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A Study of Effective Driving Forces on Housing Sustainability in Qazvin based on Futuristic Approach

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Abstract

Purpose: Today, rapid growth of cities and increase of urban population indicate that urban instability has occurred in urban areas. In order to reduce instability in the cities, the paradigm of sustainability and foresight is considered more than ever. Therefore, housing foresight plays a very important role in urban planning and sustainable urban development as a basic infrastructure.
Method: In this study, Delphi method and Mick Mac software have been used to collect and analyze effective sustainability of housing in Qazvin based on a four dimensional approach and developed a comprehensive and applied research.
Findings: As a result, paying attention to futurism in housing studies in Qazvin is an important issue. Accordingly, studies show that the drivers of "mixed housing development", "housing unit access to services", "social cohesion and interaction" and "identity and vitality" have the greatest impact on housing sustainability, and the drivers of " "Housing unit access to services", "social cohesion and interaction" and "sustainable architecture in harmony with local climate and materials" have the greatest impact on housing sustainability.
Conclusion: Finally, the drivers of "social cohesion and interaction" and "housing unit access to services" have a high impact and influence on the sustainability of housing in Qazvin.

Keywords: Futurism, Housing Planning, Sustainable Development, Housing Sustainability, Housing Futurism

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Introduction:

Understanding and studying the trends of progress and future possibilities in the field of housing is crucial for achieving the concept of sustainable development in urban management and planning. Today, a home is not just a shelter; it is a secure haven for human tranquility. Sustainable housing aligns most with its surrounding environment, ensuring optimal resource utilization based on the current needs of city residents. It plays a significant role in creating attractive, safe, vibrant, compatible, healthy, and prosperous neighborhoods. Therefore, the study and planning of housing require comprehensive research and the formulation of long-term visions for potential housing futures within the framework of sustainable development. The future studies approach, as a systematic and participatory process, gathers perceptions about the future, establishing a medium to long-term outlook to make informed decisions and coordinate joint actions.

Methodology:

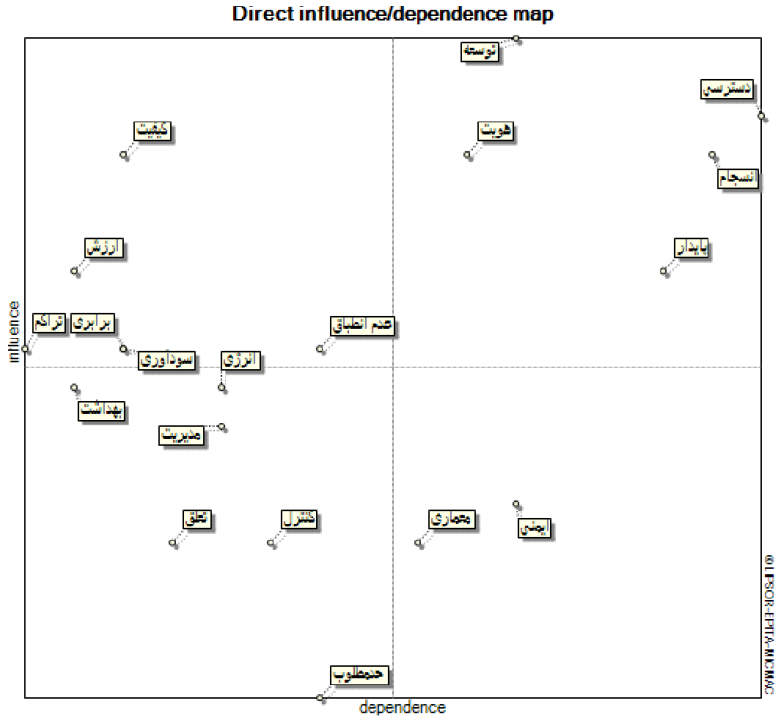
The research methodology employed in this study is descriptive-analytical, and in terms of purpose, it is applied, based on the future studies approach using a combination of quantitative and qualitative models. Given the practical nature of the results in solving executive problems, the research can be considered as applied research. Initially, the most influential drivers affecting housing sustainability were identified through literature reviews. Based on the conducted studies, a research questionnaire was designed with 25 drivers in four dimensions: economic, socio-cultural, environmental, and physical. Six drivers that were found to be ineffective in the research process were eliminated based on expert opinions. Data collection was performed using the Delphi technique, involving 18 experts from universities, managers, housing experts, and economic stakeholders. The questionnaire was developed at five levels, aligned with the Likert scale, ranging from level one (least impact) to level five (highest impact). The MICMAC software was utilized for structural analysis of the drivers.

Findings:

In this section, based on the positioning of drivers in the "Scatter Diagram of Drivers Influencing Qazvin City's Housing Sustainability," the analysis of five drivers, namely "Access to Residential Unit Services," "Coherence and Social Interactions," "Mixed Residential Development," "Identity and Livability," and "Sustainable Architecture in Harmony with Climate and Indigenous Materials," is presented in region 1. These drivers are two-sided, meaning they both influence and are influenced. The variables in this region have a significant impact on the influencing system and also have control capabilities, making them strategically important. These variables play a key role in the future state.

Drivers such as "Housing Quality," "Non-compliance with Housing Regulations," "Profitability of Housing Business Activities," "Land Value," "Appropriate Density," and "Inclusivity and Equality" are located in region 2, which is considered a critical area. Drivers such as "Energy," "Management," "Control," "Belonging," "Health," and "Desirability" in region 3 are independent variables with very little connection to the system. Variables in region 4, including "Safety" and "Architecture," exhibit strong dependencies on other variables and lack strategic

properties. Considering the scattered positioning of influential drivers on housing sustainability in Qazvin City, the majority of drivers are placed around the circumference of the diagram, indicating that the system is in an unstable state.



Scattering of Drivers Influencing the Sustainability of Qazvin City

Based on the results obtained from the "Impact and Influence Score" table, a comparison of the direct and indirect effects reveals no significant differences between the two categories of influential and susceptible drivers. As observed, the drivers of "Mixed Residential Development," "Access to Residential Unit Services," and "Coherence and Social Interactions" hold the highest rankings in both the impact and susceptibility to both direct and indirect methods.

Impact Factor and Susceptibility Matrix							
Title	**Direct Impact**	**Title**	**direct Susceptibility**	**Title**	**indirect Impact**	**Title**	**Indirect Susceptibility**
Development	645	Accessibility	660	Development	632	Accessibility	652
Access	615	Cohesion	645	Access	608	Cohesion	638
Coherence	600	Sustainability	630	Coherence	603	Sustainability	630
Quality	600	Safety	585	Quality	594	Development	585

Identity	600	Development	585	Identity	594	Safety	584
Value	555	Identity	570	Value	558	Identity	577
Sustainability	555	Architecture	555	Sustainability	557	Architecture	566
Profitability	525	Non-conformity	525	Profitability	529	Non-conformity	525
Non-compliance	525	Optimum	525	Non-compliance	527	Optimum	518
Equality	525	Control	510	Equality	526	Control	511
Density	525	Management	495	Density	522	Management	498
Energy	510	Energy	495	Energy	506	Energy	492
Health	510	Sense of belonging	480	Health	501	Sense of belonging	484
Management	495	Equality	465	Management	494	Quality	466
Safety	465	Quality	465	Safety	470	Equality	461
Belonging	450	Profitability	465	Belonging	461	Profitability	460
Architecture	450	Value	450	Architecture	454	Value	455
Control	450	Health	450	Control	452	Health	449
Desirability	390	Density	435	Desirability	402	Density	437

Conclusion

The drivers of "Mixed Residential Development," "Access to Residential Unit Services," "Coherence and Social Interactions," "Identity and Livability," and "Sustainable Architecture in Harmony with Climate and Indigenous Materials" are identified as the strategic drivers of housing. In respective order, these drivers possess the potential to become key players in the future housing planning in Qazvin City. Considering their dynamic, adaptable, and controllable nature in housing planning, these drivers are deemed crucial players.

On the contrary, drivers such as "Housing Quality," "Land Value," "Non-compliance with Housing Regulations," "Profitability of Housing Business Activities," "Inclusivity and Equality," and "Appropriate Density," located in region 2, represent the most critical area on the impact and susceptibility graph. They exhibit the highest impact and the least susceptibility, implying that they require less management attention. Therefore, managing and controlling these drivers should be prioritized in the future planning of sustainable housing in Qazvin City.

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