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INFORMATION SUPPORT IN HOUSING FUND MANAGEMENT

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Abstract
This article explores the role of information provision in the housing stock management system, examines existing information flows, and discusses ways to enhance their effectiveness.

Keywords: Housing stock, digitalization, technical and economic passports for multi-apartment buildings, infrastructure, information database.

Introduction

In today's era of digitalization and technological progress, having accurate, reliable, and systematic information has become a crucial factor in the process of managing the housing stock. The housing stock is not only residential space, but also an integral part of the entire urban infrastructure, social environment, and economic system [1]. Information support is the primary tool that determines the functionality, efficiency, and transparency of this system.

In recent years, the number of housing units in Uzbekistan has been growing rapidly. As of January 1, 2025, the total housing stock exceeded 700 million square meters. However, the management and monitoring of this fund are still not sufficiently digitalized. Therefore, the implementation of information systems is one of the key issues in improving the technical condition of the housing stock, the quality of services, payment discipline, and management efficiency.

Analysis of Literature on the Topic

The study of theoretical and scientific-methodological issues in housing stock management is addressed in the scientific works of foreign scholars such as Raizberg B.A., Solow R.M., Twiss B., Friedman J., Asaul A.N., Baronin S.A., Vladimirova I.L., Gribovsky S.V., Zheleznyakov A.V., and many others[2]. Professor B.N. Panshin defines the digital economy as "an economy based on network services"[3]. In the scientific works of Professors E.A. Nesterenko and A.S. Kozlova, the digital economy is interpreted as "a system of economic, social, and cultural relations based on the use of digital information and communication technologies" [4]. In their research, L.N. Kosova and Yu.A. Kosova emphasize that the modern economy has an open-type nature, and the importance of information transparency is characteristic of many sectors[5]. The role of digital technologies in economic activity and their application in real estate management is reflected in the works of Shayn Payter G., Schumpeter Y., Azgaldov G.G., Baranova Yu., Kozlov I.M., Oganesyan V.P., Sandram D., Safronov I.V., and numerous other scholars[6].

Scientists from our country have examined various aspects of the housing stock and communal services management system. Among these, the scientific works of R.I. Nurimbetov, A.S. Sultanov, A.D. Metyakubov, K.S. Tashmukhamedova, I.Kh. Davletov, A.Kh. Nabiev, K.A. Tantibaeva, N.M. Vishnevskaya, and others are particularly noteworthy [2,6].

The studied works of Uzbek, Russian, and foreign researchers demonstrate that information technologies play a crucial role in shaping the theoretical and practical aspects of housing stock management. However, it should be noted that some methods have only been partially implemented in housing stock management practices and have not been fully explored. Therefore, the relevance of the research topic is linked to the necessity of implementing digital technologies to create a system that ensures the effective functioning of housing stock management [7].

Research Methodology

The theoretical and methodological foundation of the scientific research comprises theoretical and methodological approaches to defining the concept of housing stock, digital technologies for collecting and analyzing housing stock data, and the methodology for developing an information base for managing housing stock utilization. The study of practical aspects of housing stock management was conducted using empirical and theoretical methods of inquiry, such as observation, comparison, analysis, classification, and analytical and statistical grouping.

Analysis and results

The trend of digitalization is affecting all sectors of the economy to varying degrees, including housing and communal services and housing stock management. Housing stock management is a multifaceted, complex, and continuous process requiring constant monitoring. Its effectiveness depends primarily on the level of accurate and timely information provision. Information support serves as the "core system" of the housing stock management system, ensuring reliable, accurate, and real-time management of technical condition assessments, utility monitoring, financial settlements, citizen appeals, and other crucial processes.

It is well-known that information technologies enable increased efficiency in many urban services and, most importantly, reduce costs. Therefore, modernizing the housing stock management sector is of critical importance. This process is implemented through methodological and technological solutions, aimed at providing economic and information-analytical support to management. This includes processes such as searching, collecting, processing, modifying, storing, distributing, and utilizing information about each object in the housing stock.

The process of managing complex objects, such as multi-story buildings, requires comprehensive information support. In the housing stock management system, there is a critical shortage of up-to-date and reliable information on the technical condition of structural elements and engineering systems of apartment buildings. As a result, it has become impossible to organize a management process that meets high standards.

In the context of the digital economy, decisions in the field of housing stock management should be based on current, complete, and reliable information about the technical and economic condition of buildings. Only then will it be possible to determine the actual degree of deterioration of residential buildings and their repair needs, as well as to plan the necessary maintenance and restoration work to keep buildings in proper condition.

The following shows the dynamics of the number of users of electronic services in housing stock management for the period from 2015 to 2024 (Figure 1).

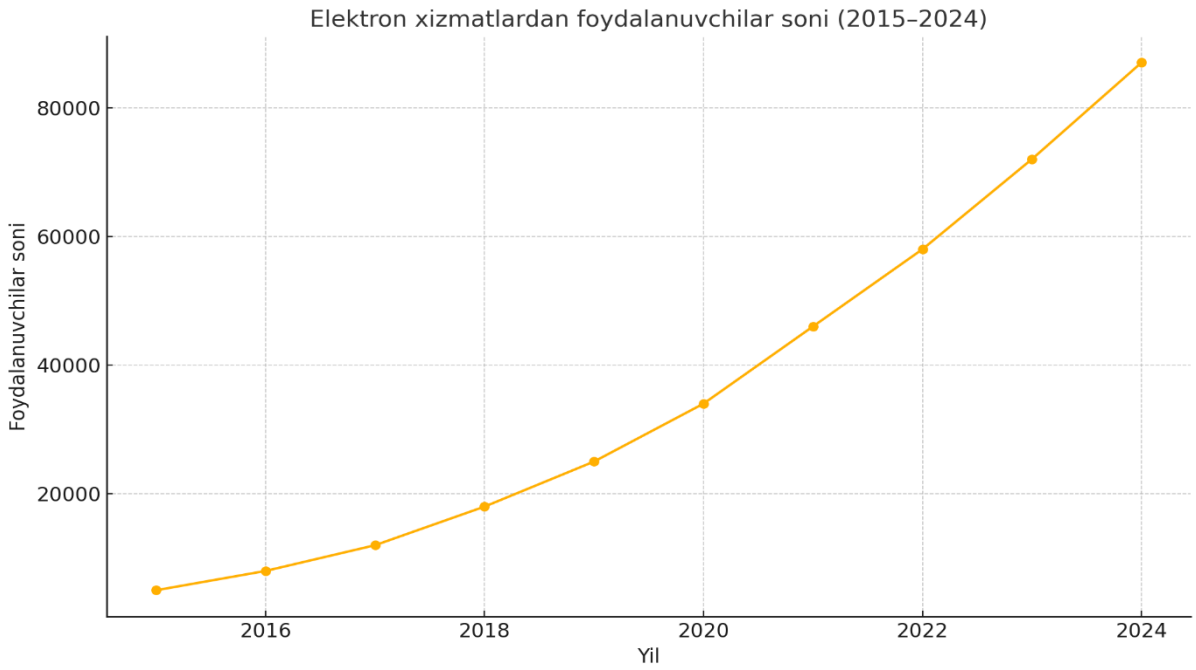

Figure 1. Number of users of electronic services in housing stock management in Uzbekistan from 2015 to 2024, in thousands of people.

This growth is attributed to the implementation of digital technologies, the improvement of interactive platforms, and an increase in the digital literacy of the population. Digitalization not only enhances the speed and transparency of the management process but also enables electronic tracking of citizens' requests.

To establish an information database for managing the use of the housing stock, it is necessary to continuously monitor (collect data), assess, and forecast the technical condition of residential buildings. In our opinion, this forms a system for providing information on the technical condition of residential buildings. Within this system, the collection, systematization, and analysis of data on the technical condition of buildings, forecasting their future state, and preparation of recommendations aimed at extending the service life of the housing stock are carried out.

The primary purpose of the information database is to provide management bodies, homeowners, and management organizations with comprehensive, timely, and reliable information. This information is essential for making management decisions aimed at

maintaining the proper technical condition of the housing stock, creating safe and comfortable living conditions for citizens, and protecting the environment during the use of housing.

The technical and economic passport of an apartment building is designed to provide management entities with comprehensive and reliable information about the consumer properties, technical and economic characteristics of each apartment building. It includes data on the composition and dimensions (area) of the building's structural elements and engineering systems, their technical condition, information obtained from building inspections, and recommendations for conducting repair and restoration work.

This technical and economic passport should be utilized in the process of managing the maintenance and repair of an apartment building for the following purposes:

- organizing appropriate technical operation of residential buildings;
- targeted planning of major and routine repairs;
- calculating expenses for the maintenance and repair of common property in an apartment building, including determining the necessary number of employees for management and service housing organizations and the payroll fund for each apartment building;
- maintaining the personal account of the apartment building [8].

The information provided in the technical and economic passport must be updated twice a year based on the materials from planned spring and autumn technical inspections of the building, as well as adjusted according to the results of repair and restoration work.

As a result of the conducted research, we have proposed a new version of the electronic passport, which, in our opinion, is an effective model of the electronic passport. In the process of creating such passports, it will be necessary to use modern computer technologies.

Table 1. General information about the object

Indicator name	Value
Address	Jar-ariq district, house 15
Management method	Management service company
Purpose of the object (residential, industrial, maintenance and operation, administrative, etc.)	Residential
Year of construction	1990
Year of major renovation	-
Wall material	Monolithic
Number of floors	9
Number of entrances	10
Total building area, m2	22113
Residential area of the building, m2	17676
Non-residential area of the building (for production needs), m2	4437
Number of apartments	198
Number of residents	792

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Table 2. Resource-providing organizations

No.	Resource supplied	Supplier name	Meter availability	Accumulated funds from apartment payments for	Submitted for payment by
1.	Heat supply/hot water supply	SUE 'Stone-Capacity'	Available		
2.	Cold water supply	JSC	Available		
3.	Gas supply	JSC "Hududgazta'mino	Not available in all apartments		
4.	Electricity supply	JSC "Regional Electric Networks"	Available		

Table 3. Technical condition of structural elements and engineering *systems of the residential building*

No.	Structural elements and engineering systems of the residential building	Description of structural element	Quantity (unit of measurement)	Depreciation (%)	Defective part (unit of measurement)
1.	Foundations	Pile	2438 m3	28	
2.	Walls and facade	Reinforced concrete	11770 m2 sq.	27	
3.	Floor slabs	Reinforced concrete	16700 m2 sq.	27	
4.	Roof	Roll-coated	2210 m2	26	
5.	Balconies/loggias/staircases	-	116/84/7	33	
6.	Stairs	-	1343 m2	25	
7.	Window frames	Metal-plastic		20	
8.	Doors	Iron		40	
9.	External landscaping (surrounding area)	Asphalt, landscaping	10200 m2 sq.	18	
10.	Engineering equipment				
	Elevators	-	10	30	
	Central heating	Distributor - iron, Risers - metal-plastic	4500 m	22	
	Hot water supply	Iron	1400 m	28	
	Water supply	Distribution - iron, Columns - metal-plastic	1400 m	33	
	Sewage system	Cast iron pipes	1500 m	36	
	Power supply	Aluminum	4900 m	22.5	
	Ventilation	Prefabricated reinforced concrete smoke and air		28	
	Waste disposal equipment (garbage collection chambers)	-	-	-	

Table 3. Main economic indicators of the facility's budget

No.	Attracted funds and expenses	Accumulated funds from housing fees for the previous year (sum)		Used for the intended purpose (sum)	
		Government financing	Housing fee	Government financing	Housing fee
1.	Maintenance of common property in an apartment		Housing fee		Annual report of the management
2.	Current repairs of common property in an apartment building		Housing fee		Annual report of the management company
3.	Maintenance of the surrounding area		Housing fee		Annual report of the management company
4.	Funds for major repairs		Housing fee		Annual report of the management company

Creating an effective information database on the technical condition of residential buildings enables the prevention of emergencies, monitoring of compliance with regulatory requirements for maintenance, repair, and seasonal preparation of residential buildings, and determination of their operational lifespan and timing for major repairs. Based on the data obtained from information gathering, prospective plans for repair and restoration work and various optimal models for managing the technical condition of residential buildings are developed to increase the economic efficiency of proper maintenance and overhaul of residential buildings.

Conclusions and Recommendations

Modern information systems are a crucial factor in the effective management of the housing stock. Through real-time information, a unified digital platform, and citizen participation, it is possible to increase management efficiency, improve service quality, and ensure social justice. Therefore, large-scale digitalization of the housing stock's information infrastructure in Uzbekistan is an urgent and strategically important task.

To achieve these results, we believe it is necessary to:

- Create a unified information platform. This platform will consolidate all technical passports of residential buildings, utility payments, malfunction status, and service ratings.
- Digitization of technical passports. Technical, structural, and operational data for each house are entered into an electronic register and updated annually.
- Monitoring of utility services. Energy consumption, accidents, and malfunctions are monitored in real-time through smart sensors and automatic meters.
- Rating system for management companies. An open rating system will be implemented based on service quality, response time to inquiries, and efficiency in handling payments, incorporating citizens' evaluations.
- Ensuring interactive citizen participation. Through a mobile application and web portal, citizens can report issues, make payments, provide feedback, and communicate directly with management companies.

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