

The AI integration service innovation model of real estate industry in Taiwan

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Abstract

This paper aims to explore the innovative model of integrating AI (Artificial Intelligence) services in the Taiwanese real estate industry. The research employs literature analysis and the Fuzzy Analytic Hierarchy Process (FAHP) as the methodological approach. A FAHP questionnaire survey was conducted among real estate professionals in the Tainan region of Taiwan. Through the calculation of relative weights among various dimensions, the study identifies key factors related to the adoption of AI-based innovations by real estate agents in Taiwan. These findings serve as crucial references for the real estate industry in transactional and operational management.

Keywords: Real Estate Agency, Artificial Intelligence (AI), Service Innovation, Fuzzy Analytic Hierarchy Process (FAHP)

1. Introduction

Real estate transactions involve not only the buyers and sellers but also a crucial intermediary—the real estate agent. These agents play pivotal roles in property transactions, serving as key figures in advertising, marketing, and negotiation processes.

Quality real estate agents leverage effective communication and professional marketing strategies to facilitate successful transactions, guiding both parties towards the common goal of closing deals.

This paper asserts that real estate agents consistently improve overall marketing performance through various innovative services. However, the study suggests that by incorporating an AI-driven integration of innovative services, it is possible to identify key factors influencing various sales strategies employed by real estate agents. The research believes that uncovering these factors can significantly contribute to the operational performance of real estate agencies.

The objectives of this study are as follows:

(1) To examine relevant literature and identify key factors in service innovation, developing primary and secondary dimensions.

(2) To integrate AI technology into the reviewed dimensions and conduct a questionnaire study using the Fuzzy Analytic Hierarchy Process (FAHP) to obtain the relative weights of four main dimensions and twelve sub-

dimensions.

(3) To draw conclusions and summarize the key factors in the integration of AI-based service innovations in the Taiwanese real estate industry. These findings serve as vital references for industry operational performance and business development.

2. Literature Review

Innovation has emerged as a pivotal force propelling the development of the service economy [1]. Within the real estate industry reports, there is a growing trend to incorporate elements such as digitization, new technologies, the sharing economy, tenant relationships, as well as new services and business models [2], [3], [4].

AI has the potential to drive market capabilities, utilizing various AI methods such as customer-oriented, industry-oriented, and cross-functional integration approaches to better understand consumer demands. These methods are then applied to the marketing behaviors of companies [5]. To streamline AI-driven innovation, service organizations need to develop an integrated Dynamic Capability Framework (DCF) that focuses on the ethical application of technology, talent, organizational culture, and structure to optimize the entire service journey [5].

This paper gathers insights from domestic and international scholars and experts to explore literature related to service innovation and the application of AI in

the field of real estate. Through this review, the study synthesizes and constructs the main dimensions of service innovation, including customer engagement, business models, technology integration, and process innovation. The subsequent sections provide detailed discussions on each of these dimensions.

At the "customer engagement" level, customers are paramount in the real estate industry. Real estate agents must fully comprehend customer needs to seize crucial transaction opportunities. Therefore, the concept of customer engagement necessitates the integration of various transaction methods, considering potential impacts on company behavior. To achieve this, companies need to understand customer demands, identify the value customers seek beyond normal transaction processes, recognize customer roles, and anticipate the roles customers and the company play in interacting with each other [6].

At the "business model" level, business models have become essential means for the commercialization of innovative ventures. They are perceived to provide a framework for companies to create and extract value from innovative ideas or technological developments, emphasizing that innovation concepts or technological developments alone do not represent any "single target value." The commercialization of such concepts occurs through business models [7], [8].

At the "technology integration" level, the rapid development and widespread deployment of technology integration form the foundation for many service innovations. The significance of technology integration for service-oriented enterprises and industries, as well as the importance of service innovation, has long been recognized [9]. Understanding the four dimensions of service innovation—service concept, customer interface, service delivery system, and technology—many service innovations involve some combination of these dimensions [10].

At the "process innovation" level, revolutionary approaches to enhance business performance must address how to perceive and build businesses and how to improve them. Businesses should not be viewed from the perspective of functions, departments, or products, but rather from the standpoint of key processes. Adopting a process-oriented approach means adopting the customer's viewpoint. Processes are the structures for performing operations required to create value for customers. Therefore, a crucial measure of processes is customer satisfaction with the process outputs, as they are the ultimate arbiters of process design and ongoing performance [11].

For real estate sales, the use of technology and digitization has become a fundamental marketing method. As

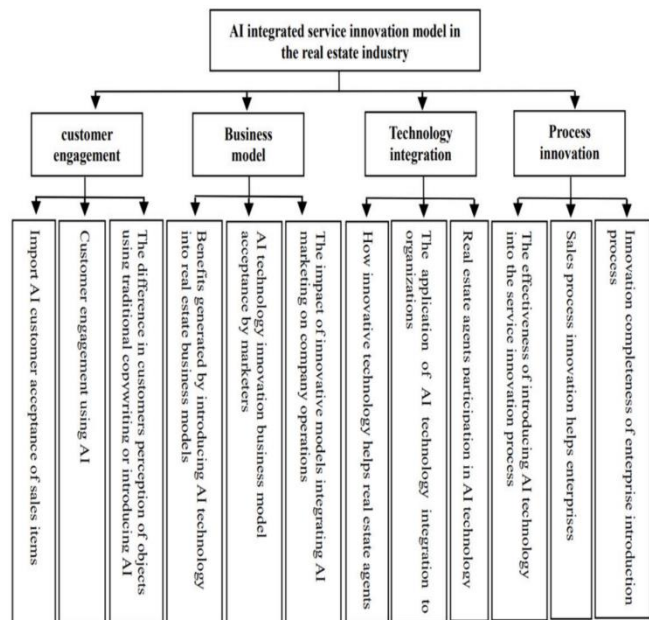
information technology continues to advance, an increasing number of real estate agents are incorporating AI technology into their sales promotions. This involves integrating various service innovations and streamlining operational processes to address the dynamic demands of the real estate market, thereby strengthening business operations and achieving profitability goals.

3. Constructing an AI-Integrated Service Innovation Model in the Real Estate Industry

3.1. Research Framework

This study synthesizes the results of focus group discussions to establish a determined research framework for an AI-integrated service innovation model in the real estate industry. The developed framework comprises four main dimensions and twelve evaluation indicators, as illustrated in (Fig. 1).

Figure 1 Research Framework



3.2. Research Subjects

To investigate the integration of AI technology in service innovation within the Taiwanese real estate industry, this paper focuses on real estate professionals in the Tainan region as the primary study participants. Employing purposive sampling, 12 scholars and industry experts specializing in AI and the real estate industry were selected to participate in the FAHP questionnaire. Prior to conducting the FAHP survey, the researchers provided an overview of the study's objectives to these participants and engaged willing real estate professionals in the FAHP questionnaire survey operations.

4. Empirical Evidence of AI-Integrated Service Innovation Models

In this paper, the multiplication of the four evaluation indicators by their respective dimensions results in composite weights.

As can be seen from Table 1, the most important evaluation indicators recognized by the 12 real estate industry players are "customer acceptance of AI for sales objects" (the comprehensive weight is 0.223), and "the benefit of sales process innovation to the enterprise" (the comprehensive weight is 0.173, ranking No. 2. Ranked third is "The difference in customer perceptions of objects using traditional copywriting or the introduction of AI" (the comprehensive weight is 0.101), ranking fourth is "The effectiveness of AI technology introduced into the service innovation process" (the comprehensive weight is 0.084), ranking The fifth is "The benefit of innovative technology to real estate agents" (the comprehensive weight is 0.083), and the evaluation indicators ranked sixth to twelfth are: "The acceptance of AI technology innovation business model by marketers" (the comprehensive weight is 0.067) , "Customer participation in using AI" (the comprehensive weight is 0.059), "The benefits generated by the introduction of AI technology into the real estate business model" (the comprehensive weight is 0.056), "The organizational application of AI technology integration" (the comprehensive weight is 0.054) , "Innovation completeness of enterprise introduction process" (the comprehensive weight is 0.041), "The impact of the innovative model integrating AI marketing on company operations" (the comprehensive weight is 0.030), and "The participation of real estate agents in AI technology" (the comprehensive weight is 0.029).

Table 1 The comprehensive weights for the AI-integrated service innovation model

Dimension	Weights	Evaluation indicators	Weights	Comprehensive weight
customer engagement	0.383	Import AI customer acceptance of sales items	0.582	0.223
		The difference in customers' perception of objects using traditional copywriting or introducing AI	0.263	0.101
		Customer engagement using AI	0.155	0.059
Process innovation	0.298	Sales process innovation helps enterprises	0.579	0.173
		The effectiveness of introducing AI technology into the service innovation process	0.283	0.084
		Innovation completeness of enterprise introduction process	0.138	0.041
Technology integration	0.166	How innovative technology helps real estate agents	0.502	0.083
		The application of AI technology integration to organizations	0.325	0.054
		Real estate agents' participation in AI technology	0.173	0.029
Business model	0.153	AI technology innovation business model acceptance by marketers	0.436	0.067
		Benefits generated by introducing AI technology into real estate business models	0.369	0.056
		The impact of innovative models integrating AI marketing on company operations	0.195	0.030

5. Conclusions

The four key findings of this study are listed below:

5.1. The most important evaluation indicator for customer participation is "Customer acceptance of sales items imported into AI"

"Customer participation" is the most important aspect considered by real estate industry players, among which "customer acceptance of AI for sales items" is the most important. For customers, no matter what kind of real estate property is needed or what sales method is used, the primary evaluation factor is whether the customer can accept and like it. It is also worth noting that no matter what kind of technology is used to promote the sale of objects, the key point is to let customers fully understand the characteristics, price, regional market and housing conditions of the object, which is the best way to achieve the final sale.

5.2. The most important evaluation indicator of process innovation is "the benefit of sales process innovation to the enterprise"

"Process innovation" is the second most important aspect considered by real estate industry players, among which "the benefit of sales process innovation to enterprises" is the most important. Research shows that the vast majority of real estate industry operators agree that continuous innovation in sales processes, in addition to the benefits to enterprises, It is obviously helpful, but it will also be a great help for marketers to implement business promotion. The possible reason is that with the changes of the times and in response to different customer needs, only innovating the sales process in a timely manner can effectively improve operational efficiency. In other words, real estate industry players cannot just focus on sales performance. Grasping the pulse of the market and establishing a process innovation mechanism are indispensable key factors.

5.3. The most important evaluation indicator for technology integration is "the benefit of innovative technology to real estate agents"

"Technology integration" is the third most important aspect considered by real estate industry players, among which "the benefit of innovative technology to real estate agents" is the most important. The main reason is that information technology is changing with each passing day, and AI is penetrating into every person. Today, the main purpose of promoting technology-based real estate brokerage is to create convenience, security, and innovation between operators and consumers. At this time, it must rely heavily on the integration and linkage of various technological

knowledge and information equipment. For example, through smart technology-related technologies, people can view houses remotely or use 360-degree panoramic views, so that they do not need to visit the house in person. Instead, they can use technology to filter suitable objects to save money, time and improve sales performance.

5.4. The most important evaluation indicator of the business model is "marketing staff acceptance of AI technology innovation business model"

"Business model" is an aspect that real estate industry players consider to be less important. Among which, "AI technology innovation business model marketers' acceptance" is the most important. The main reasons should be the age and acceptance of new technology applications by real estate agents and marketers. There is a large gap in levels, and not every colleague may be quick or familiar with the application mode of AI technology, and some consumers have not popularized the operation method of information technology for house viewing. There are still most consumers who can only discover the house through on-site viewing. The actual problem lies, but with the increasing popularity of smart systems and equipment, AI technology will gradually become more popular in the future, and the public will also have a certain degree of concept. The promotion of this business model will still be a key point in the future.

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Authors Introduction

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