



## Resilient Selection as a Mechanism for Adapting Iraqi Architecture to the Trends of Modernity

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### ABSTRACT

The contemporary products of the Iraqi architecture were no longer keeping pace with modernity and global developments. It was mixed with many styles of architecture over periods. The entry of modern architecture into Baghdad led to an accelerated change in the general morphological shape of the city through multi-story high buildings in the middle of the horizontal fabric. The aim of this research was to bring Iraqi architecture from the narrowness to the open ends as adaptive architecture. The research assumed that any building consistent with its general contents could be modified to the resilient selection procedure. The study used a descriptive analytical method in conjunction with a critical approach. A survey of architects and planners in Iraq was also performed. The method divided into three items; harmonization obstacles, the foundations of adaptive architecture and general Iraqi cultural contents. It made an evaluation and estimation the characteristics of the modernity movement within the concept of adaptive architecture. The methodology used qualitative approach based on the survey method (questionnaire). The results extracted indicated that the positive characteristics can unify the vision of modern architecture and urban trends towards adaptive architecture. The research concludes that adaptive architecture in Iraq was a sustainable and valuable in harmony with the contents of the common local culture. So, it could be considered as an adaptive architecture.

### 1. Introduction

The contemporary Iraqi architecture suffers from neglect as it does not keep pace with developments in technology, economy and contemporary social systems. This calls for a realistic study to determine the deficiencies that led to this problem. The research focused on the positive characteristics that make architecture in general to be acceptable, continuous and sustainable and keep pace with continuous technological developments. The research found that the most suitable architectural style for this challenge is modern architecture. A questionnaire was prepared which includes the most important points that make architecture

meet these specifications, and modern architecture was evaluated on its basis. The results confirmed the research hypothesis that contemporary Iraqi architecture can be considered as an adaptive architecture to keep pace with the future developments taking place and to be sustainable.

Traditional architecture is a concept that has a certain reverence and piqued the curiosity of many architects especially in Iraq. Although the name has become a known architectural area that has been the subject of studies and investigation, it is frequently regarded as historical. Iraqi civilization should have an architecture that is ever-evolving, never dies, and is shared spatially throughout the old

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periods. The fact that there are daring new rescues puts the label and term of Iraqi architecture as a viable alternative to carrying the contents of Iraqi culture and continues as time passes. The research aims to promote the notion of resilient selection as a means of adapting Iraqi architecture to contemporary global trends, in order to overcome barriers and unite the Iraqi vision in order to face and invest in modern and contemporary architectural movements. The Research problem is the stagnation and isolationism of current Iraqi architecture, the slowing of its global promotion and the scarcity of historic replicated architectural features, and the crises of a lack of initiative for renewal and modernity.

### *1.1 Modernism: theoretical background and practice in architecture*

Modernity is expressed as the process of producing the new, and it is a period of continuous transformations and changes that do not care for traditions and accumulated experience. It is always looking to create new rules for development, such as new technologies, meanings, transformations, materials, theories around the world. Modernity has several forms; it may be a combination of traditional cultural elements and ideas with contemporary elements. It reshapes the infrastructure of the culture, economy and architecture of society [1]. It has many drivers, but the most important of them is the technology that accelerates the process of transformation and development, which architects considered as a tool of modernity. The changes that took place in architecture were directed either to the stability of the style with changing elements or to the production of completely new styles. Modern architecture is considered as a revolution against traditional architecture in all its forms, elements and components, and it has extended from the local to the global.

Modern architecture is a completely new approach followed by a generation of architects in their time that was not previously followed in the production of architectural buildings and urban designs. Modern architects put forward several new ideas; Gropius has built the Bauhaus school on the general idea that arts and

crafts have equal values in the production of architecture. Mies believes that simple basic shapes can be formed in buildings anywhere in the world. Le Corbusier designed a kind of apartment according to the human scale that suits all people in any place and it has been copied in many countries. Later, Le Corbusier has taken into account influential local conditions such as climate and local culture, as well as the function of the buildings [2]. Modern architecture relied on the idea of the machine in architectural and urban design, as in the design of Le Corbusier in the cities of Algiers [3]. On the other hand, as a global idea in urban design, Le Corbusier relied on the construction of high-rise buildings, skyscrapers within green spaces, and they are linked by elevated roads, and connecting with airports and train stations, so that the traffic of pedestrians and the movement of cars are completely separated.

### *1.2 Contemporary architecture in Iraq*

Contemporary Architecture in Iraq is mixed of many styles of architecture over periods. These styles could be classified into two categories; traditional architecture and modern architecture. Traditional architecture went through several stages; the early stage was defined by simplicity and humility, then it mixed with Persian architecture, such as Kisra Palaces. Iraqi architecture was highly affected by Islamic architecture on the scale of urban such as round Baghdad and buildings such as mosques and palaces. It also affected by Ottoman period in many office buildings such as Al-Qushla and details in Al-Baghdadi house. Modern architecture as a global architectural movement came to Iraq through some governmental buildings and by inviting senior modern architects to design in Iraq, such as Frank Lloyd Wright, Le Corbusier, Walter Gropius and Gio Ponte [4]. International modernists and Iraqi architects who studied in European countries and worked in Baghdad gave the city a modern, locally adapted form. The goal of the local Iraqi architects was to re-use the positive elements of the local architectural heritage adopted by global technological progress [5].

The entry of modern architecture into Baghdad led to an accelerated change in the general morphological shape of the city through multi-story high buildings in the middle of the horizontal fabric of the city known since its inception, which led to a change in the sky line, such as the building of the Central Bank in the center of Baghdad and the tower of the presidency of the University of Baghdad in Jadriyah. There was a combination between Iraqi local architecture and modern architecture at the level of urban design and city planning. Doxiades in his design of Al-Thaora city in Baghdad for low-cost housing used building materials from local bricks and some local architectural elements were adopted, but the urban planning was shifted from closed-ended organic planning in traditional cities to open-ended network planning in new cities. In the civil center of the city of Baghdad, many administrative buildings were designed by Iraqi architects influenced by modern architecture. So, there is a distinct local adaptation through the use of traditional elements and shapes such as arches and details within modern designs that appeared in the building of Industries union by the architect Rifaat Chadirj, the Baghdad Municipality by Muhammad Makkiya and the Ministry of trade by Hisham Mounir [6]. However, there is a difficulty in adapting the modern urban design that relies on wide straight streets and inserting them within the organic traditional fabric.

### *1.3 Adaptive architecture*

Adaptive architecture is the one that has characteristics of flexibility, sustainability, and acceptance constantly despite future changes at the technological, social and economic level, and is operable with the change of function. The alignment's structure is independent of specific elements or items. It isn't reliant on any specific patterns. Rather, each structure has its own location, period, and circumstance. We gain these positive attributes as a result of it. There is no global production pattern, and indigenous architecture is not in decline. The goal is to connect the aims of local architecture to universal human and universal content. As a result, this harmonious design incorporates

positive features from various religions, cultures, countries, orientations, and architectural movements. All cultures are creating architecture that is in keeping with the universality of Islamic content. The sources of adaptive architecture are selected in a selective manner that does not reject any movement or direction of architecture as a whole, but rather tries to take the good and refine what the reform accepts and employs internally within its valuable products in a contemporary manner that can last for a longer period of time as it is sustainable, so we will use the modernity movement as a model.

## **2. Research model**

In the midst of the issues that it faces, the prevalent concept of Iraqi architecture is no longer firm. As a result, the research assumes that any building consistent with its general contents can be modified to the resilient selection procedure, making it an Iraqi architecture. On the basis of the general contents of Iraqi culture, the positive aspects of each product or architectural movement are evaluated by adapted with Humanity, utility, aesthetics, friendship with the environment and advanced technology.

Iraqi architecture has evolved into a historical, archaeological, and, in the best-case scenario, architectural monument, with this mental judgment manifested literally in architectural components and factors such as arches, domes, and minarets. It's also tied to the interior appearing aesthetic. These parts, as well as the schematic pattern have been replaced by more durable and solid pieces and patterns. The introduction of automobiles, technical advancements, and the necessity for infrastructure and superstructure all contributed to this. All of this resulted in the departure and halting of Iraqi architecture and even technical advancement began to reduce distances between civilized interactive. Iraqi civilization and architecture are long-lasting.

### *2.1 Research method*

The study used a descriptive analytical method in conjunction with a critical approach.

A survey of architects and planners in Iraq was also performed. The method divided into three items; harmonization obstacles, the foundations of adaptive architecture and general Iraqi cultural contents and evaluation and estimation the characteristics of the modernity movement within the concept of adaptive architecture. Then there are the conclusions and suggestions. The method depends on the following items related to Iraqi architecture:

- A. Consensus and frequency: In terms of Iraqi architecture and the source of consensus, the phenomenon of the transfer of architectural experiences from one generation to the next or the simultaneous transfer of the same period of time has had a significant impact on the formation of the traditional city body, and this convergence and consensus was linked to culture in its apparent and fundamental form, which is an agreement with the trades and construction professions (specialists) on certain patterns repeated in the city.
- B. Measurement: The measurement in the rules is the knowledge of the problem, whether the measurement is legitimate, and if it isn't, it isn't because these provisions don't comprehend its meaning. There is no question in the flow of measuring what is conscious of its cause and recognizes it's meaning [7].
- C. Mind and Iraqi architecture: The mind is defined as the ability to discriminate between truth and deception, as well as good and wrong. For humans, the mind is a source of beneficial thoughts and activities for individuals and groups. Any notion or action that opposes the reformist nature of the concept of mind and its purpose is not appropriate for the culture's use and role as a source of good, reform, and legislation. The mind can be used in legislation through [8] rulings in the way of the practical mind and the evaluation of good deeds and their ugliness, or the rule of reason can be used to prove the legitimacy of religious writings. The most serious issue is that all architects use

reason, reform, and authority to create their structures, therefore the mind cannot be considered a source of Iraqi architecture.

## 2.2 *The issues of contemporary Iraqi architecture*

A set of issues affected contemporary Iraqi architecture through its components at the level of buildings and at the urban level. These issues could be listed below:

### 1. Iraqi buildings

The interest in building cultural values, systems, and teachings, as well as the tendency toward urbanization and construction, is gradually growing. The popularity of architecture and construction has grown. The economy of Iraqis flourished, and their economy mixed with other civilizations, particularly Persia, and they increased their experience by bringing other experiences in construction and building, importing and manufacturing the most durable building materials, and learning the craft of building and the craft of decorating and calligraphy. Despite political divisions and the impact on adjacent and preceding civilizations, as well as the battle for power and the openness of society, the city of Samarra and its features and unique buildings [9]. The majority of the general architectural products were models that represented the ruling regime's perspective. Money, power, inheritance, the impact of other civilizations, and architectural experiences, notably in Persia and Anatolia, all point to the conclusion that a great architect was not an incarnation of and dependent on those nations' cultural history. As a result, it is discovered that the world and extravagance have manifested clearly in the scale of the palaces and architectural components and elements away from the goals of Iraqi connotations. This could be referred to as the problem of Iraqi architecture's product, as well as the cultural concept's weakness in architectural products and their embodiment of local ethics based on cultural legislation sources.

## 2. Patterns and architectural elements

The architectural style utilized in Iraqi architecture is the arrangement of space in the block, often known as the Courtyard Pattern. The majority of the items are voids surrounded by mass. The persistence of this pattern over time and in many historical structures can be attributed to two factors which are imitation and social elision. Imitation is the truth or the symbols that mimic the products in search of the truth is an equivalent transfer of the field of architecture, social elision is the individual's relationship to the community so that individuals can sense the meaning collectively is an equivalent transfer of the field of architecture [10]. Here comes the function of agreement and Cognitive Consensus, and because it is a pattern adapted to the cultural and natural environment of the region, it was beneficial in its repeat of use; however, there are some issues related with the pattern's genesis and reference, namely:

- The Sumerian and Babylonian civilizations, among others, evolved from the stage of the model to this pattern.
- The existence of this pattern in preceding civilizations, such as Persia or Khorasan, and contemporaneous with Iraqi culture. The patterns have an existence in Spain, Mexico, and France.
- This pattern is not only prevalent in warm locations, such as the Arab region, but also in frigid areas as in the Old Russian neighborhoods. There are clear issues with this form of association with Iraq. This style has been accepted and adapted to Iraqi architecture in order to achieve privacy, inviolability, and even climatic adaption, and it was ranked among the top patterns that may be copied in numerous places for specific reasons.

## 3. The mosques and their components

The mosque's design included architectural elements such as domes, minarets, and arches, with various orientations such as local architecture, classical architecture, elective architecture and modern architecture [11]. In

terms of construction, a place of worship has existed for a long time. The domes had previously been seen in Greek and Roman civilizations. As an aid to marine navigation, the minarets were obtained from lighthouses on the sea and ocean beaches. The lighthouse served as a navigational aid for sailors, particularly at night. Mihrab was present in past religions as evidenced by the Christian tale of Mary. The arches and designs can be traced back to earlier civilizations. The distinction in architectural distinctiveness does not imply that a pattern or architectural model qualifies as Iraqi architecture.

## 4. Promoting Iraqi architecture

To commemorate the memory, the architectural products are almost museums and buildings conservatories. Its existence is restricted to the region from whence it arose, and thus represents the extinction of one of the architectural civilizations in the face of the advent of other modern architectural movements, particularly those associated with modernism and beyond. The study aims to explore interactive leaping as a universal and continuous phenomenon.

### 2.3 Contemporary Iraqi architecture as an adaptive architecture

Contemporary Iraqi architecture can be promoted through the following indicators:

#### A. Harmonization of the term

The salvation of the problems raised around the designation of architectural products in the Iraqi architecture lies through:

1. Assigning the label to the identity of the person who wore it, rather than the identity of the ideas and ideals it generated. This is a change to eliminate the gaps and inconsistencies that arise on architectural products.
2. It is discovered that in their present titles refer to the nationality of its producers.
3. The naming refers to the places where the production and appearance are built.

4. It refers to the social essence of something, such as a local or traditional architecture.
5. In some architectural products, such as shrines, halls, and mosques the name was applied to the religious function and emotional conviction. These naming assignments indicate a way out of the crisis of separation between the reference and the architecture or between concept and application.

## B. Resilient Selection for harmonization

Because there is a difference and variety in the ability of architectural products to suit human, functional, and social needs, the selection process in the language refers to the act of selection.

requirements, the process of sorting and selecting the positive characteristics of contemporary ones is a targeted process that varies within the space and is flexible in its ability to accommodate changes caused by external influences and integration with them is a targeted process that varies within the space and is flexible in its ability to accommodate the changes caused by external influences and integration with them.

Human civilization's integration, including all of its material and spiritual components, has become a human obligation [11]. This is the obligation of modern Iraqi architecture, which must interact with all of current architecture's positive aspects. As a result, Iraqi architecture must be adequate, and the final is (good) architecture, which contains architectural products that respect man's (society, culture) and place's needs, expectations, and wishes (environment). The city's architecture is attractive, exciting, comfortable, and cost-effective, and it has a beneficial impact on its surroundings and is responsive to technological advances. A good building is one that is distinguished by its structural quality, ease of use and aesthetic appeal [12]. An adaptive architecture refers to products that incorporate and attain these criteria are humanism, utilitarian, aesthetics, environment friendly and advanced technology. Thus, this design has realized the basic Iraqi objectives linked with its

inescapable correlation with the objects and formal aspects or conventional patterns in architecture, within the space and features of the times. While the term "sustainability" is required to complete the new definition and arbitrator of Iraqi architecture in order to achieve continuity and sustainability and overcome periods of standstill and stagnation in order to deal with the characteristics of each era.

## C. Characteristics of adaptive architecture

The main characteristics of adaptive architecture by the mechanism of resilient selection can be summarized as follows:

1. Every building that respects man and maintains his privacy within the identity of the total, meets his needs, fulfills his lofty desires, addresses his collective memory, his general culture, and his reality, participates in the decision, and provides him with a decent living and future is what it means in this context. It also bears the idea of achieving confinement rather than narrowing or loss through its composition's human scale. Its features can be summed up as human respect and privacy, meeting needs, addressing collective memory, public participation, and human standards.
2. Utilitarianism which is defined according to John Stewart, utilitarianism "is not a tool but a moral obligation to pursue the greatest possible happiness for as many people as feasible" [13]. At the same time, it is a measure of economic efficiency, with the goal of maximizing profits while reducing costs, time, and effort, and obtaining economic benefits, which is one of the goals of building structures, events, increasing production and consumption, improving quality, and expanding employment opportunities. Production, consumption, capital, investment, land, facilities, services, labor, taxes, possession, accuracy, quality and speed, are all important factors. As a result, they are the foundation of the moral act [14]. John Stewart considers all of this to be gaining happiness. It consists of

maximizing profits, reducing costs, effort and time, quality of production, increasing consumption and employment.

3. The western concept of aesthetics is linked to the mind striving for the right, with benefit going for goodness, and intuition reaching for fantasy, emotions, and psychological comfort [15]. It's a relative term, and psychological characteristics differ from person to person. Due to the lack of a specific scientific criterion that connects all tastes, mental faculties, and imagination in individuals, measuring beauty is challenging [16]. However, there are several key clues which are psychological comfort, efficiency of the performance of the required function, thrill, joy, consideration and moral values.
4. Friendship with the environment which incorporates recent trends in green building and sustainability among others and is based primarily on the use of natural resources. It deals with pollution, renewable energy investment, and rational energy consumption belonging to the natural environment, respect for the site and adaptation with nature. Green architecture is subject to global standards and assessments aimed at providing a constructed environment with the least amount of negative influence on the ecosystem as feasible through the use of energy efficiency [17].
5. Advanced technology is one of the most essential and widely used tools in the area of architecture such as construction techniques and durability, infrastructure techniques, intelligence techniques, sustainability and communication technologies.

### 3. Case study

The methodology used qualitative approach based on the survey method depends on a

questionnaire of 30 specialists in architecture to test the research assumptions. Modern architecture has been used as a model for analyzing and extracting adaptive architecture features, as well as using these positive traits as a corroboration to feed alternative adaptive design to the Iraqi architecture concept.

#### 3.1 Resilient selection in modern architecture

Modern architecture has benefits and drawbacks as a worldwide movement that has expanded in many countries (Table No.1). A sample of thirty architects has conducted a questionnaire containing questions concerning the qualities and elements of adaptive design. There were three levels to the answers: the positive level, which represents a powerful manifestation and is worth something (1), the degree of not knowing, which has the value (0), and the negative level, which has the value (-1), which symbolizes the incarnation's inferiority (-1). Each paragraph's positive values are estimated as a strong property. In their embodiment and reinforcement, the tactics and means of the modernity movement can be borrowed (although the positive values were greater, their means of application within the modernist movement were stronger and could be adopted in our adaptive architecture). Negative numbers indicate a lack of strength in the traits and means of embodiment, as well as a disregard for movement. For each characteristic of adaptive architecture within the vertical movement of modernity, there is a sum of the totals of each horizontal paragraph and the sum totals of the two respondents. In any instance, the evaluation's goal is to identify the traits and aspects that form the foundation of adaptive design. A table of the outcomes can be found below.

**Table 1:** Analyze and depict the characteristics of adaptive architecture within the architectural modernity movement.  
Source: The researchers' own work

No.	Evaluation of the characteristics of the movement of modernity and its variations according to the elements of adaptive architecture	I do not know	weak	strong	Results
1	Humanity	0	-1	1	
a	Respect the human being and his privacy	2	24	4	-20
b	Meet people's needs and desires	1	13	16	3
c	Addressing the collective memory and general culture of traditions and customs		28	2	-26
d	Participation of the public in resolution	1	29		-29
e	Human scale and containment	3	15	12	-3
	Total		-109	34	-57
2	Benefit				
a	Maximizing profits and reducing costs	3	5	22	17
b	Reduce Effort		4	26	22
c	Reduce Time	1	1	28	27
d	Production quality and consumption increase		1	29	28
e	Increase employment opportunities	2	12	16	4
	Total		-23	121	98
3	Aesthetic				
a	Psychological Comfort		11	19	8
b	Performance efficiency		3	27	24
c	Thrill and excitement	2	26	2	-24
d	Joy	1	25	4	-21
e	Ethical considerations	2	21	7	-14
	Total		-86	59	-27
4	Friendship with the environment				
a	Reduce Pollution	2	24	5	-19
b	Investment of renewable energies	2	28		-28
c	Energy conservation		28	2	-26
d	Belong to natural environment and respect the site	2	12	16	4
e	Adaptation to the natural environment	1	28	1	-27
	Total		-118	24	-94
5	Advanced Technologies in time				
a	Techniques of construction and durability		1	29	28
b	Intelligence Techniques		14	16	2
c	Infrastructure Technologies		3	27	24
d	Sustainability techniques	2	2	26	24
e	Communication techniques	4	6	20	14
	Total		-26	118	92



### 3.2 Results and discussions

The results show a set of characteristics of modern architecture that support the research hypothesis which are:

1. The humanity of modern architecture makes the possibility to search for mechanisms of embodiment and strengthen to support the concept of adaptive architecture.
2. The most positive aspects with 98 points are the functional and economic orientation of the modernism movement. In addition, feasibility of investment mechanisms and the implementation of those features within adaptive architecture are achieved.
3. The aesthetic characteristics of the movement were achieving a single efficient performance and psychological comfort, while the rest of the elements had negative values.
4. The characteristic of friendship with the environment in modern architecture was not focus on, but it includes a positive point of particular adaptation to the natural environment.
5. Advanced techniques were the second positive characteristic, with a score of 92 points. It indicates that it is possible to borrow and construct the principles and means of modern architecture in using the developed technology as an adaptive architecture.

### 4. Conclusions

Contemporary Iraqi architecture is established on the belief of Iraqi civilization is the source. It faces modern concerns and challenges such as problematic term and source, classification, the architectural elements and continuity. Adaptive architecture is an alternative to Iraqi architecture that aims to solve the latter's shortcomings. Adaptive architecture is a valuable, long-lasting structure that is in harmony with Iraqi culture's contents.

The basic characteristics of adaptive architecture are humanity, utility, aesthetics, environmental friendliness and advanced technologies. Adaptive architecture is not concerned with the style, model and parts of construction. It is not concerned with the religious identity of the product, but it concerned with the underlying substance and position of respect for man, space and time. It is an adaptive, smart, and contemporary architecture.

### 4.1 Recommendations

The research suggests a set of recommendations that are necessary to adapt the local architecture with new movements which are:

1. The need to adopt the concept of adaptive architecture to overcome the dilemma of traditional or local architecture.
2. The need to test and evaluate architectural movements and directions in order to extract the embodied mechanisms and the expansion of theoretical framework.
3. Iraqi architecture is derived from the Iraqi culture and it could be universal, sustainable and consensual.
4. A code of ethics based on the concepts and theoretical framework of this architecture should be considered.
5. The development of civilizations necessitates the use of harmonious architecture

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