Architectural-environmental crisis nexus: transformation elements of architectural crisis that leads to the environmental crisis in Middle Eastern Islamic countries

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Abstract

Middle Eastern Islamic countries face an environmental problem mainly the result of an insufficient understanding of how inappropriate architectural solutions, or misconceptions, have led to a crisis in the built environment. This paper will attempt to explore this problem through an examination of the nexus between two main issues: first '*inappropriate architectural solutions*' that has resulted in the perceived '*crisis in the built environment*' and the second issue considers the process of how this environmental crisis evolved. This paper argues that the crisis has been exacerbated in Islamic countries because these two issues, architectural and environmental crisis, have generally been discussed through issues such as identity, culture or globalization separately instead of viewing the nexus between them holistically to explore the transformation process from one issue to the other. The paper aims to explore the mechanics of this transition process, on the theoretical and the practical level, through the predominant religious perspective in this region – Islamic perspective. The first issue, the failure of modern architectural solutions, will be considered through four main categories that are potentially inappropriate architectural solutions. The resulting discussion will lead to an examination of nine factors. The paper will consider how these nine factors are the transforming elements of the current architectural weaknesses or, in other words, how the existing architectural crises has transformed into a built environmental crisis through these nine factors.
Keywords: architectural crisis, environmental crisis, contemporary architecture, Islamic architecture, crisis process, sustainability.

1   Introduction

Over the past few decades, Islamic countries, especially in the Middle East have seen numerous transformations in their urban environment from traditional Islamic built environment (that has been an authentic manifestation of Shari'a within built environment) into current intensively globalised urban areas. To understand what changes have taken place in architecture of this region it is necessary to look at its current condition and to compare it to the past. Faleh [1] reflects the current condition with "breath-taking structures, high-rise buildings and shimmering skyscrapers resembling an artificial pearl created in the middle of a wide gulf and desert, where nature is forgotten and trapped inside the urban jungle".

According to Mohaghegh Damad [2] it is unnecessary to explain the consistency of an environmental crisis in these Islamic countries because the results of this environmental crisis are evident everywhere in these areas to a degree that cannot be ignored. When talking about a crisis it implies that the normal state has been disrupted, otherwise it would not appear to us to be a crisis [3]. The paper discusses a crisis in this sense that has destroyed the harmony and balance of the natural world. The development of this crisis in these Islamic countries [4–6] validates this paper's exploration through the perceived failings in their contemporary architecture.

Instead of viewing the issue holistically, the existing environmental crisis has merely been reduced into issues of identity, culture or globalisation [7, 8] but, as philosopher Nasr [6, 9, 10] has pointed out, identity or cultural issues are just part of the story. So that presents a question: how could inappropriate architectural solutions or misconceptions in Middle Eastern Islamic countries lead to a crisis in the built environment? This paper will argue that, irrespective of the number of solutions that have been executed, the persistence of the current environmental crisis is partly due to the lack of understanding of the transformation processes of the crisis from a litany of architectural failings to the perceived environmental crisis.

In that respect, this paper seeks to study this perceived *'architectural-environmental crisis transition'*. The first component, inappropriate architectural solutions, will consider the perceived architectural failings in this region under four areas: adopting inappropriate science, failings in ornamentation of architecture, a loss of Islamic values and individual's role. The discussion to illustrate how all of current architectural failings could be perceived through these four areas is far beyond the aim of this paper; however, the authors have established these four areas through a previous study but in the beginning of each section, as a brief summary, they will be presented to provide the context.

In the previous study regarding available theories about an architectural crisis were explored through the lens of Nasr and were examined against his traditional philosophy based on Islam. The results of that approach created a philosophical background that can be used to frame the main source of all architectural failings despite their apparent differences in titles and internal structure occurring in Islamic countries. While there may be possible argue against the veracity of the

four primary categories, this does not remove the basic notion of the architectural-environmental crisis nexus presented in this study. As long as any suggested categories do not distance themselves from the traditionalist Islamic framework, their essence will remain the same as categorised in this paper.

Following a qualitative study and using a descriptive-analytical analysis the relationship between two main components of this study, architectural and environmental crises, is studied and nine possible transforming elements of first component are established. This paper details how the four identified elements of the architectural crises are transformed into the perceived environmental crisis through established nine factors. This paper is part of lead author's doctoral research that is attempting to better understand the influence of inappropriate approaches in contemporary architecture on the current environmental crisis in Islamic countries to establish a conceptual framework for Islamic environmentalism.

2   Adopting inappropriate science: failings of the main principles

In the last decades, Muslims have turned towards modernisation for a better future. However, by utilising new solutions that they have in turn modernised Islamic architecture, as a result some inappropriate principles has been adopted [11]. Nasr [12] states that this worldview is a *'modern scientific worldview'* that is completely different from Islamic understanding of science. Accordingly, the first problem that led to the current environmental crisis has stemmed from Muslims' unconsciously deploying of inappropriate science through accepting principles, content and standards without recognising their validity for their communities while desiring rapid development. Nasr [12] describes this issue is '*blind development'*. It is this issue throughout contemporary architecture in Middle Eastern Islamic countries that has caused serious environmental problems. With this in mind, it will be discussed in this section how this failing in architecture resulted in the current environmental crisis through two factors.

2.1 Rupture in continuity of the Islamic architectural tradition

To examine the existence of a crisis in the continuity of Islamic tradition of architecture, it is necessary to first consider its two facets *'Islamic tradition'* and *'continuity'*, and then explore how this rupture in architectural sphere contributes to current environmental crisis. Tradition is anything which is transmitted or handed down from the past to the present [13]. Through time a kind of cognition towards previous experiences occurs inside communities that could be manifested in various ways and forms a specific tradition for each society. Islamic tradition in Muslim countries has been created through this way and manifested in their architecture through Islamic architectural tradition.

Inheriting from the past, *'continuity'*, and disconnection from the past, *'rupture'*, are two possible responses to comply with globalisation. The difference between Islamic and modern perception of tradition is that from modernity's

viewpoint tradition is changeable entirely to be modern, however from an Islamic perspective there should be a kind of continuity through the changing or updating process [14].

During recent decades the appearance of a rupture is obvious enough in Islamic architectural tradition [7, 15]. Through this recent rupture contemporary architecture in these Islamic countries constantly seeks new and innovates solutions but never finds a lasting one, unable to integrate the experienced solutions of tradition. Accordingly, when adopting short-term solutions a recurrent cycle of falling from one challenge into another challenge occurs [16]. In this cycle of recurrent changes, contemporary architecture constantly divests itself of all experiences and solutions, again evolves to test the efficiency of new modes and experience whole history again; history that is an accumulation of experiences of generations [17, 18]. During these new experiences it is likely to repeat all faults to find the proper solutions in contemporary architecture. The point is that these faults have consequences for the natural environment. They destroy the equilibrium between nature and built environment the basis of the environmental crisis.

2.2 Misconceptions about hierarchical-stratified structures

The Islamic built environment has been based on a specific architectural organisation that was designated for each element of the built form; privacy, spatial organisation and functional arrangement for example. In general this mechanism comprises of two structures, *'hierarchical'* and *'stratified'*. In the last decades, because of some misconceptions regarding these two different structural organisations, they have been misunderstood in some cases that could be an element to contribute to the current environmental crisis.

For instance, Al-Lahham [7, 8, 19] believes that the Islamic built environment is comprised of three levels: manifested (physical statue of built environment); operative (rules and city's legislations) and imperceptible (values and principles derived from Islam) with a continuous *'net-form'* structure between them. But it seems there could not be a net-form (stratified) structure between them since imperceptible level that comprises Islamic principles, values and tradition is relatively static and just two other structures are amenable to change.

For better understanding of this concept it is enough just to consider Vali-e-Asr mosque in Tehran, Iran. The project that firstly has been designed with respecting Islamic traditional forms and motifs (Fig. 1) then redesigned by Reza Daneshmir and Catherine Spiridonoff in a modern form (Fig. 2). This paper does not seek to compare these two different designs or discuss their success or weaknesses. The second design process demonstrates how the project and architects (manifested level) along with city's municipal authorities (operative level) attempted to change traditional principles of designing a mosque (imperceptible) by designing a modern mosque without traditional Islamic elements. After years of significant criticism, the client was compelled to postpone the project and consider changes. As a result, as the example illustrates, there should be a hierarchical structure

between them (Al-Lahham's there levels) with imperceptible level standing above two other levels (operative and manifested).
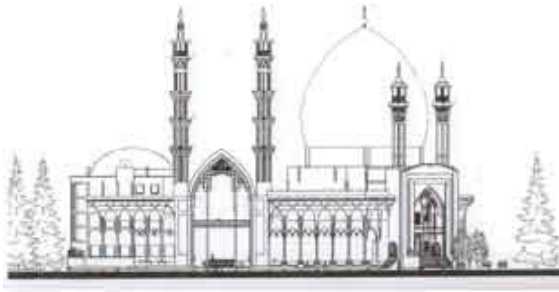

Figure 1:   The initial design of Vali-e-Asr mosque by Abdol Hamid Noghrekar [20].
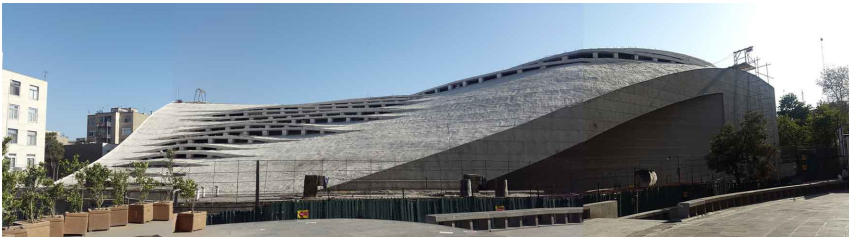

Figure 2:   The second design of Vali-e-Asr mosque, designed by Reza Daneshmir and Catherine Spiridonoff (source: authors).

The discussed misconceptions are not limited to only one aspect. There has been spatial organisation with space differentiation to support residents' religious and familial life connected through very exact hierarchical mechanisms [21]. It was a unique *'tradition of gradual spatial transition'* to enter from public spaces into private spaces. Today, this spatial order is completely transformed with using of inappropriate spatial organisation [16].

Despite the abovementioned examples, which have hierarchical structure, in a holistic scale Islamic architectural design process has a different structure. Here all elements have been intermeshed to achieve the main goal [18]. For example, structure, proportion and scale have been given same importance. That is to say, there has been a stratified structure in Islamic tradition of designing. When in fact, in contemporary architecture this tradition is transformed into a hierarchical structure where some components became more important than others.

Given these examples, it is obvious that instead of implementing an appropriate structural organisation that dates back hundreds of years and tested for many years, today an inappropriate structure of hierarchical or stratified is implemented. Over many centuries, architecture and nature worked together with a specific order based on Islamic tradition in these Muslim countries [10]. The inherited structural

design that was tested and created over centuries brought an order to work with nature without damaging that. This structural design is analogous to instructions on how to sustain nature, however are now misunderstood. As a result, today, by implementing inappropriate structures – hierarchical or stratified – the pre-existing mechanism between nature and Islamic built environment is destroyed, brought about current environmental crisis.

3   Failings in ornamentation: sculptural approach

The recent architectural disorder caused through shifting to a sculptural approach – the imitation of unfamiliar oriental values of modernity for expediency – is another issue in Muslim communities. Through some architectural movements that have emerged recently in Middle Eastern Islamic countries, a vague form of architecture that is an eclectic mix of various styles has become apparent. It is because of the conflict that exists in Muslims' consciousness that leads to the desire to imitate available modern forms [22]. This new trend favoured among Muslims has failed to understand the accompanying environmental results. This section will demonstrate how this weakness has transformed into current environmental crisis through three factors.

3.1 Experiencing dualism and contradictions (cultural and identical issues)

Traditionally Muslims have planned for better dwellings but the crisis started since they started to desire modernity as whole that has led to internal and external contradictions in their consciousness [23]. Nasr [6, 9, 10] illustrates that Muslims today are faced with a problem more difficult than their ancestors, while Muslims today are confronting new modes they should consider traditions, which they are far removed. This issue leads to contradictions and Muslims' contemporary architecture is now stuck in a mixture of *'isms'*.

So that, two groups emerged: 1) those who imitate outside influences and accept the new modes of architectural trends as a whole, and 2) those who challenge these new modes and consider traditional solutions. Mokhtarshahi Sani [24] points out existence of a dilemma between these *'outsider and insider'* groups while each one encouraging a different approach. Al-Zoabi [25] sees Muslims' response to this situation *'demand-driven'* that leads to more confusion and disorder.

Given these points and because of Muslims' desires to imitate new modern modes, contradictions occur first in their inner state causing an internal disorder in their consciousness. This internal disorder starts to be manifested first in apparent levels and then in society's basics [26, 27]. Through the extension of these contradictions in society level a disorder has become prevalent that could be perceived incorrectly as a new type of order that was in fact complete disorder based on Islamic teachings. The existing strong desire in contemporary Islamic architecture for this artificial order that moved away from Islamic teachings, has led to an imbalance in its environment. Nature and Islamic architecture that was working based on a traditional order could not yet comply with this artificial new-

established order; the natural balance between them has been destroyed and the current environmental crisis has become apparent.

3.2 Concentrating on tangible, ignoring intangible

While tradition itself could be manifested in different forms within contemporary architecture, at some stages respecting Islamic architectural heritage has been unconsciously misunderstood as mimicking the formal archetypes of that Islamic tradition [28]; for instance, through constructing buildings with brick walls or traditional arches without exact consciousness of this Islamic architectural tradition. The problem arises because today many of the current architectural approaches, which are seeking to re-establish a superior architecture, reduce Islamic architecture to imitating formal, physical and tangible aspects of architecture, or *'the physical remains of the past'* [15]. As a result, if there is a reliance on just tangible components, then architecture becomes devoid of content, which essentially comes from Islamic tradition, values and principles.

It is to say, contemporary architecture in this region is entirely extroverted, spends more energy on exteriors but as Nasr [10] mentions it never can satisfy its infinite thirst in the material world which is finite. Today, inhabitants tend to make houses more luxurious, bigger, with shiny glass or expensive facades following a foreign mode of beauty [29]. More than thinking about constructing appropriate places for inhabitants, there is a competition on constructing bigger, tallest, shiniest and unusual shaped buildings compared to others.

As problems and natural disorder emerge due to this inappropriate *'materialistic approach'*, there is an intensive effort of competition to build more powerful, crisis-resistant and superior architecture that can resist the emergent environmental crisis through consuming more natural resources. Nasr [9] calls that *'over development'*. As a result, nature becomes *'something'* to be dominated [9]; and it is being used to be more powerful to defeat emergent environmental crisis, resulting in exacerbating the situation. As Fasahat [16] points out it is like a circle of trying to solve the emergent challenges but plunging into another new challenge while finding a short-term solution.

3.3 Detached neighbouring units: segregated compounds from society

In the authentic Islamic built environment housing compounds have integrated together, which have made a homogenous neighbourhood pattern. There has been a *'unity'* of well-connected private units complementing other compounds, not a combination of detached ones, which were put in together in an urban area to make a public space. However, today most of the new urban areas in Islamic countries lack traditional neighbourhood patterns thus segregating inhabitants from society [19, 30].

The majority of these segregations are due to maintaining the needed sense of privacy through isolating *'public'* and *'private'* physically [31]. Separation of these two, public and private spaces, destroys the relation between the *self* and *others* [32]. So a weak spatial design – isolated housing units – without semi-public spatial linkage between housing compounds and society evolves [33].

Islamic built environment has been always built in such a way that in combination with nature and using its elements brought inside the natural environment and held it [21]. However, with the lack of semi-public spaces and without overlap between the housing units and society, the chain between natural environment and architecture in society level, and then private level is broken because residents have no sense toward the place outside their house – as aforementioned due to the separation of *self* and *others*. Each building tends to be seen as a single and unaccompanied element, and so released itself from being in harmony with its environment exacerbating the situation.

4   A loss of Islamic values

From the Islamic perspective, and as emphasised in the Holy Qur'an (2:30; 6:165), it is the responsibility of Muslims' to respect nature as stewardships – Arabic term: *khalifa* – of God on earth [34]. Moreover, similar Islamic concepts, *taqwā* and *al-wasatiyyah* (Islamic concepts of piety and moderation) for example, attributed specific meanings to traditional Islamic architecture [35, 36]. These Islamic concepts added a symbolic sacred meaning for nature in Muslims' consciousness contributed to sustainable environment. Today, these Islamic concepts in contemporary architecture of Islamic countries have been ignored, and consequently an environmental crisis emerges [2, 37]. This section discusses possible factors that are the elements to transform this architectural weakness – due to a loss of Islamic values – into current environmental crisis.

4.1 A loss of self-cooperative management tradition

This section discusses a sense of self-cooperation in the consciousness of Muslim inhabitants that facilitated the transmission of Islamic tradition in their built environment with the help of their inhabitants without any external pressure from governing authorities. Today regulations designated for contemporary architecture instead of being implemented by inhabitants themselves, are somehow dictated to them in the form of civil legislations; however, they do not evolve from the inhabitants' beliefs and culture [38]. Al-Lahham [30] points out an inherited self-implemented tradition in Islamic built environment turned into a centralised system responsible for all activities such as a Welfare State. So the importance of inhabitants to answer issues in Islamic built environment was ignored and new regulations instead have been created which dominated the society to heal emerged environmental issues through the pressure of *'social engineering'* [10].

There are many examples of Islamic principles that maintained this self-cooperative tradition indirectly in Islamic built environment. *Waqf* tradition, *Taqwā* (translated as piety) and *alwasatiyyah* (moderation) are good examples to maintain the self-sustainability of historic Muslim cities for centuries through self-adjusting and correction mechanisms. Islamic built environment was not a mechanism but a total lifestyle within inhabitants themselves as the artists in its centre [36].

Islamic environmental tradition that has been implemented with the help of inhabitants, now are being controlled by external agencies, and inhabitants have no feeling towards urban areas because they do not *'own'* that [39]. This is called the '*centralisation of management*' and '*comprehensiveness*' that Nour [40] mentions has a negative effect on the urban regeneration of historic cities. To prevent emerged environmental crisis a continuous pressure from governing bodies is applied, however authorities are not able to apply all built environment legislation since inhabitants tend to ignore those environmental legislations that ignore them. So that, misleading the controlling bodies are common issues and punishable by the authorities, otherwise they would not be implemented; and yet after many resolutions by governments the environmental issue is far from being solved.

4.2 Active value-based tradition replaced by static regulations (mechanism)

However, at first glance, those old cities could be seen disharmonic but there has been latent organic order within them because of unwritten value-based traditions which were based on human needs, deeds and lifestyle [39]. The great knowledge of Islamic architecture was in fact accumulation of this value-based traditions and systems of beliefs that transferred to next generations over the ages. However, several new international and local legislations have been enacted recently to replace aforementioned value-based Islamic tradition that derived from Shari'a and protected built environment [8, 32, 41].

For instance, traditional scaling principles converted today to some standards through municipal regulations and were often criticized of being soulless [18]. With transferring Islamic built environmental tradition into a mechanism, as Khosla [42] explains, all environmental issues are broken down into diagrams, charts and standards that become Cartesian weapons of analysis. This situation appears a kind of '*Caesareanation*' of architecture in the Islamic world that misses all the delectation of creating a new reality; some may refer to it as the '*McDonaldisation of architecture*' [43] that is a term derived from sociologist George Ritzer first used in 1993 in his book "*The McDonaldization of Society*".

The point of value-based tradition applied was that individuals may act and change elements based on their needs as long as no harm is caused to others [40]. Today, there are numerous problems in relation to this new static mechanism of regulations because it is difficult to enact new regulations in relation to today's ever-changing architecture. As a result, these static regulations could not continuously keep the organic balance between built environment and nature. So that, today toughest mechanisms in this region could not solve the emerged environmental crisis without the help of active value-based traditions. This concept has been brought to light by Nasr [9] when delivering a series of lectures for the Rockefeller Foundation in 1966 and emphasising spirituality rather than solving the crisis by more domination on nature through more development.

5   The inability of determiners to make appropriate decisions

Determiners include those professionals, architects, engineers who have responsibilities and an important role as decision-makers in contemporary architecture of these Middle Eastern countries. It seems to be difficult for the environmental crisis to happen without their participation [44]. As a result, one of the major weaknesses in these Islamic countries is the inability of determiners who have the responsibility of protection of nature but, often unconsciously, have neglected their important role in creating durable architecture [14, 44]. In most cases the problem is not a shortage of solutions for the crisis, but the inability of the professionals to apply available codes of environmental ethics. This section discusses two factors that are an element that transforms this weakness of determiners into current environmental crisis.

5.1   An architecture for architects: one-way resolutions by professionals

The majority of Muslims today in Middle Eastern countries aim to create a joyful architecture, however to acquire this aim they turn excessively towards professionals who some of them see inhabitants as just consumers of their production. Some of these decision-makers put more emphasis on technology rather than inhabitants' cooperation to create their utopia [39]; however, architecture without participation of inhabitants themselves cannot be sustainable. Because, as Bouchain [17] points out, when people inhabited a place they produced that the way that they know 'how', so it is by nature vernacular because of the accumulation of 'know-hows' tested by social reality. He suggests that single-option and one-way solutions should be put away to implement tailor-made ways of individual construction.

Just as the shirt should fit its owner, the architecture, too, should suit its dwellers not architects [45]. However, today inhabitants are limited within their dwellings by architects, and architecture becomes a haven for architects not inhabitants. Most of architects today in these Islamic countries see creating an architectural work as a private interest and an indulgence in their desires. These group move based on their feelings, architecture becomes a personal hobby that is deviated from its real aim and is converted to a *'plaything'*. Real consumers, inhabitants, are excluded by professionals that Hürol [46] names these professionals *'bureaucrats'*. So inhabitants started to recklessly disregard this misconceived architecture in the same manner since it does not reflect their values any more. Inhabitants become as ignorant as their architecture is, so they do not respect their own environment. As a result, there is a constant conflict between this misconceived architecture, its inhabitants and their environment that causes more imbalances and leads to more environmental crisis.

5.2   Changes in the direction of constitutive levels of design process

The previous section discussed the failings of architects in excluding the inhabitants but these misguided architects could be the puppets of other parties in the design process. Some with no architectural knowledge whose concern is just

economic benefits have token architects' leading role because of architects' inability to make appropriate decisions. As a result, the economic factors are ruling the building sector [47]. In fact, these architects entered into a partnership with those non-professionals that Bouchain [17] names that a system running from the top down with the caricatural accumulation of norms and the hegemony of standards. In this top-down design system of contemporary architecture in Middle Eastern Islamic countries, economic benefits come first and then whatever could be done to fulfil this priority.

To gain more economic benefits, this dominating group of non-professionals encourage excellence in everything and exaggerate spending on architecture [47]. It results in emptying the architecture from main Islamic principles and less important issues, ornamentation and indulgence in a luxurious lifestyle for example, overshadow the important elements, cultural and Islamic values [48]. Inhabitants and architects who, as Nasr [9] points out, have lost spirituality in their inner state cooperate in this top-down mechanism. However, they are not concerned whether this cooperation will contribute to the environmental crisis or not.

6   Conclusion

For several decades in the architecture of Middle Eastern Islamic countries signs of an environmental crisis have been unfolding. This paper illustrates that how this *'architectural crisis'* has direct and indirect relations with the more recent *'environmental crisis'*. This paper has noted a misunderstanding that fails to provide the appropriate linkages and connections between these two components, definitely destroys the environment. This correlation discussed in this paper as the *'architectural-environmental crisis nexus'*.

This paper has noted impacts of nine factors play in these Islamic countries and their effects on the built environment. Since the space limitations of the paper does not allow for a thorough discussion of each factor, an initial definition was used. This paper did not address the regional factors and political aspects because, where present, it tends to be region-specific study but the study focuses rather on the holistic issues that have been put into practice through human activity. So that, the paper implies that answering environmental crisis requires a holistic strategy rather than being fixated on climatic, cultural and regional differences. However, answering the problem does not exist in limitation to these factors. In some cities, with a boom of modern architecture for example, the issue could be implicit combination of these factors rather than explicit transformation of crisis through one factor.

The initial results suggest that addressing the environmental crisis is possible through two avenues: firstly, through answering the architectural crisis – cause of the crisis – and secondly through preventing the transformation process of that into environmental crisis. The second solution however seems difficult to implement because once the architectural crisis is generated, it could unconsciously contribute to the environmental crisis without the awareness of inhabitants as aforementioned. This study initiates the nexus – architectural-

environmental crisis – that would support the development of strong practical framework. This brings different factors contributing to the environmental crisis to the forefront and raises a series of questions, for example the exact manifestation of this crisis in environment, that have to be investigated rigorously through future studies.

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