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Formulating the Competitive Housing Model in Iraq

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Abstract

This study aims to develop a competitive housing model for the Iraqi housing sector, focusing on the challenges facing this sector, such as high houses price, houses low quality, and low housing competitiveness compared to international standards. This study addresses the impact of economic shifts, particularly globalization and the adoption of liberal economies, on the housing sector, emphasizing the need to invest in intellectual capital and improve architectural management to achieve sustainable competitive advantages. The research analyses key competitive indicators such as cost, quality, and financial returns, in addition to internal and external factors affecting the sector. It highlights the importance of innovation in architectural design and the use of modern technology, alongside enhancing public-private sector integration to support infrastructure and improve housing policies. By analysing Iraq's economic and social environment, the research proposes innovative strategies to boost competitiveness, including improving the quality of housing units, reducing construction costs, and fostering public-private partnerships. The study shows that achieving a balance between cost and quality, while increasing investment in intellectual capital, can enhance the competitiveness of Iraq's housing sector, contributing to better living standards and economic stability.

I- Introduction

The field of competitiveness has assumed a significant position within the economy, and it extends its influence to various other disciplines due to the advent of globalization and the development of real estate economics, with architecture and its features serving as its foundational pillar. Architecture has impacted both the existing and latent potentials that can be harnessed or employed, as well as the sector's ability to influence market balances in terms of supply and demand. The global perspective has shifted from focusing solely on limited resources, savings, and material reliance to emphasizing competitive investment in intellectual, material, and innovative capital. Following the global economic transition from classical socialism to liberal capitalism, a further evolution toward updated liberalism has occurred, fostering enhanced resource efficiency through knowledge investment and expansion. Given this context, it has become essential to reconsider the proposed solutions to Iraq's housing challenges by leveraging competitive advantages and intellectual capital to develop a new knowledge-based vision that strengthens the economic dimension of housing. Housing represents one of the most vital economic sectors in Iraq, playing a crucial role in

stabilizing the local economy, creating employment opportunities, and improving living standards. Amid rising real estate prices and declining housing quality, there is a pressing need to focus on competitiveness within this sector to achieve a balance between cost and quality. This research aims to analyse the competitive indicators within Iraq's housing sector and examine the factors that influence these indicators. The sector faces considerable challenges, including high real estate prices, poor quality of available housing units, and weak competitiveness at both local and global levels. The study addresses these issues by identifying the key competitive indicators and exploring the internal and external factors that affect them. The significance of this research lies in its identification of the main competitive indicators and the factors directly impacting the competitiveness and proposes strategies to enhance it by offering recommendations and strategies designed to improve the sector's competitiveness, ensuring that all stakeholders benefit from housing projects.

This study consist of many sections after the introduction, the Literature Review that covers existing research. The Problem and Research Methodology section defines the research question and approach. Competitive and Terminological Environment clarifies key terms. Housing Competitiveness Indicators and Drivers discusses global factors, while Deriving Indicators and Drivers in Iraq focuses on both external and internal factors specific to Iraq. The Research Methodology and Tools section explains data collection methods. In the Practical Part, findings are presented, and the Discussion and Conclusions interprets results, offering recommendations for improving housing competitiveness in Iraq.

2- Literature Review

The previous studies were categorized into three main sections. The first section focuses on research that examines global experiences concerning the relationship between competitiveness and the housing sector, as well as related industries. The second section addresses studies and literature that explore the key challenges specific to the Iraqi housing sector. The Last Section focuses on Competitive housing systems studies.

A- Exploring the Relationship Between Competitiveness and the Housing Sector

Petryshyna's (2024) research investigates the evolving competitive dynamics of Ukraine's construction sector, which remains a fundamental pillar of the nation's industrial economy. Despite the sector's dynamic growth, it faces significant obstacles such as poor knowledge management, ineffective collaboration among stakeholders, and a low competitiveness index [1]. Petryshyna emphasizes the pivotal role of efficient knowledge management and collaborative practices in fostering sustainable competitive advantages. The study aims to identify the primary challenges facing Ukraine's construction industry and propose strategies to enhance competitiveness both regionally and globally. Among the barriers highlighted are inadequate knowledge transfer between generations and ineffective collaboration, which collectively weaken overall performance and hinder competitiveness. To overcome these challenges, the study advocates for the implementation of robust knowledge management systems that encourage collaboration and stimulate innovation. Moreover, it underscores the importance of integrating modern technologies, such as 3D printing, advanced materials, and smart management systems, to improve operational efficiency and sustain competitiveness in the face of rapid industry transformations. The research concludes that by addressing these challenges, construction firms could significantly reduce operational costs and strengthen their market position. Similarly, Sutrisna (2022) explored the potential of off-site construction (OSC) technology as a source of competitive advantage in Western Australia's housing sector. OSC involves the production of building components in controlled environments, which are later transported to construction sites for assembly. Despite the numerous benefits of OSC, including enhanced control over timelines and improved quality, its adoption in Western Australia has been limited due to risks related to quality assurance, reliability, and lack of trust from financial institutions. The study used a mixed-method approach, combining questionnaires and interviews with housing sector professionals, to assess the current utilization of OSC and identify its potential as a competitive advantage for developers. Key benefits of OSC included waste reduction, cost competitiveness, and quality enhancement. However, the study highlighted that successful OSC adoption requires addressing barriers such as the lack of knowledge and experience among developers and workers [2].

Azeem (2020) examines competitiveness within Pakistan's construction industry from the perspective of contractors and firms, identifying obstacles to improving performance and proposing strategies to enhance competitiveness. The study developed a comprehensive framework based on seven criteria, including the construction environment, company-level competitiveness, supporting sectors, and the adoption of modern tools and technologies. It emphasized the importance of attracting skilled labour, investing in research and development, and fostering collaboration between academia and industry [3].

Wang (2020) addresses the waste of natural resources due to unsustainable housing designs in Taiwan, proposing a model to evaluate the competitive advantages of sustainable housing. The study used the Analytical Hierarchy Process (AHP) to assess factors such as cost, maintenance, energy savings, and cultural considerations. Wang's model, applied to case studies in Taipei, revealed that competitiveness varies based on location and budget, emphasizing the need for innovative, location-specific strategies [4].

Similarly, Pavlov (2019) examines Ukraine's residential real estate market, proposing strategies to balance supply and demand by improving government-housing policies and expanding public-funded residential construction [5]. Lastly, Al-Sayed (2018) explores the role of cultural heritage in enhancing urban competitiveness in Iraqi cities, particularly Samarra, emphasizing the importance of integrating heritage assets into spatial development strategies to drive economic and social growth [6]. See the below Table1.

No.	Title	Туре	Cognitive outcome of the study	Field	Extracted research terms
1	(Petryshyna, 2024)	Published research	Development of competitive environment in the construction industry in Ukraine	Construction sector in Ukraine	Knowledge loss, ineffective collaboration, competitiveness, knowledge management, collaboration, new technology, 3D printing, new materials, intelligent management systems

2	(Sutrisna et al., 2022)	Published research	Assessing the potential for off-site construction as a source of competitive advantage in Western Australia	Construction Industry in Western Australia	Off-site construction, competitive advantage, waste reduction, quality increase, time saving, quality concerns, reliability, financial support, knowledge and expertise, cost competitiveness, quality management, risk management, customer expectations, supply chain improvement, logistics
3	(Azeem et al., 2020)	Published research	Understanding the barriers to improving the performance of the construction industry and providing strategies to enhance competitiveness in Pakistan	Housing sector in Pakistan	Competitiveness, Construction industry, Obstacles, Industry performance, Competitive framework, Talent attraction, Modern technology, Academic-industrial cooperation, Investment in research and development, Business environment, Improvement of government policies, Training and professional development, Total quality management
4	(Wang et al., 2020)	Published research	Developing a Model for Evaluating Competitive Advantages in Sustainable Housing Design in Taiwan	Housing sector in Taiwan	Cost, Maintenance, Green Resources, Energy Saving, Cultural and Religious Considerations, Service Accessibility, Competitiveness, Sustainability, Analytical Hierarchy, Utilitarian Theory
5	(Pavlov et al., 2019)	Published research	Improving the effectiveness of government policy in achieving competitive balance in Ukrainian residential real estate markets	Real Estate Sector in Ukraine	Demand stimulation, privatization, market activation, improvement of savings systems, mortgage lending programs, supply enhancement, public housing construction, public property housing construction, individual housing construction, reproduction of housing property, economic factors, environmental factors, social factors, political factors
6	(Al-Sayed, 2018)	PhD thesis	Enhancing the competitiveness of Samarra city through investing in cultural heritage	Urban planning in Iraq	Cultural heritage, competitive cities, rapid urbanization, cultural identity, globalization, spatial development, symbolic values, religious tourism, geographical location, competitive indicators, historical monuments

B- Studies on the housing sector challenges in IraqB.1- The Organizational and Institutional Challenges

Alanizi and Alsayed (2022), discuss the regulatory and legislative challenges related to housing finance in Iraq, particularly focusing on the multiple guarantees required for a single property, which contradicts the Iraqi constitution and causes societal issues. Although housing loans were introduced to support citizens, the rigid regulations have had unintended negative consequences for both the citizens and the government [7]. Al-Shaibani and Popov

(2019) analyse Iraq's housing policy, suggesting that reducing interest rates could stimulate housing demand and promote economic growth. However, they caution that excessive governmental support in housing financing and land provision might distort the economy. Their study also stresses the need to balance quality and affordability in the housing sector to foster economic competition (See Fig. 1*a*) [8]. Al-Essawi (2018) argues that Iraq's housing policies lack flexibility, sustainability, and inclusivity, calling for a revision of national policies to address the specific needs of different income groups through more integrated and adaptable measures [9]. Ibrahim (2013) proposes a public-private partnership (PPP) model to tackle Iraq's housing deficit, especially for low-income groups, and advocates for empowering local communities to contribute to housing production, which could reduce the shortage and improve living conditions [10]. (See Fig. 1*b*) Lastly, PADCO et al. (2006) analyse the effects of Iraq's transition from a centralized to a decentralized system on the housing sector, highlighting the scarcity of residential land that has led to increased prices and poor housing standards. [11] They recommend that the private sector take a leading role in housing production due to its flexibility and administrative capabilities.



b Policy of empowerment and increasing housing production based on [10].

B.2- Private Sector Participation Challenges

The reviewed studies highlight the limited participation of the private sector in addressing Iraq's housing challenges, particularly for low-income populations. Private sector housing projects tend to cater to the wealthy, leaving middle- and low-income groups underserved. This lack of engagement has contributed to rising housing prices and deteriorating quality. Legal and legislative efforts alone have been insufficient to encourage private sector involvement, with rigid supply models pushing many to resort to informal housing [12], [13]. Al-Hafith (2019) identify instability and weak legislative frameworks as major obstacles to private sector participation, suggesting reforms to improve the investment climate [14]. The Arab National Development Planning Portal (2014) adds that trust between public and private sectors, along with financial support, is essential for fostering collaboration [15]. Nagy (2006) highlights the effectiveness of private sector-led housing finance through financial institutions and NGOs in boosting the economy, contrasting with the negative impacts of government financing [16]. Therefore, aligning private sector interests with housing needs and improving the investment environment are critical for enhancing participation.

B.3- Economical and Normative Challenges

By reviewing studies of economic and standard problems in the Iraqi housing sector, we find that there are some drivers that directly or indirectly control the quality and cost of housing products. According to the study Al-Khazai (2020), the geographical location, proximity to commercial centres, financial weight, and social institutions affect the price index, and the quality of roads and green spaces support the price index [17]. The higher the price index, the more it affects housing demand and the housing industry in general.

While Al-Hafith (2018), finds the solution to control the price index by adopting cheap technology engines and economically efficient architectural design. It suggested vertical construction as an effective design method to accommodate the largest possible number of housing units within a smaller area of land, which increases the amount of housing supply and thus reduces the cost [18]. These technologies can affect the housing quality index to some extent. In the same context, Malahwish (2008), agree on following techniques that reduce the cost of producing housing units and in addition to the above with cheap building materials that is, integrating the technological engine that supports economic production with affordable resources to make housing within lower prices [19]. However, the study did not address the problem of housing quality, as none of the studies adopted the innovative approach to maintain the housing quality index.

Finally, Saraff, (2022), discussed the consumer preference factor and the interest factor that affect housing demand and thus the housing price index. Housing demand contributes to the growth of the overall economy and directly affects the price index. Housing demand is controlled by the interest rate and consumer preferences [20].

3- Competitive housing systems studies

Previous studies have addressed housing problems, competitiveness and development of housing sector systems, as many citizens in developing countries suffer from difficulty in obtaining suitable housing at reasonable prices. According to Olsen, (1969), the housing market is competitive and developmental based on four aspects; analysis of the housing market for supply and demand, the size of slums, the housing deficit, and reducing the number of poor units from the housing stock. These problems affect the quality of life of citizens, their health and well-being [21].

While Burns & Grebler (1977), indicates that the private sector is unique in the three competitive factors, which are flexibility, quality, and innovation or creativity, while the government sector is concerned with competitiveness in terms of cost [22].

Arnott (1987), looks at determining the price according to supply and demand, or the financial weight of the city structure, or the geographical distance and ease of access, or the increase in the value of the land the closer it is to the central areas [23]. The housing sector plays a vital role in the country's economy through increased employment and economic growth, and it affects the quality of life in general, by providing suitable housing at reasonable prices, identifying the needs of the community and financing housing projects.

Al-Haidari (2010) refers to housing development and its five dimensions: social, environmental, economic, planning components and urban design, and that housing development takes place when these dimensions are integrated with the aforementioned components. The study indicates the role of the housing sector in economic development if the factor of structural and executive quality is taken into consideration, and design quality

alike. On the other hand, interaction with the environment and rationalization of resource consumption increases the chance of economic recovery [24].

The study (Ernst & Young, 2012) suggests alternative delivery models between the government and the private sector to meet the required housing volume in Iraq. The proposals were represented through several scenarios to solve the housing problem in Iraq, as follows:

• Partial regulatory reforms: These include abolishing rent control and replacing it with a maximum rent increase, abolishing income tax on rents and real estate transfer tax, imposing a tax on vacant lands, and introducing a fixed annual property tax based on the size of the housing.

• Comprehensive regulatory reforms: These include abolishing rent control and replacing it with a maximum rent increase, abolishing income tax on rents and real estate transfer tax, imposing a tax on vacant lands, and introducing a fixed annual property tax based on the size of the housing. They also include improving the land registration system and facilitating the process of purchasing encroached (occupied) lands for 5 years to provide clear ownership rights.

• Housing delivery models: These include using housing delivery partners to increase the capacity of the Ministry of Housing and Construction to implement the housing program quickly and on a large scale. It also includes public-private partnerships under the Public Private Partnership (PPP) framework, where the private sector bears a large part of the risks related to housing provision.

• Partnership models: The study indicates that the current approach to implementing the National Housing Policy will take several years before it starts providing housing at the required scale. Therefore, the study recommends looking for immediate solutions that provide housing quickly and in large quantities, such as housing delivery models and public-private partnerships [25].

Tarazona (2013), focused on the innovation and architectural creativity in creating the dazzle element through unique designs with global symbolism that help raise the city's level to the level of local or global competitiveness, which helps in economic recovery and increases demand for improving the quality of housing and investing it as sustainable economic returns. The study believes that the birth of architectural projects with a symbolic character provides economic activity and job opportunities, the main goal of which is to improve the tax base by increasing the value of urban lands. The study proved the effectiveness of large-scale global architecture in economic renewal, its social impact and its role in creating symbolic projects and achieving economic recovery on a large scale [26].

4- Problem and research methodology

Form the Literature Review, it is clear that the housing market is one of the largest markets generating significant revenues for both the government and the private sector, which, in turn, impacts the overall economy, both locally and globally, in terms of economic rankings. Despite the exceedingly high prices of residential properties in Iraq, there is a noticeable decline in housing quality. Competitiveness is a key indicator of a nation's prosperity, and the high prices in Iraq's housing sector do not correspond to the actual quality of the housing provided. The research problem can be formulated as follows: "The insufficiency of knowledge in formulating a comprehensive model for housing competitiveness in Iraq."

This research aims to analyse the competitive indicators in Iraq's housing sector and examine the factors influencing these indicators. The Iraqi housing sector faces significant challenges, including high property prices, poor housing quality, and weak competitiveness at both local and global levels. The study seeks to address this issue by identifying key competitive indicators and analysing the factors that affect them, both from within and outside the sector. The significance of the research lies in identifying the main competitive indicators by determining the factors that directly influence the competitiveness of Iraq's housing sector. Furthermore, it evaluates the current state of competitiveness and proposes strategies to enhance it by offering recommendations and strategies aimed at improving the competitiveness of the housing sector in Iraq, ensuring that all stakeholders involved in housing projects are beneficiaries.

5- Competitive and its terminological environment

A- The concept of competitive

The concept of competitive is considered a real revolution in the field of sectoral development in general. Academically, development policy is no longer viewed as an internal concern or a temporary confrontation with problems that lack a strategic dimension. Instead, it is now viewed as a dynamic and continuous process that aims to address many internal and external problems in order to achieve continuous excellence and distinction in a sector (one or more). That is, the important role of competitive advantage in the life of a sector is its importance in maintaining the balance of that sector against other sectors. Therefore, the views of scholars and researchers in general have varied regarding the concept of competitiveness, as competitiveness is a controversial concept due to the multiplicity and diversity of its levels of use and definitions. Kaleka & Morgan (2017), as competitiveness refers to two basic terms, which are competitive advantage and competitive ability [27].

B- Competitive advantage

It is also defined as the competitive Indicator, referring to the benefits and advantages customers gain from a sector or project compared to its competitors [28]. It is the foundation for creating added value for customers, either through lower prices or by providing product differentiation [29]. Competitive advantage is the differentiation or uniqueness that enables a sector or project to offer services and goods that stand out from others [30]. Innovation plays a crucial role in shaping competitive advantage and making it sustainable within a sector [31]. Achieving competitive advantage is through discovering new, more effective ways than competitors [29]. Competitive advantage represents an element of superiority that a sector or project acquires by following a specific competitive strategy [32]. The World Economic Forum defines competitive advantage as the ability to achieve sustainable growth in real income [33], focusing on innovation and competitive capabilities [34]. Strategic agility is considered one of the tools for achieving competitive advantage, especially in non-profit organizations [35]. Competitive advantages encompass the total indicators of industrial products, which are classified into two aspects; the financial and economic aspect, such as prices, costs, profitability, and financial returns, and the qualitative and normative aspect, which relates to quality, added value, aesthetics, innovation, and emotional appeal.

The significant developments that occurred at the end of the second millennium and the beginning of the third millennium have led to a shift in concepts. This shift moved from the concept of comparative advantage, which refers to traditional resources such as labor wages,

transportation factors, workforce, geographic location, and economies of scale, to competitive advantage, which relies on technology, innovation, intellectual capital development, and understanding consumer needs and desires [36]. Comparative advantage models are used alongside competitive advantage models to provide a richer analysis of international trade and business operations, more so than using either model alone [37]. There are four types of competitive advantage:

<u>1. Comparative Competitive Advantage</u>: Comparative advantage began to shift toward specialization after World War II, as most countries started promoting national industries in specific areas to export specialized goods and services to other countries and markets. Economic planning sought to achieve comparative advantage by minimizing production costs, including labor, materials, energy, taxes, and infrastructure [36].

2. Absolute Competitive Advantage: The principles of Adam Smith's "absolute advantage" and David Ricardo's "comparative advantage" are generally based on a country's technological superiority in production over another. Absolute advantage refers to a country having a higher productivity rate or lower production cost in producing a particular good compared to another country. The availability of resources in a country serves as another source of comparative advantage for nations that may not necessarily have superior technology. For instance, Canada has a comparative advantage in producing newsprint, thus it specializes in exporting newspapers to India. Similarly, India enjoys a comparative advantage in producing and exporting tea and textiles, specializing in exporting these products to Canada. Human skills can also be considered a critical resource for comparative advantage. Countries with relatively abundant skilled labor possess a comparative advantage in products that intensively use human skills. Some products, such as electronics, require a highly skilled workforce (e.g., engineers, programmers, designers, and other technical personnel). These products may gain comparative advantage in countries like Taiwan, Singapore, and Hong Kong, which have a relatively better supply of such skilled labor [37].

<u>3. Collaborative Competitive Advantage:</u> Entities seeking excellence in business attract foreign investors and integrate them into the local economy, often forming alliances and partnerships with former competitors to expand their operations. This has led to the emergence of a new theory of competitive advantage. Collaboration in a competitive context focuses on improvement strategies, efficient resource use, and organizational effectiveness. Therefore, collaborative advantage is a key feature of competitive advantage, promoting comprehensive cooperation and integration [36].

<u>4. Sustainable Competitive Advantage</u>: Achieving sustainable competitive advantage is a primary goal for all entities, including businesses, sectors, and nations, as the core challenge they face is continuity and survival in their chosen industry or market. This requires having strategic foundations consisting of a set of objectives, resources, capable and motivated individuals, and opportunities to perform effectively. Sustainable competitive advantage can be defined as unique value-creating strategies that are not simultaneously implemented by any current or potential competitors and cannot be easily replicated. The pursuit of sustainable competitive advantage is a central theme in strategic management [37].

C- Competitiveness

Competitiveness has been defined in various ways in previous literature. According to the Harvard Business School Symposium, competitiveness reflects time-based competition and productivity in the workforce, highlighting the importance of technological infrastructure in fostering a competitive environment. It emphasizes the relationship between a high standard of living and national competitiveness [38]. The Organization for Economic Cooperation and Development (OECD) views competitiveness as the ability to produce goods and services in free and fair markets while maintaining long-term increases in real incomes [39]. Furthermore, competitiveness is the capacity, technique, or resource that enables a sector to produce value and benefits for customers beyond what competitors offer [40]. It refers to the ability to generate added value by exploiting a competitive advantage to achieve prosperity, improve well-being, and ensure sustainable development, particularly through the utilization of cultural heritage in cities [6].

Competitiveness is also seen as a condition in which various entities compete for goods based on marketing incentives such as price, product, promotion, and location. According to classical economic theory, competition encourages the development of goods and services and the adoption of new technologies, providing more options and better products to consumers. Generally, the more diverse the product in the market, the lower its price compared to a monopoly or oligopoly. The level of competition depends on several factors, including the project's scale, the number of projects, legislation, available knowledge, access to resources, and the buyers' ability to engage in market competition. Competitiveness refers to the capacity and performance of an entity, sub-sector, or country to sell and supply goods and services in a specific market and in comparison to other sectors or sub-sectors in the same market [41]. The degree of competition in a particular market can be measured by factors such as the number of competitors and their size, where a greater proportion of industrial production by smaller entities tends to increase competition [42].

The term "competitiveness" originates from the Latin word *competere*, which refers to the competition between entities within markets and industries. It is widely used in managerial discourse concerning national and international economic performance comparisons [43]. Competitiveness can be understood as a strong willingness to compete or the capacity to engage in competition between two or more entities (companies, institutions, or nations), such as energy competitiveness, industrial competitiveness, or international competitiveness [44].

Competitiveness refers to an entity or institution's ability to achieve a competitive edge over its rivals in the market by providing better quality products and services at more competitive prices, and by enhancing production, marketing, distribution, and logistics processes. It is one of the most crucial factors determining an institution's success and sustainability in the marketplace.

It is widely acknowledged that competitiveness is a complex economic issue, and the debate over the "correct" definition remains unresolved. The term is applied to address two related yet distinct issues: market share (tracking macroeconomic sustainability) and living standards. All definitions are valid concerning the issues they aim to address. Raising the standard of living for a society is considered the overarching goal of economic policy [45]. Competitiveness, in general, is defined as the set of institutions, policies, and factors that determine a country's productivity, considering its level of development. These classifications illustrate a country's ability to attract investments, increase GDP per capita, create jobs, generate wealth, and ultimately raise its people's standard of living [46]. Competitiveness can also be defined as the extent to which goods and services can be produced to meet needs while maintaining an economy that remains competitive and where citizens enjoy a high

standard of living on a sustainable basis. It also refers to the ability to sustain growth in the global economy at an acceptable level of living standards, provide equitable opportunities for employment, and do so without limiting the potential for future generations' standard of living [47].

Thus, competitiveness encompasses all the competitive advantages that a sector, institution, or nation possesses, along with the strategies and drivers that contribute to maintaining and leveraging these advantages for comprehensive economic development and production. It is evident that the concept of competitiveness at the enterprise level lies at the heart of economics. However, policymakers have increasingly applied this concept at the national level, aiming to enhance national competitiveness at urban, regional, and macro levels [48]. Consequently, competitiveness can exist at multiple levels, from enterprises to sectors, between sectors, and ultimately at the national level.

D- Competitive Value

The term "competitive value" refers to a numerical value used to mathematically describe competitiveness, encompassing all visible and latent competitive advantages. Competitive value can be calculated by assessing the strengths and weaknesses of an entity at various levels (product, company, sector, or national). This evaluation aids in enhancing the competitive position across various industries, including the housing industry, and in identifying the most significant and attractive advantages. To calculate competitive value, all key competitive factors, representing crucial and decisive indicators for the competitive status of a product or service, must be accounted for. Porter notes that the competitive value of competitive advantages is not static but changes continuously, as indicated by the Kano Model. [29] Generally, these features and indicators can decline from being attractive and exciting to being performance-based or basic, and sometimes even below basic. Therefore, it is important to periodically update the positioning of these features within the Kano Model and improve them to maintain their ranking.

Competitive value represents the aggregated value of the total competitive advantages, categorized from attractive to basic and even reverse attributes. The weights of each advantage are calculated along with their category over a given period to derive the competitive value. The closer the competitive value is to its full weight, the more acceptable and distinctive it is. To increase competitive value, reverse factors should be eliminated, neutral ones minimized, and focus placed on attractive features. Additionally, new advantages should be discovered, and factors reassessed periodically [49].

6- Housing Competitiveness Indicators and Drivers

This section adapts the concept of competitiveness within the context of housing and identifies the key indicators and terms through which housing competitiveness can be measured. It addresses both housing competitiveness indicators and housing competitiveness drivers.

- **A- Housing Competitiveness Concept:** Housing competitiveness refers to two key elements: housing competitive advantage (or indicator) and housing competitiveness along with its drivers, which control and sustain these indicators.
- *B* Housing Competitiveness Indicators (Advantages): Companies and institutions in the housing sector compete with each other to meet consumer and societal needs in terms of economic costs, housing quality in design and execution, and sensory requirements such

as aesthetic and formal demands. These indicators represent the fundamental standards through which projects can surpass others. Focusing on housing competitiveness indicators allows project management in the private sector to enhance and develop in order to maintain profitability, market share, cash flows, and public trust. The significance of residential real estate lies not only in providing shelter but also in being a critical asset and economic category on one hand, and in its role as a measure of status due to location, demand, aesthetic, and innovative value, as well as being an indicator of social standing on the other hand. This creates a wide range of competitive advantages and indicators within the housing sector [50]. Housing competitiveness indicators can be divided into four main categories.

<u>Category 1: Economic Housing Indicators and Standards</u>: This category encompasses the standards that treat housing as a commodity with market value, focusing on price indices, production costs, and expected financial returns, regardless of quality, type, or value. It considers the costs related to occupancy and maintenance, with the total cost calculated from the housing price, occupancy, possession, and maintenance costs within an economic framework. This category benefits from analysing competitive price levels, whether in terms of initial cost, possession and occupancy costs, or total costs, taking into account the expected financial returns. Iraq's housing sector faces a severe crisis in property prices, including land, residential units, and even rental housing [12]. Understanding the competitive price indices and housing costs can provide data-driven insights to control these aspects by identifying their economic drivers.

<u>Category 2: Standards for Housing Quality and Excellence:</u> Housing quality refers to the level of housing that ranges from basic acceptability to the highest levels of luxury. Quality begins with the location, type of land, construction methods, architectural design, and extends to finishes and materials used. Housing quality is defined by the interrelated and complementary attributes that reflect both the functional and aesthetic aspects of the building and its surrounding environment, which fulfil the consumer's expectations for quality. These standards include the quality of the residential location—proximity to city centres, social and cultural hubs, green spaces, and essential infrastructure such as water, electricity, and roads. In addition, the quality of construction materials and techniques, the sustainability of the building, and its environmental impact are also considered [51]. Iraq's housing sector is marked by the absence of private companies directly producing housing units for families, leaving individuals to manage construction independently, which negatively impacts housing quality [52].

<u>Category 3: Added Housing Value:</u> The term "added housing value" refers to factors that enhance the functional and market value of housing products, focusing on two aspects: aesthetic design and market value. Well-designed housing projects often increase in value over time, reflecting market acceptance and recognition of good design's importance in enhancing property value [53]. In Iraq, innovative architectural designs add distinct value by offering unique aesthetics and cultural relevance, contributing to improved quality of life and satisfaction [54]. The second aspect involves market value, where projects with rising market value attract higher demand and investment. Understanding the factors influencing the appreciation of residential property values allows homeowners to take measures to preserve or increase their properties' market value [54].

<u>Category 4: Housing Diversity and Allocation:</u> Housing diversity refers to the range of available housing options, while allocation refers to the groups for which these options are

available. Iraq's housing sector offers flexibility in types of housing ownership, including sale (cash or instalment) and rental (traditional rent or secured rental with an upfront payment). Financial options provided by the government and private sector play a vital role in facilitating housing ownership in Iraq. [54] In terms of allocation, housing is categorized based on income (low, middle, and high) and social classification, with certain neighbourhoods and residential complexes designated for specific professions, such as doctors and engineers. Some private housing projects have adopted this trend, offering discounts to attract particular groups.

C- Housing Competitiveness: It refers to the number of competitive advantages or housing competitiveness indicators that are available or can be developed and strengthened in residential projects within the housing sector, ultimately reaching the national level across its various sectors. Housing Competitiveness contributes to enhancing the housing industry at four levels: the first at the residential project level, the second at the level of the company producing the residential project, the third at the sectoral level which includes all housing companies and projects, and the fourth at the national level. Each level operates differently; projects compete with other projects within the same company and with other companies that produce and develop housing. Housing companies compete with each other through cooperation and partnership with companies whose operations complement theirs, thereby strengthening the industry and improving profitability for all parties. At the sectoral level, housing competes with other sectors, fostering collaboration and synergy between the housing sector, its companies, and projects on one hand, and integration with other sectors on the other. All sectors and entities within them work interactively and complementarily to enhance the competitiveness of the national housing industry, which competes with and collaborates with other industries from competing countries.

Housing Competitiveness in the housing industry represents its competitive value, which is composed of all the competitive housing indicators of the industry. According to the *Kano model*, the value and weight of each indicator vary based on its relative importance. To calculate the residential competitive value, the relative weight of all housing competitiveness indicators is classified into four categories: economic housing indicators, housing quality indicators and standards, value-added indicators, and housing diversity and specialization indicators. This competitive value contributes to determining the relative competitive level of the housing industry within the residential competitive model.

D- Competitive Drivers: The real challenge does not lie in merely creating or acquiring one or more competitive advantages within the housing industry or any other sector, but rather in transforming these advantages into sustainable competitive advantages. Competitive drivers are tasked with developing and enhancing competitive features and indicators within the housing industry, evolving them into sustainable competitive advantages. These drivers act as the "invisible hand" in controlling and moving market mechanisms, creating a competitive environment that delivers the best services at the lowest prices. A free market, according to Krugman & Obstfeld (2009), does not require regulation but instead regulates itself autonomously. The invisible hand and competitive drivers, as identified by several scholars, are sources of competitive advantage that are characterized by scarcity, value, difficulty in imitation, and the challenge of replacement [55]. These drivers also enable the development of core competencies by combining

skills, resources, and dynamic capabilities like acquiring, allocating, and upgrading distinctive resources, controlled through intellectual property laws, trade secrets, databases, organizational culture, and diversity [37].

Two main theories govern the creation, development, and transformation of competitive advantages into sustainable ones. Each theory outlines a set of drivers that influence the performance of competitive indicators in varying ways. To achieve maximum profitability, managers must manipulate the fundamental forces to their advantage [29]. These are as follows:

- **1. External Competitive Drivers:** Rooted in the Resource-Based View (RBV) Theory and Industrial Organization Theory, this concept suggests that "resources" refer to tangible and intangible assets, along with valuable, rare, inimitable, and irreplaceable skills [56]. This theory also includes Porter's Five Forces [29], which affect competitive advantages across industries:
- **Supplier Power:** Assessed by the number of suppliers and their pricing power, which inversely affects profitability. The more suppliers available, the weaker the suppliers' control over prices.
- **Competitive Rivalry:** Determined by the number of competitors and their capabilities. As the number of competitors increases, so does the intensity of competition.
- **Customer Power:** Influenced by customers' ability to affect prices and quality, which inversely relates to the number of suppliers. The easier it is for customers to switch products or services at a low cost, the greater their power.
- **Threat of Substitutes:** Measured by the ease with which consumers can replace a product with a competitor's due to price or quality differences.
- **Threat of New Entrants:** Dependent on the difficulty new competitors face entering the market. Barriers like capital requirements, economies of scale, and government policies determine the impact on existing market share.

In addition to Porter's Five Forces, external drivers include political factors such as political and security stability, and economic factors at both the macro and micro levels. Demographic factors also play a role, where age structures and population growth rates shape the success or failure of long-term strategic projects, including those in the housing sector. Environmental and climatic factors are also vital considerations [57].

Smith & Vonne (2006), demonstrate through various case studies how market forces and government intervention can influence numerous industries. [58] The role of government in any industry is significant and varies in scale depending on the state's economic policy and its vision, particularly concerning the housing industry. The legislation, regulations, and building codes enacted and enforced by the state have an impact that correlates with the degree of influence exerted by government decisions. The competitiveness of the housing market is inversely related to the extent of governmental interventions and regulations. Moreover, the state's policies regarding subsidies and the level of incentives are critical factors in shaping competitive advantages and ensuring their sustainability alongside subsequent government regulations and legislations [57].

2. Second: Internal Competitive Drivers: The literature highlights that industrial and manufacturing processes can serve as key sources of competitive advantage, as outlined in Operations Management theory. Operations Management refers to all administrative activities and processes, including the practical expertise of human resources and

intellectual capital. It further extends to encompass the experience of employees, product reputation, organizational reputation, and corporate culture [59]. By developing and exploiting opportunities, a project manager can, through industrial processes and experience, change the "rules of the game," meaning the competitive conditions, and create a competitive advantage that addresses customer preferences [60]. Industrial and organizational processes impact competitiveness by developing and executing strategies, which involve a series of decisions by entities to leverage resources and capitalize on market opportunities determined by customer needs. Successful industrial strategies improve performance in manufacturing quality, product diversity, development time, new product output, and production costs. Strategies that focus on quality management, process efficiency, new technologies, customer-producer collaboration, and benchmarking significantly enhance performance in manufacturing industries [59].

Focusing on internal factors of an entity is crucial for developing resource-based views, with researchers finding that assets owned by the entity are more important than industry itself. Early researcher's categorized resources into physical, financial, and human resources, which later evolved into more detailed descriptions such as organizational resources (skills and knowledge) and technology (technical know-how). Resources were divided into proprietary and knowledge-based, with additional categories like physical capital, human capital, and organizational capital. Subsequently, human resource management-related assets were added, particularly the use of advanced manufacturing technologies, quality management practices, and product design, all contributing positively to industry competitiveness [4]. Operations Management literature also emphasizes that technological capabilities and industrial process management are highly regarded as significant drivers of competitiveness.

Innovation is one of the most critical sources of competitive advantage, especially in light of the global increase in institutions and competition. This growth has heightened the focus on innovation in competitive priorities. Many researchers also recognize knowledge as a vital source [62]. Knowledge, seen as the accumulation of experience, information, and studies by individuals or groups at a given time, leads to what is known as a "knowledge explosion." Knowledge has become the most important resource for creating competitive advantage, particularly tacit knowledge, which allows workers to foster creativity and innovation. Reputation has also been recognized as a core value of intangible assets, enhancing customer trust [62]. Additionally, time, whether in production or service management, serves as a competitive advantage, where faster customer access compared to competitors establishes a significant edge. Competitive advantages, which represent the essence of competition, can thus be defined based on time factors. Intellectual capital, as one of the most valuable competitive assets, enables organizations to maintain a high level of knowledge while supporting the effective use of information to enhance performance. Knowledge is unique to each organization, as it is built over long periods through significant investments and is irreplaceable due to its role in fostering teamwork capabilities, thereby leading to sustainable competitive advantage [57].

The emphasis on assets, capabilities, and organizational processes such as information, knowledge, and other controlled resources enables an entity to conceive and implement strategies that enhance efficiency and effectiveness. Ultimately, these strategies produce a competitive advantage that competitors cannot easily replicate. Distinctive, rare core competencies should be seen as a source of competitive advantage, making businesses successful in the market. These sources may include physical assets, intellectual capital, or human resources, all of which define an organization's capabilities [56].

Most researchers find that internal and external elements cannot be separated, emphasizing the critical connection between an entity's internal resources and external market conditions. They assert that the relationship between an entity and its network of relationships is integral to its operations and essential for achieving competitive advantage [4]. The external perspective of competitive advantage focuses on the external environment, where the entity directs its strategies towards market dynamics, considering competitive advantage as a function of industry attractiveness and market position. The external environment, encompassing political, economic, demographic, and technological factors, can either positively or negatively impact the entity's performance.

An entity's tangible and intangible resources play a crucial role in building sustainable competitive advantage, increasing their strategic value when integrated effectively. Tangible resources are physical assets, while intangible resources include factors like reputation, organizational energy, and historical performance, which contribute to the development of core competencies that are fundamental to building sustainable competitive advantage [57]. Therefore, the sources of competitive advantage can be classified into internal and external.

7- Deriving Housing Competitiveness Indicators in Iraq

A- Economic Competitive Housing Indicators and Criteria:

- The housing price index encompasses housing production costs, land acquisition costs, and ownership costs, which can all be consolidated under the housing price index.
- Operating costs, maintenance costs, and service costs are grouped together under a single index called the housing operating and maintenance cost index.
- The expected financial return index is consolidated under the expected financial yield index.
- Thus, the overall economic indicators are three, as follows: the housing price index, the expected financial yield index, and the housing operating and maintenance cost index.

B- Housing Quality Competitive Indicators and Criteria:

- The housing site quality index includes the quality of the residential land and is therefore merged under the site quality index.
- Building and execution quality, finishing quality, construction technology quality, and structural pattern quality are combined into a single index known as the building and execution quality index.
- The architectural design quality index incorporates the architectural style quality index and is thus summarized under the architectural design quality index.
- The environmental treatment quality index falls under the environmental sustainability index.
- Therefore, the overall housing quality indicators are four, as follows: site quality index, building and execution quality index, architectural design quality index, and environmental sustainability index.

C- Competitive Value-Added Housing Indicators:

• The design innovation index includes the aesthetic qualities of form and architectural design, its creativity, the attractiveness of finishes and architectural spaces, and the

innovativeness of architectural design, thus consolidated under the design innovation value index.

- The market value trend index reflects the economic benefits of housing, and thus, the latter is omitted.
- Hence, the total value-added housing indicators are two, as follows: the design innovation value index and the housing market value trend index.

D- Diversity and Allocation Competitive Housing Indicators:

- Cash, installment, and rental sales options are combined under a single index called the housing ownership patterns index. To indicate their diversity, this is formulated as the index of diverse housing ownership patterns.
- Indicators for low, middle, and high-income groups are combined with the attractive housing for social class's index under a single index known as the target group allocation index.
- Thus, the overall diversity and allocation competitive indicators are two, as follows: the index of diverse housing ownership patterns and the target group allocation index.

8- Deriving External Housing Competitive Drivers in Iraq:

A- Economic Driver:

- The GDP factor inherently includes economic growth; therefore, the latter is omitted for brevity.
- Economic inflation, interest rates, and the diversity of borrowing systems, including housing and real estate mortgages, are combined under a single comprehensive factor, interest rates and housing inflation.
- The housing supply factor includes the risk of housing overcrowding, hence the latter is omitted for brevity.
- Thus, the overall economic drivers are reduced to five key factors: GDP, interest rates and housing inflation, housing supply, housing demand, and the ability for new competitors to enter the market.
- •

B- Governmental Driver:

- Laws and legislation encompass housing policies, so the latter is omitted for brevity.
- Government financial support policies and state support for financial options are merged under a single factor, state policy for financial options.
- Infrastructure support and basic services support are merged into one factor, government support for infrastructure and basic services.
- The governmental drivers are thus reduced to five key factors: laws and legislation, state policy for financial options, land provision, government support for social housing, and government support for infrastructure and basic services.
- **C- Environmental Driver:** The weather and climate factor dominates other environmental factors, leading to the omission of the latter. Thus, only weather and climate remain as the key environmental driver.

D- Demographic Driver:

- The population growth factor includes family structures, family size, age demographics, urban migration, etc., and thus these factors are summarized as population growth.
- Consequently, two key factors remain: population growth and consumer preferences.

• The environmental and demographic drivers are combined into a single demographic and environmental driver, consisting of three factors: population growth, consumer preferences, and weather and climate.

9- Internal Housing Competitive Drivers in Iraq:

A- Administrative Capability Driver:

- The administrative capability to control time and schedules is merged with the capability for synchronization and timely operations management, resulting in a single factor, Time control and Synchronicity.
- The brand reputation is associated with market share growth, hence the latter is omitted for brevity.
- The key administrative capability drivers are six factors: project management efficiency, Time control and Synchronicity, innovative capability, human resource expertise, and ability to produce alternative housing products, and brand reputation.
- **B- Financial Capability Driver:** All elements of this driver have been covered under the economic driver, so this driver is omitted for brevity.

C- Innovative Capability Driver:

- The purpose of this driver is to reflect technological capabilities, so it is renamed technological capability driver.
- The housing production technology factor inherently covers both cost reduction and quality improvement; hence, these are merged under the term current production technologies.
- The innovative technologies factor encompasses access to new housing construction technologies, environmental sustainability, and innovations in new technologies, which are combined into a single factor, capacity to access new technologies.

10- Research Methodology and Measurement Tools:

The significance of this research lies in the scarcity of studies addressing the competitiveness of Iraq's housing sector, particularly those focusing on competitive indicators. The research aims to fill this gap by presenting a scientific framework to improve housing quality at a lower cost, contributing to resolving the current housing crisis. Additionally, it supports the development of competitive and sustainable housing policies.

This research employs a descriptive-analytical approach, collecting and analyzing data from previous studies to gain a comprehensive understanding of the competitive indicators in Iraq's housing sector. Quantitative analysis tools (SPSS program) will be used to assess the relationship between competitive indicators and their influencing factors.

Following the update of the competitive housing indicators and drivers in the Iraqi context, considering the 21 drivers and 11 competitive indicators, the study seeks to ensure accuracy in determining the impact on the Iraqi situation. To achieve this, the research adopts the Analytical Hierarchy Process (AHP) to assign precise weights to competitive indicators and drivers. The AHP will be applied on two levels: theoretical and with expert input to establish weightings and rankings for competitive housing drivers and indicators. These rankings are calculated using the Relative Importance Indicator with the Saaty Scale, enabling clear identification of the relative importance of each driver and indicator.

A- Analytical Hierarchy Process (AHP): It is an evaluative tool used to prioritize various criteria by breaking down the problem into hierarchical levels, enabling pairwise

comparisons to determine the relative importance of each variable. Developed by Thomas L. Saaty in the mid-1970s, AHP helps solve complex decision-making problems by arranging potential indicators based on their importance, forming a hierarchical structure that descends from the main goal to primary and secondary indicators [63]. AHP minimizes bias in decision-making, harmonizing expert opinions and improving accuracy while reducing the number of required experts.

The AHP process consists of four steps:

- 1. Decomposing the problem into interrelated components, starting with the primary and secondary criteria, to construct a coherent framework.
- 2. Conducting pairwise comparisons among the competitive indicators and drivers to determine overall weights, performance priorities, and relative importance.
- 3. Improving consistency by converting the problem into a mathematical matrix.
- 4. Analyzing relative evaluations, reflected in the priority ratio scale and overall weights for all competitive factors and indicators [64].

AHP is effective in resolving inconsistencies and using traditional software to calculate weights, making it simple and accessible. It is widely applied in competitive industry assessments, including housing, offering a theoretical, scientific, and globally recognized decision-making model [63].

AHP is particularly suited to the housing sector due to the complexity and potential contradictions among experts regarding indicators. The tool has been extensively applied in competitive industry analysis, including the construction sector [1] [4] [5], sustainable housing competitiveness [4], and real estate market analysis [65].

In this study, AHP is used to evaluate the various categories that form the competitive housing framework in Iraq, assigning appropriate weights to each indicator and driver. These weights will be assessed theoretically and via expert surveys, employing SPSS and Microsoft Excel for the AHP calculations. The housing competitiveness model presents the hierarchical structure, with Saaty's Scale used to measure relative importance across three levels:

1. Competitive housing indicators.

2. Competitive housing drivers.

3. The impact of housing drivers on the indicators, considering internal and external influences and their relative weights.

B- Theory of the Relative Importance Indicator (RII): The Relative Importance Indicator (RII) is a statistical tool used to rank factors or variables based on their relative importance in a given context. It is widely employed in industry research, market analysis, project management, and academic studies to prioritize issues, needs, and factors that exhibit multiplicity and diversity [66]. According to this theory, not all criteria hold the same level of importance, and the weight of each criterion varies depending on the context in which these criteria are formulated. Therefore, it is necessary to assign a relative weight to each criterion. These weights are determined based on the decision being made after identifying all criteria and competitive indicators. Subsequently, each criterion is compared pairwise with the others. Through these relative importance weights, an evaluation of the factors that influence the overall strategy of a sector, particularly the housing sector, can be made. The RII is used to analyze competitive advantages, reveal their ranking, and identify the most significant influencing factors [67]. Typically, an equation that takes into account the assessments provided by participants or experts is employed, with the general formula as follows:

$\operatorname{RII}=\frac{\Sigma(W)}{A*N}$

In that, (RII) refers to the value of relative importance, while (ΣW) represents the sum of weights assigned by experts or participants (based on Saaty's scale). (N) Denotes the highest weight assigned (which is 9 in Saaty's scale), and (A) is the total number of experts. The RII provides objectivity in the quantitative measurement of importance, helping to prioritize factors that contribute to decision-making based on priorities. Additionally, it allows for comparison between different factors and variables.

11- Practical Part:

- Measuring the Relative Importance of Experts for Housing Competitiveness Indicators and Drivers: A series of interviews were conducted with a group of experts to complete a questionnaire assessing the relative importance of indicators and drivers of competitiveness in Iraq's housing sector, specifically in the fields of architecture and housing economics. The experts involved included university professors from departments of architectural engineering and the Center for Urban and Regional Planning, as well as professionals from various ministries and stakeholders related to the housing sector in Iraq. The statistical data are as follows:
- <u>Basic Information about the Experts:</u> The number of experts totaled 21, distributed as follows: 12 in the field of architectural engineering, 5 in housing, and 4 in urban design. In terms of academic qualifications, 8 held the title of Professor, 7 were Associate Professors, 4 were Lecturers, and two had no academic titles. Most of the experts had over 25 years of experience in housing (14 experts), while 6 had more than 20 years of experience, and one expert had less than 20 years of experience.
- <u>Reliability or Validity Coefficient</u>: Before analysing the experts' responses to the questionnaire, a Cronbach's Alpha test (or Alpha coefficient) was conducted to assess the reliability of the answers using the SPSS statistical software. The Alpha coefficient was 0.921 or 92.1% for all the axes (See Fig. 2), which falls within accepted values. The Alpha coefficient is considered excellent if ($\alpha \ge 0.9$), good if ($0.9 > \alpha \ge 0.8$), acceptable if ($0.8 > \alpha \ge 0.7$), questionable if ($0.7 > \alpha \ge 0.6$), poor if ($0.6 > \alpha \ge 0.5$), and unacceptable if ($0.5 > \alpha$).

Reliability Statistics

Cronbach's Alpha	N of Items
.921	276
.921	270

Fig. 2. Reliability or validity coefficient of expert questionnaire.

• <u>Measurement of Questionnaire Values</u>: The three levels of relationships between indicators and competitive drivers in the housing sector in Iraq are calculated as follows:

A. Weights of Housing Competitiveness Indicators for Experts: The housing competitiveness indicators are divided into four categories, each with sub-indicators, and the importance of each sub-indicator is calculated according to the hierarchy in the expert questionnaire. 81% of

the experts voted for economic criteria as the highest-ranked category, 47.6% for housing quality and excellence as the second, 61.9% for diversity and residential allocation as the third, and an equal number for value-added criteria in fourth place. The responses for the secondary indicators within each main category were as follows:

- For economic housing criteria, 76.2% of experts ranked housing prices first, 85.7% ranked operating and maintenance costs second, and 61.9% ranked expected financial returns third.
- For housing quality and excellence, 81% of experts ranked location first, 71.4% ranked architectural design quality second, 57% ranked construction and implementation quality third, and 95.2% reached consensus on environmental sustainability as fourth.
- Regarding the value-added housing indicators, 57.1% of experts ranked the residential market value trend first, with the same percentage ranking innovative design value second.
- For diversity and housing allocation criteria, 85.7% of experts ranked the diversity of housing ownership models first, and the same percentage ranked the target groups indicator second.

The formula will be applied to calculate the relative importance, relative weight (relative to A), and the percentage (%) of the main criterion's value and its sub-indicators, as shown in the following Table 2.

No.	Driver	A*N	$\Sigma(W)$	RII	R. Wei.	Percentage	Rank
Econ	omic housing standards				8,613	34,936	(1)
1	Housing Price Index		179	0,947	8,16	12,952	1
2	Financial Return Index	100	151	0,798	6,88	10,92	3
3	Operation and Maintenance	109	153	0,809	6,97	11,063	2
	Index						
Resi	dential Quality and Excellence Sta	ndards			6,237	33,212	(2)
1	Site Quality Index		179	0,947	5,908	9,377	1
2	Construction Quality Index		129	0,682	4,257	6,757	4
3	Design Quality Index	189	177	0,936	5,842	9,273	2
4	Environmental Sustainability		149	0,788	4,917	7,804	3
	Index						
Resi	dential added value				5,184	14,646	(4)
1	Innovation Value Index	100	165	0,873	4,531	7,192	2
2	Market Value Index	109	171	0,904	4,696	7,453	1
Dive	rsity and Housing allocation				5,85	16,526	(3)
1	Diversity of Tenure Index	100	183	0,968	5,671	9,001	1
2	Housing allocation Index	109	153	0.809	4,741	7,525	2

Table 2: Percentile Weights Housing Competitiveness Indicators for Experts.

Measuring the Relative Importance and Weights of Experts on Housing Competitive Drivers: This section discusses the second and third levels of housing competitiveness, focusing on the weights of competitive drivers and the impact of each driver and its sub-factors on housing competitiveness indicators. This was based on a series of interviews with 21 Iraqi experts specializing in housing, architecture, and economics. Housing competitive drivers are divided into two categories: external and internal, each with its own sub-factors. The influence of each competitive driver is measured hierarchically, and the independent impact of each sub-factor on its respective competitive driver is also calculated.

Measuring the Relative Importance of Experts on the Weights of External Housing Competitive Drivers: In the economic driver, which consists of five subfactors, the relationship between these factors and housing indicators was analyzed as follows: 90% of the experts indicated that the GDP has the highest impact on housing prices and the trend of housing market value, with the least impact on housing location quality. Its influence on architectural design quality and innovative design value was equal. Experts unanimously agreed on the strong impact of interest rates, inflation, housing supply, and housing demand on housing prices and expected financial returns, with a weaker influence on environmental sustainability in Iraq. Similarly, 71% of experts indicated that the entry of new competitors affects housing prices and expected financial returns, with less impact on housing location quality.

The data extracted from the experts' survey, shown in Table 3, reveals that the economic driver has a significant impact on housing economic standards and housing market value, with a gradually decreasing influence on housing quality indicators. It also affects diversity and allocation standards from an economic perspective, as the economic aspect influences housing supply and provides ownership and tenure options, making the economic driver competitively effective in relation to expected financial returns (or investment profit) in housing.

Thus, it can be concluded that housing demand, followed by housing supply, are the most influential economic factors across all housing indicators as they are key mechanisms in the housing market, with GDP following closely. While interest rates and inflation are important to housing market mechanisms, their impact on other housing indicators is variable, making them less influential than the entry of new competitors, which has a greater and more significant effect on other housing indicators compared to interest rates and inflation. See the following Table 3.

			0	0				0				
		Econo standa	omic h ards	ousing	Housi Excell	ng Qua lence St	lity and andard	s	Reside added	ential value	Diversity &H. allocation	
Ecc D	onomic river	Housing Price Index	Financial Return Index	Operation and Maintenance	Site Quality Index	Construction Quality Index	Design Quality Index	Sustainability Index	Innovation Value Index	Market Trend Index	Diversity of Tenure Index	Housing allocation Index
G	Σ(W)	177	144	141	87	121	115	93	115	185	89	103
DP	RII	0,93	0,76	0,74	0,46	0,64	0,6	0,49	0,6	0.97	0,47	0,54
	R. wei.	8,42	6,85	6,71	4,14	5,76	5,47	4,42	5,47	8,8	4,23	4,9
	Total rela	ative w	eights								65	,238
	Percent	12,9	10,5	10,2	6,35	8,83	8,39	6,78	8,39	13,5	6,49	7,51%
	age	%	%	%	%	%	%	%	%	%	%	
	Rank	2	3	4	10	5	6	8	6	1	9	7
es	; Σ(W)	189	179	121	77	83	83	59	81	183	109	93
01	RII	1	0,94	0,64	0,4	0,43 63	0,43	0,31	0,42	0,96	0,57	0,49
	Ecc D GDP es	Economic Driver	Economic Driver $\Sigma(W)$ 177 RII 0,93 R. wei. 8,42 Total relative w Percent 12,9 age % Rank 2 $\Sigma(W)$ 189 RII 1	Economic Driver $\Sigma(W)$ 177 144 RII 0,93 0,76 R. wei. 8,42 6,85 Total relative weights Percent 12,9 10,5 age % % Rank 2 3 $\Sigma(W)$ 189 179 RII 0,94	Economic bound for the standards $Index Standards$ Economic Driver $Index Standards$ $Index Standard$	$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	$\begin{array}{c cccc} Economic & housing \\ standards & Housing Quality and \\ Excellence Standards & Excellence Standards \\ \hline \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \$	$ \begin{array}{c} \begin{array}{c} \mbox{Economic housing standards} \\ \mbox{Economic Driver} \end{array} \begin{array}{c} \mbox{Economic housing standards} \\ \mbox{Index standards} \\ $	$ \begin{array}{c} \begin{tabular}{cccc} \hline Economic \\ Standards \\ \hline Economic \\ Driver \\ \end{array} \begin{array}{c} \hline Economic \\ Driver \\ \end{array} \begin{array}{c} \hline Economic \\ Driver \\ \end{array} \begin{array}{c} \hline Economic \\ \hline Index \\ \hline$	$ \begin{array}{c cccc} Economic & housing \\ Financial Return \\ Driver \\ \end{array} \begin{array}{c} Financial Return \\ ex \\ e$	$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$

Table 3: Percentage weights of the competitive housing economic Driver in Iraq

			7			9	9	2	8	8	6	
	R. wei.	9	8,52	5,76	3,66	3,95	3,95	2,8	3,85	8,71	5,19	4,42
	Total rela	ative w	eights								59	,857
Housing Supply H	Percent	15%	14,2	9,62	6,12	6,6%	6,6%	4,69	6,44	14,5	8,67	7,39%
	age		%	%	%			%	%	%	%	
	Rank	1	2	4	9	7	7	10	8	3	5	6
Η	Σ(W)	189	189	121	113	169	171	87	159	179	169	137
ou	RII	1	1	0,64	0.59	0,89	0,90	0,46	0,84	0,94	0,89	0,724
sin					7	4	4		1	7	4	
SB	R. wei.	9	9	5,76	5,38	8,04	8,14	4,14	7,57	8,52	8,04	6,52
dn	Total rela	ative w	eights								80,142	2
ply	Percent	11,2	11,2	7,18	6,71	10%	10,1	5,16	9,44	10,6	10%	8,14%
	age	%	%	%	%		%	%	%	%		
	Rank	1	1	7	8	4	3	9	5	2	4	6
Н	Σ(W)	189	183	151	135	177	171	89	125	177	177	167
lousing D	RII	1	0,96	0,79	0,71	0,93	0,90	0,47	0,66	0,93	0,93	0,883
			8	8	4	6	4			6	6	
	R. wei.	9	8,71	7,19	6,42	8,42	8,14	4,23	5,95	8,42	8,42	7,95
en								8		8	8	
lan	Total relative weights										82,904	4
īd	Percent	10,8	10,5	8,67	7,75	10,2	9,82	5,11	7,17	10,1	10,1	9,59%
	age	%	%	%	%	%	%	%	%	%	%	
	Rank	1	2	7	8	3	5	10	9	4	4	6
er N	Σ(W)	177	173	139	87	149	157	147	155	155	129	133
ew	RII	0,93	0,91	0,73	0,46	0,78	0,83	0,77	0,82	0,82	0,68	0,7
co		6	5	5		8		7			2	
g mb	R. wei.	8,42	8,23	6,61	4,14	7,09	7,47	7	7,38	7,38	6,14	6,333
oeti				9	2	5	6				2	
itoj	Total rela	ative w	eights								76,238	81
Š	Percent	11%	10,8	8,68	5,43	9,3%	9,8%	9,18	9,68	9,68	8,05	8,3%
	age		%	%	%			%	%	%	%	
	Rank	1	2	7	10	5	3	6	4	4	9	8
Total	Relative W	/eight o	of the Ec	conomic	c Driver						364,38	81
Total	number of	f compe	etitive fa	actors o	f the Ec	onomic	Driver				5	
Driver	· Factor W	'eight R	atio (W	/Numb	er)						72,870	6

In the demographic and environmental driver, which consists of three secondary factors, the relationship between these factors and housing indicators is as follows: experts predominantly voted for the significant influence of population growth on housing prices and the diversity of housing tenure patterns, while this factor showed a weaker influence on the quality of construction and implementation indicators. Meanwhile, consumer preferences equally impacted the quality of housing location and the quality of construction and implementation, followed by the quality of architectural design. Although design innovation and environmental sustainability indicators are crucial in the housing sector in other countries, they remain at lower levels in consumer preferences within Iraq's housing sector. This is largely due to the severe housing shortage in terms of quantity, quality, and type that Iraq is currently experiencing. Lastly, more than 85% of experts indicated that weather and climate conditions significantly affect environmental sustainability indicators and the quality indicators and the quality of housing locations, while these factors have a much weaker impact on housing tenure diversity and the targeted demographic groups, as per most Iraqi experts. The data extracted

from the expert survey in Table 4 shows that the demographic and environmental driver has a substantial influence on all housing criteria and indicators, with a particularly strong impact on housing diversity and allocation criteria, as well as housing quality standards. However, it has less influence on added housing value indicators, reflecting the specific nature of the Iraqi housing sector. Table 4 indicates that consumer preferences have the most substantial effect on overall competitive indicators, followed by population growth, illustrating the significant influence of this factor on housing prices and quality in Iraq.

As for the government role driver in the housing sector, which consists of five secondary factors, the relationship between these factors and housing indicators is as follows: experts unanimously agreed on the strong impact of laws and regulations within the government's role on overall competitive housing indicators, followed by their influence on the diversity of housing tenure and ownership patterns. The laws also showed strong and equal influence on both the expected financial return indicator and the market value indicator, with their lowest influence being on the housing location quality indicator. Over 85% of experts confirmed the direct impact of state financial support options on housing prices, which in turn affects the quality of construction and implementation, the latter being the second most affected indicator. Financial support options also showed equal influence on both housing location quality and environmental sustainability, with the least impact on housing innovation value. The provision of residential land is considered a critical factor, given the economic value it represents for housing units in Iraq. Consequently, experts unanimously agreed that land provision has the highest impact on housing prices. Since residential land is distinguished by location, the quality of the location, according to more than 85% of experts, ranks second after price, followed by the expected financial return or investment yield indicator. See the following Table 4.

								uy					
			Econo standa	omic h ards	ousing	Housi Excell	ng Qual ence St	lity and andard	S	Reside added	ential l value	Divers alloca	sity &H. tion
Demographic and environmental Driver		ographic and onmental river	Housing Price Index	Financial Return Index	Operation and Maintenance	Site Quality Index	Construction Quality Index	Design Quality Index	Sustainability Index	Innovation Value Index	Market Trend Index	Diversity of Tenure Index	Housing allocation Index
rate	Pop	Σ(W) RII	169 0.89	$147 \\ 0.77$	157 0.83	$109 \\ 0.57$	91 0.48	129 0.68	125 0.66	93 0.49	141 0.74	173 0.91	143 0.756
	ula		4	7	-,	6	1	2	-,	2	6	5	-,
	tioi	R. wei.	8,04	7	7,47	5,19	4,33	6,14	5,95	4,42	6,71	8,23	6,8
	20 00	Total rela	ative weights									70	,333
	rov	Percent	11,4	9,95	10,6	7,37	6,16	8,73	8,46	6,29	9,54	11,7	9,68
	vth	age	%	%	%	%	%	%	%	%	%	%	%
	_	Rank	2	4	3	9	11	7	8	10	6	1	5
er	C	Σ(W)	183	141	131	185	185	179	121	115	129	175	135
onsui	onsur	RII	0,96 8	0,74 6	0,69 3	0,97 8	0,97 8	0,94 7	0,64	0,60 8	0,68 2	0,92 5	0,714
	n	R. wei.	8,71	6,71	6,23	8,8	8,8	8,52	5,76	5,47	6,14	8,33	6,42

Table 4: Percentage weights of the competitive housing Demographic and environmental

 Driver in Irag

	Total rela	ative we	eights								79,	952
	Percent	10,9	8,39	7,8	11%	11%	10,6	7,2%	6,84	7,68	10,4	8%
	age	%	%	%			%		%	%	%	
	Rank	2	5	7	1	1	3	9	10	8	4	6
<u>C</u> ≤	Σ(W)	83	75	115	131	95	91	165	89	67	63	47
/ea im	RII	0,43	0,39	0,60	0,69	0,50	0,48	0,87	0,47	0,35	0,33	0,248
the		9	6	8	3	2	1	3		4	3	
er e	R. wei.	3,95	3,57	5,47	6,23	4,52	4,33	7,85	4,23	3,19	3	2,23
Ind	Total relative weights										48,619)
_	Percent	8,12	7,35	11,2	12,8	9,3	8,91	16,1	8,71	6,56	6,17	4,6%
	age	%	%	%	%	%	%	%	%	%	%	
	Rank	7	8	3	2	4	5	1	6	9	10	11
Total	Relative W	/eight o	f the De	emogra	phic and	d envire	onment	al Drive	er		198,90)4
Total	number of	compe	titive fa	ictors o	f the De	mograj	phic and	d enviro	onment	al	3	
Drive	r											
Drive	Driver Factor Weight Ratio (W/Number) 66,301											

The influence of this factor continues to register its lowest impact, according to 71.4% of experts, on the design innovation value index. Similarly, the government support for social housing directly affects reducing housing prices, with more than 85% of experts voting on the significant impact of this factor on housing prices. This is followed by the target demographic index, as social housing is aimed at a specific economic group. About 80% of experts believe that this factor supports the projected investment and financial returns in Iraq, noting that there are no restrictions on the acquisition of social housing for any group within Iraqi society. The influence of this factor gradually diminishes, with 71.4% of experts indicating its lowest impact on the design innovation value. Lastly, under the government's role driver, support for infrastructure and essential services significantly contributes to the impact on housing competitiveness indicators at all levels. Around 85% of experts believe that it equally affects both housing prices and site quality indices, while 80% think it influences the financial and investment return indicators and the market value, respectively. The impact gradually lessens, reaching its lowest level in the architectural design quality of housing units. Table 5 shows that legislation and regulations have the most significant effect on overall competitiveness indicators, followed by the provision of residential land, then support for social housing, support for infrastructure and essential services, and finally, the state's financial policy options.

	Table	5: Perce	entage v	weights	of the	competi	itive Go	vernme	ent role	Driver	in Iraq		
Economic housing						Housing Quality and				Residential		Diversity &H.	
standards						Excellence Standards				added value		allocation	
Goveri	nment	Housing Price	Financial Return	Operation and	Site Quality Index	Construction	Design Quality	Sustainability	Innovation Value	Market Trend	Diversity of	Housing	
Ro	lle	Index	Index	Maintenance		Quality Index	Index	Index	Index	Index	Tenure Index	allocation Index	
Legi:	Σ(W)	187	161	151	107	157	125	137	117	161	179	121	
atior	RII	0,98	0,85	0,79	0,56	0,83	0,66	0,72	0,61	0,85	0,94	0,64	
n sl		9	1	8	6		1	4	9	1	7		

	R. wei. Total re	8,9	7,66	7,19	5,09	7,47	5,95	6,52	5,57	7,66	8,52	5,76 222
	Perce	11 6		941	6 6 7	9 79	7 79	8 5 4	7 29	10%	111	,333 7 54%
	ntage	% %	1070	% %	%	%	%	0,54 %	%	1070	% %	/,54/0
	Rank	1	3	5	10	4	70	6	9	3	2	8
	$\Sigma(M)$	175	155	103	85	161	, 103	85	75	129	99	135
ol j	RII	0.92	0.82	054	044	0.85	054	0.44	039	0.68	0.52	0714
and	i i i	5	0,02	4	9	1	4	9	6	2	3	0,711
tial	R. wei.	8,33	7,38	4.9	4.04	7,66	4.9	4.04	3,57	<u>-</u> 6.14	4,71	6,42
Op	Total re	elative v	weights								62	,142
tio	Perce	13,4	11,8	7,89	6,51	12,3	7,89	6,51	5,74	9,88	7,58	10,3%
ns	ntage	%	%	%	%	%	%	%	%	%	%	
	Rank	1	3	6	8	2	6	8	10	5	7	4
P	Σ(W)	189	171	119	181	73	79	79	69	167	143	147
rov	RII	1	0,9	0,62	0,95	0,38	0,41	0,41	0,36	0,88	0,75	0,77
ridi	R. wei.	9	8,14	5,66	8,61	3,47	3,76	3,76	3,28	7,95	6,8	7
ing	Total re	elative v	weights								67,47	6
lar	Perce	13,3	12%	8,39	12,7	5,15	5,57	5,57	4,86	11,7	10%	10,3%
ıd	ntage	%		%	%	%	%	%	%	%		
	Rank	1	3	7	2	9	8	8	10	4	6	5
SC	Σ(W)	171	141	153	99	129	105	83	71	133	155	169
ocia Ipp	RII	0,9	0,74	0,8	0,52	0,68	0,55	0,43	0,37	0,7	0,82	0,89
al h	R. wei.	8,14	6,71	7,28	4,71	6,14	5	3,95	3,38	6,33	7,38	8,04
lou	Total re	elative v	weights								67,09	5
sin	Perce	12,1	10%	10,8	7%	9,1%	7,4%	5,8%	5%	9,4%	11%	11,9%
ρÛ	ntage	%		%								
	Rank	1	5	4	9	7	8	10	11	6	3	2
In Su	Σ(W)	177	175	131	177	115	63	115	69	169	93	97
fra Ipp	RII	0,93	0,92	0,69	0,93	0,6	0,33	0,6	0,36	0,89	0,49	0,51
or	R. wei.	8,42	8,33	6,23	8,42	5,47	3	5,47	3,28	8	4,42	4,61
ucí	Total re	elative v	weights								65,76	1
tur	Perce	12,8	12,6	9,4%	12,8	8,3%	4,5%	8,3%	4,9%	12,2	6,73	7%
e	ntage	%	%		%					%		
	Rank	1	2	4	1	5	9	5	8	3	7	6
Total R	elative W	Veight o	of the Go	overnm	ent role	Driver					338,8	09
Total n	umber of	f compe	etitive fa	ictors o	f the Go	vernme	ent role	Driver			5	
Driver	Factor W	'eight R	atio (W	/Numb	er)						67,76	1

The Internal Housing Competitive Driver: In the administrative driver, which consists of six secondary factors, the relationship between these factors and housing indicators is outlined as follows: Experts unanimously agreed that administrative efficiency has a very strong impact on the quality of construction and execution indicator, reducing maintenance and occupancy costs. This, in turn, directly affects the housing price index, according to 85% of Iraqi experts. The influence of this factor gradually decreases, with more than half of the experts stating that it has the least effect on diversity of housing tenure types and location quality indicators.

Moreover, 85% of experts believe that the Time control and Synchronicity factor significantly affects the expected housing investment return indicator, as well as the housing quality factor, with its lowest influence seen in the diversity of housing tenure types indicator. Experts unanimously agreed on the impact of innovative capabilities on architectural design

quality indicators, particularly in the design of housing units, which consequently enhances design innovation value. Additionally, 85% of experts considered innovative capacity an effective tool for influencing the economic housing price and quality of construction and execution indicators. However, 66% of experts believe that the lowest influence of this innovative factor is found in housing diversity and customization indicators, especially among targeted socio-economic groups.

The expertise of human resources factor directly influences the quality of execution and architectural design, as unanimously agreed by the experts, and it impacts design and innovative value indicators, according to 80% of experts. The ability to produce alternative housing products factor has a direct impact on housing competitiveness indicators, with more than 85% of experts highlighting its influence on economic aspects such as prices and expected housing investment returns. Additionally, experts unanimously agreed that the reputation of the brand affects economic indicators, housing quality, and its market value direction.

As shown in Table 6, the innovative capacity factor has the most significant impact on the overall competitive indicators, followed by the influence of administrative efficiency in housing projects, then the ability to produce alternative housing products, followed by the brand reputation factor, human resources expertise, and lastly, Time control and Synchronicity.

10		Entag					ummis					
		Econo	mic n	ousing	Housi	ng Qual	ity and		Reside	ential	Divers	SITY &H.
		stand	ards		Excell	ence St	andards	5	added	value	allocat	tion
Admir capa	nistrative Ibilities	Housing Price Index	Financial Return Index	Operation and Maintenance	Site Quality Index	Construction Quality Index	Design Quality Index	Sustainability Index	Innovation Value Index	Market Trend Index	Diversity of Tenure Index	Housing allocation Index
H ef	Σ(W)	169	145	171	89	189	161	109	137	157	87	91
. Pr fici	RII	0,89	0,76	0,9	0,47	1	0,85	0,57	0,72	0,83	0,46	0,48
oje	R. wei.	8,04	6,9	8,14	4,23	9	7,66	5,19	6,52	7,47	4,14	4,33
ct i Sy	Total rel	lative w	reights								71	,666
nar	Percen	11,2	9,6%	11,3	5,9%	12,5	10,6	7,2%	9,1%	10,4	5,7%	6%
lag	tage	%		%		%	%			%		
•	Rank	3	6	2	10	1	4	8	7	5	11	9
Ti Sy	Σ(W)	163	171	121	81	165	127	69	133	139	47	65
m∈ ∕n.	RII	0,86	0,9	0,64	0,42	0,87	0,67	0,36	0,7	0,73	0,24	0,34
e cc	R. wei.	7,76	8,14	5,76	3,85	7,85	6,04	3,28	6,33	6,61	2,23	3,09
ont	Total rel	lative w	reights								ť	51
rol	Percen	12,7	13,3	9,4%	6,3%	12,8	9,9%	5,3%	10,3	10,8	3,6%	5%
&	tage	%	%			%			%	%		
	Rank	3	1	7	8	2	6	9	5	4	11	10
In ca	Σ(W)	171	153	127	99	167	181	119	181	139	107	89
no pa	RII	0,9	0,8	0,67	0,52	0,88	0,95	0,62	0,95	0,73	0,56	0,47
vat city	R. wei.	8,1	7,2	6	4,7	7,9	8,6	5,6	8,6	6,6	5	4,2
ive /	Total rel	lative w	reights								73	
	Percen	11,1	9,9%	8,2%	6,4%	10,8	11,8	7,7%	11,8	9%	6,9%	5,8%

Table 6: Percentage weights of the competitive Administrative capabilities Driver in Iraq

	tage	%				%	%		%			
	Rank	2	4	6	9	3	1	7	1	5	8	10
Н	Σ(W)	137	133	149	75	185	183	111	165	135	63	61
Re	RII	0,72	0,7	0.78	0.39	0.97	0.96	0.58	0.87	0.71	0.33	0.32
qxi	R. wei.	6.5	6.3	7	3.5	8.8	8.7	5.2	7.8	6.4	3	2.9
ert	Total rel	ative w	eights								66.	523
ise	Percen	9.8	9.5%	10.6	5.3%	13.2	13%	7.9%	11.8	9.6%	4.5%	4.3%
	tage	%		%		%			%			
	Rank	5	7	4	9	1	2	8	3	6	10	11
A]	Σ(W)	181	157	137	115	139	139	105	141	155	119	105
od	RII	0.95	0.83	0.72	0.6	0.73	0.73	0.55	0.74	0.82	0.62	0.55
na	R. wei.	8.6	7.4	6.5	5.4	6.6	6.6	5	6.7	7.3	5.6	5
tiv ts	Total rel	ative w	eights								71.095	5
e h	Percen	12.1	10.5	9.1%	7.7%	9.3%	9.3%	7%	9.4%	10.3	7.9%	7%
•	tage	%	%							%		
	Rank	1	2	6	8	5	5	9	4	3	7	9
re Bi	Σ(W)	179	137	121	157	151	149	119	129	135	69	97
ran pu	RII	0.94	0.72	0.64	0.83	0.79	0.78	0.62	0.68	0.71	0.36	0.51
d	R. wei.	8.5	6.5	5.7	7.4	7.1	7	5.6	6.1	6.4	3.2	4.6
ior	Total rel	ative w	eights								68.714	ŀ
Р	Percen	12.4	9.4%	8.3%	10.8	10.4	10.3	8.2%	8.9%	9.3%	4.7%	6.7%
	tage	%			%	%	%					
	Rank	1	5	8	2	3	4	9	7	6	11	10
Total R	elative We	eight of	the Adr	ninistra	itive cap	babilitie	es Drive	r			412	
Total n	umber of c	competi	itive fac	tors of t	the Adn	ninistra	tive cap	abilitie	s Drive	r	6	
Driver Factor Weight Ratio (W/Number) 68,6										68,666	5	

In the context of technological capabilities in the housing sector, which consists of two secondary factors, their relationship with housing indicators is observed as follows: Experts unanimously agreed on the significant impact of current production technologies on housing prices and the quality of design and construction. Accordingly, based on the consensus of experts, current production technologies influence the market value of housing, with a lesser impact on housing diversity and customization indicators. Additionally, more than 85% of experts believe that accessibility to new technologies significantly affects housing competitiveness indicators, particularly in terms of construction quality, housing prices, financial returns, and expected investment, while having minimal influence on diversity and customization indicators, followed by the influence of current production technologies.

Table 7: Percentage weight	ts of the competitive	Technological car	pabilities Driver in Iraq
	F		

		<u> </u>					0				
	Economic housing standards			Housing Quality and Excellence Standards				Residential		Diversity &H. allocation	
	Stanua	arus		LACEN	ence st	anuaru	5	auueu	value	anocat	,1011
Technological capabilities	Housing Price Index	Financial Return Index	Operation and Maintenance	Site Quality Index	Construction Quality Index	Design Quality Index	Sustainability Index	Innovation Value Index	Market Trend Index	Diversity of Tenure Index	Housing allocation Index

pj Ci	Σ(W)	181	139	171	59	179	137	119	153	175	77	91
noc	RII	0.95	0.73	0.9	0.31	0.94	0.72	0.62	0.8	0.92	0.4	0.48
ent ho luctio	R. wei.	8.6	6.6	8.1	2.8	8.5	6.5	5.6	7.2	8.3	3.6	4.3
	Total re	elative v	weights								70.523	
ous n t	Perce	12.2	9.3%	11.5	3.9%	12%	9.2%	8%	10.3	11.8	5.1%	6.1%
sing	ntage	%		%					%	%		
P 09	Rank	1	6	4	11	2	7	8	5	3	10	9
te A	Σ(W)	165	175	159	85	183	153	133	173	151	71	79
cce	RII	0.87	0.92	0.84	0.44	0.96	0.8	0.7	0.91	0.79	0.37	0.41
nol	R. wei.	7.8	8.3	7.5	4	8.7	7.2	6.3	8.2	7.1	3.3	3.7
log	Total re	elative v	weights								72.714	ŀ
nev ies	Perce	10.8	11.4	10.4	5.5%	11.9	10%	8.7%	11.3	9.8%	4.6%	5.1%
Z	ntage	%	%	%		%			%			
	Rank	4	2	5	9	1	6	8	3	7	11	10
Total Re	elative W	/eight o	of the Te	chnolog	gical ca	pabiliti	es Drive	er			143.23	88
Total number of competitive factors of the Technological capabilities Driver 2										2		
Driver Factor Weight Ratio (W/Number)											71.619	

The Model of Housing Competitive Drivers' Weights for Competitive Indicators: Given the close alignment between theoretical weights and expert-assigned weights for housing competitive drivers, the practical results provided by experts will be adopted in forming the weights of competitive drivers for housing in Iraq. As mentioned before, the drivers within the housing industry (50.42%) have a slightly higher influence compared to external drivers (49.57%). The economic driver has the most significant impact at 35.21%, followed by the governmental driver at 32.74%, and finally, the demographic and environmental driver at 32.03%, contributing to the overall effect on housing competitive indicators. Among internal competitive drivers, technological capabilities exert the greatest influence at 51.05%, followed by the administrative capabilities of the housing project at 48.94%. See the following Table 8.

No.	Driver	A*N	$\Sigma(W)$	RII	R. Wei.	Percentag e	Rank
External Competit				68.97	49.57%	-2-	
Economic Driver					72.876	35.21%	(1)
1 GDP			124.5	0.658	5.93	6.3%	4
2 Interest rate	s and inflation		114.2	0.604	5.44	5.78%	5
3 Housing Sup	ply	189	153	0.809	7.28	7.74%	2
4 Housing Den	nand		158.2	0.837	7.53	8.01%	1
5 New compet	itors entering		145.5	0.77	6.93	7.36%	3
Demographic and	environmental driv	er			66.301	32.03%	(3)
1 population g	rowth		134.2	0.71	6.39	11.32%	2
2 Consumer pr	references	189	152.6	0.8	7.26	12.87%	1
3 Weather and	climate		92.8	0.491	4.41	7.82%	3
	Government Driver	r			67.761	32.74%	(2)
1 Legislation a	nd laws		145.7	0.771	6.93	7.37%	1
2 Financial Op	tions Policy		118.6	0.627	5.64	6%	5
3 Providing la	nd	189	128.8	0.681	6.13	6.51%	2
4 Social housir	ng support		128	0.677	6.09	6.48%	3
5 Infrastructur	e Support		125.5	0.664	5.97	6.35%	4

Table 8: Percentile Weights for Residential Competitive Engines for Experts.

Internal Competitive Driver70.1450.42%								
Mana	agement capabilities Driver				68.666	48.94%	(2)	
1	Project manag. efficiency		136.8	0.723	6.51	8.51%	2	
2	Time control & syn.		116.4	0.616	5.54	7.24%	6	
3	Innovative capacity	100	139.3	0.737	6.63	8.67%	1	
4	HR expertise	109	127	0.671	6.04	7.9%	5	
5	Alternative housing products		135.7	0.718	6.46	8.44%	3	
6	Brand reputation		131.1	0.694	6.24	8.16%	4	
Tech	nology capabilities Driver				71.619	51.05	(1)	
1	Current housing production		134.6	0.712	6.41	25.13%	2	
	techniques	189						
2	Access to new technologies		138.8	0.734	6.61	25.91%	1	

12- Discussion of Results and Conclusions:

The competitive model for the housing sector consists of a set of housing competitiveness indicators controlled by competitive housing drivers within a hierarchical sequential relationship. These drivers influence the indicators in varying degrees, based on the different weights assigned to each indicator. The competitiveness of each indicator can be enhanced through the higher-impact values, determined after conducting studies at each level. As shown in Fig. 3 below, there is a convergence between the theoretical weights and the expert-assigned weights for the housing competitiveness indicators. Thus, the practical results from the experts are adopted in establishing the weights for housing competitiveness indicators in Iraq.



Fig. 3. The competitive weighted housing indicators model in Iraq. (By researchers).

The degree of impact of Housing Competitiveness drivers on competitiveness indicators in Iraq varies according to their location and mechanisms of operation. The impact of secondary factors of all drivers on Housing Competitiveness indicators in Iraq can be summarized according to Table 9:

Table 9: Summary of the impact of secondary factors for all driv	vers on Housing
Competitiveness indicators in Irag.	

Occupation and Maintenance Cost Index		Expecte	d financial return index	Housing Price Index		
RII	Secondary factors	RII	Secondary factors	RII	Secondary factors	
0.9	Project manag. efficiency	1	Housing Supply	1	Interest & inflation	
0.9	Current h. prod. techniques	0.968	Housing Demand	1	Housing Supply	
0.84	Access to new technologies	0.947	Interest rates and inflation	1	Housing Demand	
0.83	Population growth rate	0.92	Infrastructure Support	1	Providing land	
0.8	Social housing support	0.92	New technologies	0.989	Legislation and laws	
0.798	Housing Demand	0.915	New competitors entering	0.968	Consumer preferences	
0.798	Legislation and laws	0.9	Providing land	0.95	Substitute prod. Ability	
0.78	HR expertise	0.9	Time control & syn.	0.95	Current h. prod. tech.	
0.74	GDP	0.851	Legislation and laws	0.94	Brand reputation	
0.735	New competitors entering	0.83	Alternative h. products	0.936	New competitors entering	
0.72	Alternative h. products	0.82	Financial Options Policy	0.93	GDP	

0.693	Consumer preferences	0.8	Innovative capacity	0.93	Infrastructure Support
0.69	Infrastructure Support	0.777	Population growth rate	0.925	Financial Options Policy
0.67	Innovative capacity	0.76	GDP	0.9	Social housing support
0.64	Interest rates and inflation	0.76	Project manag. efficiency	0.9	Innovative capacity
0.64	Housing Supply	0.746	Consumer preferences	0.894	Population growth rate
0.64	Time control & syn.	0.74	Social housing support	0.89	Project manag. efficiency
0.64	Brand reputation	0.73	Current h. production tech.	0.87	new technologies
0.62	Providing land	0.72	Brand reputation	0.86	Time control & syn.
0.608	Weather and climate	0.7	HR expertise	0.72	HR expertise
0.544	Financial Options Policy	0.396	Weather and climate	0.439	Weather and climate
Design Qualit	zv Index	Constru	ction Quality and	Site Oua	lity Index
PII	Secondary factors	Implen	nentation Index Secondary factors	RII	Secondary factors
0.06		1	Drojost manag officiongy	0.070	Consumer proferences
0.90	Incerpentise	1 0 0 7 9	Consumer proferences	0.970	Providing land
0.93	Consumer proferences	0.970	HP ovportiso	0.93	Infrastructure Support
0.947	Housing Supply	0.97	New technologies	0.93	Brand roputation
0.904	Housing Supply	0.90	New technologies	0.05	Lousing Domand
0.904	Droject manage officiency	0.94	Housing Domand	0./14	Mosther and climate
0.05	Now competitors entering	0.930	Housing Supply	0.095	Alternative h products
0.05	A seese to result shrele size	0.094		0.0	Alternative II. products
0.8	Access to new technologies	0.88	Time capacity	0.597	Rousing Supply
0.78	Alternative le sur de ste	0.87	Fine control & Syn.	0.576	Population growth rate
0.73	Alternative n. products	0.851	Financial Options Policy	0.566	Legislation and laws
0.72	Current h. production tech.	0.83	Legislation and laws	0.52	Social housing support
0.682	Population growth rate	0.79	Brand reputation	0.52	Innovative capacity
0.67	Time control & syn.	0.788	New competitors entering	0.47	Project manag. efficiency
0.661	Legislation and laws	0.73	Alternative h. products	0.46	GDP
0.6	GDP	0.68	Social housing support	0.46	New competitors entering
0.55	Social housing support	0.64	GDP	0.449	Financial Options Policy
0.544	Financial Options Policy	0.6	Infrastructure Support	0.44	New technologies
0.481	Weather and climate	0.502	Weather and climate	0.42	Time control & syn.
0.439	Interest rates and inflation	0.481	Population growth rate	0.4	Interest & inflation
0.44	Drowiding land	0 1 2 0	Interact rates and inflation	030	HR expertise
0.41	FI OVIUIIIg Ialiu	0.439	Interest rates and innation	0.57	int expertise
0.41 0.33	Infrastructure Support	0.439	Providing land	0.31	Current h. prod. tech.
0.41 0.33 Market Value	Infrastructure Support Trend Index	0.38 Innovat	Providing land ion Value Index	0.31 Environ	Current h. prod. tech. mental Sustainability Index
0.41 0.33 Market Value RII	Infrastructure Support Trend Index Secondary factors	0.439 0.38 Innovat RII	Providing land ion Value Index Secondary factors	0.31 Environ RII	Current h. prod. tech. mental Sustainability Index Secondary factors
0.41 0.33 Market Value RII 0.97	Infrastructure Support Trend Index Secondary factors GDP	0.439 0.38 Innovat RII 0.95	Providing land ion Value Index Secondary factors Innovative capacity	0.31 Environ RII 0.873	Current h. prod. tech. mental Sustainability Index Secondary factors Weather and climate
0.41 0.33 Market Value RII 0.97 0.968	Infrastructure Support Trend Index Secondary factors GDP Interest rates and inflation	0.439 0.38 Innovat RII 0.95 0.91	Providing land ion Value Index Secondary factors Innovative capacity New technologies	0.31 Environ RII 0.873 0.777	Current h. prod. tech. mental Sustainability Index Secondary factors Weather and climate New competitors entering
0.41 0.33 Market Value RII 0.97 0.968 0.947	Infrastructure Support Trend Index Secondary factors GDP Interest rates and inflation Housing Supply	0.439 0.38 Innovat RII 0.95 0.91 0.87	Providing land ion Value Index Secondary factors Innovative capacity New technologies HR expertise	0.31 Environ RII 0.873 0.777 0.724	Current h. prod. tech. mental Sustainability Index Secondary factors Weather and climate New competitors entering Legislation and laws
0.41 0.33 Market Value RII 0.97 0.968 0.947 0.936	Infrastructure Support Trend Index Secondary factors GDP Interest rates and inflation Housing Supply Housing Demand	0.439 0.38 Innovat RII 0.95 0.91 0.87 0.841	Providing land ion Value Index Secondary factors Innovative capacity New technologies HR expertise Housing Supply	0.31 Environ RII 0.873 0.777 0.724 0.7	Current h. prod. tech. mental Sustainability Index Secondary factors Weather and climate New competitors entering Legislation and laws New technologies
0.41 0.33 Market Value RII 0.97 0.968 0.947 0.936 0.92	Infrastructure Support Trend Index Secondary factors GDP Interest rates and inflation Housing Supply Housing Demand Current h. production tech.	0.439 0.38 Innovat RII 0.95 0.91 0.87 0.841 0.82	Providing land ion Value Index Secondary factors Innovative capacity New technologies HR expertise Housing Supply New competitors entering	0.31 Environ RII 0.873 0.777 0.724 0.7 0.66	Current h. prod. tech. mental Sustainability Index Secondary factors Weather and climate New competitors entering Legislation and laws New technologies Population growth rate
0.41 0.33 Market Value RII 0.97 0.968 0.947 0.936 0.92 0.89	Infrastructure Support Trend Index Secondary factors GDP Interest rates and inflation Housing Supply Housing Demand Current h. production tech. Infrastructure Support	0.439 0.38 Innovat RII 0.95 0.91 0.87 0.841 0.82 0.8	Providing land ion Value Index Secondary factors Innovative capacity New technologies HR expertise Housing Supply New competitors entering Current h. production tech.	0.31 Environ RII 0.873 0.777 0.724 0.7 0.66 0.64	Current h. prod. tech. mental Sustainability Index Secondary factors Weather and climate New competitors entering Legislation and laws New technologies Population growth rate Consumer preferences
0.41 0.33 Market Value RII 0.97 0.968 0.947 0.936 0.92 0.89 0.88	Infrastructure Support Trend Index Secondary factors GDP Interest rates and inflation Housing Supply Housing Demand Current h. production tech. Infrastructure Support Providing land	0.439 0.38 Innovat RII 0.95 0.91 0.87 0.841 0.82 0.8 0.8 0.74	Providing land ion Value Index Secondary factors Innovative capacity New technologies HR expertise Housing Supply New competitors entering Current h. production tech. Substitute products Ability	0.31 Environ RII 0.873 0.777 0.724 0.7 0.66 0.64 0.62	Current h. prod. tech. mental Sustainability Index Secondary factors Weather and climate New competitors entering Legislation and laws New technologies Population growth rate Consumer preferences Innovative capacity
0.41 0.33 Market Value RII 0.97 0.968 0.947 0.936 0.92 0.89 0.88 0.851	Infrastructure Support Trend Index Secondary factors GDP Interest rates and inflation Housing Supply Housing Demand Current h. production tech. Infrastructure Support Providing land Legislation and laws	0.439 0.38 Innovat RII 0.95 0.91 0.87 0.841 0.82 0.8 0.74 0.72	Providing land ion Value Index Secondary factors Innovative capacity New technologies HR expertise Housing Supply New competitors entering Current h. production tech. Substitute products Ability Project Manag. efficiency	0.31 Environ RII 0.873 0.777 0.724 0.7 0.66 0.64 0.62 0.62	Current h. prod. tech. mental Sustainability Index Secondary factors Weather and climate New competitors entering Legislation and laws New technologies Population growth rate Consumer preferences Innovative capacity Brand reputation
0.41 0.33 Market Value RII 0.97 0.968 0.947 0.936 0.92 0.89 0.88 0.851 0.83	Infrastructure Support Trend Index Secondary factors GDP Interest rates and inflation Housing Supply Housing Demand Current h. production tech. Infrastructure Support Providing land Legislation and laws Project Manag. efficiency	0.439 0.38 Innovat RII 0.95 0.91 0.87 0.841 0.82 0.8 0.74 0.72 0.7	Providing land ion Value Index Secondary factors Innovative capacity New technologies HR expertise Housing Supply New competitors entering Current h. production tech. Substitute products Ability Project Manag. efficiency Time control & syn.	0.31 Environ RII 0.873 0.777 0.724 0.7 0.66 0.64 0.62 0.62 0.62 0.62	Current h. prod. tech. mental Sustainability Index Secondary factors Weather and climate New competitors entering Legislation and laws New technologies Population growth rate Consumer preferences Innovative capacity Brand reputation Current h. prod. tech.
0.41 0.33 Market Value RII 0.97 0.968 0.947 0.936 0.92 0.89 0.88 0.851 0.83 0.82	Infrastructure Support Trend Index Secondary factors GDP Interest rates and inflation Housing Supply Housing Demand Current h. production tech. Infrastructure Support Providing land Legislation and laws Project Manag. efficiency New competitors entering	0.439 0.38 Innovat RII 0.95 0.91 0.87 0.841 0.82 0.8 0.74 0.72 0.7 0.68	Providing land ion Value Index Secondary factors Innovative capacity New technologies HR expertise Housing Supply New competitors entering Current h. production tech. Substitute products Ability Project Manag. efficiency Time control & syn. Brand reputation	0.31 Environ RII 0.873 0.777 0.724 0.7 0.66 0.64 0.62 0.62 0.62 0.62 0.62	Current h. prod. tech. mental Sustainability Index Secondary factors Weather and climate New competitors entering Legislation and laws New technologies Population growth rate Consumer preferences Innovative capacity Brand reputation Current h. prod. tech. Infrastructure Support
0.41 0.33 Market Value RII 0.97 0.968 0.947 0.936 0.92 0.89 0.88 0.851 0.83 0.82 0.82	Infrastructure Support Trend Index Secondary factors GDP Interest rates and inflation Housing Supply Housing Demand Current h. production tech. Infrastructure Support Providing land Legislation and laws Project Manag. efficiency New competitors entering Substitute products Ability	0.439 0.38 Innovat RII 0.95 0.91 0.87 0.841 0.82 0.8 0.74 0.72 0.7 0.68 0.66	Providing land ion Value Index Secondary factors Innovative capacity New technologies HR expertise Housing Supply New competitors entering Current h. production tech. Substitute products Ability Project Manag. efficiency Time control & syn. Brand reputation Housing Demand	0.31 Environ RII 0.873 0.777 0.724 0.7 0.66 0.64 0.62 0.62 0.62 0.62 0.62 0.62 0.62 0.62	Current h. prod. tech. mental Sustainability Index Secondary factors Weather and climate New competitors entering Legislation and laws New technologies Population growth rate Consumer preferences Innovative capacity Brand reputation Current h. prod. tech. Infrastructure Support HR expertise
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0.41 0.33 Market Value RII 0.97 0.968 0.947 0.936 0.92 0.89 0.88 0.851 0.83 0.82 0.82 0.79 0.746	Infrastructure Support Trend Index Secondary factors GDP Interest rates and inflation Housing Supply Housing Demand Current h. production tech. Infrastructure Support Providing land Legislation and laws Project Manag. efficiency New competitors entering Substitute products Ability Access to new technologies Population growth rate	0.439 0.38 Innovat RII 0.95 0.91 0.87 0.841 0.82 0.8 0.74 0.72 0.7 0.68 0.66 0.619 0.608	Providing land ion Value Index Secondary factors Innovative capacity New technologies HR expertise Housing Supply New competitors entering Current h. production tech. Substitute products Ability Project Manag. efficiency Time control & syn. Brand reputation Housing Demand Legislation and laws Consumer preferences	0.31 Environ RII 0.873 0.777 0.724 0.7 0.66 0.64 0.62 0.62 0.62 0.62 0.62 0.62 0.62 0.62 0.58 0.57 0.55	Current h. prod. tech. mental Sustainability Index Secondary factors Weather and climate New competitors entering Legislation and laws New technologies Population growth rate Consumer preferences Innovative capacity Brand reputation Current h. prod. tech. Infrastructure Support HR expertise Project Manag. efficiency Substitute prod. Ability
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0.714	Financial Options Policy	0.75	Providing land
0.7	New competitors entering	0.682	New competitors entering
0.64	Legislation and laws	0.62	Substitute prod. Ability
0.55	Substitute products Ability	0.576	Interest & inflation
0.54	GDP	0.56	Innovative capacity
0.51	Infrastructure Support	0.523	Financial Options Policy
0.51	Brand reputation	0.49	Infrastructure Support
0.49	Interest rates and inflation	0.47	GDP
0.48	Project manag. efficiency	0.46	Project manag. efficiency
0.48	Current h. production tech.	0.4	Current h. prod. tech.
0.47	Innovative capacity	0.37	New technologies
0.41	New technologies	0.36	Brand reputation
0.34	Time control & syn.	0.333	Weather and climate
0.32	HR expertise	0.33	HR expertise
0.248	Weather and climate	0.24	Time control & syn.

The factors and drivers of Housing Competitiveness can be limited according to the degree of their impact on the indicators of Housing Competitiveness for the Iraqi case as in Fig. 4, where the external drivers are symbolized by (EXD) while the internal drivers are symbolized by (IND), and each of them consists of a group of factors according to the numbering and coding adopted in Fig. 4.



Fig. 4. The drivers impact on competitive Housing indicators in Iraq. (By researchers).

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