UNVEILING THE EVOLUTION: EXPLORING THE TRANSFORMATIVE IMPACT OF AI ON THE REAL ESTATE INDUSTRY

Pratik Narendra Patil[1], Dr. Hiray Apoorva Prashant[2]

[1]Research Scholar, MGV's Institute of Management & Research. Mumbai - Agra Road, Panchavati, Nashik, Maharashtra-422003, India.
[2]Research Guide, MGV's Institute of Management & Research, Mumbai - Agra Road, Panchavati, Nashik, Maharashtra-422003, India.

Keywords	Abstract
Artificial Intelligence, Real Estate, One Sample t-test	Artificial intelligence (AI) is incredibly essential the real estate sector since it can improve client experiences, decision-making, and process optimisation. Real estate agents can effectively evaluate enormous volumes of data, forecast market trends, and customise client interactions with the help of AI-powered algorithms. In addition, AI makes predictive analytics and proactive property management possible, enabling stakeholders to effectively reduce risks and make well-informed investment decisions. The focus of conducting this research is to explore the transformative impact of Artificial Intelligence on the real estate industry. The technique used in this study is one sample t-test. The outcome of the study indicated that Improved Property valuation, Enhanced property search, Virtual tours, Predictive analytics, Fraud detection, Market trend analysis, Customized property, Seamless property paper process through AI, Improved property listing, Enhanced navigation of

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	property and Enhanced customer service are the significant impact of AI on the real estate industry.

1. INTRODUCTION

Artificial Intelligence (AI) is one of the fastest developing computer sciences, having made major advances in recent years. Growing aspirations and expansion within the field are fueled by this progression. According to Mouratzis et al. (2020), artificial intelligence (AI) holds great potential for innovation despite the stagnation of several computer industries. This is because AI can function intelligently, even if it frequently deviates from traditional concepts of intelligence. The appeal of artificial intelligence (AI) is growing due to its potential for new applications in a variety of fields as well as its accomplishments. Artificial Intelligence (AI) is not possible without the combination of theoretical models and actual research, which means that basic knowledge has to be expanded and consolidated, especially in areas related to mathematics and applications.

Knowledge acquisition, retention, and manipulation are all components of intelligence. It is impossible to call humans or robots intelligent without these qualities. Furthermore, intelligence includes the ability to apply information to circumstances where problem-solving is required, rather than just being a collection of static data. In addition to digesting information quickly, learning is a crucial aspect of intelligence that captures the flexibility needed to solve problems. AI research outlines many models intended to provide robots cognitive capabilities similar to those of humans. AI's goals date back to the early days of computers and include a wide range of applications, such as expert systems, natural language processing, and autonomous agents. Fundamentally, artificial intelligence (AI) aims to simulate human cognitive functions, including reasoning, behavioural modelling, and thought processes. According to Goertzel et al. (2007), the taxonomy of artificial intelligence explains four different types of machines: those that think like people (Rich & Knight, 1991), those that reason logically (Nilsson, 1998); , those that mimic human behaviour (Haugeland, 1985); and those that act rationally (Charniak & McDermott, 1985).. Every category highlights a distinct aspect of intelligence.

To improve efficiency, accuracy, and overall effectiveness, the real estate industry is adopting technology innovations (Zhu & Lizieri, 2022). This is being done to streamline the purchasing and selling processes. To improve transactional experiences, several modern technologies are presently being included into the real estate sector (Kabaivanov & Markovska, 2021; Alsawan & Alshurideh, 2023; Ziakis, 2022; Treleaven et al., 2021). Artificial intelligence (AI) and virtual reality (VR) are being used more often to facilitate transactions on online property platforms, which are growing in popularity. Real estate companies have embraced artificial intelligence (AI) more than ever before, seeing its potential to improve decision-making and operational efficiency (Kabaivanov &

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Markovska, 2021; Alsawan & Alshurideh, 2023; Treleaven et al., 2021). According to a market study, artificial intelligence (AI) technologies allow for the automation of repetitive chores like property inspections and showings, which saves agents and customers a great deal of time and money. Furthermore, real estate professionals may make well-informed judgments thanks to AI's capacity to analyse large datasets, which offers insightful market forecasts and insights on property values, rental rates, and general market trends (Treleaven et al., 2021).

Additionally, depending on individual preferences and search histories, AI technology provides clients with personalised services like immersive virtual tours and tailored property suggestions (Kabaivanov & Markovska, 2021; Alsawan & Alshurideh, 2023; Treleaven et al., 2021). Large datasets may now be correctly and swiftly analysed thanks to artificial intelligence (AI) and machine learning algorithms, which has enhanced industrial procedures for making decisions (Viriato, 2019; Pinter et al., 2020). To preserve the dependability of AI-driven insights and forecasts, real estate companies need to make sure that the data they use is unbiased and accurate as AI technology develops (Treleaven et al., 2021). The real estate AI sector has great potential to improve customer services in terms of effectiveness, precision, and personalisation (Treleaven et al., 2021).

2. LITERATURE REVIEW

1. Dario, Torre. (2023). the goal of the study was to solve the shortcomings of conventional hedonic pricing models, which are semi-parametric or parametric and are used to analyse the fundamentals of real estate markets. The study's conclusions proved how effective it is to analyse real estate market fundamentals using the XGBoost algorithm and ALE plots. Through the application of non-parametric methods, the study avoided making a priori assumptions about the models' functional shape. With the use of the ALE plots, it was possible to analyse in-depth how structural, locational, and socioeconomic factors affect value and gain understanding of the intricacies of real estate markets. The limitations of conventional assumption-based hedonic pricing models were overcome by this method, which offered a more thorough depiction of real estate market dynamics.

2. Mahdieh, Yazdani., Maziar, Raissi. (2023). This research aimed to present a new approach to real estate property appraisal by utilizing self-supervised vision transformers, current development in deep learning and computer vision. Low Root Mean Squared Error (RMSE) metrics showed that the suggested method produced reliable property value forecasts, according to the study's findings. According to the performance review, the algorithm performed better than conventional appraisal techniques that excluded property photos. These findings imply that the accuracy of property value might be greatly increased by combining self-supervised vision transformers with hedonic pricing models and machine learning.

3. Ivana, Božić, et al. (2023). This research aimed to evaluate the benefits and drawbacks of using

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AI and VR technology in the real estate industry, with a particular focus on developing a real estate application. Results showed that, thanks to developments in IT infrastructure, AI and VR technologies are becoming more and more relevant in today's world. The research emphasised how specialised cameras have made it possible for 360° photos and immersive surroundings to develop, opening up new possibilities for property marketing and customer interaction. The research highlighted the potential of VR and AI to revolutionise the real estate market, despite technological constraints that prevent total immersion. This has prompted more investigation into the uses and consequences of these technologies in the real estate business.

4. P., A., Seagraves. (2023). the goal of the article is to conduct a thorough analysis of artificial intelligence's (AI) revolutionary effects on the real estate sector. According to the report, artificial intelligence (AI) has a great deal of promise to transform the real estate sector through enhanced property appraisal accuracy, more efficient automation, and engaging augmented and virtual reality (AR/VR) experiences. AI-powered chatbots and building management optimisation are also promising. But the report also identifies potential problems, including concerns about data privacy, algorithmic biases, and the possibility of job loss as a result of rising automation. The findings highlight how crucial it is to make strategic decisions in order to maximise AI's benefits and minimise any possible risks for the real estate industry.

5. Gustamber, De, Jesús, Guerrero, Ortiz. (2022). The goal of the research was to conduct a thorough analysis of papers that examined the use of artificial intelligence (AI) in real estate assessment that were published between 2020 and 2022. Numerous insights on the use of AI in real estate appraisal were brought to light by the review's results. While machine learning models showed promise for higher accuracy and fewer mistakes than classical approaches in some situations, they also showed flaws that needed to be fixed, especially when it came to data kinds and processing techniques. Due diligence and customization in the models' application are vital, as evidenced by their sensitivity to the goals, reasons, and types of data being studied.

6. Farheen, Naz., et al. (2022). The research aimed to examine the function of artificial intelligence (AI) in the property management (PM) and real estate industries, especially in light of the difficulties presented by the Covid-19 epidemic. During the evaluation period, 175 papers were discovered, indicating a substantial body of literature on AI and PM, according to the study's conclusions. Research patterns were found using bibliometric analysis, which provided insight into how AI applications are changing in the real estate and property management sectors. Ten emergent theme topics were found using structural topic modeling (STM), which sheds light on the many ways that artificial intelligence (AI) is being used to handle property management issues, especially in light of the Covid-19 epidemic.

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7. Madami, Michael, et al. (2021). The goal of the project was to look at how AI may change the real estate market, particularly in terms of forecasting property prices at auction. The study's conclusions showed that artificial intelligence (AI) systems are becoming a more practical tool for real estate evaluation, particularly for predicting auction values. Furthermore, it was discovered that effective zonal segmentation based on auction evaluation price greatly improved the prediction accuracy of the ANN model. A statistical study revealed a significant difference in the two models' forecasting skills, confirming the potential of AI-driven approaches to redefine conventional real estate valuation methods, particularly in auction markets. These results demonstrated how AI can fundamentally alter the dynamics of the real estate sector, especially in the area of property value.

3. OBJECTIVES OF THE STUDY

- To analyse the transformative impact of AI on the real estate industry.

- To give appropriate suggestions to real estate industry stakeholders towards the implementation of AI in their businesses.

Hypothesis:

H0: AI does not have a transformative impact on the real estate sector. (Mean score < 3)
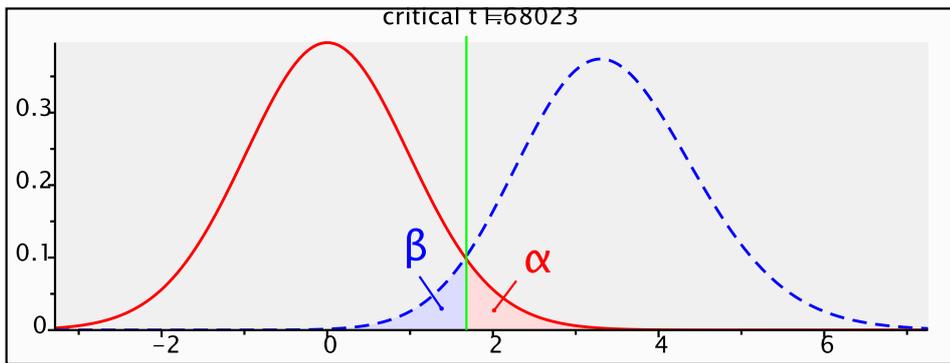
H1: AI has a transformative impact on the real estate industry. (Mean score > 3)

4. RESEARCH METHODOLOGY:

The study employed a descriptive research design, combining both primary and secondary data sources. Non-probability purposive sampling was employed to select a sample size of 50 real estate developers, As per Faul et al.'s a minimum sample size of 45 for conducting a one-tailed one-sample t-test. Data analysis utilized parametric one-sample test, with R Studio software as the analytical tool.

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Data Analysis and Interpretation:

Table No: 1 One sample t test

Items	t – statistics	P – value	Ha: mean score of Impact of AI on the Real Estate Industry > 3
Improved Property valuation	19.09	0.000	Significant
Enhanced property search	19.22	0.000	Significant
Virtual tours	20.34	0.000	Significant
Predictive analytics	20.78	0.000	Significant
Fraud detection	21.43	0.000	Significant

Market trend analysis	**21.00**	**0.000**	**Significant**
Customized property	**22.99**	**0.000**	**Significant**
Seamless property paper process through AI	**23.43**	**0.000**	**Significant**
Improved property listing	**21.66**	**0.000**	**Significant**
Enhanced navigation of property	**22.11**	**0.000**	**Significant**
Enhanced customer service	**23.00**	**0.000**	**Significant**

Parametric one sample t – test (one tailed) is applied to examine the Transformative Impact of AI on the Real Estate Industry. It is seen that p – value < 0.05 and t statistics > 1.96 for Improved Property valuation, Enhanced property search, Virtual tours, Predictive analytics, Fraud detection, Market trend analysis, Customized property, Seamless property paper process through AI, Improved property listing, Enhanced navigation of property and Enhanced customer service.

5. CONCLUSION

The study reveals a wide range of ground-breaking impacts and sheds light on the tremendous influence of Artificial Intelligence (AI) on the real estate market. Significant contributions of AI integration in the real estate domain include improved property valuation mechanisms, enhanced property search functionalities, immersive virtual tours, robust fraud detection systems, predictive analytics for informed decision-making, thorough market trend analyses, tailored property recommendations, streamlined paperwork processes, enriched property listings, and elevated customer service standards. These results highlight how AI has the power to completely transform conventional real estate procedures, resulting in increased client satisfaction, cost savings, and efficiency advantages. Stakeholders in the real estate sector are encouraged to adopt AI technology in a proactive manner going forward. Stakeholders may foster innovation, promote operational excellence, and take the lead in a changing and dynamic real estate market by making investments in AI-driven solutions. Using AI to its fullest potential in transforming the real estate industry would require cooperation, investments in AI infrastructure, ongoing learning, and technical adaptability. The sector is well-positioned to usher in a new era of efficiency, transparency, and customer-centricity as it adopts AI, establishing the groundwork for long-term development and success in the digital era.

6. RECOMMENDATIONS:

- Invest in AI-enabled property valuation tools to ensure more accurate and efficient property

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pricing assessments.

- Integrate AI-driven property search functionalities into real estate platforms to enhance user experiences and facilitate quicker property discovery.

- Implement virtual tour technologies powered by AI algorithms to provide immersive and interactive property viewing experiences for potential buyers.

- Utilize predictive analytics models to anticipate market trends, enabling proactive decision-making and strategic investments.

- Incorporate AI-based fraud detection systems to mitigate risks and ensure the integrity of real estate transactions.

- Develop customized AI solutions tailored to specific customer preferences and needs, enhancing engagement and satisfaction levels.

- Streamline property paperwork processes by adopting AI-driven document management systems, reducing administrative burdens and transactional delays.

- Enhance property listings with AI-generated content and imagery to attract and engage prospective buyers effectively.

7. AUTHOR(S) CONTRIBUTION
The writers affirm that they have no connections to, or engagement with, any group or body that provides financial or non-financial assistance for the topics or resources covered in this manuscript.

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All authors declare that any kind of violation of plagiarism, copyright and ethical matters will taken care by all authors. Journal and editors are not liable for aforesaid matters.

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