International Journal of Advance and Innovative Research
Volume 13, Issue 1 (II): January - March 2026
ISSN 2394 - 7780

A STUDY ON CUSTOMER PERCEPTION TOWARDS THE USE OF AI IN THE REAL ESTATE SECTOR OF MUMBAI

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ABSTRACT
Artificial Intelligence (AI) refers to the ability of machines such as computers, laptops, mobile devices, and robots to perform tasks that typically require human intelligence. AI continues to advance rapidly, bringing imagination closer to reality. Today, the term "AI" encompasses a wide range of technologies that power many services and products used in daily life, from applications that recommend television shows to chatbots that provide real-time customer support. Mumbai is a fast-paced and busy city, often regarded as a dream city, where people are highly engaged in their professional and personal lives. As a result, individuals prefer to avoid unproductive activities and seek efficient use of time. In this context, AI has found increasing applications in the real estate sector, particularly in areas such as generative design, where it creates multiple layout options based on parameters like site conditions, budget, and efficiency. Therefore, the present study focuses on the use of AI technologies in the real estate sector and examines customers' perceptions toward the use of AI in real estate services. The study is based on data collected from both primary and secondary sources.
Keywords: *Real Estate Sector, AI Tools Used in Real Estate, Customer Perception*

1. INTRODUCTION:

Artificial Intelligence (AI) refers to the ability of machines such as computers, laptops, mobile devices, and robots to perform tasks that typically require human intelligence. AI helps solve problems by understanding needs and requirements in a manner similar to humans through data analysis and pattern recognition. A wide variety of applications fall under this umbrella, and as technology advances, expectations have increased. AI has proven capable of performing many tasks that humans do using intelligence, often working significantly faster than humans. AI continues to improve day by day and brings imagination closer to reality. It understands instructions, continuously refines outputs based on user requirements, and suggests more advanced or improved tasks that can be performed on the existing output. AI allows us to learn from past data to predict future outcomes through data aggregation, tracking, analytics, algorithms, and logical reasoning. In today's world, we frequently hear about machines performing surgeries and robots carrying out tasks that were traditionally done by humans. All of this is possible due to the growing power of AI. Today, the term "AI" describes a wide range of technologies that power many of the services and products we use daily, from applications that recommend TV shows to chatbots that provide real-time customer support. Some common examples of AI in use today include ChatGPT, Google Translate, Netflix, and Apple's Siri.

Mumbai is a very busy city and is often considered a dream city, where people lead fast-paced lives and are highly engaged in their daily work. As a result, they prefer not to waste time on unproductive activities and aim to utilize their time efficiently. This is why people in cities like Mumbai increasingly prefer online shopping for groceries and clothing, online ticket bookings, and ride-booking services. They are also aware of advanced technologies and know how to make the most of them. Knowingly or unknowingly, Artificial Intelligence (AI) has become a necessity in the modern world. Understanding how AI works and how to use it can help individuals better leverage technology both at work and in their personal lives. AI is also applied in the real estate business, particularly in generative design, where it creates numerous layout options based on parameters such as site conditions, budget, and efficiency. AI can quickly generate design concepts, create realistic images, support modular construction, and enable 3D printing of structural components, thereby reducing waste and improving precision. It can also transform predictions into realistic visual representations. Therefore, the present study focuses on how the real estate sector uses AI technologies in its services and examines the customers' perceptions towards use of AI in real estate services.

2. REVIEW OF LITERATURE:

- Saritha S. R. et al. (2023)[1], in their paper, stated that the main purpose was to develop new ways in which AI can be used in the real estate sector. They explained that, with the help of AI, the real estate industry has the potential to become more efficient, transparent, and customer-centric. They highlighted the potential benefits of AI in the real estate sector, such as more accurate property valuations, better customer service through chatbots and virtual assistants, and advanced property search capabilities.

ISSN 2394 - 7780

- Basheer AI-haimia et al. (2025)[2], in their paper main purpose was to understand the relationship between current technologies, their benefits, and the challenges faced in the real estate sector. They reveal the transformative potential of digital technologies in real estate and their advantages for stakeholders such as property managers, investors, purchasers, and tenants. They conclude that the main challenges in adopting digital technologies in real estate are related to high costs, data security concerns, and regulatory compliance. Therefore, to face these challenges will require coordinated efforts from policymakers, industry leaders, and researchers.
- Arpitha R. S. et al. (2025) [3], in their paper, they examined the role of digital technology in the real estate sector with respect to customer interaction, as well as the challenges and drawbacks faced by real estate agents in promoting customer-centricity. The study concluded that various digital tools, such as virtual property tours, mobile applications, AI-powered chatbots, and smart assistants, have significantly reshaped customer-centric practices in the real estate industry. However, they also concluded that real estate businesses must maintain a balance between the use of digital technologies and addressing customers' needs and preferences to ensure effective and sustainable customer engagement.

3. OBJECTIVE OF THE STUDY:

The objectives of the study are stated as follows:

- To study the AI technologies used by real estate sector.
- To examine the customer perception towards use of Artificial Intelligence in the real estate sector of Mumbai.

4. SCOPE OF THE STUDY AND METHODOLOGY:

The present study covers the Mumbai region and focuses on the types of AI techniques used in the real estate sector. It also examines the perception of customers who use or have been exposed to AI-based tools during property search and transaction processes. To understand the objectives of the study, both primary and secondary data were used. Primary data was collected through a Google Form–based questionnaire. Using the random sampling technique, the questionnaire was distributed among 50 customers who use AI-based tools while searching for and engaging in property transactions. Secondary data was collected from various sources such as the Internet, reference books, newspapers, and journals. The collected data was statistically analysed and interpreted using tools such as averages and percentages, and graphs were used to present the findings in a clear and effective manner.

5. AI IN REAL ESTATE SECTOR:

AI is now widely used across the real estate (real estate sector) value chain from land acquisition and construction to sales, property management, and urban planning.

Classification of AI technologies used in the real estate sector

- Machine Learning (ML): ML is used for Property price prediction & valuation models, Demand forecasting (location-wise housing demand), Credit risk analysis for home loans, Fraud detection in property transactions. Some of the examples of ML are Zillow's Zestimate model, AI-based circle rate vs market price comparison in Indian metros etc.
- Geographic Information Systems (GIS) + AI : It is used for Land suitability analysis, Slum redevelopment planning (SRA projects), Infrastructure accessibility mapping, Real-time project monitoring. In Mumbai GIS and AI is used for integration for tracking SRA housing delivery.
- Internet of Things (IoT) + AI**:** It is used for Smart building management. It is applied for Energy optimization, Predictive maintenance, Smart parking systems, Occupancy monitoring. Example of IoT and AI is AI-enabled smart buildings in commercial real estate.
- Digital Twins**:** It is used for preparation of Virtual replicas of buildings/cities. It helps in construction planning, Urban redevelopment simulation and disaster risk management.
- Robotics & Automation: It is used for Physical automation. It is applied for Construction robots, Automated surveying (drones + AI), 3D printing of housing units.
- Blockchain + AI (Emerging): It is used for Transparency & security. It is applied for Smart contracts for property transactions, Fraud prevention, Automated due diligence, and Digital land records & property verification.

ISSN 2394 - 7780

- Artificial Neural Networks (ANN): It is used for complex pattern recognition. It is applied for Real estate price fluctuation modelling, Construction cost estimation, and Investment risk profiling.
- Natural Language Processing (NLP): It is used for Text analysis and automation. It is applied for, AI chatbots for property inquiries, Lease agreement analysis, Legal document verification (title deeds, sale agreements) and Sentiment analysis of customer reviews. Example of NLP is Chatbots on real estate portals like Housing.com, Magicbricks, and 99 acres etc.
- Computer Vision: It is used for Image & video analysis It is applied for Property condition assessment using images, Construction progress monitoring, Detection of illegal constructions, Quality inspection of buildings and Satellite image comparison for rehabilitation project progress.
- Predictive Analytics: It is used for Future forecasting. it is applied for prediction of delay in project completion, forecasting of rental yield, and infrastructure impact on property prices.

6. Finding of the Study with respect of Customer perception towards use of AI in Real Estate:

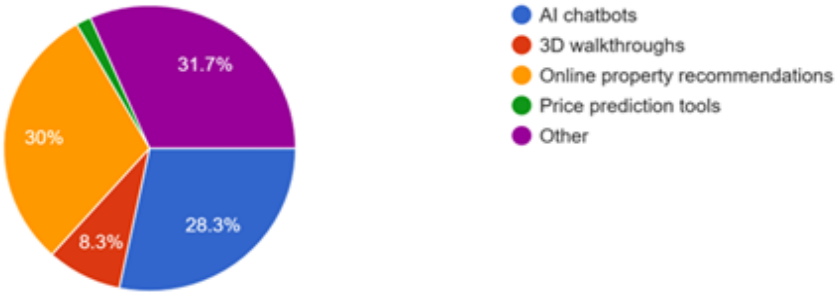
Table -1 Personal Profile of Respondents

Particulars	Frequency	Percentage
Gender		
Male	38	63.30
Female	22	36.70
Total	**60**	**100.00**
Age Group		
18-30	26	43.30
30-45	28	46.70
45-60	5	8.30
Above 60	1	1.70
Total	**60**	**100.00**
Educational Qualification		
Students	4	6.70
Salary Employed	36	60
Self Employed	6	10
Professional	9	15
Other	5	8.30
Total	**60**	**100.00**

Source: Self Compiled

Table1 shows, the study includes 60 respondents, divided between male (63.30%) and female (36.70%). Most participants are between age group of 30-45 with 46.70%, followed by 43.30% aged 18–30, and fewer respondents in older age groups. In terms of occupation/education, Salary Employed form the largest group (60%), followed by Professional (15%), while the remaining respondents are self-employed (10%), Students are 6.70% and other categories (8.30%). Overall, the table shows that the respondents are mostly male, within the 18–45 age group, and salaried employees, making the sample suitable for studies focusing on Customer Perception towards the use of AI in the Real Estate Sector of Mumbai.

Figure-1 AI-based tools used by Respondents in real estate services



Sources: self-compiled

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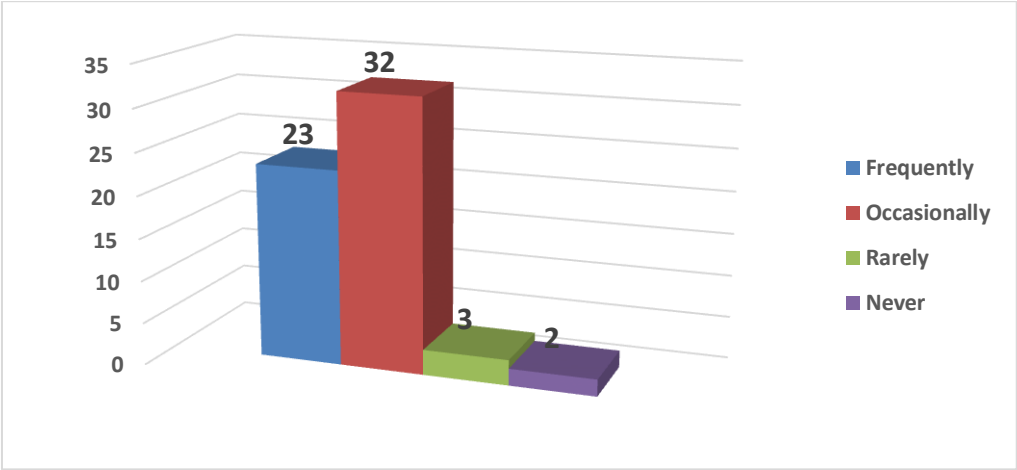
The Figure 1 reveals the extent of respondents' exposure to various AI-based tools in real estate services. Out of the 60 respondents, the highest proportion (31.7%) reported experience with other AI-based tools, indicating the presence of diverse or emerging technologies beyond the commonly identified categories. This is followed by online property recommendation systems (30%). AI chatbots are also widely experienced, with 28.3% of respondents indicating their use, reflecting their growing importance in handling customer queries and improving service responsiveness. Comparatively 3D walkthroughs are experienced by a relatively smaller segment (8.3%), while price prediction tools show minimal exposure (1.7%), suggesting limited adoption or awareness of advanced predictive analytics among customers. Overall, the findings suggest that while AI tools such as chatbots and recommendation systems are increasingly integrated into real estate services.

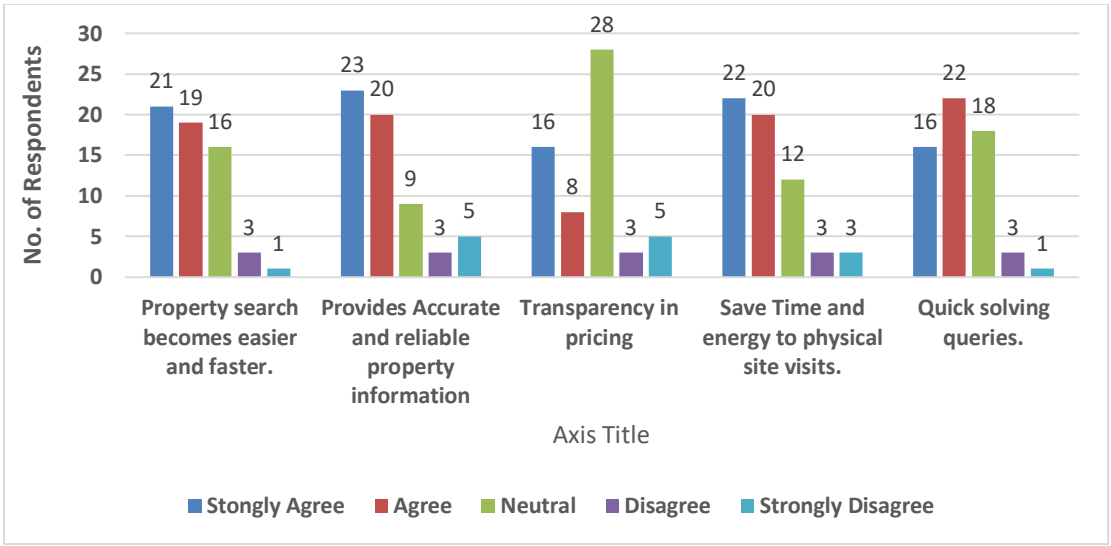
Figure 2: Frequency of using AI Based real estate platforms or tools by respondents



Sources: self-compiled

Figure 2 illustrates the frequency with which respondents use AI-based real estate platforms or tools. Out of the 60 respondents, the largest proportion 32 respondents reported that they Occasionally use AI-based real estate tools and 23 respondents are using AI based real estate tools. It indicates the most of the respondents uses AI tools in real estate.

Figure 3: Satisfaction with the Use of AI in Real Estate Services



Sources: self-compiled

- Figure 3 shows that out of 60 respondents, 21 are Strongly agreed with Property Search becomes easier and faster, while 19 respondents are agreed. Whereas 16 respondents are neutral on this. Only few respondents shown that they disagree or Strongly Disagree. This indicates that AI platforms enhance efficiency and convenience in locating in locating suitable properties.
- Out of 60 respondents, 23 are Strongly agreed with AI provides Accurate and reliable property information, while 20 respondents are agreed. Whereas 9 respondents are neutral on this. Only few respondents shown

ISSN 2394 - 7780

that they disagree or Strongly Disagree. This indicates that AI platforms is able to provide more accurate and reliable property information.

- Out of 60 respondents 28 are Neutral on transparency in pricing, which indicates that most of the respondents are uncertain about AI's effectiveness in ensuring transparent prices of real estate.
- Out of 60 respondents 22 strongly agreed and 20 agreed on saving of time and energy to physical site visit. It indicates that AI is reducing physical site visits and save time and energy.
- Out of 60 respondents 16 strongly agreed and 22 agreed AI is quickly solving the queries of the customers.

7. CONCLUSION:

The study of A Study on Customer Perception towards the use of AI in the Real Estate Sector of Mumbai shows that most of the people especially salaried and professionals are using AI based tools that make property search easy and faster, it also shows that it provides accurate and reliable information of the property as per the requirements of the customers. It also saves time and energy by avoiding physical site visits. It not only shows the picture and dimensions of property but also give virtual tour of property, which help customers to visualise the house, which helps them to select or chose the property for buying, selling or renting. it has been observed that real estate industries are using so many AI based platforms apart from customer service AI chatbots as it reflects in figure 1 others such as Magicbricks, Nobroker.com etc. AI is quick in solving the queries of the customers in real time. But as per data received from respondents, transparency of pricing is the area which needs further improvements.AI is really creating positive impressions between customers as AI never gives up on customer's expectations. In city like Mumbai where people are really busy in their work life and at the same time, they want to give decent living to their family, AI based applications have given them reliable information without disturbing their routine. However, some customers expect data privacy.

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