



## Reassessment of the compatibility of new functions for historic structures and the urban settings around them

Example of the old Damanhour City Hall - El-Behaira, Egypt

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### Abstract.

In Egypt, there are more and more initiatives including building reuse in the surrounding metropolitan areas as a result of the necessity to make compromises between the physical environment's historical significance and present necessities. It was challenging to develop an explicit framework for assessing various experiences due to the qualitative character of this process and its reliance on multiple points of view. This study intends to accomplish the following three goals using a qualitative approach, a descriptive-analytical methodology, and data from both theoretical and field studies: first, to offer precise, literature-based indicators or measures for assessing adaptive reuse projects; second, to utilise these indicators or measures to evaluate the adaptive reuse of the former Damanhur City Hall (now the Damanhur Opera House and Center of Artistic Creation); Third, to draw attention to the reasons for criticism of decisions involving adaptive reuse through this analysis. The project's evaluation based on the specified measures included semi-structured interviews with stakeholders. According to the study's findings, although most of the physical criteria for adaptive reuse were met, according to the

respondents' assessments, the procedure fell short on the social criteria. The study's findings urge cautious adjustment of Egypt's laws and regulations governing adaptive reuse, with the participation of pertinent parties to ensure sounder decision-making.

**Keywords:** Adaptive reuse projects; Old Damanhur City Hall; Damanhur Opera House; Damanhur Center of Artistic Creation; Heritage building preservation and urban space enhancement

## 1. Introduction

To determine the extent to which the objectives of adaptive reuse were satisfied and to pinpoint the causes if they were not, post-adaptation evaluation of preserved heritage buildings and urban areas is required. This assessment procedure is crucial to directing subsequent adaption projects and identifying potential defections. However, despite the fact that a number of international charters have been published to outline standards for evaluating adaptive reuse projects, it is still impossible to evaluate such projects methodically and conduct a critical analysis of their results. As a result, particularly in poor nations like Egypt, the evaluation of these programmes has up until now focused on individual cases (Plecotes & Van Cleempoel, 2012). Therefore, this study focuses on how heritage buildings and the urban regions around them are decided upon for adaptive reuse in Egypt, particularly in rural cities where historical and heritage structures receive little attention and where public knowledge of their worth is relatively low. It provides information about the initiative to adaptively reuse the former "Damanhur Metropolis Hall" in Damanhur, the regional city that serves as the governorate of El-Behaira. The Egyptian pharaoh Foa'ad lay the city's most valuable building's foundation stone in 1930 using a golden trowel. Despite the building's outstanding architectural elements, it has deteriorated over time owing to abuse over a lengthy period of time and a lack of care and repair. Yet, the quality of its structure has contributed to its survival regardless of long abandonment.

Semi-structured interviews with stakeholders, including laypeople and professionals, are used for the evaluation of the adaptive reuse project of the Damanhur Opera House and Center of Artistic Creation (hereinafter referred to as "DCAC"), and the integration of the literature review and the case study is confirmed by looking at research indicators. In this regard, the study has three goals: first, to propose particular indicators or measures, drawn from the literature, to assess various experiences of adaptive reuse; second, to apply these indicators or measures on the adaptive project; and third, to highlight criticism factors connected to this project and/or any other adaptive reuse decision-making through this analysis.

The most crucial factors for judging proposals for the adaptive reuse of historic buildings were identified through a literature review of pertinent studies, as well as international charters and protocols of reused heritage buildings and the urban regions around them. Here, DCAC is recommended as a case study for using the evaluation criteria to highlight the advantages and disadvantages of the adaptive reuse process. The study assesses the suitability of the new use of the building by drawing on the opinions of stakeholders, or important people, who support and profit from adaptive reuse schemes. . During the semi-structured interviews with stakeholders, available architectural designs and authentic photographs are also used to get in-depth comments. Interview subjects include professionals

like architects, council members of the engineering syndicate, and municipal council members as well as laypeople like museum visitors and local inhabitants.

According to the study's findings, the building's architectural integrity was conserved during the process, and its new cultural use represents the best possible usage for the structure. However, it also reveals a range of stakeholders' perspectives on sustainable indicators, disagreement over how to measure if a new function is being met, and a clear disadvantage in terms of community involvement.

## **2. Theoretical Background**

From the middle of the 19th century onward, a recognition that historic structures and urban fabric are valuable and should be preserved started to emerge. They have a significant role in the collective memory of the nearby towns. On the other hand, old buildings significantly contribute to the importance, identity, and physical condition of a specific metropolitan region. In order to learn about and enhance values related to history, continuity, familiarity, and identity, as well as, above all, sustainable human growth, all of which must be present in historic sites, it is therefore natural and desirable to maintain historic structures and urban fabric. The main hazard to old buildings is their abandonment, which exposes them to quick degradation and neglect as a result of function loss.

A conservation strategy that could be described as "a process that transforms a disused or ineffective item into a new one that can be used for a different purpose... a new use through adaptation may be the best way to preserve its heritage significance" is one way to guarantee ongoing maintenance of these buildings (Burton, 2014). Additionally, this might be a successful strategy for conservation that is self-sustaining, one of the economic cornerstones of sustainable development; a good adaptive reuse process may renew a whole area in a sustainable way (Yung & Chan, 2012:354). An adaptive reuse project can frequently be more labor-intensive because it calls for a community's current needs to be adjusted, but it also has significant social benefits, including the creation of jobs, a sense of place, a decrease in crime, and an additional boost to the city's economic revival. (Wiehagen and Rypkema, 2000) To create dynamic relationships within cities, ancient buildings can be transformed, and new architecture can be integrated into old surroundings. It is abundantly evident from this that there are many goals for adaptive reuse, from providing homes and habitat for people from all walks of life to supporting cultural and commercially successful endeavours that, by giving the structure or its fabric a new use, foster economic revival.

Since the former entails functional changes/alterations to the original buildings that may influence the buildings' form, adaptive reuse is frequently preferred to others, such as preservation, restoration, or even rehabilitation (Elsorady, 2013). Here, it is essential to ensure

that the building's individuality is preserved in addition to keeping it in good enough condition to serve a new purpose. By doing this, a valuable but abandoned or obsolete structure is transformed into one that is equally valuable but serves a different purpose. Douglas calls the reuse "sustainable adaptation" and commits to the lexical definition of adaptation, which derives from the Latin *ad-aptare*, "to fit," when addressing the meaning of adaptive reuse (Douglas, 2002). Fitch and Murtagh concur that adaptation entails both present-day use of resources and future use depending on environmental factors (Fitch, 2001 and Murtagh, 1997).

Variances or exemptions may be available in some circumstances as a way to circumvent some building code requirements. For instance, it is typical for heritage buildings to lack mechanical and electrical systems that are up to date (Elsorady, 2013). Standard adaptive reuse principles actually just serve as theoretical guidelines, leaving it up to experienced architects to decide how much physical alteration is necessary. In this, Park (2006) argues that the evaluation of historic properties (such as significant materials, cultural characters, time periods, and physical aspects) should be a step in determining the kind of preservation treatments each historic property requires. Therefore, adaptive reuse is done in a way that respects the historical structures' original architectural design.

The most significant of these are summarised in a literature review by Tootoonchi et al. (2020), who developed a set of criteria to fulfil the recommendations of these charters/protocols, including those in the UNESCO Principles for implementing the World Heritage Convention in 2008 and 2017. Several international charters have been issued to provide criteria for evaluating adaptive reuse projects. According to them, the most effective adaptive reuse projects are those that successfully balance the three pillars of adaptive reuse without undermining any of their objectives. The three pillars they propose are neighbourhood development, building preservation, and success in achieving newly applicable functions (Tootoonchi et al., 2020). Dalia Elsorady (2013) proposed additional indicators culled from many texts, such as architectural integrity, public perception, form, new function, and sustainable adaptation. From the aforementioned literature, evaluation criteria/measures and the recommended indicators for each of them were divided into two primary categories (physical and social), and the results are described in the following:

## **2.1. Physical measures**

These metrics are used to gauge the success of the physical and technical aspects of the adaptation process, as well as the adaptation renewal process itself. Professional assessments of the calibre of the completed architectural, structural, and technical work could be more precise and instructive for these measures. These actions consist of:

### **2.1.1 Integrity/Authenticity**

While authenticity is the attribute of being real or unaltered from the original, integrity is the unwavering adherence to a rigid moral or ethical code (Wiktionary, 2021). A sort of conservation intervention is the adaptive reuse of a historic structure and the surrounding urban surroundings. This should not only preserve the structural integrity of the building but also heighten its historical relevance and elevate it to its highest possible level (Bullen & Love, 2010). The most important criterion in the process of adaptive reuse is maintaining the authenticity and integrity of a historic location. In reality, finding the threat to authenticity, recognising it, and figuring out its idea are crucial to achieving the practice's ultimate purpose of protecting authenticity in a legacy.

According to Alberts and Hazen (2010), architectural integrity refers to "the intactness of the building," which is systematised by "its plan, features, materials, finishes, structural system, and the presence of architectural features," whereas Murtagh (1997) and Nelson (2005) concurred that it is an abstract term that is characterised by a number of elements including "style, workmanship, setting or location, materials, building type or function, and continuity." International charters and agreements also underline the importance of remembering the building's intangible characteristics, such as its original purpose (Tootoonchi et al., 2020).

Urban integrity, which is the capacity of a property to convey its historical associations or traits, is attained through. The combination of elements that determine a building's historic form, plan, space, structure, and style is known as its design. This includes space arrangement, scale, proportion, technology, decoration, and materials. Neighborhoods and the historical connections between specific locations, buildings, and constructions are also examples of design.

Setting refers to the actual surroundings of a historic property. It has to do with how important the property's location was historically. Not only is the location important, but also the property's historical connections to the area's natural characteristics and open space.

### **2.1.2. Building conservation and preservation**

Site, spaces, fabric, and structure are the different ways that the building's physical attributes might be categorised (Elsorady, 2013). Physical alterations to historical structures call for a thorough comprehension of the building's logic, which includes the idea of shape, the choice of materials, as well as cultural and historic significance. The cultural relevance of historic structures is effectively maintained when alterations are made explicitly, are recoverable, and are managed in a balanced way, demonstrating that their authenticity has been properly upheld (Tootoonchi et al., 2020). Additional proposed metrics for this criterion

could be the building's location, architectural style, space gain, space change, and structural analysis (Elsorady, 2013). Additionally, it's critical to consider the historic significance and qualities of the existing structure when deciding on new colours or materials or when determining the scale of any renovation (Nelson, 2005).

Along with safety and structural stability, this may also involve how well-suited new furniture is to the physical features of the structure, facilities management, and upkeep.

### **2.1.3. Success in meeting new applied function**

The importance of the new role in defining architectural integrity is acknowledged by preservation theorists (Murtagh, 1997, Nelson, 2005, Weeks, 2005, and Kwun, 2001). Working with old buildings revolves entirely around the form/function dialectic, which states that an adaptation only works well when the new function and the current form are well matched. Finding a new function may lead to a conflict between the original and new architectural integrities (Nelson, 2005). Through the examination of the best adaptation to other functions, the suitability of the new function is established. It can be decided based on how little effect the anticipated new usage might have on the building's historical structure. Buildings typically have a good, relatable vibe when form and function are sufficiently suited. This criterion's measurements may take into account the building's compatibility with its new role, its innovative use in response to modern needs, direct and indirect economic advantages, the economic soundness of the costs of adaptation, and the accessibility of other buildings on the site (Tootoonchi et al., 2020).

## **2.2. Social measures**

Social change may have a significant negative impact on the traditional urban fabric. For innovative approaches to mitigating such consequences and for figuring out how to effectively accommodate developments in civil society while retaining an urban area's historic relevance, a fuller understanding of the physical impact of social change is essential.

These metrics are employed to evaluate the adaption renewal process' post-use effects. The opinions of laypeople are more useful for these metrics since they can be used to determine the project's actual effects on the community and/or surrounding society. These actions could involve:

### **2.2.1. Local community's development**

It will take a lot of time and monitoring to accurately evaluate this criterion. However, after a few years of use and with some degree of pleasure among them, direct benefits of such initiatives should begin to be seen by the nearby neighbours.

The following actions can be taken to address this criterion: enhancing the socio-cultural values of the area, preserving intangible heritage and values, improving socioeconomic conditions, contributing to the local economy, maintaining cultural identity, and promoting social awareness (Tootoonchi et al., 2020 and Elsorady, 2013).

### **2.2.2. Public perception**

The ability to distinguish between a building's current state and its potential future depends on more than just the physical alterations that have been made. Public perception is valued in relation to the beauty of a building's façade, its symbolic significance, and the appreciation of the building's grandeur in light of the present (Elsorady, 2013). These are important considerations when redesigning, or making modifications to, older built settings. Studies reveal that when defining the alteration and new usage of constructed environments, the disparity between architects' and laymen's perceptions—i.e., the different view of the public—can serve as a crucial aspect when evaluating the beauty of building facades (Gifford et al., 2000)

### **2.2.3. Sustainable adaptation**

Not all expensive technology solutions must be used in order to create a sustainable design. Because reusing existing structures rather than dismantling and replacing them avoids resource waste and lowers the need for new building supplies, adaptable structures are by definition sustainable. Reuse can be referred to as "sustainable adaption" in that sense (Douglas, 2002 and Wishkoski, 2006). It is not necessary to demolish the complete structure in order to adapt or change some problematic characteristics. Because of this, adaptability is viewed as a sustainable design (Douglas, 2002). Thus, it is crucial to involve all interested parties in the community when making decisions about cultural conservation. Community involvement and environmental benefits—or at the very least, maintaining natural and local environments—are suggested as additional metrics for this criterion.

## **3. Adaptive Reuse of Heritage Buildings in Egypt**

Western nations, especially those in North America and Europe, have established their own standards that are intended to offer expert advise on the right practises and required qualifications for conservation and rehabilitation, among other requirements (Grimmer et al. 2011).

The National Organization for Urban Harmony (also known as "NOUH") was founded in Egypt in 2001 as a result of the UNESCO plan for the conservation of Egyptian heritage, which noted the need to establish an organisation other than the Supreme Council of

Antiquities to take charge of cultural conservation in Egypt (McManamon and Rogers, 1994). In accordance with the enacted heritage legislation, NOUH is empowered to make the necessary judgments and recommendations. However, additional indicators as indicated in international charters/protocols, such as public perception, building function, etc., are completely overlooked in favour of the criteria mentioned in NOUH-regulations, which exclusively represent indicators of architectural integrity and building form. 20 years later, NOUH is currently trying to implement more advanced guidelines across the country to protect the integrity of historic structures during conservation and rehabilitation projects (Elsorady, 2020). However, there is currently no law or rule in Egypt that requires community involvement for publicly held heritage.

### **3.1. Adaptive reuse in Damanhur**

The majority of the history structures in Damanhur, like many other provincial cities in Egypt, are not extensively documented in state records, in contrast to the heritage buildings in Egypt's two major cities, Cairo and Alexandria, which are thoroughly registered and documented. Some of them, which are government-owned, have been restored and/or adaptively reused. For example, the old governorate headquarters (1930), which was initiated on the same day as the old Damanhur City Hall and has a similar distinctive style, has been used as a low-court but is not listed as a heritage building, is not documented anywhere, and has no drawings available. Damanhur Secondary School (1924), which was renovated and repurposed as a military school, and the Ambulance Building (1919), which lost most of its interior elements when it was converted into the headquarters for the Supreme Health Committee in Damanhur, are two more restored structures. The city's train station had all of its historic components destroyed as part of a recent renovation effort. None of these structures are well-documented, and neither the government nor anyone else has any idea where or how to obtain their blueprints.

### **3.2. Damanhur Opera House and Center of Artistic Creation (DCAC)**

King Foa'ad I had the ancient Damanhur City Hall constructed in 1930. (fig. 1a). It consists of two identical structures: a theatre whose interior was copied from the Royal Opera House in Cairo (1869–October 28, 1971), and a municipal building. On November 8, 1930, King Foa'ad lay the building's cornerstone. The eastern portion of the structure housed the city hall and "King Foa'ad's Library," while the western portion, known as "Teatro Farouk," housed a movie theatre. Later, in 1952, this name was changed to "Municipality Cinema," and the library was given the late author Tawfiq El-name Hakim's as well (OWMC, 2016). The structure is a masterpiece of architecture that captures the essence of early 20th-century Egyptian architecture, where Italian architect Ernesto Ferrucci (OWMC, 2016) was able to

successfully combine a European design that serves the function with Islamic (Andalusian) architectural elements, floral and geometric motifs, as shown in Fig. 1.

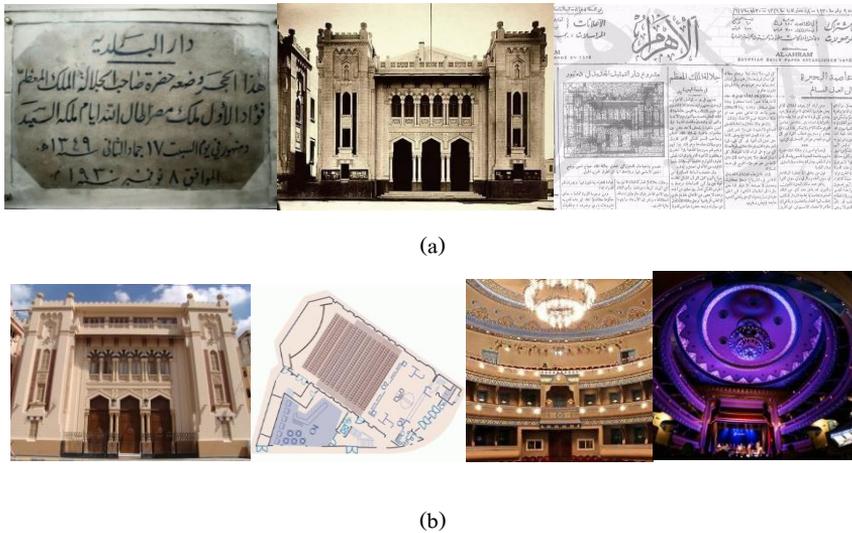
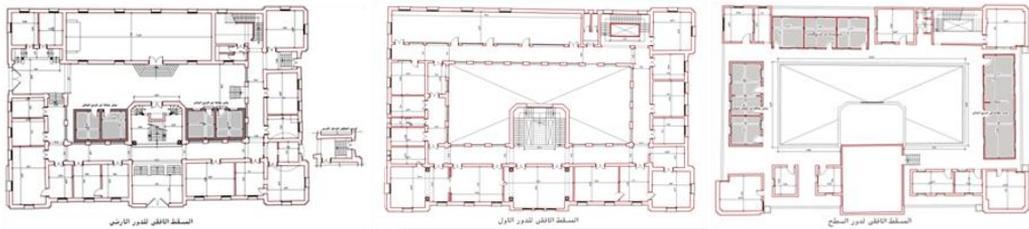


Fig. 1: Damanhur Opera House: (a) (Left to right) The foundation stone of the building (1930), a photo of the building taken in the 1950s, and a newspaper coverage of the foundation stone-laying in Nov. 9, 1930 (b) The building as it is now (Left to right) main façade, floor plan, the loges in the theatre with the royal loge (with royal emblem) at the middle, and the roof of the theatre (El Ahram, 2021 – public domain).

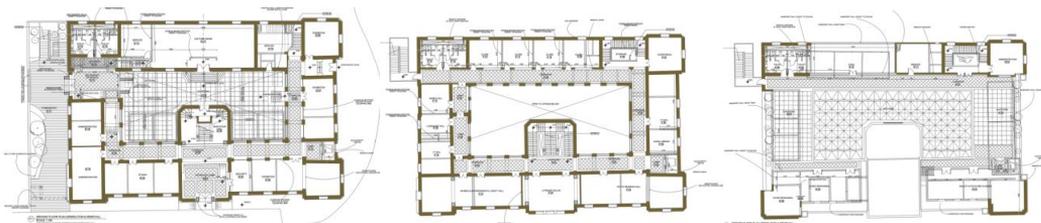
The structure started to deteriorate around the 1980s. The failure to perform routine maintenance and ongoing abuse caused a number of structural issues to arise, the most dangerous of which were the collapse of the dome of the theater's hall and sections of the ceilings. The building was completely shut down until it was registered as an Islamic monument in 1988 by the Supreme Council of Antiquities (registration decision No. 499 of 1990), which allowed the western portion of the structure to begin its rehabilitation and reuse. The building's foundations were severely damaged by the high level of underground water and water leakage into the corridors, which caused them to suffer serious damage (the theatre). The building was added to the lists of structures with artistic and historical value by the Prime Minister's decision issued on September 30, 1998, in accordance with Article 2 of the Antiquities Protection Law No. 117 of 1983, and its western portion was opened as the Damanhour Opera House on May 7, 2009. (fig. 1b).

The eastern section of the structure, which houses the library and the municipality building, underwent restoration beginning in 2010 and was completed in 2013. It was transformed into a creative production hub with cultural, artistic, educational, and exhibition spaces through an adaptation and reuse process. It had central air conditioning, security cameras, audio/visual display systems, and fire early warning systems. By removing the

subpar extensions that had been put to the building in the 1970s to provide more offices to the municipality, the rehabilitation procedure managed to maintain the majority of the building's architectural elements (fig. 2). The majority of the original stone walls were still present on the ground floor, with the exception of a few in the centre. A space truss was installed on the roof of the central area to provide proper coverage for the new exhibition area, as shown in Fig. 3.



(a) Plans of the eastern section of the building before the adaptive reuse project showing the original walls and (in gray) the spaces that had been added in the 1970s to the ground floor and the roof floor.



(b) Plans of the building showing the changes that had been made during the adaptive reuse project.



(c) Elevations and sections of the building after (left) and before (right) the project.

Fig. 2: Architectural drawings of the eastern section of the building showing the alterations that had been made to it in the adaptive reuse project (curtsey to Culture Development Fund)<sup>1</sup>



Fig. 3: (Left to right) metal truss for roofing the central area, air conditioning network, and supporting the arches in the central area of the ground floor (curtsey to Culture Development Fund).

## 4. Methodology

The literature review in section 2 highlighted the indicators and measures that are found decisive to the assessment of the project, where heritage conservation charters and legislation were investigated to ascertain adaptive reuse restrictions and acceptable alterations in the physical characteristics of the building and to determine how these changes affect the building and the impact of the project on the society. In order to assess the adaptive reuse project, from the stakeholders' point of view, the following procedures were conducted:

### 4.1. Semi-structured interviews

Semi-structured interviews with participants, beneficiaries, and/or decision-makers in the city's adaptive reuse procedures were crucial to collecting comprehensive data. There were two categories of interviewees: laypeople and professionals.

Multiple choice questions were used in the two introductory questions to gauge the interviewee's knowledge about the project and ability to provide thoughtful responses to the questionnaire. After that, the actual questions were concentrated on the specified standards as stated in section 2. (Table 1 and 2). The answers were ranked from "extremely good" to "very awful," with values ranging from 5 to 1. A total of 100 interviews were conducted in three rounds, comprising 75 semi-structured interviews with laypeople and 25 with professionals. Visitors to the examined building(s), neighbourhood residents, business owners/workers in the neighbourhood, and unprofessional employees of the studied building(s), the city council of Damanhour, and the Damanhour governorate made up the laypeople interviewees. Interviews happened in two phases (July- August 2021, then August - September 2021). The 25 professionals interviewed included Damanhour-based Engineering Syndicate consultants, architects, engineers, representatives of the local Ministry of Culture office, investors, and

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<sup>1</sup> Drawings, original photos, or any kind of documentation for this complex (or any of its twin buildings) were not available anywhere in the whole government of El-Behaira. The officials in the two parts of the building (the opera house and the center of creation) do not have any drawings of any kind for the building(s). The city council (the owner of the building) does not have any drawings either (neither old nor new), nor does the governorate or any department in it, including the office of Antiquity.

Damanhour city council members (July–August, 2021). Out of the 100 interviewees, 22 said that they have never visited the building, of these 18 laypeople and 4 professionals. So, the percentages shown in table 1 and 2 are for the answers of the 57 laypeople and 21 professionals, who actually visited the building at least once.

#### 4.2. Original images

To ensure that the interviewee remembered the building's original image prior to the project, historical and modern photos of the building were shown to each subject (figs. 1, 4 and 5). The variations that the responders noticed between each pair of photographs were queried. This kind of information was utilised to supplement the indicator of public perception, to address measures of present-day recognition, and in the assessment of architectural splendour. The other inquiries examined the participants' perspectives on additional measurements and indicators by emphasising various reuse changes.





Fig 4: Exteriors of the complex before (*left*) and after (*right*) the project (curtesy to Culture Development Fund)

(a) The central area and the main staircase in the DCAC before (*above*) and after (*below*) the project

(b) Different spaces in DCAC before (*above*) and after (*below*) the project

## 5. Results and Discussion

After more than 90 years of almost perfect preservation, the historic Damanhour City Hall required a restorative intervention due to the level of decay it had achieved. The numerical results of the survey respondents' responses are displayed in Tables 1 and 2. The participants were divided into three groups based on the answers to the pre-questions.



questionnaire Those who never visited the facility (30% laypeople and 22% professionals) make up the first group. The second group consists of those who went there before to the project, or who did not go there at all after the complex was restored and repurposed (42% laypeople and 33% professionals). The group's responses/opinions were based on their perceptions and knowledge gained from visiting the building as a city hall (the municipality, the library, or the cinema), their observations of the building's current exteriors, the photos that were shown to them, or public opinions that they had heard. Those whose responses are based on actual visits to the building or participation in its activities following the project are the third category (28% laypeople and 45% professionals).

The significant number of persons who never entered the building highlights the inadequacy of publicity and announcements of the center's operations and illustrates the disconnect between stakeholders and decision-makers. The majority of the laypeople interviewed by this group had no knowledge of the DCAC's operations and claimed that, had they known about them, they might have taken part or at the very least visited the facility. Some of them claimed to be unaware of the fact that there is more going on there than just opera performances because they mistakenly believed the entire complex to be nothing more than an opera house. It was quite unexpected that some of the specialists had the same thought. Asking the staff of the Center for Creation about typical visitor numbers, they said that there are 10–20 visitors on regular days and a maximum of 100 for exceptional events like author lectures or visits from prominent figures. When asked the same question concerning the number of persons who participate in activities other than shows, such as the literary club, movie club, or ballet school, opera house personnel gave nearly identical responses. Only 18 of the 100 interviewees had actually taken part in activities or events in both of the building's two wings. As demonstrated in tables 1 and 2, it was discovered that several opera house staff had never visited the center of creation and vice versa.

Table 1: Results of semi-structured interviews for **laypeople** in relation to adaptive reuse indicators/measures

		Pre-questionnaire	Results %				
		Have you ever visited the complex	Y e s	N o			
			7 0	3 0			
					Pr e	Aft er	> 2
		Details of 70% Yes			42	24	4
		Why didn't you visit the complex <sup>2</sup>	D K	N I	Ex	Far	O .
		Details of 30% No	1 4	9	2	3	2
Indicators	Measure	Questions (percentages calculated for the 70% of the interviewees, who actually visited the place)	Results %				
		How much do you know about complex's background and its adaptive reuse project?	V. G 2 1	G 3 4	A vr. 21	Ba d 18	V . B .

<sup>2</sup> DK = Don't know about it, NI= not interested, Ex= expensive , Far = far from my home, O= other

									6
Authenticity and integrity	Intactness of the building	How much do you think the adaptive reuse project keep the intactness of the building and its authenticity?	5 5	3 4	11	-	-	-	-
	Acceptable degree of changes for desirable reuses	How far do you find the building's changes to accommodate new function acceptable?	6 7	2 5	8	-	-	-	-
	Possibility of understanding the original function	How much do you think the building is successful in recalling its original function as a city hall?	-	-	-	11			8 9
Building conservation and preservation	Compatibility of the new furniture with the characteristics of the building	How well do you think the interior furniture is suitable for the buildings new given functions?	2 3	2 6	16	19			1 6
		How well do you think the interior furniture is suitable for the buildings characteristics?	8	1 8	44	19			1 1
	Compatibility of the new colors and materials with the characteristics of the building	How do you evaluate the methods and materials that have been used in adaptive reuse project?	7 1	2 1	8	-	-	-	-
		How suitable are the materials used in the adaptive reuse project to the original physical characteristics of the complex?	7 1	2 1	8	-	-	-	-
	Safety and structural stability	How do you evaluate the structural safety and stability of the building in relation to its new function?	3 5	3 0	28	5			2
	Facility management and maintenance	How do you find the management and maintenance of the complex?	2	6	18	29			4 5
	Reversibility of changes and alterations	How far do you think the changes and alterations in the building are irreversible?	6	4	2	56			3 2
Success in meeting new function	Compatibility between building and new function	How can you evaluate this center compared to other similar cultural centers in Egypt?	4 8	2 2	21	6			3
	Innovative use adapted to contemporary needs	How much are you satisfied with the adaptive reuse of the building?	1 5	2 7	33	19			6
	Increasing the livability of	How do you evaluate the advertisement for the Complex now?	2	6	13	32			4 7

	historic quarters						
	Direct and indirect economic benefits	How far do you think the Complex is getting the targeted number of visitors?	6	14	26	33	21
	Accessibility of buildings	Is the building easy to access?	72	25	3	-	-
Local community's development	Enhancement of socio-cultural values of the region	How far do you think the adaptive reuse of the Complex have affected the general perception of the city?	4	9	18	42	27
	Raising social awareness	How do you think the project have fulfilled the contemporary cultural-social needs of people in the city?	7	14	28	51	-
	Preservation of intangible heritage and values	Do you think this building is an important part of the heritage of the city?	35	31	28	6	-
	Keeping cultural identity	From your background, can you say that the building keeps its cultural identity?	38	45	17	-	-
	Increasing the livability of the neighborhood/	How do you find the adaptive reuse of the complex as cultural center have effected/enhanced the level of resident's cultural?	6	9	21	31	33
	Contribution to local economy	How does the adaptive reuse of the building contribute to local economy?	-	-	-	4	96
Public perception	Symbolic value	Do you think that the building restores its symbolic value?	29	15	39	17	-
	Recognition of present being and grandeur	Do you recognize the building present being and its grandeur?	13	33	42	12	-
	Building splendor	How can you evaluate the building splendor?	75	22	3	-	-
Sustainable adaptation	Sustaining natural and local Environments	Would you agree to the demolition of the building?	96	4	-	-	-
		How much does the adaptive reuse project affect the natural/ local environment of the neighborhood?	-	-	6	4	90
	Community engagement	Did the community engage in this adaptive reuse proposal?	-	-	6	6	88
		After questionnaire					
		How do you find the new suggested function o the building as a museum?	28	30	23	19	-
		What is the utility that, if found in the building, would make you visit it more frequently?					
		What is your preference if you were choosing a function for this building?					

Table 2: Results of semi-structured interviews for **professionals** in relation to adaptive reuse indicators/measures

		Pre-questionnaire	Results %				
		Have you ever visited the complex	Yes	No			
			78	22			
					Pre	Af	>
		Details of 78% Yes			33	11	34
		Why didn't you visit the complex	DK	NI	Ex	Fa	O
		Details of 22% No	4	12	-	4	-
Indicators	Measure	Questions (percentages calculated for the 78% of the interviewees, who actually visited the place)	Results %				
		How much do you know about complex's background and its adaptive reuse project?	V.G	Go	Avr	Bad	V.B
			45	36	.16	3	-
Authenticity and integrity	Intactness of the building	How much do you think the adaptive reuse project keep the intactness of the building and its authenticity?	42	45	13	-	-
	Acceptable degree of changes for desirable reuses	How far do you find the building's changes to accommodate new function acceptable?	39	42	19	-	-
	Possibility of understanding the original function	How much do you think the building is successful in recalling its original function as a city hall?	-	-	-		100
Building conservation and preservation	Compatibility of the new furniture with the characteristics of the building	How well do you think the interior furniture is suitable for the buildings new given functions?	21	34	26	15	4
		How well do you think the interior furniture is suitable for the buildings characteristics?	3	31	33	26	17
Compatibility of the new colors		How do you evaluate the methods and materials that have been used in adaptive reuse project?	58	33	9	-	-
		How suitable are the materials used in the adaptive reuse project to the original physical characteristics of the complex?	55	26	11	4	4

	and materials with the characteristics of the building						
	Safety and structural stability	How do you evaluate the structural safety and stability of the building in relation to its new function?	29	31	34	6	-
	Facility management and maintenance	How do you find the management and maintenance of the complex?	3	4	15	28	50
	Reversibility of changes and alterations	How far do you think the changes and alterations in the building are irreversible?	1	3	11	33	52
Success in meeting new function	Compatibility between building and new function	How can you evaluate this center compared to other similar cultural centers in Egypt?	26	23	23	10	18
	Innovative use adapted to contemporary needs	How much are you satisfied with the adaptive reuse of the building?	14	21	44	12	9
	Increasing the livability of historic quarters	How do you evaluate the advertisement for the Complex now?	4	5	21	45	25
	Direct and indirect economic benefits	How far do you think the Complex is getting the targeted number of visitors?	2	11	36	28	23
	Accessibility of buildings	Is the building easy to access?	80	19	1	-	-
Local community's development	Enhancement of socio-	How far do you think the adaptive reuse of the Complex have affected the general perception of the city?	2	5	16	42	35

ment	cultural values of the region						
	Raising social awareness	How do you think the project have fulfilled the contemporary cultural-social needs of people in the city?	21	18	26	35	-
	Preservation of intangible heritage and values	Do you think this building is an important part of the heritage of the city?	54	32	14	-	-
	Keeping cultural identity	From your background, can you say that the building keeps its cultural identity?	66	28	6	-	-
	Increasing the livability of the neighborhood	How do you find the adaptive reuse of the complex as cultural center have effected/enhanced the level of resident's cultural?	5	12	28	26	29
	Contribution to local economy	How does the adaptive reuse of the building contribute to local economy?	-	-	-	6	94
Public perception	Symbolic value	Do you think that the building restores its symbolic value?	44	34	22	-	-
	Recognition of present being and grandeur	Do you recognize the building's present being and its grandeur?	16	33	32	19	-
	Building splendor	How can you evaluate the building splendor?	80	16	4	-	-
Sustainable adaptation	Sustaining natural and local Environments	Would you agree to the demolition of the building?	100	-	-	-	-
		How much does the adaptive reuse project affect the natural/ local environment of the neighborhood?	-	-	-	-	100
	Community engagement	Did the community engage in this adaptive reuse proposal?	-	-	3	8	89
		After questionnaire					
		How do you find the new suggested function o the building as a museum?	37	36	21	6	-

		What is the utility that, if found in the building, would make you visit it more frequently?					
		What is your preference if you were choosing a function for this building?					

In terms of authenticity and integrity, according to the survey's findings, 42% of professionals and 55% of laypeople said the building maintained its integrity. The majority of people in both categories agree that the building and the nearby urban areas have maintained their authenticity and integrity while undergoing a reasonable amount of change. However, the replies reveal that this solely pertains to the physical/structural authenticity, completely ignoring the nonphysical factors that concern visitors' capacity to comprehend or even appreciate the original role (as a city hall). The new use, the workmanship, the new additions for reuse, and the conservation and preservation of the structure and its architectural style were all approved by both categories. A significant portion of the interviewees in both categories (32% of laypeople and 21% of professionals) did not feel that the new furniture was sufficiently in keeping with the architectural style of the building. Nevertheless, these interviewees concur that it is considerably better than the completely worn-out furniture that had been utilised in the municipal offices. Both categories agreed that the colours and materials utilised for the reuse project were compatible with the characteristics of the building in terms of compatibility.

The majority of the interviewees in both categories find that the safety and structural stability of the new adaption are acceptable, while they do not find that the facility management and maintenance is good enough. Both categories confirmed that the possibility of reversing the changes and alterations that had been done is so low (12% of laypeople and 15% of professionals).

The indicator of **success in meeting the new function** was somehow controversial. The answers of the questions show that some measures, such as compatibility between building and new function and innovative use adapted to contemporary needs rated 60% and 42% among laypeople and 51% and 35% among professionals for the two measures respectively. On the other hand, the interviewees do not agree that the project had any contribution to increasing the livability of the historic quarters, or to direct or indirect economic benefits, rating 8% & 20% among laypeople and 9% & 13% among professionals for the two measures respectively. Located at the heart of the city, more than 75% of both laypeople and professionals approved of site accessibility in terms of pedestrian access, but not parking provision. Compared to other cultural centers, 48% of laypeople found the center is comparatively successful, while only 26% of professional approved this.

In terms of **local community's development**, and on account of the cultural benefits and the safeguarding of the neighborhood history, the overall satisfaction with the adaptive reuse process of the building among laypeople was 60%. Satisfaction amongst professionals

was 49%, for the same reasons, in addition to the commemoration of the history of the city. Nevertheless, the project was rated very low among both categories in the questions concerning the measures of enhancement of socio-cultural values of the region, increasing the livability of the neighborhood, raising social awareness, and contribution to local economy. This is actually a normal and expected result from the low number of visitors to the place.

As for **public perception**, 75% of laypeople and 80% of the professional interviewees agree that the splendor of the building is highly preserved. But, whilst 44% of the professionals agreed that its symbolic value is highly preserved, only 29% of laypeople approved this. Yet, 54% of laypeople and 56% of the professionals see that it is somehow fairly preserved. Equivalent percentage were recorded for recognition of present being (46% among laypeople and 49% among professionals).

**Sustainable adaptation** in this project is based on the idea of green principles of sustainability, referring to the reuse of existing buildings as better choice than their demolition and replacement. Sustainable adaptation comprise the minimization of alterations to the interior, and the change of use of heritage buildings, rather than leaving them to deterioration and/or demolition (Elsorady, 2013). When interviewees were asked about the changes they found among images representing previous and current exteriors (see fig. 6), 95% of laypeople and 80% of professional could not perceive any differences to the building exterior, except for the colors. They all agreed that the building, as it is now, is much better than the old situation. Although most of them agreed that the varied activities were organized and well presented, a notable percentage disapproved of the interior design on account of waste of square areas used in hallways. On the other hand, 80% of professionals approved of the efficient adaptation. Both laypeople and professionals completely disagreed that the project resulted in environmental benefits (0% of both categories agreed).

On the other hand, respondents were not given a choice of particular responses when questioned about the prospect of adapting the building to a role that would make them visit it more frequently. Each person offered options of their own. The majority of laypeople (52%) recommended expanding cultural institutions, such as government museums, artisan shows, etc. A significant portion of them (33%) advised adding some recreational amenities, such as a movie theatre, 9% suggested educational amenities, such as a faculty of fine arts, and 6% suggested using the structure for commercial purposes, such as an art gallery or Khan Academy (like Khan El-Khalily in Cairo). Professionals advised preserving the cultural use (the museum or cultural centre as it is), while 28% suggested an institutional use, such as a bank or Damanhour University's main campus. They believed that a museum needed expansive interior areas, although this is not the case with the building's interior. After being asked a second time whether they would prefer a cultural facility or another use that might be more lucrative, 67% of laypeople and 33% of professionals said they would prefer a more

lucrative or labor-intensive use, but they are unsure if this is possible and they do not have any specific ideas for what this use might be.

Despite the fact that a growing body of literature strongly encourages public engagement and community participation in heritage management and conservation (Yildirim, 2012), it was obvious from the respondents' responses in both categories that no community involvement in decision-making existed. 90% of those surveyed claimed to be ignorant of any public input or community involvement in this process, and 50% of those surveyed were unsure if this ever happened. The interviewees suggested that future plans for the adaptive reuse of historically significant public buildings involve public consultation. Given that each heritage site had its own physical and regulatory characteristics that influence the final decision among different development scenarios, it is not possible to generalize about which use option is more acceptable for any adaptive reuse project until it is examined in details (Kincaid, 2002). However, utilization of research indicators and methodology can be further expanded to other heritage sites in Egypt and elsewhere in developing countries.

## **CONCLUSION**

This paper clarifies the restorative intervention that happened in the former Damanhour City Hall in order to direct policymakers toward better and sounder practise in relation to cases that are similar. Participants often have positive attitudes toward the initiative. After seeing images and learning about the real events, they declared that it was a useful addition to the city that just needed better publicity. Both sets' interviewees concurred that the project met the majority of the physical criteria for adaptive reuse as outlined by the study. According to those who participated in the interviews, the project's most crucial components are safeguarding the building's ageing characteristics and its innate details. The public perception and the maintenance of authenticity/integrity were thus the most generally accepted indicators. However, the assessments indicated that the project fell short in terms of social (non-physical) parameters. Both sides concluded that the project had no impact on the city's local economy or sociocultural values, not even on those of its immediate neighbours. The complex has a chance to change the perception of the city and put it in the centre of Egyptian cultural life as the only regional city with an opera house and an affiliated centre of artistic creativity because of its sociocultural relevance and its newly acquired function. The complex could have a significant socio-cultural influence with improved marketing and promotion, which could improve local community empowerment and strengthen Damanhour's presence, at least in the Delta region.

Even though both sets of interviewers most frequently cited the cultural purpose for the building's current and even future ambitions, local community development indicators received the lowest ratings.

As a result, the research's findings suggest that Egypt carefully review its laws and regulations governing adaptive reuse and consult the appropriate parties to ensure sound decision-making.

It is crucial to emphasise that neither the city of Damanshuh nor the entire governorate has any kind of documentation concerning this facility. As a result, stakeholders were not only denied the opportunity to participate in decision-making, but also the possibility to keep track of any alterations that have been made to the structure or are planned or to ensure that its historical significance is preserved. Because of this, the research was particularly concerned with recording the initial design, the modifications made in the 1970s, and the modifications made in order to accommodate the new usage. Because of this, Egypt now needs simple legislation to guarantee complete transparency in the management of publicly held heritage structures and to allow stakeholders' involvement and community participation in maintaining the integrity, authenticity, and symbolic values of the buildings.

It was discovered that the lack of publication and advertising about the activities of the opera house and the DCAC among city residents, even those who are the complex's immediate neighbours, had led to a very low rate of usage for the complex and an obvious inability to achieve the project's primary goal. When individuals learned about the center's and opera house's events, they had favourable thoughts and were eager to visit and participate in them, but they would prefer if more activities were introduced. This means that the demands of the community should be taken into consideration during the planning stages of any project in order to fully attain the true benefits of adaptive reuse. Since adaptive reuse projects currently proceed in the form of a top-down planning mechanism, the establishment of communication channels with stakeholders is seen as a crucial first step toward reforming procedures and policies that respect their needs and requirements during the execution of any project of this kind.

These viewpoints will serve as a framework for achieving financial and environmental advantages, luring additional capital, raising the value of heritage sites, and restoring the once-gloried status of heritage/historic structures. The best option in this case would be semi-structured interviews with stakeholders, including both laypeople and professionals.

Additionally, it was discovered that both of the two groups of respondents regarded the sustainable adaptation indicator to be perplexing. This finding suggests that the community has to be made aware of sustainability issues and should be made a top priority for decision-making in Egypt as a whole.

## DECLARATION

**Ethical Approval and Consent to Participate:** The study was conducted within the tenets of the declaration of Helsinki.

**Consent for publication:** The manuscript does not contain any individual personal data and all participants were over 20 years of age.

**Availability of data and material:** All relevant data concerning the paper can be supplied by the first author (Mona Shedid, Associated Professor, Department of Architecture, Faculty of Engineering-Benha, Benha University, E mail: [monashedid@bhit.bu.edu.eg](mailto:monashedid@bhit.bu.edu.eg)), upon request.

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