INTERNATIONAL JOURNAL OF ADVANCE RESEARCH, IDEAS AND INNOVATIONS IN TECHNOLOGY

ISSN: 2454-132X
Impact Factor: 6.078
(Volume 11, Issue 2 - V11I2-1336)
Available online at: https://www.ijariit.com

Using New Age Technology for Customer Gratification: A Review of Contemporary AI Use

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ABSTRACT

Technological improvements upgraded a multitude of sectors, and among them, marketing strategies have shaped up significantly. Growing competition among brands has vitalised the importance of customer satisfaction to gain loyalty and retention. Artificial Intelligence is incorporated by brands, allowing for improvement in their services that helps to improve the customer experience. Brands employ AI to predict precise demand and enhance customer experience using chatbots. Inventory management using AI models reduced stockout occurrence and overstocking. Product availability is important for customer retention, and when customers learn that their requirements will be met, they consequently prefer to re-buy from the brand. The human intelligence given to AI using machine learning and natural language processing allows chatbots to carry out multiple tasks for a brand. Chatbots interact with customers, understand queries and provide answers, promising security and privacy of data. AI has helped to enhance and upgrade the service level of brands, alongside giving a competitive edge. Marketing was a concept of selling products and earning profit that evolved to focus more on customer satisfaction, their needs integrating innovation into the business. It is now at the place to direct customer decision-making in favour of the business by showing its presence in the form of suggestions and advertisements on websites and social media.

Keywords: *Artificial Intelligence, Customer Satisfaction, Customer Loyalty, Inventory Management, Chatbots, Personalisation*

INTRODUCTION

AI (Artificial Intelligence) is taking center stage in almost every field in the world. The technology has been around for a while however the term was coined in 1956 by John McCarthy. Artificial Intelligence, as the name suggests, is the ability of machines to carry out tasks that require human intelligence using machine learning, deep learning, and natural language processing. Prominent examples are Siri, launched by Apple in 2011,, and Alexa by Google in 201,4 are virtual assistants capable of understanding spoken language (Natural Language Processing). In 2020, Openai, an AI research organisation, developed a generative pre-trained transformer GPT which served as the foundation for the GPT-1 and GPT-2 language models. GPT3 (Large Language Model LLM) operated on 175 billion parameters and represented a huge advancement in AI. GPT3 served as the foundation for the famed Chatgpt, an AI chatbot that understands, processes, and responds to human language. It debuted in 2022. With its application in various fields, this research paper will highlight its use by brands to build brand loyalty and customer satisfaction.

Brands leverage social media marketing to engage with the target audience, create brand awareness, and drive sales. They utilise platforms like Instagram, Facebook, and TikTok to share compelling content, run targeted ad campaigns, and foster direct interactions with customers. As the competition increased, brands recognised that to survive in the market, customer loyalty is important. “Oliver (1999, p. 34) defines brand loyalty as a deeply held commitment to rebuy or repatronize a preferred product/service consistently in the future, thereby causing repetitive same-brand or same-brand-set purchasing” (Chaudhuri and Holbrook 82). Customer satisfaction reinforces brand loyalty. Positive customer experience is a building block of customer retention,, which allows them to walk into the store as and when needed. Happy customers also help promote the brand at the ground level.

Brands use AI in the form of Chatbots to address customer queries, such as Maya by Myntra, Kik by H&M, and Apple GPT by Apple. The chatbots are 24/7 available,personalisedd, cost-efficient, and prompt. Users don’t have to wait for the companies' response and get their problems addressed on the spot.

Real-time and seamless support enhances customer experience, building a positive association with the brand. “Enhanced customer experience emerges as a hallmark benefit, as AI tools enable personalised interactions that cater to individual preferences and inquiries, leading to higher levels of satisfaction and loyalty. The cumulative effect of these benefits translates into a competitive edge, allowing brands to navigate the intricacies of the contemporary business landscape with agility, responsiveness, and a refined ability to create meaningful and lasting connections with their customer base” (Kumar et al. 5)

Brands use AI-driven demand forecasting for inventory management using machine learning models – Neural Networks, Random Forests, and Gradient Boosting to analyse historical sales data, trends, and extra factors such as seasonality to make precise demand forecasts. Overstocking leads to financial loss and waste and stockouts result in loss of sales opportunity and customer dissatisfaction. The implementation of AI-driven demand forecasting models has fundamentally transformed inventory management practices. “The precision of demand forecasts generated by these models enables automated replenishment processes that closely align stock levels with actual consumer demand. This alignment significantly reduces the risk of overstocking and stockouts, thereby optimizing inventory levels and minimizing holding costs.” (Amosu et al. 714)

BRANDINGS PIVOTING TO AI

As AI technologies develop and progress, marketers and brands seek ways to inculcate AI to enhance customer experience. Personalization is one of the most effective and crucial aspects of marketing. It is the practice of tailoring experiences, products, and communications to individual customers based on their unique needs, preferences, and behaviors. It's about moving away from a "one-size-fits-all" approach and creating interactions that feel relevant and meaningful to each person. AI is turning out to be a powerful tool to enable personalization at a larger scale with more effectiveness. Personalization gives a competitive edge and improves a brand’s marketing strategy.

In 1960, ELIZA was considered the first chatbot that simulated a psychotherapist which was not used commercially but it laid a foundation for future chatbots. The 1980s-1990s saw the emergence of chatbots to be used for specific functions like customer support and information retrieval. The 2010s was the arrival of modern chatbots powered by machine learning using Natural Language Processing (NLP). Voice assistants Siri (Apple), Alexa (Google) and Google Assistant are prime examples.

“Generative AI is a field of Artificial Intelligence, which focuses on creating content like text, videos, images, music, and catalogues. The market of GenAI is projected to surge to $120 billion by 2030. GenAI is transforming the marketing function by accelerating content creation. In a BCG survey it was found that more than 60 % of marketing professionals are using AI to set new standards for speed, efficiency, and quality. Sales functions, sales pitch and calling strategies, integrated with CRM systems are providing better solutions to marketers” (Pangarkar et al. 4)

AI-powered chatbots allow companies to provide real-time customer services 24/7. With the help of machine learning, they can process large amounts of data based on customers’ preferences and history to provide personalised services. In today’s time of hustleand fast-paced lifestyle, people prefer to receive quick responses to resolve their queries, This ability of chatbots to resolve customer queries promptly helps the brand to ensure a positive association with their customers. “Brands utilizing AI for subconscious branding gain a competitive edge by delivering highly personalized experiences that resonate deeply with customers. This uniqueness sets them apart from competitors and fosters customer loyalty.” (Pangarkar et al. 5) Along with the real-time resolution, they provide availability round the clock so the customer can contact anytime even if it is at 3 am. However, AI may struggle to properly understand complex human emotions and can only provide resolution up to a certain limit, customers more often than not prefer to have a human touch to the interaction to which the companies add the “Call an expert” option which connects the user with customer service provider in case the query has not been resolved to their satisfaction adding a personal touch along with the real-time service. AI chatbots handle routine inquiries or quickly solvable issues and free the time of human agents for more complex work.

AI can be used to analyze enormous volumes of data from a variety of sources, such as websites, social media, email marketing, and user behavior analysis. Growth-hacking tactics can be guided by the patterns, trends, and insightful information found in this data analysis. The AI system finds patterns that point to high-intent users by gathering information on user interactions, product views, and past purchases. Following that, the business customizes offers and suggestions for these users, which raises conversion rates and improves customer satisfaction. When it comes to quickly and effectively processing large datasets, AI performs better than humans. With this knowledge, businesses can better understand their clients and spot areas where their marketing procedures could be improved.

Brands look forward to making a lasting impression on their customers, building a positive image, and creating an emotional connection, which in turn leads to more customer retention. “The famous author, Seth Godin, famously said: people don’t buy goods and services. They buy relations, stories, and magic.” (Pangarkar et al. 1) “A consumer may struggle to recall an advertisement or might find it difficult to find the best part of an advertisement, which is a challenge to the marketer. But now using AI, brain mapping, eye tracking and facial coding, brand marketers can exactly figure out what appeals best.” (Pangarkar et al. 2) Marketing and advertisements using melody or taglines that remain in the subconscious is another technique to gauge the audience, for example, we find ourselves humming the song of a particular ad like that of Amul’s milk and butter.

BRAND LOYALTY

When a brand launches in the market, consistency and growth mark its success. The better the customer retention rate, the better the longevity and growth. A person typically has a preferred brand for practically every necessity, including hair care items, clothing, and business needs. Customers who have consistent positive experiences with a brand's products or services are more likely to establish trust and affinity for it. This, in turn, promotes brand loyalty, in which customers constantly prefer one brand over another, frequently regardless of price or convenience. Consumer satisfaction is an important indicator that indicates if a company's products or services meet or exceed customer expectations. It is more than simply a single transaction; it includes the complete client experience, from initial contact to post-purchase support.

AI IMPLEMENTATION AND CUSTOMER SATISFACTION

Use of AI models in inventory management

AI with its ability to process large amounts of data on various factors such as the history of sales, consumer preferences, and market trends abet brands to look for patterns and keep up with the demands. Traditional methods often fail to capture non-linear patterns and do not appropriately keep up with the rapidly changing trends and marketing impacts. They bank upon historical data without taking future and changing market dynamics into consideration. As a result, inefficient forecasting of demands may lead to overstocking (excess inventory) and stockouts (restricted availability of products).

Traditional methods often struggle to adapt to sudden changes in customer behavior for instance in case of a sudden surge of demands due to trends or promotional events, businesses can be caught off-guard resulting in stockouts which impacts customer satisfaction as they do not find the required product when needed. A recent example of which is the sudden spike in demand for sanitizers during lockdown, the public preferred Amazon when the shops ran out of the product, this is the loyalty created by the company over the years by ensuring the availability of maximum products 24/7. On the other hand, overestimating demand during the off-season might result in extra unsold products, increasing holding costs and capital investments.

As a result, detailed demand forecasting becomes required for a variety of reasons. It provides numerous benefits to brands, influencing many parts of their operations and overall profitability.

i. Reduces eventuality of stockouts and overstocking, avoiding lost sales and lowering the expenses associated with extra inventory storage.
ii. Supply chain efficiency allows for more efficient production scheduling and improves communication and collaboration with suppliers, resulting in more efficient supply chains.
iii. Improved customer happiness; satisfying client demand on a consistent basis increases customer satisfaction and loyalty while reducing delivery delays, improving the overall customer experience.

“Recent advancements in AI and machine learning have opened new avenues for improving demand forecasting accuracy. AI-driven models can process large volumes of data and identify intricate patterns and relationships that traditional methods might overlook. Machine learning algorithms, such as neural networks, random forests, and gradient boosting, can incorporate a wide range of variables, including historical sales data, market trends, and external factors like seasonality and promotions” (Amosu et al. 709)

Taking a look at the AI models

Neural Networks- They are deep learning models, employed to analyze complex non-linear patterns within the data using multiple layers of network. “Utilizing its multi-layer architecture, the neural network effectively captured complex nonlinear relationships within the dataset. This performance can be attributed to the model's ability to process large volumes of data and identify intricate patterns that traditional techniques often overlook. The inclusion of external factors such as market trends and promotional activities significantly enhanced the neural network's predictive power. These variables provided additional context, enabling the model to adjust its forecasts based on anticipated changes in consumer behavior.” (Amosu et al. 711) These models hold the ability to effectively adapt the rapidly changing data streams maintaining accuracy and relevance in case of dynamic market shifts which makes it important with respect to consumer preferences and keep the loyal customer base intact.

Random Forests- These are widely used machine learning algorithm, they combine the predictions of various individual models to produce accurate predictions. “The individual models are known as decision trees. Each tree trains on a random subset of the data, and the final prediction is made by averaging the predictions of individual trees.” (Amosu et al. 711) “One of the key strengths of the random forest model is its ability to handle large datasets and multiple variables effectively. This capability is particularly important in demand forecasting, where numerous factors can influence consumer behavior.” (Amosu et al. 712) This model is transparent in the process which provides confidence to the investors and stakeholders to make better strategic decisions.

Gradient Boosting- Gradient boosting is a powerful machine learning technique that builds predictive models in a stage-wise fashion. Essentially, it creates an ensemble of weak learners, typically decision trees, where each new tree focuses on correcting the errors made by the previous ones. This is achieved by minimizing a loss function using gradient descent, hence the name "gradient boosting". In short, it's a method that iteratively improves prediction accuracy by learning from its mistakes, resulting in highly effective models for both classification and regression tasks. “Furthermore, the gradient boosting model's capacity to incorporate real-time data allows businesses to respond swiftly to market changes.

This real-time adaptability is crucial in today's fast-paced retail environment, where consumer preferences and external factors such as economic shifts or seasonal trends can significantly impact demand." (Amosu et al. 712)

Overall conclusion of the discussion on AI-models is that they have turned out to be more efficient in predicting the market trends, adapt to changes quickly, and provide accuracy in the process to manage inventory effectively. These forecasting models significantly reduced the excess inventory, precise demand forecasts enabled timely replenishment of the stock. It makes the product available to customers at the time of demand maintaining the quality of service and trust. It also benefits in the business operations by reducing the holding costs. "For example, the neural network model's accurate predictions during peak seasons and promotional periods prevented the accumulation of unsold stock, which is a common issue in traditional forecasting methods. By maintaining optimal stock levels, businesses could respond more effectively to consumer demand, enhancing operational efficiency." (Amosu et al. 712)

Along with that, AI models mitigated the occurrence of stockouts by making closely accurate demand forecasts. "The reduction in stockouts was particularly beneficial during peak demand periods and major promotional events, where traditional forecasting methods often fall short. For instance, during a major promotional event, the neural network model accurately predicted a surge in demand for certain products, prompting timely restocking. This proactive inventory management prevented stockouts, ensuring that popular products remained available to customers. As a result, businesses experienced increased sales and improved customer satisfaction." (Amosu et al. 713) Keeping customers happy with the quality of service and availability of products is key to maintaining longevity and trust with the brand. Business is not about selling the products; it is about customer satisfaction. They become long-time partners/repeat buyers as well as promote the brand by recommending to their contacts. "Accurate demand forecasting also supports customer retention strategies by ensuring that popular products are always available, thus reducing the likelihood of customers turning to competitors. The ripple effect of enhanced customer satisfaction extends beyond immediate sales, influencing broader business performance and brand reputation." (Amosu et al. 715) Customers connect more with the brands when their needs are met consistently. "In a competitive retail environment, maintaining high levels of customer satisfaction through accurate demand forecasting can provide a significant competitive edge, driving long term success and sustainability." (Amosu et al. 715)

Use of AI assistants to interact with customers

Brands have been integrating AI into the business to get a competitive edge in the market. One, very popular technique is AI chatbots. Open AI launched various GPT models which served as the base of newly created models with advancements, the rise of personal assistants like Siri and Alexa followed by ChatGPT in 2022 functioning on the base of Machine Learning and Natural Language Processing. These chatbots are powered by AI, IoT, and blockchain. AI helps to understand human language using speech recognition, analysis of sentiment and context using NLP. It uses ML to improve interaction using predictive analysis, and pattern recognition and applies Deep Learning for advanced decision-making by recognizing images, using multi-layered neural networks. The basic function of AI is to understand user queries, process, and generate appropriate responses. "As AI technology progresses, chatbots are becoming more adept at understanding context, sentiment, and intent, resulting in more accurate and human-like interactions. Recent trends in AI-powered chatbots include the integration of advanced generative AI models, which can generate human-like text based on extensive training data. These models enable chatbots to provide more natural and coherent responses, improving user satisfaction. Additionally, AI chatbots are increasingly used in customer service, healthcare, finance, and e-commerce to handle inquiries, offer recommendations, and conduct transactions." (Rane et al. 5) The Internet of Things (IoT) assists AI by enhancing interaction and automation by collecting data in real-time and communicate between devices. Other features of IoT involve tracking user activity, sensing the environment, and automating based on context. "In a smart home environment, for example, an IoT-enabled chatbot can control lighting, thermostats, security cameras, and other connected devices. Users can interact with the chatbot through voice or text commands to manage their home settings remotely. In industrial applications, IoT-enabled chatbots can monitor equipment, detect anomalies, and alert maintenance teams to prevent downtime. The integration of AI and IoT in chatbots enhances automation, efficiency, and convenience." (Rane et al. 6) Blockchain as it is very well-known provides much required safety and privacy of data by providing a properly secure framework improving security and transparency of data. It works to encrypt messages, verify identity, and is the main technology behind secured financial transactions. "One of the key functionalities of blockchain-powered chatbots is identity verification. By utilizing blockchain, chatbots can verify the identity of users without relying on centralized authorities, reducing the risk of identity theft and fraud. Blockchain enables secure and transparent supply chain management, allowing chatbots to track and verify the authenticity of products and services." (Rane et al. 7) Together combined AI, IoT and blockchain provide highly advanced chatbots that perform transactions and address customer enquiries in the financial sector. For retail and brands, they handle a multitude of tasks such as providing personalized suggestions, customer care support, and assist with tracking orders.

Let's look at how AI-powered chatbots impact customer satisfaction and maintain loyalty.

Personalisation, it has been a key feature of successful customer satisfaction. AI with its ability to process large amounts of data using ML understands the pattern and choices of a customer based on their activity, searches, and previous purchases to facilitate suggestions that would suit the customer. At times, especially while shopping online we find ourselves in a place of indecision amid a variety of products, AI plays a major role in helping us find the product we are looking for. While content streaming on Netflix, Prime, etc it suggests the genre of shows/movies based on the previous preferences of the user.
Quick response, in today's fast-paced life people prefer to have their issues addressed quickly. AI-chatbots deliver real-time responses at any time that reduces the waiting time of the customers. This 24/7 availability is beneficial for the brands to provide a smooth customer care experience. Enhances customer satisfaction and establishes loyalty over time.

Handle multiple queries, businesses often find themselves short of service availability during high number of customer queries, AI solves the problem using its ability to handle multiple customers at the same time. It helps to keep up with the rising demand, leading to mitigating the chances of customer dissatisfaction.

Proactive interactions, AI also initiates interaction with customers by providing suggestions from time to time and offering relevant support and services. After making some purchases, we noticed an automated message asking for feedback along with suggesting complementary products. It helps to create a positive customer relationship. Understanding the feedback is important to provide improved services.

Multilingual support, chatbots also have the ability to process different types of languages such as the feature available with Siri, Alexa, and other chatbots to interact in different languages leading to provide support and services to various regions.

Other benefits are cost effectiveness, seamless integration in the business, emotional insights, and continuous improvement in the service.

MARKETING CHANGE WITH TECHNOLOGY

Marketing strategies have changed dynamically with the introduction of technology. Let's look at the evolution of marketing.

The famous Industrial Revolution took place between 1860 and 1920. It was a pivotal time of marketing as the advancement of new technologies allowed production and manufacturing in large amounts, factories generated goods in greater quantities which allowed brands to reach a wider audience. Production in mass reduced the prices which made the products more affordable for the customers. The time was marked by high demand and less competition which did not require much for marketing techniques. Followed by the Sales Era from 1920-1940. Companies started competing with each other with a common goal of selling more and more units. Radio advertisement, door-to-door promotion, and catchy posters were the commonly used marketing methods of that era. Customer needs and feedback were not of much importance at the time. Companies for example, Proctor and Gamble, found themselves in a situation of excess inventory where they employed radio commercials as a new marketing avenue to interact more with the target audience and made it through the phase. The Marketing Era which is in continuity today, focused more on customer needs, customer satisfaction, quality of products, and expanding the audience with a wider range of services.

'Marketing' comes from an Anglo-Saxon origin and comes from the verb 'to market' meaning buying and selling of a product. "The first recognised definition of the marketing concept was presented in the 1960s by the American Marketing Association, the development of economic activities (business activities) that direct the flow of goods and services from producers to the consumers". (Fuciu and Dumitrescu 44) The market kept evolving and so did the definition of marketing, have a look at what marketing meant at different times.

Marketing 1.0- During the early 1900s was focused on the idea of products and the production aiming at selling the product. The companies would produce in small amounts for a large audience and the focus of customers was on the specificity of the product. "The best example for this idea was the Ford T strategy designed by Henry Ford, which stated that any customer can have a car painted any color that he wants so long as it is black." (Fuciu and Dumitrescu 45)

Marketing 2.0- At the time communication and information technologies advance, the idea of marketing becomes customer-oriented. The aim was to satisfy and fulfill the demands of customers. This period marked the diversification and distinction of marketing. With the introduction of technology, customers were better informed about the options available for a single product and the sale depended on what they found more worth it.

Marketing 3.0- The key marketing concept was to enhance value or as known as the value-driven era. "This stage has evolved from treating the individuals as simple consumers, to treating them as human beings, that have a mind, heart and feelings." (Fuciu and Dumitrescu 45) The concept was emotional marketing building a connect at a sentimental level with the customers. The brands needed to determine, create, and adjust the marketing and communication strategies to the needs and aspirations of the customers.

Marketing 4.0- As presented in 2017 by Philip Kotler was "a marketing approach that combines the online and offline interaction between companies and consumers" (Fuciu and Dumitrescu 45) Integration of artificial intelligence, IoT, and blockchain technologies to increase productivity, enhance customer satisfaction, and leverage human-to-human connectivity. It is a combination of human and technology for marketing.

Marketing 5.0- It is a complex concept that is dominated by the digital environment, it focuses on the increasing human connection using artificial intelligence. The consequences and impact such as environmental pollution that have occurred over the years is a challenge faced by Marketing 5.0. Companies have to be aware and check their methods to be ethically correct making no impact on the natural ecosystem.

The availability of products and services across the internet has allowed small businesses to establish themselves among big companies that are working and evolving daily to match the dynamic trends inaugurated in the market by ingenious ideas of small businesses. Earlier the influential factors in buying products used to be recommendations, opinions of others, specific needs, and experience. In this growing internet influence, trends, and social media posts influence the decision-making process which has motivated brands to keep adapting to the changes such as producing goods using sustainable material in place of animal-based leather with increasing awareness on the topic, and automotive companies producing electric cars other than diesel engines.

To summarise, marketing used to be accomplished through radio advertisements, TV commercials, door-to-door sales, newspaper advertisements, and hoardings that moved onto websites, social media ads, influencer promotions, AI-based marketing, and targeted ads. The process shifted from selling products and making profit to customer satisfaction, personalized services, taking care of the needs and feedback of customers to build an emotional connection and improve retention.

CONCLUSION

Technological improvements upgraded a multitude of sectors, and among them marketing strategies shaped up significantly. Growing competition among brands has vitalised the importance of customer satisfaction to gain loyalty and retention. Artificial Intelligence is incorporated by brands allows for improvement in their services that helps to better the customer experience. Brands employ AI to predict precise demand and enhance customer experience using chatbots. Inventory management using AI models reduced stockout occurrence and overstocking, Neural networks, Random forests and Gradient boosting used together helped to identify non-linear patterns in the dynamic market demands, increased accuracy and correct errors. They adapt better to rapidly changing trends, predict the precise requirement of products, minimize holding costs, and timely replenish inventory. Product availability is an important component of business, and when customers learn that their requirements will be met, they consequently prefer to re-buy from the brand. Amazon has a wide range and availability of products which allowed it to become a frontrunner online retail business. The human touch given to AI using machine learning and natural language processing allowed chatbots to carry out multiple tasks for a brand. Chatbots developed with the integration of AI, IoT and Blockchain interact with customers, understand queries and provide answers, promising security and privacy of data. Providing customer support 24/7 immediately when asked for, personalised suggestions, handling multiple queries, and multilingual support are the functions of chatbots that help to build a connection with the customer and allow human workers to focus on complex tasks. AI has helped to enhance and upgrade the service level of brands alongside giving a competitive edge. Marketing was a concept of selling products and earning profit that evolved to focus more on customer satisfaction, their needs and integrate innovation to the business. It is now at the place to direct customer decision-making in favour of the business by showing its presence in the form of suggestions and advertisements over websites and social media. Growth in technology helped brands and customers to connect more and better.

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