

An Insight into Implication of Adaptive Reuse

نظرة على تطبيقات إعادة الاستخدام التكيفي

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ملخص:

إن عملية إعادة الاستخدام تمثل كيف يمكن للمبنى أن يتغير غرضه الرئيسي إلى غرض جديد؛ يتم وصف تلك العملية بأنها "عملية تقوم بتغيير عنصر غير مستخدم أو غير فعال إلى عنصر جديد يمكن استخدامه لغرض مختلف". وعملية كيفية تكيف مبنى هو عقبة مشتركة تواجه أصحابها في الأونة الأخيرة. هناك عبء على المالكين أو أصحاب المصلحة بسبب الاحتياجات الاجتماعية والاقتصادية الناشئة.

فكرة إعادة الاستخدام أكثر قبولاً من إعادة بناء البيئة، يقلل التلوث ويحفظ المواد القديمة واستهلاك الطاقة من أجل الوصول إلى مبنى جديد أعيد بناؤه بالكامل. الهدف الرئيسي من إعادة استخدام أي موقع تراثي هو الحفاظ على أهميته الثقافية والحفاظ عليها.

في مصر خلال الوقت الراهن، القرارات الأخيرة هي هدم المباني التراثية بعد بيعها هذه المباني بدلاً من هدمها بدأت في توظيف آليات إعادة

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الاستخدام التكيفي كممارسة، في مدينة القاهرة القديمة، على سبيل المثال، تزامناً مع قيام الملاك بإيجاد مصدر بديل للدخل، عكفوا على إيجاد طريق لتأجير الطابق الأرضي للمحلات التجارية، وكذا مشروع إدارة هضبة الجيزة الجديد قد يعيد استخدام مساحة متحف مراكب الشمس، او كما يطق عليها مراكب خوفو الذي تم نقله مؤخراً للزوار لإثراء تجربتهم للزيارة.

تعتبر الاستدامة وزيادة الانبعاثات الكربونية من النقاط الرئيسية التي يجب مراعاتها خلال هذه العملية، وهذا سبب حاسم وراء تجنب معظم مالكي المبنى أو السلطات المسؤولية تنفيذ مثل هذه العملية خاصة في البلدان المتقدمة. إن مشروعات التكيف المستدام في مصر أحياناً الوعي العام وبناء القدرات، تتحكم بها سلطة معينة في معظم الوقت من أجل تنظيم الآثار المترتبة على خطط إعادة الاستخدام، حيث تعتبر السلامة المعمارية أيضاً نقطة رئيسية للنقاش ، فهي تعني "سلامة المبنى"، والتي يتم تنظيمها من خلال "خطتها ، وميزاتها ، وموادها ، والتشطيبات ، والنظام الإنشائي ، ووجود السمات المعمارية".

Abstract

The process of adaptive reuse represents how a building can change its main purpose for a new purpose. How to adapt a building is a common obstacle faces the owners during recent times because of the socioeconomic emerging needs.

The idea of reuse is more agreeable than reconstruction to the environment. It decreases pollution, saves the old materials and energy consumption. The main aim of the reuse of any heritage site is to conserve, and preserve its cultural significance.

In Egypt now, the recent decisions are to demolish the heritage buildings after selling them, these buildings instead of demolishing. The adaptive reuse as a practice in Cairo Old City started with the need to find an alternative source of income by renting ground floors for shops.

Sustainability and carbon inflation are key points to consider during this process, and this is the reason why most of the building's owners or authorities avoid carrying out such process. Sustainable adaptation projects in Egypt sometimes encloses the public awareness and capacity building. In Egypt, certain authority controls most of these interventions, in order to regulate the application of the reuse plans.

Architectural integrity is also a key point of discussion, it implies "the intactness of the building," which is systematized by "its plan, features, materials, finishes, structural system, and the presence of architectural features".

Keywords: Adaptive, Reuse, Heritage, Old, Conservation

Introduction

The study sheds light on adaptive reuse; its main components, and it presents the different arguments about each of them.

Various studies and researches discussed the subject of adaptive reuse. Many approaches introduced deep overviews and information, and the strategies proposed better application of the different methods of adaptive reuse. The main aim of the reuse of any heritage site is to conserve, and preserve its cultural significance. Scholars debated that reusing the heritage sites in another function rather than its original function affects its original cultural significance. Nevertheless, through analyzing different examples it revealed that the continuous use of the old heritage sites or buildings provide the site with new values that may add to the authentic culture significance of the site or the building (Schmidt, 2008).

How to adapt a building is a common obstacle faces the owners during recent times. There is a burden on owners or stakeholders because of the socioeconomic emerging needs, which put stress on to reuse the building ending up selling it (Bullen 2010). The idea of reuse increased significantly during the 20th century (Cantacuzino, 1975) onwards until it became one of the main subjects in different approaches (Pleveots & Van Cleempoel, 2011). It is arguable that adaptation is a method to preserve the building life with a combination of improvement and a conversion process (Kohler and Hassler, 2002). There are numerous facts that

led to the emergence of the adaptive reuse like; abandonment, and the lack of maintenance.

The process of adaptive reuse simply represents how a building can change its main purpose for a new purpose (Langston et al., 2007; Bullen, 2007), it is clearly described as “*a process that changes a disused or ineffective item into a new item that can be used for a different purpose*” (Department of Environment and Heritage, 2004). Adaptive reuse is interpreted as the all measures that should be taken to maximizing the longevity of a building or the simple functional changes in a heritage building to reuse it.

Adaptation or Reconstruction?

The idea of reuse is more agreeable than reconstruction to the environment. It decreases pollution, saves the old materials and energy consumption that will be consumed in order to reach to a full new reconstructed building, besides, being an old heritage site that is using preliminary ways to survive represented in the less need of lightening, ventilation and finally sewerage system of the site (Langston et al., 2007). (Rani, 2014) said “*Building should be healthy, environmentally friendly, functional, low energy, aesthetic, cost affordable, and designed for all users*” in order to be appropriate for use and reuse. Since the adaptive reuse of any building or heritage site leads to more development and a significant decrease in the negative harmful effects on the site therefore it is considered to be an important way to reach to a sustainable environment.

The conservation of the old buildings started to emerge with the beginning of the mid nineteenth century. This process

help the stakeholders to maneuver their needs during the decision process of whether to keep a building or the demolish it (Wilkinson et al., 2009). Although these building might cause harm to environment if kept, or need huge fund to reuse them, some scholars believe that the reuse of a building should consider this. In some cases, scholars argue that around 12% of increase in cost display a difference when conducting an adaptation process of a building (Ellison et al 2007). It is a kind of a maintaining dynamic of a building, as it covers the building's lifetime and evades destruction waste, encourages the recycling process, and achieves a social and economic benefit to the community as well. There is debate over which sustainability corner should be considered, and which one is more important to address in this practice.

Egypt

In Egypt now, the recent decisions are to demolish the heritage buildings after selling them, these buildings instead of demolishing could be reused after adaptation (Ellison et al., 2007). However, numerous buildings have a short life expectancy because the owners leave it to decay, moreover, the responsible authority because of not using these buildings or the failure to secure funds for it can result in damaged buildings (Petersdorff et al., 2006).

The old City of Cairo is an example of various plan of reuse; whether it was a planned model or not, there is a network of rugged houses and buildings were changed for personal or communal reasons. The narrow streets of the old city create a friendly neighboring environment with social ties between owners. This bonding is strong among the residents because

of their style of daily life and work. The communal gathering during gatherings, religious, or social and cultural events kept any radical change away between residents. Nowadays, income difficulties and economic crisis led to finding another way to increase income through adaptive reuse by using the unused space of the building or to change the whole purpose of it (Lewcock R., 1986; Haider, 2013).

The adaptive reuse as a practice in Cairo Old City started with the onset the owners to find an alternative source of income by renting their ground floor for shops, hence known as shop houses. The choice of the new function is up to the owner. A legal planning permission should be obtained from the local authority. Being a UNESCO heritage site, the authorities must exercise a degree of control and regulations on the popular trend on building adaptive reuse in order to evaluate the advantages and disadvantages of adaptive reuse on the social-economic and cultural aspects of the traditional neighborhood built environment (Haider et al, 2013).

The new Giza Plateau management project as an example may reuse the space of the recently moved solar boat museum for visitors to enrich their experience. Moreover, the royal rest house of King Farouk on the entrance to the tickets office is another example. Archaeologists and, museum professionals together with other scholars working at historic homes often come to sites with well-established narratives, and preexisting stories that can form a shape for the adaptation work at these sites, these narratives are often an essential part of the preservation of the site (Beranek, 2011).

An important matter of consideration for adaptive reuse involves a good understanding of the building, thereby, exploring its positive values and encouraging their exploitation. Trying to judge the compatibility of the design of the *Gayer Anderson* for example can illustrate the appreciation of the building integrity. The conservation of a building and its physical characteristics is investigated through the examination of the site, the internal and external spaces of the structure. The compatibility of the new building type is screened throughout the inspection of the adaptation to other functions of the building (Elsorady, 2014).

Adaptive reuse is an important method through which we can save historical buildings (Dewiyana et al, 2016), sustainability is an issue regarding the reuse, and in some countries like Egypt it is not easy to stick to all corners of sustainability during the adaptive reuse process (Yıldırım & Turan, 2012). In many cases, similar countries tried to adopt a sustainable adaptive reuse plan, like in Malaysia stressing the participation of the local people in this plan showed success in conserving the site as well (Yung & Chan, 2012).

Reuse and Sustainability

Sustainability and carbon inflation are key points to consider during this process, and this is a crucial reason why most of the building's owners or responsible authorities avoid carrying out such process especially in advanced countries. In addition to health and safety problems, various other obstacles stands in the mid-way of reusing a historic building, this does not apply in Egypt as a case since we are

little far from the professional implication of Sustainability (Thomsen and van der Flier, 2006). A Sustainable design does not necessarily implement the use of costly technological solutions (Elsorady, 2014). The sustainability in building adaptation defines a set of processes aimed to delivering efficient assets on the long-term. The conservation-sustainability approach is not a new trend, historically, during the pre-industrialization period; it was a norm in all civilizations (Rodwell, 2007).

Buildings Adaptation should be easy to change and to reuse. In this regard, authors call for the reuse “sustainable adaptation,” which implies profitability, flexibility, and energy efficiency, in addition to ecofriendly materials (Douglas, 2002). In many cases, increasing the life of a building through reuse can lower material, transport and energy consumption and pollution and thus make a significant contribution to sustainability. (Van der Voordt, 2004; Velthuis and Spennemann, 2007; Bullen, 2007)

Throughout civilization, the building materials recycled and the places adaptively reused, but the cultural significances have not been communicated or applied. The primary incentive was the material resource value to individuals and communities. Post-industrialization strategic approaches, such as promoted by Gustavo Giovannoni, pursued in Italy. And applied at the metropolitan scale in Paris, reflect this pre-industrialization norm. (Rodwell, 2007). Moreover, Conservation defined as a process that enclose preservation, protection and maintenances during physical change, Thus, this definition limits what can be done in adaptive reuse. For

example, adaptation work on a historic building can be taken over in the meantime with the preservation and restoration of its external framework or other features. (Fitch, 2001; Spector, 2003; Murtaga, 2007).

An important matter of consideration for adaptive reuse involves a good understanding of the building, thereby, exploring its positive values and encouraging their exploitation (Elsorady, 2014). The process of reuse of the historical buildings might be seen as a complex decision, because of the existence of different objectives to be tackled, the public or private nature of the goods, the presence of several values (historical, cultural, or economic, the existence of different stakeholders; public government, architects, historians, developers, and owners (Ferretti et al, 2014). In decision dilemma related to the reuse of historical buildings for example, conflicts could arise and the availability of the analytical frameworks to support the process gets more important. For a long time, It is agreed that *Multicriteria Decision Analysis (MCDA)* can introduce a formal methodology to act with such decision problems, taking into consideration the available technical information and stakeholders' perceptions.

Community Symbol and Story

The cultural buildings are heritage symbols for the communities and they become a hub to flash back the livening of the individual and the community. Adaptive reuse process emerged then, and it took a path to turn to be a global trend nowadays. This trend become preferable rather than the

traditional preservation and restoration of the buildings (Elsorady, 2014).

Over the past years, the beliefs regarding the proper use of a historic house have turned toward a more solid embrace of linking the past issues with nowadays concerns. With an emphasis on creating useable pasts by heritage professionals, historic houses have exposed to criticism because of their static presentations of the past without any link with contemporary generations. This concern reflects that within the historical profession numerous civic engagement purposes have become crucially due (Shackel and Chambers 2004, little 2007, McGuire 2008). There is a complication on how to create an interpretive experience in a historic house, if we aim at introducing a well-established building to enhance community. It is possible to make use of the micro scale tools inside a building for narrating bigger historic events. Through this, we can achieve a proper engagement for a visitor to the site and house with the social events of that period (Christensen, 2011).

There is an importance of public perception and how it should be exploited by investigating the building symbolic value, and recognition of its current existence, and the evaluation of the building splendor (Elsorady 2014).

Sustainable adaptation projects in Egypt sometimes encloses the public awareness and capacity building, but in Egypt, most of these interventions are controlled by certain authority, to regulate the implication of the reuse plans. Given that sustainable adaptation assists in preservation of the cultural identity of surrounding neighborhoods (Nelson,

1988), it become thus crucial to engage the local community and all the interested parties in the decision-making process relating to the heritage conservation (Waterton and Watson, 2013). After all, most materials can be modified and openings can be adapted or eliminated. The entire building does not necessarily have to be demolished in order to alter certain problematic features (Elsorady 2014).

Integrity

Architectural integrity is also a key point of discussion, it implies “the intactness of the building,” which is systematized by “its plan, features, materials, finishes, structural system, and the presence of architectural features” (Alberts 2010, 62). The preservation of the architectural design of the building is an essential part during the adaptation process; it is important to save the authenticity of the materials used to save the façade of a building for instance. This is defined as “«ability of a property to convey its significance’». This is ideal when dealing with the values of a building as a heritage resource (Elsorady, 2014).

I want here to shed light that sometimes the literature, integrity and authenticity are mixed, though in some cases, a distinction between them is important. *Alberts* believes that with the Management Guidelines of integration, the meaning of being “authentic” from which start the process that turn the asset into a genuine product of its time, it includes the effects of its narrative through historic time (Alberts 2010, 60).

The UNESCO plan for the Egyptian Heritage conservation pointed to the need of creating an Egyptian organization,

different from the Supreme Council of Antiquities, to deal with cultural conservation. As a result, in 2001, the National Organization for Urban Harmony referred to as “NOUH” was established. NOUH is authorized to make all needed decisions and recommendations in accordance with the current heritage legislations. This authority does not introduce solutions to adaptation or introduce the technical assistance, it just implies the various articles stated in antiquities law and assure its application. The article number 144 in paragraph no. 83 states that: during the issuing of the license for demolition, or renovation in heritage buildings, the facade and the architectural features have to be preserved even with a partial or a total demolition of the building in order to conserve the architectural style of the surrounding area (NOUH, 2012). This puts another burden on the process of adaptation of historical buildings.

Rehabilitation or the adaptive reuse is an intervention that aims at recruiting the building for the same purpose. These buildings established for other purposes without change or minimal change in the original layout of the building. The choice of a building to be reused depends on a strict balance that aims to achieve the highest technical, historical, architectural sensory, and economical return to the community. This balance process relies on a combination of elements that are determined by the organizers of the design and construction studies, which requires the cooperation between different experts from various fields concerned with rehabilitation and reuse of

The rehabilitation and adaptive reuse is most effective preventive maintenance ways. it restores it to its original function, which leads to its preservation, therefore, the rehabilitation and re-use of the historic buildings in a timely and appropriate purposes is a form of conservation methods. (Langston et al., 2007) This leads to prevent the negligence and abounding of these buildings, the deliberately encroachment and destruction of it, as well as to ensure the continuity of the maintenance work, especially the short-term actions as acts of hygiene, which is difficult to ensure during the absence of the proper adaptive reuse plan. (الكفافي، 2014) the Historic Islamic buildings especially Historic Houses like Beit Zainab Khatoon, Beit El Set Wasila and Beit El Harawi which cannot be used for the same purpose which were built for, and that require for its rehabilitation in other purposes to give the building the appropriate resistance in its construction components, to ensure its continuity, and give it the ability to be reused with the new function that is addressed for it.

Conclusion

The cultural significance of any heritage site is the main pillar of an adaptive reuse plan. It should begin with studying and analyzing the cultural significance of the site first which is the value (aesthetic, historic or social) of the place represented in “*Fabric, setting, use, association, meanings, records, related places and related objects*” of any site location or building. (Burra Charter, 2013)

The adaptation as a process is important and suitable to the community; it generates jobs, and achieves social benefits. It

can contribute to the decrease of crime; it can bring diverse people to act and work together (ELsorady 2014).

There is number of problems stand as obstacles to reuse of a building; lack of funds is the main, but also the outdated electrical and mechanical systems inside a building is another problem. It is also difficult to bring intellectual and skilled workers to undertake the various tasks.

In Egypt, adaptive reuse is used for the purpose of preserving and protecting the cultural heritage. Innovation is essentially needed in conservative solutions, especially in adaptive reuse, upgrading, and new additions in valuable areas.

The absence of community participation is apparent in the various project. Generic adaptive reuse plans and policies require a level of attention that addresses the significance of consulting the stakeholders and the public opinion of the heritage building in question. Establishment of communication channels is perceived to be a straightforward and good first step towards stakeholder involvement in reforming procedures and policies, which will take some time to implement. Their needs and requirements should be respected during the execution of the project (adaptive reuse projects in most cases progress in the form of a top-down planning mechanism).

The Nara Conference on Authenticity held on 1994 declared that authenticity of cultural heritage should, therefore, be judged on its cultural context (Alberts, 2010).

In NOUH establishment criteria mentioned only represent the indicators of architectural integrity and building form. Other indicators, such as public perception, building function and

sustainable adaptation are not mentioned within NOUH regulations. On the other hand, there is no indications in the NOUH regulations about the function of the building, the public perception or adaptation sustainability, something puts load on how we should act with such matters of insufficient regulations.

Consequently, work needs to be done at both policy and government levels to build up proper published adaptive reuse and compatibility strategies. This will act as a guideline to achieve environmental benefits, attract more investments, increase the value of the heritage properties and reestablish the lost glory of such historic structures.

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