

## Artificial Intelligence-Based Framework for the Creation of a Modern Brand Marketing Management Mode

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**Abstract**-An efficient three-stage framework for strategic marketing planning of several advantages of artificial intelligence (AI): mechanical AI for automating repetitive marketing functions and activities, thinking AI for processing data to make decisions, and feeling AI for observing interactions and human emotions. The application of Artificial Narrow Intelligence (ANI) for marketing research, strategy, and actions is described in this framework. Mechanical AI, thinking AI, and emotional AI may all be utilised during the marketing research stage to gather data, analyse markets, and comprehend customers. Mechanical AI may be utilised for segmentation at the marketing strategy (STP) stage, thinking AI for targeting, and feeling AI for positioning. Mechanical AI may be employed for standardisation, thinking AI for personalisation, and feeling AI for relationalization throughout the marketing action stage. To demonstrate the strategic use of AI, we apply this framework to a variety of marketing disciplines, organised by the marketing 4Ps/4Cs. This study, which focuses on first-person accounts of interactions between top managers, not only paves the way for identifying barriers, but it also offers an emancipatory roadmap for dealing with the new problems that will arise as the country's use of AI continues to rise dramatically over the coming few years. It is anticipated that this expansion will take place throughout the next years.

**Keywords:** Artificial intelligence, Mechanical AI, Artificial Narrow Intelligence, Marketing strategy.

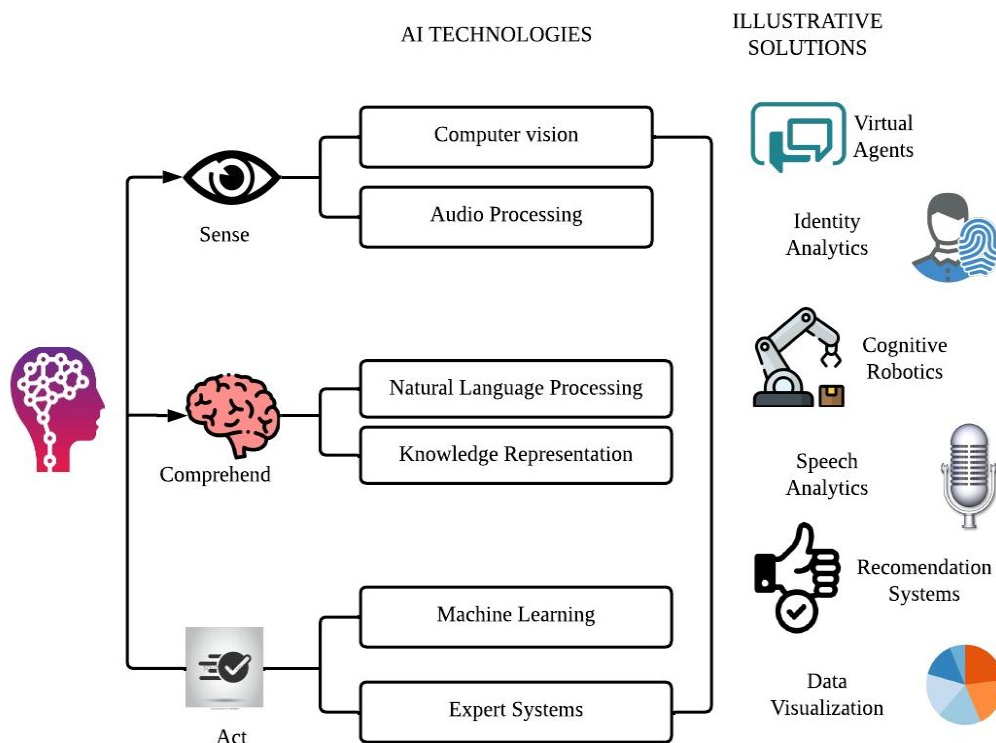
### 1. Introduction

Artificial intelligence (AI) in marketing is becoming more prominent as a result of developments in machine learning algorithms and models, as well as expanding processing power, lowering costs associated with computing, the availability of massive data sets, and other factors. Artificial intelligence is employed extensively in many aspects of marketing. In today's world, artificial intelligence has a huge influence on practically every facet of our everyday lives. Its strengths are

being put to use in a diverse assortment of different industries. Additionally, India has broadened the scope of its actions inside the spheres of both the military and the finance and intelligence communities. By investigating the presence and involvement of artificial intelligence (AI) in the Indian education sector as well as a sustainable solution, the goal of this paper is to advance the cause of thematically recognising current issues in order to cover the various roles that occur in educational institutions and relevant

organisations [1]. This will be accomplished in order to cover the various roles that occur in educational institutions and relevant organisations. This is done so that educational institutions and related organisations can cover the vast number of duties that are already in existence. The paper is divided into four distinct portions all together. In the realms of science and technology, artificial intelligence (AI) is envisioned as a potentially realisable future in which humans would be able to communicate with one another, understand one another, and share their ideas and thoughts via the utilisation of both soft and hard technologies. This future is considered as possibly being reachable. The two applications of artificial

intelligence that are most often brought up in conversation are (a) the automation of professions that involve repetitive analysis and (b) the enhancement of human decision-making via the posing of questions to which solutions are sought through the use of algorithms devised by humans. Both of these applications make use of data that has been annotated by people and automate tasks that would normally be performed by individuals. As a result of this, artificial intelligence has the very unique capacity to learn from the orders and activities that it routinely carries out. This enables it to construct a road map of probable possibilities and solutions [2].



**Figure 1: Artificial Intelligence**

The idea that all aspects of intelligence and learning can be fully characterised and that a computer can be taught to mimic those characteristics is the fundamental assumption that underpins artificial intelligence, often known as ai. Language, abstraction, idea formation, problem solving, and self-improvement are going to be the primary areas of focus for academics as they work towards their goal of programming robots to behave more like humans. Even while the incorporation of technology into the classroom has been a costly endeavour, the vast majority of

households are still able to afford it, despite the fact that it is more expensive than doing other manual chores. Artificial intelligence (AI) has the potential to considerably lower costs in higher education when compared to the long-term expenditures associated with employing traditional teaching methods and human labour. The phrase "artificial intelligence" (AI) is used to refer to "computers that do cognitive operations, traditionally associated with human minds, particularly learning and problem-solving." They emphasise that the term "AI" encompasses a

broad spectrum of different kinds of new technological breakthroughs. Some of the specific subfields that are included in this overarching category include machine learning, natural language processing, data mining, neural networks, and algorithm design [3].

## **2. Review Of Literature**

Thinking artificial intelligence (AI) may be used to locate competitors in a well-defined market or alternative options in a new market, and it can also be used to extract insights for a product's competitive advantages (that is, the ways in which the product could surpass competitors to fulfil customer expectations). Supervised machine learning can be used for established markets where the market structure is stable and is known to marketers, but unsupervised machine learning may be used for new markets or for detecting outside choices in markets where the market structure and trends are unpredictable and unknown to marketers. It is possible to use feeling AI to understand customer needs and wishes, such as who the client is, what they want, and what their current solutions are. Understanding the customer is essentially distinct from analysing the market due to the fact that the latter often involves the incorporation of emotional data about the sentiments, desires, and attitudes of the customer. As a result of its ability to assess emotional data, feeling AI may potentially better understand customers than both cognitive AI and mechanical AI [4].

The use of emotion AI by marketers might help them identify whether or not the service satisfies existing customers and why that is the case. The preferences of repeat customers tend to be more constant, and a firm may get a better grasp of those preferences by analysing the data it collects on prior and continuing transactions. At this point in the marketing strategy process, AI may be used by marketers as a tool for making the three crucial strategic decisions of segmentation, targeting, and positioning. However, before going on to more specific STP choices, marketers are required to determine the overall strategic stance that will serve as the basis for their STP options. A company may choose for a relational strategy that boosts the lifetime value of its existing customers, a

commodity plan that makes use of automated or robotic technology to raise productivity, or a static personalisation strategy that leverages cross-sectional big data analytics. Each of these strategies has its advantages and disadvantages [5].

We take a look at the role that artificial intelligence may play in resolving some of the challenges that the education sector is now experiencing. This can be further measured, and data-driven support for education stakeholders can support their growth and development. One study found that educational institutions should experiment with their data using statistical models and analysis in order to get an idea about the students' learning experiences and how improvements can be made in the future. The same group of researchers claims that the learner's existing static and dynamic knowledge may be used to improve the learning process. It could also be useful in evaluating it to get real-time modelling and forecasting, as well as optimising of the learning environment. Because of this, it would be much easier to form opinions on the teaching that students get. Another study claims that artificial intelligence is fundamentally a field of study that takes an interdisciplinary approach. This means that it incorporates concepts from fields such as psychology, paedagogy, sociology, linguistics, and other fields to comprehend and focus on in order to develop a solution that addresses any potential interdisciplinary issues pertaining to the educational ecosystem. Students may be able to get constant feedback on their performance via the use of technology based on artificial intelligence, such as Intelligent Tutoring Systems and Learning Management Systems. This makes student evaluation more simpler. In addition to this, it is feasible to develop tailored instructional materials to cater to the requirements of certain students and to precisely evaluate their levels of advancement [6].

Over the course of the last several decades, the use of artificial intelligence has gradually crept into our everyday lives in ways that even we ourselves are not aware of. It has helped a number of firms increase their capabilities by simplifying their business operations, improving their productivity,

and determining the preferences of their customers. The pandemic has also been a driving force for its spread. Since artificial intelligence is thought to play an important role in the education industry, the sooner this is accepted, the better it would be for our country. There is little doubt that in the not-too-distant future, there will be a greater need for individuals with expertise in cutting-edge technologies such as artificial intelligence (AI), machine learning (ML), the internet of things (IoT), data science, and other related fields. It is not sufficient for the education sector to just need AI trainers or students who have received AI training; rather, there is a need for acceptance and inculcation of AI [7].

### **3. Artificial narrow intelligence**

Within the expansive framework of artificial intelligence (AI), there exists a great number of opportunities and capabilities that may be explored. At one end of the scale is a sort of artificial intelligence known as artificial narrow intelligence (ANI), which refers to computer programmes designed to perform very well in a limited number of specific jobs. ANI, commonly referred to as Weak AI, is an important step in the development of artificial intelligence technology. This article delves into the intricate workings of Artificial Narrow Intelligence, examining its characteristics, applications, limitations, and role as a precursor to more complex forms of artificial intelligence (AI). The artificial intelligence that has a restricted focus and a high degree of specialisation is known as narrow artificial intelligence. It requires the development of artificial intelligence systems that have been trained and programmed to carry out a certain task with a level of expertise that exceeds human standards. In contrast to ANI, which is solely capable of doing the task for which it was designed, humans have the ability to apply their cognitive abilities to a wide number of endeavours and fields. In stark contrast to the wide variety of capabilities that are within the realm of possibility for human intelligence, artificial intelligence (ANI) only has a limited set of functionalities. This is a key property of ANI [8].

Applications of ANI might be useful in a wide variety of industries due to the fact that they

improve ease of use, precision, and productivity. One of the most common applications of ANI is in the area of natural language processing (NLP). Apple's, Amazon's Alexa, and Google's Assistant are all examples of virtual personal assistants that are capable of understanding human language and responding appropriately. These assistants are able to react to questions, set reminders, play music, and even handle smart home appliances within the limitations of the preprogrammed talents they have been given. It is also possible to see the impact of ANI in the disciplines of voice recognition and image recognition. The most prominent examples of ANI's speciality are speech-to-text systems that are used in transcription services, facial recognition systems that are utilised in security and authentication, and both of these systems. These systems are very good at doing certain tasks, such as correctly distinguishing particular persons or converting spoken language into written text. In addition, industries like as manufacturing, healthcare, and banking all need ANI in order to function properly. In algorithmic trading, ANI is used to do data analysis on market conditions in order to carry out trades in a timely and precise manner. The ability of ANI-powered systems to assess medical images and provide physicians with assistance in identifying potential issues contributes to improvements in medical diagnostics. In the industrial sector, ANI-driven robots are used for a variety of tasks, including assembly, quality checking, and even the handling of hazardous chemicals, all of which contribute to an improvement in both production efficiency and worker safety [9].

The production of artificial narrow intelligence is an important step towards the development of artificial general intelligence (AGI) and other forms of advanced artificial intelligence (AI). Strong AI is another name for AGI, which stands for Artificial General Intelligence. AGI would be able to comprehend, learn, and use information in a wide range of contexts and settings. In addition to this, it would have cognitive abilities comparable to those of humans. The specialised nature of ANI would be contrasted with the generalizable capabilities of AGI, which include the capacity to reason, learn from experience, and adapt to unfamiliar situations. The progression from ANI to

AGI, on the other hand, is convoluted and challenging. A level of cognitive flexibility, originality, and common sense reasoning that exceeds the capabilities of ANI would be required for an artificial general intelligence (AGI). In order to provide artificial intelligence systems the ability to generalise knowledge, understand context, and demonstrate cognitive capabilities comparable to those of humans, researchers and developers need to solve a few fundamental difficulties.

In particular, we are interested in determining the unknown position of a mobile agent in order to examine the problem of identifying or tracking down a mobile target within the context of this study. In order to do this, we rely on two primary types of data: first, our knowledge of the agent's regular behaviour, and second, data collected from the environment (such as via vision and hearing). We design an adequate response to this problem by first constructing a mathematical model, then an algorithm connected to the model, and finally by programming the algorithm that we have developed; the ultimate result is autonomous artificial intelligence.

The training of artificial limited intelligence systems to concentrate on a single task at a time is accomplished by employing data from a single dataset. To put it another way, these systems do not take on any new responsibilities. Narrow artificial intelligence, on the other hand, lacks all of the characteristics of general artificial intelligence, including self-awareness, consciousness, emotions, and genuine intelligence that can compete with human intelligence. Even while such systems may give the impression of being complicated and intelligent, their operation is really constrained by well designed and established boundaries, parameters, and circumstances. This modest

artificial intelligence forms the basis for the pervasive machine intelligence of today. Google Translate, and Google Assistant are just a few examples of some of the numerous applications that use natural language processing. Despite the fact that these technologies are capable of communicating with people, comprehending human language, and analysing it, they are regarded as having low artificial intelligence since they are unable to reason independently in the same way that humans.

A demonstration of the intellect and ingenuity of humans is provided by the development of artificial narrow intelligence. The use of ANI systems, which enhance accuracy and efficiency in a variety of domains, has resulted in a revolution across several industries. They also bring to light how challenging it is to imitate the human mind in all of its guises. As AI technology advances, the distinctions that exist between ANI and more advanced forms of artificial intelligence, such as AGI, become more and more clear. The development of artificial general intelligence (AGI) points to an intriguing future in which machines will have the same breadth and depth of cognitive capabilities as humans. The development from ANI to AGI is a challenging process; but, if successful, it has the potential to revolutionise the way we interact with technology and expand our knowledge of intelligence. In addition, ineffective artificial intelligence applies to even the most advanced autonomous cars, which are taught to traverse their environments by utilising annotated driving datasets. Multiple artificial neural networks (ANI) are a common feature of self-driving cars, and their inclusion is critical to the vehicles' ability to function normally in very complex urban situations [10].

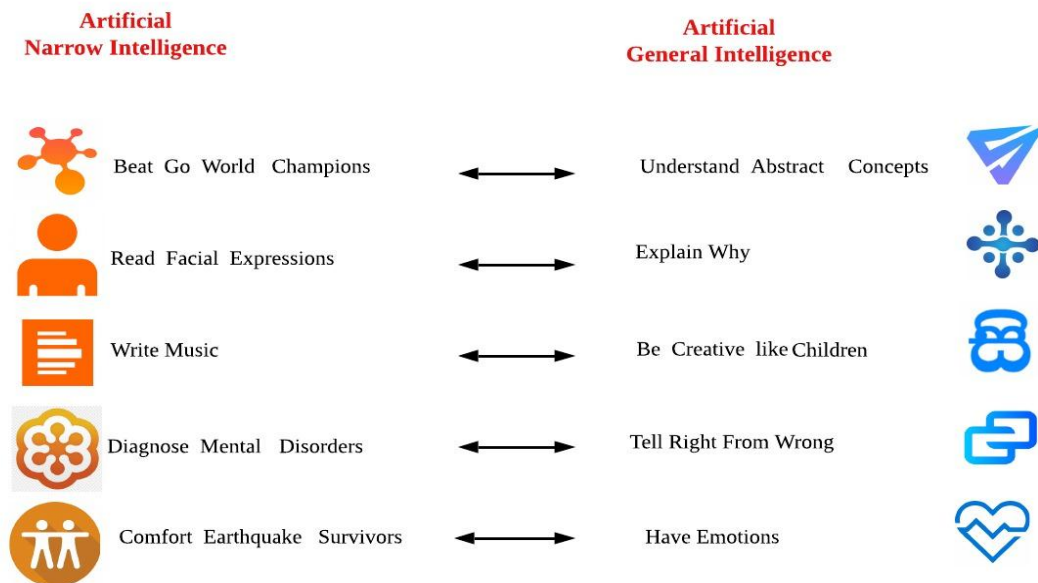


Figure 2 Narrow AI vs. General AI

Artificial intelligence (AI) that is limited to doing only one particular activity or a small number of closely related tasks is referred to as narrow AI. An artificial intelligence (AI) that is capable of performing a wide range of tasks in a wide range of contexts is referred to as a generic AI. Its intelligence is thus far closer to that of humans.

#### 4. Artificial Intelligence Algorithms

A genetic algorithm, sometimes known as a GA, is a method for finding the optimal solution by simulating the natural process of evolution. It is a model of biological evolution that was created on a computer that simulates the natural selection and genetic processes that Darwin postulated as being responsible for biological evolution. Combining the GA genetic intelligence algorithm with cognitive waveform technology results in the creation of a model for the GA genetic intelligence algorithm that is based on adaptive waveform optimisation. This chapter provides an in-depth examination and exploration of the theory of neural networks as well as the backpropagation algorithm. Additionally, the genetic algorithm for artificial intelligence is applied to the cognitive transmission system, and an adaptive parameter learning strategy for the genetic algorithm for artificial intelligence is presented. The adaptive wave-form system is utilised to produce the sample data set; the bit error rate is employed as

the output training data; the pulse width  $T$  and signal-to-noise ratio (SNR) are utilised as the input and training data, respectively, for the neural network; the adaptive wave-form system also generates the sample data set. A simulation using MATLAB code employing an adaptive waveform parameter and environmental parameter learning model is used to examine the performance of the produced model in terms of its ability to make accurate predictions. In the meanwhile, an error analysis of the prediction model is being carried out, and the influence of the sample size on the precision of the forecast is being researched. The findings of the simulation illustrate the significant potential for accurate forecasting possessed by the GA genetic intelligence algorithm model that was suggested. When contrasted with the adaptive wave-form approach, the bit error rate prediction curve that is derived from the GA genetic intelligence algorithm possesses a better convergence effect and greatly reduces the amount of system code that must be implemented. It is possible that it will assist the system in its capacity to convey cognitive information in a manner that is more effective and intelligent.

$$R_G(t) = \frac{No}{2} \cdot \delta(t),$$
$$s_G(f) = \frac{No}{2}.$$

It is claimed that a noise signal has a lognormal distribution if the logarithm of the probability density function has a normal distribution. When the high-resolution radar observes the ground or when the observation angle is small, the probability density curve of the ground clutter in the measurement and control system fits the logarithmic state distribution. As a result, the ground clutter interference of the measurement and control communication system can be replaced with lognormal noise.

## 5. Research Methodology

The purpose of this investigation is to investigate the ways in which artificial intelligence (AI) has impacted the concept of brand strategy. Brand strategy is a corporate strategy that is used by businesses to expand their market, increase their market share, and maximise their rate of return through better product quality, thoughtful and meticulous customer service, and other methods to boost their visibility in their sector and build a strong brand. In general, businesses use brand strategy to grow their market, increase their market share, and maximise their rate of return. The quality of the product, as well as its performance, cost-effectiveness, and other components of its total performance, are all included in the definition of "branding," in addition to the product's trademark, its packaging, and any other apparent indications of the product. The company's production and operation, product development, human resource management, and other comprehensive activities involving enterprise operation are all included in the brand strategy. This plan is a combination of all of these aspects. Because of the significant part it plays in determining where an organisation sits within the larger market, it is essential that the brand strategy be placed at the heart of the top-level design of enterprise management. The creation of a corporate brand strategy has as its primary

objective the maximisation of the brand's influence within the sector. This is done with the intention of meeting or even exceeding the expectations of customers about the company or its products.

Business competitiveness may be increased, competitive advantages can be built, and the firm can differentiate itself from other businesses with the use of an effective method called business brand strategy management. This approach is methodical, comprehensive, and sustained throughout time. However, the execution of brand strategy within the organisation involves all significant divisions, such as technology, finance, human resources, and sales, and is the result of mutual collaboration and cooperation; however, brand strategy will involve the upstream and downstream industrial chain, sales, and circulation of all links outside of the organisation, which is why it is essential to methodically plan the brand strategy of the organisation. As a business operator, it is imperative that we place a high priority on the management of brand strategy in a market economy. This will allow us to achieve success in the cutthroat competition that exists between businesses, improve our resource integration and management skills, make full use of the top-level managerial role, establish a good enterprise target positioning, continuously innovate, and enhance the quality and efficiency of enterprise development, among other things. It is possible for the company to experience steady and healthy expansion in order to have a clear advantage over its competitors. In order for a company to differentiate itself from its competitors in the market, it is essential for the company to have a distinct market positioning for its goods, to conduct particular activities revolving around the market positioning, and to design and manufacture items that meet the specific requirements of the market. According to the saying, "Know yourself and your enemy, and a hundred battles will not be lost," The business must depend only on its brand strategy for continual self-analysis in order to avoid its own strengths and weaknesses, as well as those of its competitors. This will help ensure that the brand idea is thoroughly internalised by each and every

employee, and it will also improve the cohesiveness of the company personnel.

Year	Experiential marketing	Cross-border marketing	Brand awareness	Brand association	Brand loyalty
2016	12%	8%	7%	10%	6%
2017	15%	10%	6%	8%	8%
2018	22%	15%	10%	10%	10%
2019	28%	18%	15%	15%	12%
2020	32%	20%	12%	27%	15%
2021	36%	22%	18%	32%	18%
2022	45%	28%	23%	40%	25%

**Table 1: AI in Market**

## 6. Analysis and Interpretation

- A two-factor analysis of variance with measurement repetition was performed to test whether there was
- A significant difference between the groups of the first factor " Experiential marketing, Cross-border marketing, Brand awareness, Brand association and Brand loyalty " (repeated measures) with respect to the dependent variable.
- A significant difference between the groups of the second factor Year in relation to the dependent variable.
- There is an interaction between the two factors "Experiential marketing, Cross-border marketing, Brand awareness, Brand association and Brand loyalty " and Year in relation to the dependent variable.

**Table 1: Correlation and significance**

		Experiential marketing	Cross-border marketing	Brand awareness	Brand association	Brand loyalty
<b>Experiential marketing</b>	<b>Correlation</b>	1	1	0.96	0.95	0.98
	<b>p</b>		<.001	.001	.001	<.001
<b>Cross-border marketing</b>	<b>Correlation</b>	1	1	0.95	0.93	0.97
	<b>p</b>	<.001		.001	.003	<.001
<b>Brand awareness</b>	<b>Correlation</b>	0.96	0.95	1	0.9	0.95
	<b>p</b>	.001	.001		.006	.001
<b>Brand association</b>	<b>Correlation</b>	0.95	0.93	0.9	1	0.96
	<b>p</b>	.001	.003	.006		<.001
<b>Brand loyalty</b>	<b>Correlation</b>	0.98	0.97	0.95	0.96	1
	<b>p</b>	<.001	<.001	.001	<.001	

The two-factor analysis of variance with repeated measures showed that there is

- Significant difference between the groups of the first factor " Experiential marketing, Cross-border



marketing, Brand awareness, Brand association and Brand loyalty " in relation to the dependent variable,  $p=aN$ ,

- Significant difference between the groups of the first factor Year in relation to the dependent variable,  $p=aN$ ,

- Interaction between the two variables Year and " Experiential marketing, Cross-border marketing, Brand awareness, Brand association and Brand loyalty " in relation to the dependent variable,  $p=aN$ .

**Table 2: Pearson Correlation Analysis**

	Experiential marketing	Cross-border marketing	Brand awareness	Brand association	Brand loyalty
<b>Experiential marketing</b>	137.48	81.29	68.5	140.29	74.93
<b>Cross-border marketing</b>	81.29	48.24	40.5	81.57	44.19
<b>Brand awareness</b>	68.5	40.5	37.33	69.5	37.83
<b>Brand association</b>	140.29	81.57	69.5	160.24	79.69
<b>Brand loyalty</b>	74.93	44.19	37.83	79.69	42.62

A significant amount of data that is not context-specific is gathered by mechanical AI. This is especially true for emotional data, which are about the individual as they are situated in their environment. As a consequence of this, understanding the emotional state of a customer needs data that is both contextual and distinctive to the person. The circumstances surrounding an

engagement are often disregarded. The issue is that while it is difficult to capture emotional information, analysis of it is not being done. This is the problem. For instance, the marketing's content and tone are documented during a customer support session, but the context of the dialogue is not recorded.

**Table 3: Reliability and validity test of different brands**

<b>Year</b>	<b>Experiential marketing</b>	<b>Cross-border marketing</b>	<b>Brand awareness</b>	<b>Brand association</b>	<b>Brand loyalty</b>
Number of items	8	6	5	4	24
Cronbach coefficient	0.872	0.854	0.718	0.744	0.782
Common factor variance	0.605	0.645	0.681	0.759	0.566
Factor loading factor	0.725	0.663	0.662	0.628	0.584

## 7. Result and Discussion

Logistic regression analysis was performed to examine the influence of Experiential marketing, Cross-border marketing, Brand association and Brand loyalty on variable Year to predict the value "2016". Logistic regression analysis shows that the model as a whole is not significant ( $\chi^2(4) = 5.74$ ,  $p .219$ ,  $n = 7$ ).

The coefficient of the variable Experiential marketing is  $b = -46.14$ , which is negative. This means that an increase in Experiential marketing is

associated with a decrease in the probability that the dependent variable is "2016". However, the  $p$ -value of .999 indicates that this influence is not statistically significant. The odds Ratio of 0 indicates that one unit increase of the variable Experiential marketing will increase the odds that the dependent variable is "2016" by 0 times.

The coefficient of the variable Cross-border marketing is  $b = 61.04$ , which is positive. This means that an increase in Cross-border marketing is associated with an increase in the probability

that the dependent variable is "2016". However, the p-value of .999 indicates that this influence is not statistically significant. The odds Ratio of  $3.224934495012016e+26$  indicates that one unit increase of the variable Cross-border marketing will increase the odds that the dependent variable is "2016" by  $3.224934495012016e+26$  times.

The coefficient of the variable Brand association is  $b = 9.85$ , which is positive. This means that an increase in Brand association is associated with an increase in the probability that the dependent variable is "2016". However, the p-value of .999 indicates that this influence is not statistically significant. The odds Ratio of 18901.06 indicates that one unit increase of the variable Brand association will increase the odds that the dependent variable is "2016" by 18901.06 times.

The coefficient of the variable Brand loyalty is  $b = -1.86$ , which is negative. This means that an increase in Brand loyalty is associated with a decrease in the probability that the dependent variable is "2016". However, the p-value of 1 indicates that this influence is not statistically significant. The odds Ratio of 0.16 indicates that one unit increase of the variable Brand loyalty will increase the odds that the dependent variable is "2016" by 0.16 times.

## 8. Conclusions

According to the research titled "The Future of Professions," by the year 2023, 37 percent of India's population would be working in highly creative professions that need for greatly varied skill sets. The rapid development of artificial intelligence in this era of the Internet has had a huge impact on the way people live their lives because of the implications of this change. The development of unique intelligent products that are in line with the needs of a market that is undergoing rapid change is necessary for companies if they want to satisfy clients with intelligent goods and services. Adjusting marketing plans at the appropriate moment is essential, and having a solid marketing strategy is one of the most important guarantees for generating company value. Nevertheless, any strategy or method of marketing that is meant to offer consumers a sensation of novelty is short-lived. This is especially true when using the same

promotional materials to target numerous different consumer demographics. At this moment, it is necessary for companies to devise a game-changing and flexible response to the demand placed on them by customers, adopt marketing strategies that are more innovative, and achieve sustainable development in their operations. The foundation of strategic brand management is a brand management system that is founded on the core principles of the brand. Thanks to the brand management system, which enables us to integrate the content of the entire company and control the entire business while accurately matching the brand design and the reference structure of the company with the company's own value, the brand can continue to develop and strengthen itself, and the added value of the business can continue to increase in order to achieve sustainable development. This can be done to achieve the goal of sustainable development. According to the findings of the research, around nine percent of India's labour force of 600 million people would be employed in occupations that do not already exist. A business analysis that underlines the need for updated designs, depicts the imbalance between supply and demand, models a curriculum that addresses this gap, and picks the suitable faculty is essential for the creation of new programmes. This analysis should also select the relevant faculty. This analysis has to be completed first, before any new programming can be developed.

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