.P. Rana, A. Jeyaraj, M. Clement, M.D. Williams (2017) This research mainly focused on changes in consumer behaviour particularly in the information search process, preferences, purchase decisions and the satisfaction level in the backdrop of artificial intelligence. These online consumers are showing interest in collecting information about marketers. Reputation and brand popularity can be achieved through artificial intelligence. Artificial intelligence gives them satisfactory information and motivates them to go for online purchases according to their needs and expectation.

### 3. Research Gap

After reviewing the national and international literature on artificial intelligence and its deep connection with consumer behaviour particularly for online consumers, the researchers identified three predominant gaps which are not fully addressed by the researchers at the national and international levels namely

1. How many validated factors are responsible to perceive the role of artificial intelligence in online marketing?
2. Is there any relationship between consumer perception towards artificial intelligence and consumer behaviour towards online products?
3. Does the technology and demographic background play an important role in determining the consumer perception towards artificial intelligence?

Therefore the researcher intended to venture into the above-mentioned research questions and also to give the empirical pieces of evidence to fulfil these research questions.

### 4. Objectives of the Study

1. To study the factors determining artificial intelligence in the marketing of online products.
2. To analyse the existing online consumer behaviour in the study area.
3. To find the relationship between factors of artificial intelligence and the changes in consumer behaviour.

### 5. Hypotheses

1. Artificial intelligence is playing a very important role in determining the behaviour of online consumers.

### 6. Research Methodology

The study is based on the perception of online consumers dynamically involved in all types of online purchases. Consumers with more accessibility to the Internet and other social media activities are considered for the research. The opinion of online consumers regarding artificial intelligence is obtained through a well-structured questionnaire. The customer consists of three parts namely first part deals with demographic details and online purchase details of consumers. The second part completely deals with statements in Likert's five-point scale regarding online consumers' perception towards artificial intelligence factors they experience during their online purchases. The third part is aimed at ascertaining consumer behavioural factors of online consumers.

#### 6.1. Data Collection

The researchers used the internet and websites to collect the responses from online consumers. The researchers used the convenience sampling method as the population of online consumers is not well defined and finite. The researchers sent a questionnaire through email to the online consumers after getting information from different marketers about online consumers. The researchers

circulated 500 questionnaires among online consumers restricted to the geographical area of the metropolitan city of Chennai. After the circulation, the researcher waited for one month unable to get 375 usable responses for the research. After the continuous request sent to the remaining 125 respondents, the researcher is not able to get them in time. Therefore these respondents are rejected from the research. Hence the total sample size of the research is easily 375.

## 6.2. Data Analysis

After collecting the 375 responses from the dynamic online consumers, the responses are entered systematically in the SPSS package version 23. The responses are recorded with numerical values and used for the application of statistical tools.

The researchers applied exploratory factor analysis followed by confirmatory factor analysis to confirm the factors of artificial intelligence as well as the factors of consumer behaviour of online consumers. After finding the factors independently for artificial intelligence and online consumer behaviour the researcher used linear multiple regression analysis and structural equation model to find the influence of artificial intelligence factors and online consumer behaviour.

## 7. Analysis and Discussion

At the point of inception, the researcher used exploratory factor analysis on the 20 variables of artificial intelligence to identify the predominant factors. The following table gives the results of the exploratory effect analysis

**Table 1- KMO and Bartlett's Test for the Factors of AI**

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.798
	Approx. Chi-Square	2886.212
Bartlett's Test of Sphericity	df	190
	Sig.	.000

from the above table it is found that the KMO values, Bartlett's as well as the chi-square values are statistically significant at the 5% level this shows that all the 20 variables about artificial intelligence are

normally distributed and able to form a bell-shaped curve. This designates that all the 20 variables can be reduced meaningfully into 5 predominant factors as shown in the following table

Table 2-Number of factors of AI

Component	Initial Eigenvalues			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	4.951	24.753	24.753	2.719	13.595	13.595
2	2.219	11.096	35.849	2.617	13.087	26.683
3	1.606	8.032	43.882	2.321	11.603	38.286
4	1.437	7.186	51.067	2.134	10.671	48.957

5	1.058	5.288	56.355	1.480	7.398	56.355
6	1.030	5.152	61.507			
7	.868	4.338	65.845			
8	.826	4.132	69.977			
9	.781	3.907	73.884			
10	.758	3.790	77.675			
11	.644	3.219	80.893			
12	.555	2.776	83.669			
13	.525	2.625	86.294			
14	.478	2.389	88.684			
15	.452	2.262	90.946			
16	.416	2.080	93.026			
17	.402	2.011	95.038			
18	.390	1.948	96.986			
19	.315	1.574	98.559			
20	.288	1.441	100.000			

from the above table, it is found that all 20 variables are reduced into five predominant factors with a sufficient amount of variance. The five factors derived from the 20 variables are respectively named information, optimization, storage, distribution and attraction. These are all five factors intimately related to artificial intelligence applications perceived by online

consumers. The total average scores of these five predominant factors are computed and considered dependent variables. Similarly, the total average scores of the consumer behaviour factors are taken up as dependent variables. The influence of independent variables on the dependent factor can be estimated through linear multiple regression analysis.

**Table 3- regression estimation of the impact of AI**

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.940 <sup>a</sup>	.358	.348	.79363

a. Predictors: (Constant), Attraction, Storage, Information, Distribution, Optimization

From the above table, it is found that R-square values, adjusted R-squared values and standard error of the estimate are lying within the limit and also it is more than the benchmark value of 0.3 this implies that

the independent variables of artificial intelligence are well related to the consumer behaviour. It is further consolidated in the following one-way analysis of variance

Table 4-F-value estimation for the impact of AI

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	19.008	5	3.802	6.036	.000 <sup>b</sup>
	Residual	311.144	494	.630		
	Total	330.151	499			

a. Dependent Variable: Online consumer behaviour

b. Predictors: (Constant), Attraction, Storage, Information, Distribution, Optimization

From the one-way analysis of the variance table, it can be ascertained that F- values are statistically significant at a 5% level to prove the relationship between the variables of artificial intelligence and the

changing consumer behaviour. The relationship between artificial intelligence factors and consumer behaviour can be easily estimated through the following coefficient table.

Table 5- Individual influence of AI factors.

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	2.241	.307		7.295	.000
	Information	.040	.056	.035	3.720	.002
	Optimization	.199	.071	.148	2.825	.005
	Storage	.135	.061	.107	2.212	.027
	Distribution	.090	.064	.072	3.407	.000
	Attraction	-.142	.062	-.113	-2.276	.023

a. Dependent Variable: Online consumer behaviour

From the above table it is found that the beta values, T values are statistically significant at 5% level, this shows that the artificial intelligence factor information as well as the optimization gives more information to their customers as it is calculated the optimised needs of the customers. The information stored without official intelligence is distributed to online

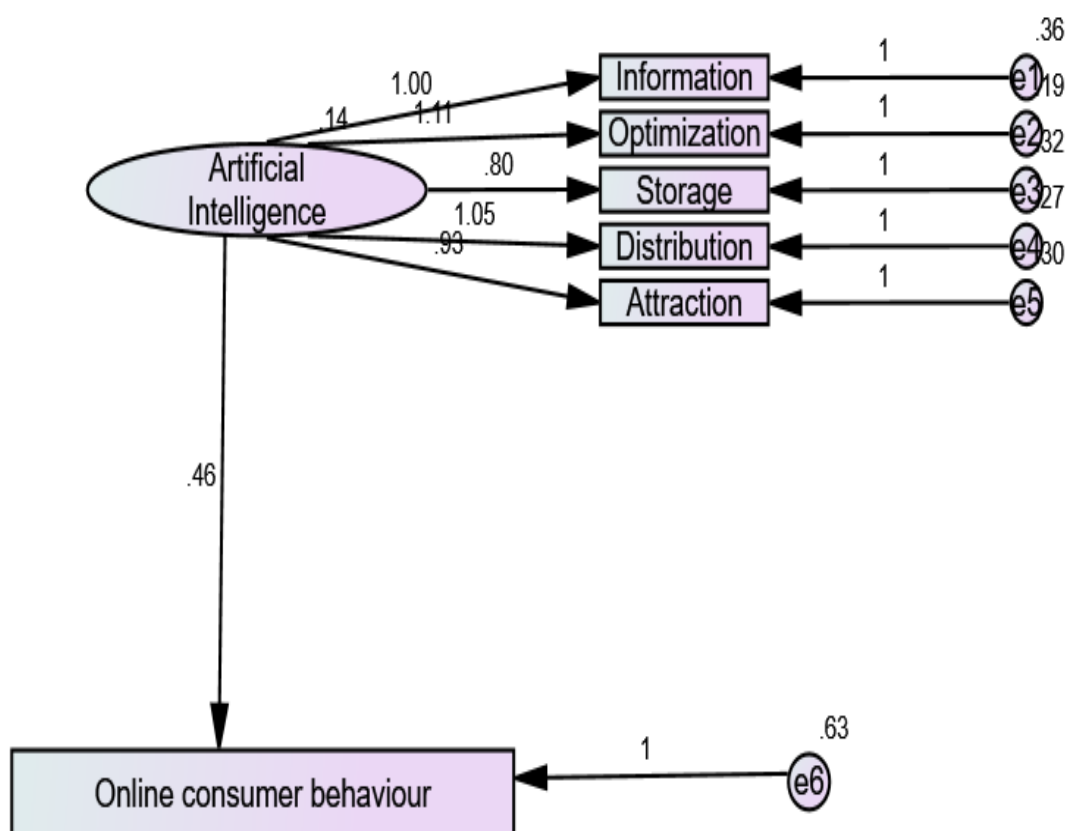
consumers wherever they want. They attract advertisements and the distribution of information completely changes consumer behaviour. The whole research is validated through a structural equation model by confirming the factors of artificial intelligence and changing attitudes of consumer behaviour

The structural equation model is used to test the model as well as to validate the research. The structural equation model is a combination of confirmatory factor analysis and linear multiple regression analysis. The total average scores of the five factors derived from the exploratory

factor analysis namely information, optimisation, storage and distribution and attraction are confirmed in this model and the subsequent impact on consumer behaviour of online consumers is also validated in the following diagram on the table

Table 6-.Model Fit Indices Andbench Marks For Overall Model Application Of Artificial Intelligence On Online Consumer Behaviour

S.NO	Fit indices	Values	Benchmark values
1	Chi-square	8.452	-
2	P-value	0.514	>.05
3	Goodness of fit index(GFI)	0.986	>.9
4	Comparative fit index(CFI)	0.984	>.9
5	Normed fit index(NFI)	0.983	>.9
6	Root Mean Square Error of Approximation(RMSEA)	0.07	<=0.08





From the above table, it is found that the 6 fit indices are very essential to test the model namely chi-square value, p-value, root mean square error of approximation, comparative fit index, goodness of fit index and the normed fit index satisfy the benchmark values therefore the model and its fit is very good and it also validated the factors of artificial intelligence derived from the exploratory factor analysis. The model proved the acceptance of the hypothesis of the research that artificial intelligence is playing a very important role in determining the behaviour of online consumers.

### 8. Findings

It is found from the study that artificial intelligence is a powerful and innovative tool for marketers to reach online consumers and they are able to understand their needs. Artificial intelligence is not a unique phenomenon in marketing whereas it depends upon the five predominant factors information, optimisation, storage, distribution and attraction. Artificial intelligence can give more information, whereas other brand knowledge of the product of marketers and give optimised solutions for consumer preferences concerning the attributes they expect. The information given from online consumers to websites is appropriately stored by artificial intelligence tools and distributed wherever the marketers needed it. They can give attractive solutions and advertisements to catch hold of a maximum number of customers. It is concluded from the research that this information about customers and the optimisation phenomenon motivate consumers to change their behaviour optimistically towards marketers. When consumers are confused by the over choice, artificial intelligence can give the solution through the appropriate distribution of information regarding the newly introduced products and brands. It is also found that logical augmentation gives the perfect application of artificial

intelligence to change the consumer behaviour of online consumers in the days to come.

### 9. Suggestions

The findings and conclusions of the study revealed that marketers can make use of the technology involved in artificial intelligence to gather customer expectations and also give the solution to their satisfaction levels. It is suggested that marketers should create a new marketing strategy based on artificial intelligence to offer the best service quality and satisfaction to the customers and also promote them to the next stage of loyal customers. Online consumers are suggested to have more awareness of fake news and fake information regarding a particular brand of product before they choose to buy.

### 10. Limitation

The study is limited to a sample size of 375. The researchers did not select all the online consumers but selected only the online consumers within Chennai city. There are many technological artificial intelligence factors involved in higher dimensions of marketing technology whereas the researcher mainly focused on the limited number of five factors directly related to online consumers. The consumer behaviour factors are also restricted to awareness, preferences, purchase decisions and satisfaction. Time and money constraints are the important limitations of this research.

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