APPLYING METAMORPHOSIS PHILOSOPHY TO REVIVE THE ABANDONED BUILDINGS

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Abstract
The metamorphosis philosophy is related to architecture, for instance this translation is showcased in the transformation of spaces in buildings that is either done by the destruction or modification of the architectural product. Unfortunately, many buildings, structures and spaces are left abandoned because of changing situations, war, or natural causes. These abandoned buildings can increase the crime rate and leave lands covered in leftover spaces which can have drastic consequences on the environment. Therefore, the aim of this paper is to propose a set of design approaches that can apply the philosophy of metamorphosis in the revival of abandoned buildings with the goal of discovering adaptive solutions for abandoned buildings through their transformation. Hence, to accomplish this aim, this paper will cover accordingly a literature review, desk research case studies and previous readings about the relation of metamorphosis to abandoned buildings. Through the analysis, the research will detect ways of applying space transformation to abandoned buildings and will test the role of metamorphosis in reviving a place. That being the case, the paper will highlight on the reuse of abandoned buildings in Mar Mikhael, Lebanon as a case study.

Keywords
Abandoned Building, Metamorphosis, Adaptive Reuse, Transformation, Structure
1. INTRODUCTION

Metamorphosis is considered a biological reaction that transforms a body into another by going through different phases of transformation. (Dewidar, 2007)

When integrated into architecture, the metamorphosis approach can be defined as an unconventional way to create new intervention that gives revival energy and function to a space. The term metamorphosis is the continuity of change; it is reflected in the abandoned architecture through the concepts of transformation philosophy and process. This is realized by applying metamorphosis as a way to create a new vision and function (Tostoes, 2018). Abandoned buildings exist all over changeable cities where the situations are constantly varying over the years and decades. The existence of abandoned buildings goes back to the economic prosperity or lack thereof, of a city through history. Peace and war also play an important role in creating this result. For instance, cities with a high concentration of abandoned buildings face major problems. Crime levels are higher in these spaces due to their lifeless environment and these cities look like incomplete images of normal active cities, this affects the context and people living in it (Petruskeviciute, 2014).

Lebbeus Woods a pioneer in Parasite architecture and the metamorphic approach believes in an unconventional design that creates a deformation which suits abandoned buildings. His belief and futuristic and transformative approaches led to the inspection of many conceptual approaches that left us with various theories on post-apocalyptic cities. The diagram in (Fig 1) shows that unused and abandoned areas cover 15% of the main land use in Europe. As a lost potential the abandoned buildings have a negative impact on an urban scale. They create a loss of continuity in a city and can devastate their vicinity, diminish the value of nearby properties, and undermine the quality of life. Hence, the transformation of these buildings can help re-involve them in the urban context and bridge the gap that is created visually and metaphorically when these buildings are left abandoned (Davis, 2019).

Accordingly, this paper aims to study the application of metamorphosis philosophy in order to revive the abandoned buildings, through analysing the transformation process based on metamorphic solutions. It also aims to analyse the benefits and applications of metamorphosis on deserted buildings that might have high potential due to their history and locations. This paper proposes that the transformation of abandoned buildings can be applied through the philosophy of metamorphosis by reflecting the transformation on the external and internal layers of a building. Modifications to this transformation can be applied for it is adoptable overtime. This paper is a qualitative type of work. It will be based on a scientific methodology starting with a literature review, presenting definitions about the main keyword, theories, principles, and approaches in addition to the case study of Mar Mikhael in Beirut, Lebanon. This data will be supported by
previous readings, and referring to updated references. The paper will examine the data collected into a scientific framework in order to analyse all the information in its relation to the other data collected.

2. LITERATURE REVIEW

In this part of the paper, many previous readings about abandoned buildings in relation with metamorphosis and similar examples displaying this title are presented, in order to understand the relation between metamorphoses philosophy and abandoned buildings and finally a set of parameters are conducted in a form of table.

2.1 Definition of Abandoned Buildings

Defining abandoned buildings as a lost space that used to have a certain value but remained empty due to myriad problems that could change its situation or its context. Therefore an abandoned building is mainly explained as a lifeless object that has lost all its function and all the action or movement in it has come to a halt. This situation of a building is related to its context situation and different circumstances that can be described as the components that help a building to become abandoned if these where facing certain events or problems. The components that help buildings become abandoned are directly related to their context situation and the different circumstances around them. Abandoned buildings are increasing worldwide due to different circumstances and they exist in each and every city in the world where a deserted space exists. (Shane, 2015).

Fig. 2: Houtouwan, Sheng Shan Island in china. Source: Getty Image Date: 8th Nov, 2021

2.2 Historical Background of Abandoned Buildings

The number of abandoned buildings has significantly increased over time due to wars, economic issues, environmental problems, or failed projects specific to one’s locations. If not demolished or left abandoned, the approach taken when attempting to revitalize this space is to reuse it. (Güneri, 2014).

For example, citing Houtouwan, Sheng Shan Island in china a village shown in fig 2 that has been totally abandoned because of the lack of services, after time this village has become completely covered with greenery which make its rein-habitant again seem impossible (Taylor, 2015).

2.3 Types of Abandoned Buildings

Abandoned buildings can be divided into different levels and typologies which can be very random and unjustified but categorizing abandoned buildings can be done by classifying the causes and circumstances that resulted in this lost space (Desportes, 2015).
2.3.1 Causes of abandoned buildings are categorized by the following:

a. Un-functional building emerged overtime due to the lack of ability to keep up with evolutions in technology and the lack of adaptation with the present and urban needs.
b. Historical buildings that have been neglected overtime without undergoing any restoration and conservation which creates a layer of division between the urban context and this building itself hence alienating it as if it’s frozen in time.
c. Eco-socially affected buildings that are abandoned due to a crisis, wars or changes in the city situation.
d. Geographically affected buildings that are abandoned due to their location and geographical circumstances that can cause environmental problems or affect the habitants of those buildings.
e. Undefined buildings that have no style or architectural value and are categorized as random architecture with no real validation of its form or its function which leads to an abandoned space, as an example the Chicken Church in Magelang, Indonesia

2.3.2 Characteristics of abandoned buildings:

Abandoned building are characterised by different items which can make it recognizable and felt in the urban scale where it forms a parasite of the city image those buildings are easy to catch and see in a city or on urban scale because of the following elements:

a. External shell of the building that mainly shows an unclean facades or demolished façades.
b. Openings condition some of the openings can be missing or even dark and closed totally or broken.
c. Landscape condition, where greenery can grow on the building in a natural way.
d. Un-updated or conserved form that clearly shows a frozen building in tim

2.3.3 Meaning of Metamorphosis in architecture and urban scale:

Metamorphosis is a way of adapting to circumstances which is mainly found naturally in nature but applying this approach in architectural and urban scale aims to generate and transform the place. Adapting the metamorphic changes that are divided into many points were each one defined the use of metamorphic change on architecture and urban (Ibrahim, 2017):
a. Addition: By adding to the project an additional extension to the existing abandoned building
b. Subtraction: This kind of transformation can be applied with a very sensitive way where parts of the building can be subtracted from the internal and external spaces. This depends on the structure of the building and its situation.
c. Conservation: Reusing and conserving the building in its real preliminary way through conserving its style, material and construction without changing its identity
d. Internal changes: Internal changes go with the subtraction and addition method which allows the building to be deformed (interior walls, floors and structure.)
e. External changes: concern the external walls deformation, removal or subtraction in a way to create a new form for the building exterior. External changes; it concerns the external walls deformation, removal or subtraction in a way to create a new form for the building exterior.

2.3.4 The difference between metamorphose and adaptive reuse in architecture:
Applying metamorphosis to architecture aims to transform and generate the place. Its approach is a dynamic one. It is continuously adaptive and changing and is developed with maximum flexibility by exploring the different areas of design.
Adaptive reuse that is in some cases referred to as building reuse is the repurposing of existing structures for new use. Adaptive reuse architecture follows a static approach as it brings new meaning to the historic structures by converting them into useful spaces for their surroundings. (Reyhan, 2021)

2.4 Abandoned Building Metamorphosis:
Abandoned building metamorphosis is the relation of a stable and changeable status where metamorphosis creates an adaptive situation for a frozen building in time. The relation of abandoned buildings with the architectural value can be set by the concept of adaptive reuse that is healed with the metamorphoses philosophy of changeable spaces and places. This relation started with the need of the cities and buildings to adapt to a changeable world that is faster than architecture and permanent buildings, which fits perfectly with the situation of the lost and inhabitant buildings that can be adapted each one by its own location, situation and value (Davis, 2019). To understand the relation of adaptive buildings and metamorphoses philosophy in abandoned building of a set of books were chosen:
2.4.1 Adaptive Reuse: Extending the Lives of Buildings (2016)

This book addresses the relation of adaptive reuse in the buildings to create along life use of it. The adaptive reuse can create a new concept of keeping up with the world speed and adapting to its technologies in addition to addressing those concepts on abandoned buildings that can reach a high sustainable image of a reused building. The adaptive reuse creates a relation between the solid and time and connects the function with the existing situation by building bridge of adaptation in order to go through a connected bridge of adaptive reuse and immortal buildings that can be used in new ways and different functions (Wong, 2016).

2.4.2 Metamorphoses of ordinary by Paola Vigano (2014)

This book addresses the relation of transformation of spaces through metamorphoses in addition to its relation on an urban scale. Creating the relation between the space transformation in the site, building and urban spaces, highlighting on the importance of metamorphosis on the urban and intimate scale of common aspects between spaces and metamorphosis (Vigano, 2014).

2.4.3 Abandoned Palaces: Great Houses, Mansions, Estates and Hotels Suspended in Time (2019)

This book analyses the abandoned buildings that had a certain architectural style back in time and became abandoned despite their high usage in the past. The constant changing world affects their status so they remain as lost spaces with no function. The focus here is on the heritage of buildings with external and internal styles. (Kerrigan, 2019)
2.5 Analysing Similar Examples:

The following two presented real similar examples chosen under the criteria of abandoned buildings that have undergone metamorphosis and are presented with new functions that suit their context needs. These examples are analysed on how building metamorphoses is addressed in abandoned buildings.

2.5.1 Fondazione Prada / OMA, Italy (2015)

This project is located in Italy than has been a factory of gin abandoned for years, it was later transformed to include different functions; art, fashion and industry. The architects added 3 main components to the existing structure in order to create a relation between the urban experience and the function of the building which resulted in a very dynamic yet successful project after articulating the building to fit the needs of its urban context and users which created a different approach. Transforming the space, restoring it and adding to its new buildings (OMA.2015).

![Fig.9: Fondazione Source: archdaily.com Date 9th Nov, 2021](image1)

![Fig.10: Fondazione Prada Ground floor plan 1 Source: archdaily.com Date 9th Nov, 2021](image2)

The addition of the three blocks with different functions such as museum, exhibition and innovation hub created a new image for the building, and this is also seen when new colours and material were added to it, thus creating a new urban experience for the users. The project adapted to the needs of the city and the activities needed. The project plan has been altered by conserving the old and adding new elements while reusing the factory.

2.5.2 Zeitz Museum of Contemporary Art Africa (2017)

This project is located in South Africa it was originally a silo that was transformed into a museum after it was carved and a huge groove in the interior was created, which helped the architect change the users perception of the building. It was made adaptive to a modern architectural style, and the interior was totally transformed by the queering of its spaces in order to suit the museum typology. The deconstruction and metamorphosis strategies used were through the removal of existing structures in the building and by articulating its function. (Heatherwick, 2017)

![Fig.11: Zeitz Museum of Contemporary Art Africa. Source: archdaily.com Date 9th Nov, 2021](image3)

![Fig.12: Zeitz Museum of Contemporary Art Africa. Ground Floor Plan Source: archdaily.com Date 9th Nov, 2021](image4)
In conclusion, this building’s internal space has been metamorphosed and its facade has been changed. So that it adapts to the present architecture and is transformed to satisfy the needs and fit the urban experiences.

2.6 Parameters of Analysis:

The parameter of analysis is based on the analysis of abandoned buildings and metamorphoses by understanding the relation between abandoned buildings and by creating a link between the architecture languages and the philosophy of metamorphoses. The relation and mix of the adaptation in an old building helps create a sustainable approach of an urban fabric that is created based on transforming and changing. This makes the architecture more valuable in its dynamic function and flexibility.

Table 1: Parameters of Analysis Source: Author

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<tr>
<th>Abandoned Buildings Parameters</th>
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<td><strong>Structure</strong></td>
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<th>Application Of Metamorphoses In Abandoned Buildings Parameters</th>
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<td>Adding or Subtracting structure</td>
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3. METHODOLOGY

The paper investigates the situation of the case study of Mar Mkhael in Beirut, in order to highlight on the potential of reusing abandoned buildings in Mar Mkhael. By the use of four methods of research methodologies. The first is the inductive method, collecting the area data about the site location. This intends to use real experiences in the field and on site by taking pictures, site visiting, and interacting with a group of the residence of Mar Mkhael. In order to result with real experiences and realistic data related to this urban context, this is achieved through a questionnaire created by the author. The second method is the analytical method which is related to the data and info’s evaluation and analysis of the previous outcomes. The third method is the deductive method by deducing criteria’s and guidelines in order to address the use and the adaptive reuse of the abandoned buildings through the metamorphic approach.

3. 1 Introducing The Case Study Of Reviving Abandoned Buildings In Mar Mikhael Beirut Through Metamorphosis.

Targeting Beirut, the city that has been destroyed and rebuilt many times and is a vital example of a transformative city. It has a history of architectural changes overtime that due to political, social, economic effects, as well as catastrophic events that promoted a more accelerated rate of loss in the use of buildings in this city. After the recent events, the city looks like an incomplete image, demolished and abandoned buildings are everywhere in between neighborhoods.
In a city this unstable, abandoned buildings create a lost potential on the urban scale. When they could’ve had a huge positive impact on the context but now, they’re left abandoned and non-functional (Rizk, 2020).

This is specifically the case in this study of Mar Mikhael, which is a very dynamic neighborhood in Beirut. It is known for its night life experiences as well as the economic and industrial aspects in it. However, after years of economic, political and safety issues, that ended with the 2020 explosion a huge part of its identity was negatively impacted. This paralyzed the street and despite the restoration and revivable attempts there is less energy and excitement around the matter.

The approach is still a shallow one, fixing the external facades to restore the image of the city and leaving the interior abandoned and in its current state. 30% of the buildings are abandoned; this number has significantly increased after it was previously 5% before the explosion (YLAHMB, 2018).

### 3.2 Urban Analysis of Mar Mikhael

Mar Mikhael is a neighbourhood facing the port of Beirut it reflects a different character from the loud streets and cars on the sea roads and creates a transition from the urban scale to the intimate scale that consists of restaurants, economical, touristic and residential activities. In 2014 Mar Mikhael adapted the image of a night life neighbourhood. This resulted in a mix of artists, craftsman’s ateliers, studios, restaurants; pubs as well as economical and residential functions.
In 2021 Mar Mikhael took a turn and became a semi abandoned neighbourhood after it was affected by the Beirut explosion. The main neighbourhood in Mar Mikhael is located in Armenia Street, it is the most dynamic vein of the zone and the main axis where the users flow, hence it houses different activities and practices. After 2020 Beirut changed drastically, the explosion destroyed a huge number of its buildings and created devastating losses on the architectural part and huge changes in the urban scale (Majadel, 2020).

The restoration of these buildings is applied only to the external elevations, they are being repainted and their structure is being repaired however a huge number of these buildings are still abandoned and not as active as before. Mar Mikhael is starting to lose its identity which is characterized by its nightlife that revitalizes the area as well as its art and architecture.

Fig. 15: Timeline of Mar Mikhael Evolution Source: Done By Author Date 9th Nov, 2021

Fig. 16: Building age map Source: Author Date 11th Nov, 2021

Fig 17: Building Ownership map Source: Author Date 11th Nov, 2021
3.3 The Problem of Abandoned Buildings in Mar Mikhael

Mar Mikhael has been immensely affected by the Beirut explosion. A site visit introduced us to the current situation; present are abandoned buildings some with their elevations restored and other buildings are demolished. The ownership and government rules in this area as well as the building regulations create an issue for the owners and people looking to rent, which further encourages the abandonment of these buildings.

Old and new abandoned buildings are located on Armenia Street. After the 2020 explosion the old heritage buildings especially, remained abandoned due to their weak structure this implies their destruction in a significant way. The damage is not only physical; the social damage among the people has diminished the vitality of the area and has led to the nightlife almost disappearing.
3.4 Selection of a Specific Area in Mar Mikhael

The site is selected based on the main criteria which cover: The building has a good structure and location that affected its function which was originally a restaurant that was abandoned after what happened.

The structure of this building is damaged but still intact behind the building is a hidden garden that’s a representation of lost potential for this neighbourhood. We have chosen this area to apply the metamorphosis, in this case a metamorphic interpretation that can change the building function and make it reusable will create a liveable experience in an urban scale where transforming this building will give it life and will change its impact on the urban context. Abandoned building reuse can aid in reaching a sustainable goal in the future.
3.5. Holding Interviews: Different Opinions Concerning the Potentials of reusing abandoned buildings in Mar Mikhael

Face to face interviews were conducted among the occupants of Mar Mikhael with the goal of assembling data concerning their points of views on abandoned buildings, addressing their concerns and learning their views for the potential future of these spaces.

The following questions were asked to some people in Mar Mikhael neighbourhood:

1- According to your needs and beliefs, what new functions can be fabricated in the event of reusing the abandoned buildings?
2- In your opinion, is the main reason for the widespread of abandoned buildings related to issues with the updated building codes or is it a security one?
3- How can you describe the cognitive memory of mar Mikhael neighbourhood?

Here are some examples of responses:

Antoine, (45 years old): Mar Mikhael needs a revival function to re address the life in it since it has an aspect of night life which is no longer available, such touristic functions can help to revive this neighbourhood.

Serge, (35 years old): Yes both of those are the reason for the presence of a lot of abandoned buildings the accumulation of these causes made the situation worse and now we’re left with an almost abandoned neighbourhood.

Nada (64 years old): Mar Mikhael in my memory is the beating heart of the city where the neighbourhood is the real image of the night life; of course after Beirut explosion this memory still exists but the experience is incomplete for a part of our neighbourhood is missing now.

A closed questionnaire including 5 questions was conducted along with the analysis. It randomly targeted a group of residents with ages ranging from 25 till 80 years.

In order to collect different perspectives, involved in this questionnaire were 53 people. As shown in the following the questions were concise, incisive and clear.

a. Do you agree that the identity of Mar Mikhael is represented through restaurants and recreational activities?
b. Do you agree that the reuse of abandoned buildings can revitalize the economy in this neighbourhood?
c. Do you agree with integrating impermanent functions in-order to reuse the stairs of mar Mikhael?
d. Do you agree that adding new functions and modifying workshops and galleries will help with the re-functioning of residential buildings as studios?

Following the completion of the field method, the paper evaluates the findings and conclusions of the replies.

3.6. Findings

Below the results of the interviews and questionnaire are described and analysed.

3.6.1. Analysing interviews and results

Belonging to Mar Mikhael is related to the history, the liveability, and the relation of people with each other, in addition to the activities done in this area. The identity of Mar Mikhael is based on the relation of the urban context and experiences with the activities. The presence of people in this space gives it its vitality. After visiting the area people have a collective memory of its nightlife and a large group of people remember it in the same way. According to the interview
answers the people confirmed their belief that the Mar Mikhael neighbourhood can be revived by introducing new functions to it and by creating a stronger urban experience.

3.6.2. Analysing the questionnaire results

The results of the questionnaire are viewed below in the form of a pie chart describing the percentage of answers of each question as follows.

3.7. Discussion

Based on the analysis of the interviews and questionnaire results, the reuse of abandoned buildings. The analysis has established a new way of reusing it addressing the new ways of applying design approaches that can integrate the philosophy of metamorphosis to revive the abandoned buildings:

− Reusing the abandoned building by adding a new volume on the buildings in order to create a metamorphic change.
− Reusing the abandoned building by creating a subtraction from the internal spaces and addressing new functions in it.
− The abandoned buildings can be reused by keeping its identity and conserving its appearance in a way to revive the old image but mixing a new materiality into the design of the building and creating a slight transformation.
− Adapting new functions in reusing abandoned buildings at the same time changeable functions that can help with the flexibility of the abandoned buildings.
− Connecting abandoned buildings with materiality, functions, colours and styles which creates a new vision for a more liveable and stronger identity of the neighbourhood
− Reviving the abandoned stairs of Mar Mikhael by creating a metamorphic intervention of an adaptive and changeable reuse by the application of the additional design approach.

Fig. 24: Diagrams result of the questions. Source: Authors
4. CONCLUSION

This research paper discussed the problem of abandoned buildings resulting from economic, social and functional problems, time and durability problems. Similar examples were analysed to define the parameters of analysis of the main case study. The case study of Mar Mikhael neighbourhood in Beirut analysed the neighbourhood situation and the existing conditions of abandoned buildings and stairs in addition to in between spaces and interpreted the results to come out with conclusions as follows:

A. The metamorphoses method creates a way to preserve the old by updating it to a better image suitable for the present.
B. The abandoned buildings have a negative impact on the city which creates several problems; the reuse of abandoned buildings helps in sustainable approaches and creates an ideal way of injecting new functions into the urban scale.
C. People prefer familiarity in their surroundings. When situations change they still like to have the same energy as before since the urban experience needs to stay the same with a similar energy and that’s what people get attached to, the memories of cities and neighbourhoods
D. The use of metamorphoses in our present has to be based on the existing identity where it’s used, in addition to addressing the parameter defined in this paper which are the structure modification, context and surrounding, Changeable and adaptive.
E. The abandoned building connection is a way of creating a unity from several architectural values in one bold recreation applied with metamorphic philosophy.
F. Today Lebanon and especially Beirut is in need of a revival where streets, buildings and neighbourhood are abandoned, a real transformation can be done by starting with a conservatory vision in addition to a metamorphic approach to create an adaptive change for the city

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