INDUSTRIAL HERITAGE BUILDINGS IN TETOVO: BETWEEN DEMOLITION AND REUSE

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Abstract: Industrial heritage includes certain abandoned areas which are products of industrialization and represent the prosperous phase of industrial activities. These abandoned industrial buildings are an integral part of the structure of the city, and through their architectural, social and cultural value, affect the quality of urban life.
There are many buildings and complexes that are witnesses of industrial processes in North Macedonia, but, due to a lack of interest in preserving industrial remains, and a lack of awareness, documentation, or protection, these buildings are often at risk of demolition and destruction before any conservation and reuse.
Recently, with the help of some successful projects, it was realized that reusing industrial heritage is economically advantageous and sustainable. Some of these sites have found new applications (stores, workshops, warehouses, etc.), however, during this process of adaptive reuse, a lot of information about the former way of working and living is lost. This happens because of a lack of laws and regulations concerned with the protection of industrial buildings, therefore, in most cases, it is in the hands of architects to find solutions that will protect the original character and architectural features of industrial buildings.
Organizations such as TICCIH and ICOMOS continually try to bring to public attention the significance of industrial heritage, and the benefits of its reuse, however, owners have consistently been resistant to embracing adaptive reuse.
In this paper, in addition to the recognition of obsolete industrial buildings in Tetovo, the elements that influence the success or failure of adaptive reuse projects will be analyzed as well, to help decision-makers accept the adaptive reuse of industrial buildings.
Keywords: industrial heritage, demolition, adaptive reuse, sustainability, success factors

1. INTRODUCTION

Over the years, a building's operational performance gradually decreases, (Haakinen, 2007) which can be an outcome of the natural amortization of construction and systems, or it can come as a consequence of changing market demands. (Bullen & Love, 2010)
These buildings that no longer serve their built purpose, when left unused, can become a health and safety problem for the citizens, considering that they are often exposed to graffiti and vandalism, turned into places for substance abuse and other criminal behavior. (Bullen & Love, 2011A) Eventually, owners and operators decide to demolish buildings, ignoring that their value could be optimized by developing new accommodations within the existing structure. (Ellison, Sayce, & Smith, 2007)
As Dyson, Matthews and Love state "only 0.5-1.0 % of existing buildings call for demolition" whether the rest can still be used for another 30-50 years, by adding changes in the physical condition, capacity, function or performance. (Dyson, Matthews, & Love, 2016) These changes can involve major internal space reorganization or there may be minor physical changes necessary for the adaptation of the new function. (Bullen & Love, 2011B) "This process of converting building, site or precinct from one use to another is called adaptive reuse" and can significantly improve the environmental (recycling a heritage place, reducing CO2 emissions), financial (reuse cost is cheaper than constructing a building from anew), and social performance (supporting and developing communities, retaining memory, etc.) of existing buildings. (Clark, 2013) (Bullen & Love, 2011A)

2. ADAPTIVE REUSE OF HERITAGE BUILDINGS

Throughout history, buildings have often been reused or repurposed for new functional needs. This technique was mainly developed to preserve buildings with historical value. (Cantell, 2005) Considering that adaptive reuse preserves not only the architectural values of the building but also the historical and social values of the place the object is located (Latham, 2000), many cities are using their vacant industrial complexes as anchors for redevelopment. In order to avoid the loss of heritage architecture, which offers a tangible link with the past, when accommodating new functions designers should pay attention to the spirit of the building and the history of the heritage. There are many ways how these buildings can be given a second life while respecting the work, dedication and effort, of the original builders. (Bullen & Love, 2011B) Through their existence historic buildings retell the story of a past period of life, so, in favor of saving the identity of a place, an adaptive reuse project should add a new layer without erasing the long history of the site. (Cantell, 2005)

The adaptive reuse of buildings can be of utmost importance in regenerating the built environment, it is a strategic intervention in urban planning to direct the increasing demand for buildings while preserving its past. Its potential has drawn a lot of interest not only within the architectural and conservation communities but beyond. (Dyson, Matthews, & Love, 2016)

3. INDUSTRIAL HERITAGE

In recent years, the adaptive reuse of industrial heritage has become a trending topic and a growing number of cities are developing strategies for reusing their vacant industrial facilities, especially the ones located within the city. (Kim, 2018) Abandoned industrial buildings represent resources with cultural and historical value that need to be preserved. The remains of industry not only are a valuable resource reflecting the city variety, but they are also witnesses of the rise and decline of industrial activities over time. Innovation and change are at the core of industrial processes, and adaptive reuse is a way bring them back to life while preserving memories for future generations. (Clark, 2013)

According to the Nizhny Tagil Charter for the Industrial Heritage, The International Committee for the Conservation of the Industrial Heritage (TICCIH) industrial heritage is an umbrella term used to cover a broad category of buildings: "Industrial heritage consists of the remains of industrial culture which are of historical, technological, social, architectural or scientific value. These remains consist of buildings and machinery, workshops, mills and factories, mines and sites for processing and refining, warehouses and stores, places where energy is generated, transmitted and used, transport and all its infrastructure, as well as places used for social activities related to the industry such as housing, religious worship or education."

Considering the impact that heritage has on social sustainability, by retelling the stories and bringing back past memories, adaptive reuse projects need to carefully consider not to damage the narrative of the buildings by enabling conditions for the accommodation of the new use. Unfortunately, compared to other types of cultural heritage, industrial heritage is not as much appreciated so, owners often see them as ruins that need to be demolished, instead of assets with a lot of potentials. In recent years, several researchers have contributed to the evaluation, documentation and development of the remains of industrial culture, in order to highlight the necessity of taking into account the post-industrial landscapes during city planning. (Clark, 2013)

Although, in North Macedonia, there are many buildings and complexes that are witnesses of industrial processes and industrial society, this type of heritage in our country is a category that is not enough valued and researched, in terms of how to preserve or re-use and integrate it into the future of our cities. Industrialization in our country had a profound impact on the life of citizens, and its historical values are woven into obsolete industrial buildings and complexes. For the transformation of the industrial space in the Republic of Macedonia Mickovski (2015) expresses: "as a process is similar to that of the cities in Central and Eastern Europe, conditioned by the processes of economic restructuring, deindustrialization, globalization and tertiary economy. The transformation of industrial space is characterized by a combination of continuity and changes, i.e. simultaneous presence of locations with renewed industrial production activities and abandoned industrial sites or locations with new non-industrial functions." The industrial transformation in Macedonia has been carried out step by step; many factories emptied. In order to save themselves, companies began to spontaneously develop and rent the workshops for the sale of furniture and building materials that have larger requirements for the interior space, or the workshops were rented as dining and entertainment spaces. During this process of adaptive reuse, heritage preservation schemes and development plans are lacking, which may harm the original character and architectural features of industrial buildings. (Mickovski, 2015)

As a first step towards determining the potential for reuse, is identifying these areas in the city. In the Republic of Macedonia in general, and the city of Tetovo in particular, there is no statistical database that would provide enough information and indicators about the area of abandoned industry and their changes. As a result, the status of industrial sites that are unused or underutilized cannot be determined with certainty, although their identification is quite important.

Besides, social and environmental problems caused by the vacancy, these sites, when inaccessible can hinder local connectivity. During the reuse, in addition to the architectural aspect, attention should be paid to the urban context, so the reused building can also improve the urban connectivity and bring life to the image of the city. (Clark, 2013)

Figure 1. The location of obsolete industrial complexes in Tetovo in relation to the city center (Illustration by Saiti&Besimi,2022)

As it might be seen in this illustration there are many vacant industrial buildings located in the eastern part of the city. With their large volumes and the amount of surface that occupy of the city fabric, it would be a pity to leave these buildings out of use. Considering the new neighborhoods that are being built, the authors suggest that these sites can be transformed into public areas for the benefit of the community. (Saiti & Besimi, 2022)

These former industrial spaces take up a very convenient position in the city, which means that there is a wide spectrum of new functions that they can obtain. Applying adaptive reuse to a heritage building is a complex process which includes analysis about the relation between the building and spatial structure, analysis of the character of the area, activities and processes, so the new project retains evidence about past events, work processes and past technologies. (Clark, 2013)

4. CHALLENGES OF ADAPTIVE REUSE AND CRITICAL SUCCESS FACTORS

Besides, adaptive reuse being universally embraced as an effective process to save industrial heritage, many owners try to delay decisions about conservation, reuse or destruction of these sites, as they perceive the designation about reusing these facilities as a burden. Many owners declare that they are unwilling to start and adaptive reuse project because there are many risks and factors that affect the progress of the project and in case of failure their financial losses can be very large. (Bullen & Love, 2007)

Therefore, there is a need to examine the factors that attribute to this lack of willingness to make a decision about the reuse projects and understand potential to trigger resistant owners to change their statements. Many authors

mention the health and safety risk, spatial layout unsuitability, maintenance, and commercial risk and uncertainty as the major barriers hindering adaptive reuse. (Shipley, Utz, & Parsons, 2006)

The market needs, financial incentives, developer's risk, government guidelines, micro-environment suitability and regulatory relaxation are factors identified by Yap (2013) as the main factors influencing the adaptive reuse of industrial buildings in Hong Kong. (Yap, 2013) Shipley et al., (2006); Bullen and Love, (2010) suggest evaluation of the following factors: "building's structural layout and its capacity to accommodate required spaces and functions; the energy efficiency of the building's walls, windows and roof; building's potential for meeting health, safety and accessibility requirements, condition of mechanical, plumbing and electrical systems the presence of hazardous materials; the ability of the building and site to provide a safe and secure environment; and. convenience and safety of the building's location."(Bullen & Love, 2010) While, Kee (2014) in his research identifies: analysis of the design and built environment, zoning plan regulations, planning regulation and government incentives, and housing affordability. (Kee, 2014) (Tan, Shuai, & Wang, 2018)

Langston et al (2008) created a model to categorize buildings and their potential for adaptive reuse, known as ARP model. (Langston, Wong, Hui, & Shen, 2008) On the other hand, Wilson (2010) built up a list of attributes for assessment of adaptive reuse in Toronto, which includes five components, environment, location, legislation, finance, and market characteristics. (Wilson, 2010)

Due to great interest in recent times of CSFs for heritage buildings, Tan, Shuai, & Wang (2018) carried out research about adaptive reuse in Hong Kong for the identification of the Critical Success Factors (CSFs). Correspondingly, they identified 33 factors and categorized them into eight principal components, as shown below: (Tan, Shuai, & Wang, 2018)

1. Sustainability (Blok plan and accessibility; construction waste, material consumption; contamination; energy efficiency; environmental influence; green design)
2. Economics & Governance (Commercial risk and uncertainty, monetary benefits, conversion cost and lifecycle cost; ownership of building; government benefits)
3. Market (Market Demand, financial source)
4. Ease of adaptation (building plan; services & systems; functional adaptability; technological difficulties)
5. Location & neighborhood (Locality, transport and accessibility; harmony with neighboring building; status of neighborhood; suitability of public facilities)
6. Culture & public interests (Preservation of cultural values; health and safety concern; community support and involvement)
7. Legal & regulatory (percentage of available units, urban plan & zoning; ground lease; building regulations (plot ratio, fire safety, acoustic and thermal insulation, daylight, escalators, etc.))
8. Physical condition of the building (present-day use; building age; the state of structural and material components, external fabric and finishes; project timeline)

As can be seen, the number of factors that influence the result of adaptive reuse is very large, which makes these processes quite difficult. In addition, each author treats the problem from different perspectives, by offering different options to choose the factors that need to be considered, but at the same time, creating confusion about the approach that needs to be taken.

5. ADAPTIVE REUSE OF INDUSTRIAL HERITAGE IN TETOVO ACCORDING TO CSFS

The last part of this paper, combines the key data obtained from this research, the unused industrial facilities identified in Tetovo and the critical success factors identified by Tan, Shuai, & Wang, (2018). More precisely, by addressing the 8 main components of the CSF, it will be attempted to clarify whether the adaptive reuse of objects in Tetovo is likely to have a positive result.

1. Sustainability

As far as sustainability is concerned, by deciding not to demolish buildings; CO2 emissions are reduced, less construction waste is generated, buildings and materials are recycled and sustainable solutions of building adaptation can be added. (Ellison, Sayce, & Smith, 2007)

2. Economics and Governance

Despite the fact that the reuse of an object is more economical than a building being leveled down and constructed from beginning, one cannot deny that there are financial risks when undertaking adaptive reuse projects.

As a first point, expensive constructive or systematic defects which can be identified in the building later during the restoration work. Then there are interventions that need to be done to adapt the building to current laws and regulations or design requirements of the new accommodation. When adapting large complex buildings, financial costs are large, and since in most cases these investments are financed by the owners, there are many possibilities for the project to fail. (Tan, Shuai, & Wang, 2018)

3. The Market

Tetovo nowadays is a city with high urban density, with many industrial buildings, left abandoned and out of use. Since everyday more and more residents of the surrounding villages migrate to the city, the demands for suitable land for housing have increased dramatically. There is also demand for offices and public amenities. In addition to the buildings, the grounds can also be used for the benefit of the city, taking into account the lack of green public spaces and parking zones.

4. Ease of adaptation

In terms of volume, scale and materials, industrial objects are quite characteristic. Considering their structural construction and open spaces industrial buildings are seen as suitable for accommodating functions such as sports activities, museums or even art galleries. In a few words, all accommodations that require room for use and movement of a large number of visitors, but this does not mean that they are incapable of hosting other functions and being transformed to schools, or hospitals, etc. (Kim, 2018)

5. Location and Neighborhood

Most vacant industrial buildings in Tetovo are located in urban areas with good access and connectivity. As can be seen from Figure 1 the areas surrounding these complexes, even though not as dense as those in the city center, are an active part of the city where residential and commercial buildings dominate. Particularly important are the new urban blocks planned near these vacant complexes, whose presence will increase movement and life within the area and increase the interest for reuse of these facilities. (Saiti & Besimi, 2022)

6. Culture and Public Interest

Since these industrial complexes are witnesses of different industrial activities that have been developed in the city, their social and cultural value is understandable. While for older generations these buildings have a nostalgic effect, as they bring the memories of industrial values and culture, for younger generations they have educational importance by enabling them to learn about the industrial past, work processes old technology, etc. In several cases around the world, communities are the ones who saved industrial heritage of their cities, by organizing various cultural or artistic activities until a suitable permanent new accommodation was found. For this reason, community participation in adaptive reuse projects should never be overlooked. (Tan, Shuai, & Wang, 2018)

7. Legal and Regulatory Matters

At the moment in North Macedonia, there is no special law for the protection of industrial heritage, but these objects are partially included in the law for the protection of cultural heritage. However, besides, heritage protection, the transition from “Industrial” to “Other” uses requires the following of certain procedures and considering urban planning laws.

8. Physical Condition of Building

The industrial facilities in Tetovo are mostly in good physical condition and ready for reuse. However, when planning for adaptive reuse, evaluating building’s physical condition with regard to deteriorated structure and fabric is the first step towards a successful project. Some industrial buildings such as Teteks AD already offer spaces for rent for various industrial activities. Infrastructure, water, steam and electricity systems are supposed to be ready for use. In addition, services as security and gardening are also offered. (Teteks, 2009)

6. CONCLUSIONS

The combination of the adaptive reuse formula and large industrial spaces that are out of use can have very positive effects in the urban, social and environmental context. For years, as a result of unconsciousness, many objects with industrial value have fallen victim to demolition. Preservation of abandoned industrial sites is a complicated but important process, in urban planning and architecture. Industrial heritage buildings are spaces with structural and aesthetic qualities, and really high potential to continue to be part of the city's structure in the following decades.

In the city of Tetovo, there are many such objects with suitable locations that are ready to accommodate new functions. However, due to risks and uncertainties related to adaptive reuse projects, these objects have been left obsolete for years.

Many factors affect the success of adaptive reuse and many authors have researched about this topic. This paper ends with inspection of the challenges of adaptive reuse projects, according to the CSFactors discovered by Tan, Shuai, & Wang, (2018). Regarding the physical condition of the objects, location, and ease of adaptation, the objects in question are suitable for adaptive reuse. However, economic and legal issues can present barriers in this process. In conclusion, beyond the obstacles that may appear, these spaces need to be saved and become part of the city, otherwise, not only the cultural and architectural values will be lost, but they may also turn into dangerous areas that will have a negative effect on all neighboring buildings.

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