

Crossing Boundaries: A New Methodological Model for the Evaluation of Industrial Heritage

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Abstract

As opposed to the current criteria grid of evaluating the built heritage, that largely focus on the cultural characteristics of the architectural object, the paper proposes an original methodological model for assessing the reuse potential of historic industrial architecture, by reconsidering, adapting and extending the criteria currently used in the field of historic heritage conservation. Based on a set of criteria taking into account the cultural values to be preserved, but also the economic, social and environmental implications relevant for a sustainable development, the new model proposed offers a valuable theoretical contribution to the knowledge and understanding of the industrial heritage from a new perspective. At the same time it provides a practical instrument, able to support programmes meant to solve in a sustainable manner a wide range of problems generated in our contemporary towns by the presence of derelict industrial units with architectural and historic value.

Rezumat

Spre deosebire de grila criteriilor actuale de evaluare a patrimoniului construit, care se concentrează în mare măsură pe caracteristicile culturale ale obiectului arhitectural, lucrarea de fata propune un model metodologic original, pentru evaluarea potențialului de reutilizare a arhitecturii industriale istorice, prin reanalizarea, adaptarea și extinderea criteriilor utilizate în prezent în domeniul conservării patrimoniului istoric. Pe baza unui set de criterii, ce tine cont de valorile culturale care urmează să fie conservate, dar și de implicațiile economice, sociale și de mediu relevante pentru o dezvoltare durabilă, noul model propus oferă o contribuție teoretică valoroasă la cunoașterea și înțelegerea patrimoniului industrial dintr-o nouă perspectivă. În același timp, acesta oferă un instrument practic, capabil să sprijine programele menite să rezolve într-un mod durabil o gamă largă de probleme generate de prezența, în orașele noastre contemporane, a unităților industriale dezafectate cu valoare arhitecturală și istorică.

Keywords: industrial heritage, cultural value, use value, reuse, cultural significance, assessment criteria, methodological model

1. Introduction

Based on a professional and emotional motivation, the proposed topic appears on the background of an irreversible loss of valuable Romanian industrial heritage. In this regard, the paper entitled

“*Crossing Boundaries: A New Methodological Model for the Evaluation of Industrial Heritage*” intends to offer appropriate answers, concerning the challenges faced by significant industrial architecture examples and aims to investigate the contemporary approach regarding the existing methodology for evaluating the industrial heritage.

Through their discourses, the actors involved in heritage preservation have attempted to identify some key issues that take into account the multitude of problems faced by the industrial heritage: the lack of appreciation and protection, the existing gaps in the conservation methodology, the absence of integrated intervention strategies, the poor state of preservation, together with the lack of recognition for their reuse potential. More than that, the formal and typological diversity of this architectural heritage category asks for varied methods of assessment and intervention, in order to ensure the perpetuation of valuable industrial architecture examples, still existing.

However, the central question of assessing the cultural significance of this fragile heritage has not been yet fully explored. Thereby, this paper aims to overcome the criteria currently used in evaluating the architectural heritage, surpassing issues related to the building's age, aesthetic components or the architect's personality, in order to provide a more accurate model of assessing the qualities and significance of industrial heritage. Also, the research aims to create new connection points between the theoretical framework and the existing practice relating to cultural heritage management. Along with the thorough analysis of pressing issues already discussed by specialists in the field of historical monument preservation, the research brings into question the problem of recognition and appreciation of recent industrial heritage. In order to cover the gaps existing in the current methodology used for the evaluation of historical buildings, the research aims to identify, analyse and evaluate the existing heritage conservation methodology.

Based on a set of analysis criteria that take into account the economic, social, cultural and environmental implications, relevant from the sustainable development perspective, the new methodological model proposed for the evaluation of industrial heritage addresses practical issues, being designed to reduce the dangers that threaten this recent heritage.

By proposing new levels of valuation for the industrial heritage, the paper tries to provide a new perspective regarding the reuse potential of this vulnerable patrimonial category. The consideration of new standpoints, designed to meet future sustainable development standards, transforms the methodological model proposed in a practical tool, useful for the community, authorities and investors in solving some of the problems associated with industrial architecture.

2. Legal frame and current methodology in evaluating historical buildings

In Romania, the historical monument status is granted by the inclusion of the cultural property in the *List of Historical Monuments*, its main purpose being that of offering an inventory of valuable cultural goods. The List of Historical Monuments functions together with the system of laws adopted in order to safeguard and protect the existing cultural resources.

According to the *Law no. 422 of 18 July 2001 concerning the preservation of historical monuments*, these “are immovable property, constructions and land, located in Romania, significant for the national and universal history, culture and civilization” [1]. As the law above mentioned stipulates, historical monuments are ranked in the following categories:

- **A** - historical monuments of exceptional national and universal value;
- **B** - historical monuments representative for the local cultural heritage;

The Order of the Minister of Culture no. 2260/2008 [2] completes the Law no. 422/2001, by drafting the general criteria used for the classification of a cultural good. These refer to:

- **The Age of the building;**
- **The Architectural, urban, artistic value** – determining the value of the aesthetic, functional and technical components;
- **The Frequency**– determining the property value in terms of frequency and rarity (the cultural property belongs to a series of identical goods or a from the same typology);
- **The Memorial and Symbolic value** – important moments, facts, people.

For each criterion mentioned above are given grades, which vary from *excellent* to *none* (except the criterion that takes into account the memorial and symbolic value, for which no grade is conferred). For example, based on the age criterion, the grades accorded for a building are: *exceptional*, if the building was edified before 1775; *high*, if the building was edified between 1775-1830; *great*, for a building edified between 1830-1870; *medium/average*, for a building edified between 1870-1920; *low*, if the building was edified between 1920-1960 and *null*, for a building edified after 1960. As a result, any cultural property that is subject to a registration in the List of Historical Monuments has to be built at least 50 years before the date of the expertise.

According to the Order no. 2260/2008, in order to rank a building as an **A category** historical monument is required:

- To provide at least an *exceptional* grade, except the buildings included in the World Heritage List;
- To provide at least a *high* grade on all criteria, except the criterion that takes into account the memorial and symbolic value;
- To provide at least a *high* grade, a *great* grade and a *medium/average* grade.

In order to rank a building as a **B category** historical monument it should be given at least 3 medium/average grades.

Although it works relatively well for other patrimonial categories, this evaluation system makes almost impossible the inclusion of industrial architecture in the List of Historical Monuments. The industrial legacy is a relatively new type of heritage, built mainly after 1870. As a result, within this evaluation system, the industrial heritage buildings can receive at most a *medium/average* grade for the criterion that questions the age of the building. Regarding the *frequency* criterion, the industrial architecture is characterized by a transition from “the unique” (*unicum*) to “the standardized” (*typicum*), belonging to a series of identical goods or typologies, thus an industrial building can hardly ever be considered rare or unique. Also, despite its undisputed memorial value, the industrial heritage being a testimony for the memory of the worker and a carrier of messages regarding the control and the social exploitation, doesn’t receive any points for the criterion that takes into account the memorial and symbolic value.

A simple analysis of the Historical Monuments List highlights the insufficient appreciation for the industrial architecture: in Romania, a limited number of buildings and industrial units are placed under a legal protection regime. The lack of recognition and protection of industrial architecture overlaps the distorted perception of the community upon this new type of heritage. Thus, these buildings can easily be demolished to make way for new real estate developments. Also, the urgent need for recent industrial heritage preservation clashes with the contemporary cities desire to reinvent themselves, upon new ideological and social principles. Moreover, the inability of empowered authorities to assess the cultural value of the recent heritage and to extend their statutory protection enables the loss of valuable industrial works and sites.

Besides affecting the cultural diversity, the repeated destruction of the recent industrial heritage in order to implement new projects, seriously harms the sustainable development of the territory. Therefore, in the absence of tangible projects supporting the preservation and reuse of industrial

heritage, the cultural identity of most European cities and residents can be irreparably damaged. The cultural, ideological and symbolic features which characterize the industrial architecture are in danger of being lost forever, in the context of the present social and political changes experienced by European cities. Despite its lack of appreciation, the industrial architecture is part of our cultural identity and our common history and needs to be saved. How? By assigning new functions! The reuse projects of industrial heritage ask for reconciliation between the current needs of the new users and the conservation requirements imposed by the patrimonial asset. As a result, this operation entails a change of perception and recognition for the importance that the industrial heritage has for the community.

3. New Criteria for the evaluation of historical industrial architecture

As mentioned above, the classical models for assessing the value of built heritage largely focus on the cultural characteristics of the object, almost completely ignoring its connection with the natural environment and the social context. On the other hand, the conversion projects for the industrial buildings are meant to find new functions, capable of generating profit, the economic contribution resulting from this intervention being significant. At the same time, the cultural values associated with the material resource should not be compromised, as the importance of respecting them is vital. Therefore, the success of a conversion plan is determined by a number of factors working together in this regard, the consideration of the economic, social, cultural and environmental implications offering a much wider perspective on the potential of today's industrial heritage.

The proposed criteria for determining the conversion potential of industrial architecture consider a number of specific sustainability principles, customized to meet the requirements of the industrial heritage. Thus, the proposed criteria in drafting the new methodological model support the sustainability of future interventions on former industrial areas, by querying aspects of economic, social, cultural and environmental issues that may condition the success of reuse operations.

3.1 Economic Criteria

In the context of sustainable development, the consideration of benefits provided by the structural system and the suitability for contemporary use requirements are essential in determining the potential for reuse of former industrial buildings. The extent of repairs necessary to correct the degradations can seriously influence the material (economic) value of the cultural object. However, "old buildings were built to last and can be repaired almost indefinitely. The reuse of historic buildings contributes actively to the recycling process, and therefore, it minimizes the exploitation or development of new materials, reduce waste and pave the way for a more sustainable way of life." [3]

On the other hand, the existing building's adaptability and ability to receive a series of new functions (through minimal transformations of historical matter and significance), becomes fundamental. The financial resources needed for the maintenance, modernization and reuse of the industrial area are also important. In this regard, for the rehabilitation of industrial resources to be profitable, it is desirable that the total value of the land, the demolition costs and the rebuilding price to be lower than that of the land and the buildings existing on site. An aid may be represented by the implementation of programs based on structural funds, offered by the European Union or other financial mechanisms, designed to support the perpetuation of the industrial heritage.

The location and the scale of the object become important in the process of assessing the reuse potential of industrial heritage. The accessibility of the cultural object largely determines the success of a reuse intervention, the proximity to major traffic routes and means of transport being favourable in this respect. At the same time, the demand existing on the real estate market should be

regarded as decisive, the optimal manner of intervention imposing the reconciliation of the conservation requirements for the patrimonial resource and the specific objectives of urban development. The answer to the question "how can an industrial object satisfy the needs of the city, without negatively affecting the adjacent urban context?" becomes decisive for any rehabilitation intervention. In addition, the attractiveness of the cultural object, expressed by its potential to become an important tourist resource, and also to stimulate the revitalization of a large area within the city, must be analysed objectively.

Given the quality of "patrimonial good" possessed by the cultural resources, the evaluation of the implications arising from the conversion of industrial buildings represents an extremely difficult task. However, one of the tools used to quantify in practice the economic benefits arising from these interventions can be represented by a series of specific financial instruments, such as the number of new jobs created, the amount of turnover and the profit obtained from the conversion, but also the current value on the real estate market of the rehabilitated building.

3.2 Social Criteria

Together with the real estate market requirements, the needs of the local community represent a crucial factor in the determination of the reuse potential of an existing building. Industrial buildings possess the capacity to meet the real needs of the local population and can take over a large number of functions required by the community. On the other hand, the maintenance in situ of the industrial buildings and their reuse lead to a stronger sense of belonging and social cohesion among the community members, while enhancing the quality of life in the former industrial districts.

Through its memorial component, the industrial heritage ensures the association with the past and strengthens the cultural identity within a continuously changing society. The need for tangible landmarks meant to facilitate the coagulation of community centres can, thus, be solved by considering these edifices in shaping future urban regeneration strategies. The process of determining the reuse potential of industrial architecture must, therefore, examine its capacity to assume an identity role for the community, as the distinctive character of these buildings and the landmark function clearly assumed contribute greatly in this regard.

In order to ensure the success of rehabilitation interventions, it is necessary to involve the members of the social group within the reuse projects. As stated by Lydia Wilson, "healthy, sustainable communities are those that work together to protect and preserve their culture, encourage employment and a vibrant economy, along with an optimal use of available resources without compromising the ability of future generations to meet their own needs." [4]

Among the methods used to assess the social impact generated by the reuse of industrial heritage buildings is the sociological investigation. Thus, the consultation of community members regarding the benefits produced by the conversion of former industrial areas can provide a number of answers in this respect, as the manner in which the social group relates to the relics of the industrial era is often radically transformed with the appropriation of the social landmark function and the improved living conditions of the community in the area subjected to the intervention.

3.3 Cultural Criteria

When urban regeneration projects target interventions on heritage buildings, the cultural value must prevail over any speculative interests. The motivations related to the poor state of conservation of the buildings or the negative urban image generated by the decommissioning of industrial units are not considered viable arguments. On the other hand, appreciating the architectural, aesthetic, technical characteristics, but also of the memorial components causes the industrial heritage buildings to be successfully reintegrated within the urban regeneration policies. In addition, the

industrial buildings recognition as identity elements of a social group makes them easier to maintain and reuse. Thus, in the process of determining the reuse potential, the evaluation of cultural aspects associated with historical industrial architecture becomes essential, by questioning the significance and cultural values, the degree of representativeness, but also the community attachment.

3.4 Environmental Criteria

In "Building Adaptability: A View from the Future", Fanis Grammenos and Peter Russell affirm that the most environmentally benign building is the one that does not have to be built, because it exists already [5]. In the context of sustainable development, it becomes necessary to assess the environmental impact produced by the rehabilitation of industrial heritage buildings, by comparison with the implications of the demolition on water quality, soil, air, climatic factors, but also the flora and fauna of the area. The energy consumption costs of these operations or decontamination work of the site should not be neglected. In addition, it should be considered that punctual rehabilitation interventions of former industrial facilities can draw attention to a more extensive area. As a result, the improvement of the urban image can be an impetus to further development projects.

The environmental impact produced by the conversion of former industrial spaces can be quantified only after drafting a comprehensive study designed to assess the amount of waste produced through reuse, the scale of energy consumption and carbon dioxide emissions, but also the impact resulting from the reuse of existing buildings on the natural landscape and the built framework.

4. A new methodological model

The purpose of this initiative consists in determining the reuse potential of industrial heritage and therefore, based on the criteria identified above, in highlighting the advantages generated by the reuse of former industrial buildings. In this regard, the following paragraphs propose a new methodological model based on a set of sustainable principles, by illustrating its applicability on industrial heritage. Considering the above criteria, the methodological model has as a prime effect the awareness regarding the values attached to these buildings. As a result, the proposed model constitutes a useful tool in managing the problems caused by the existence of former industrial areas. Thus, the implementation of this model may draw attention to issues associated with industrial heritage, often disregarded by the community, authorities and investors, being a desirable response to their lack of knowledge and vision.

Without being considered a criterion in itself, the presence of a specific legal context may favour the criteria mentioned above. The existence of an established legal protection regime may increase the cultural criteria, while providing a range of social and economic benefits, resulting mainly from tax incentives provided by the laws dedicated to the protection of historic monuments. In addition, the restrictions imposed by urban and architectural indicators may represent important assets in the rehabilitation projects of the built framework. On the other hand, the local and national authorities' decisions may influence to a large extent the fate of industrial heritage buildings, encouraging or discouraging the initiatives of recovering this patrimonial category.

Therefore, in examining the historic industrial architecture a number of complementary aspects are considered, aiming to complete the perspective on the reuse potential of industrial heritage. This approach involves the participation of an increasing number of specialists, the industrial heritage appreciation integrating aspects of sustainable rehabilitation of cultural heritage. The evaluation system proposed for the analysis of the industrial architecture uses a range of qualifications/grades, assigned in value groups, according to the criterion analysed. For the convenience, the approach will use a series of symbols (●, ○), according to the methodological model shown below (Table 1).

Economic Criteria

Physical condition:

How is the structural condition of the building?

- Poor
- Acceptable
- Good
- Excellent

To what extent the construction responds to the requirements of contemporary use? (comfort, energy efficiency, safety)

- Inexistent
- Poor
- Medium
- Good

Adaptability and compatible functions:

It is possible to adapt the building to various compatible functions, without damaging valuable artistic, historical or technical elements?

- Impossible
- With great difficulty
- With some difficulty
- Easily

Can the construction can be adapted to useful/profitable functions with minimal intervention and with lower costs than those of an equivalent new construction?

- Impossible
- With great difficulty
- With some difficulty
- Easily

Accessibility:

Is the building located near a densely populated / frequented by visitors area?

- Long-distance
- Within walking distance
- In close proximity
- included

Is the building located in proximity of major traffic routes?

- Long-distance
- Within walking distance
- In close proximity
- included

Is the building accessible by public transport?

- Not at all
- With difficulty
- Easy
- Very easy

Potential for local economy regeneration:

To what extent the construction can be of touristic interest? (historic character, architectural and aesthetic qualities of the building, size and location, natural surroundings)

- Not at all
- To a small extent
- To a large extent
- A very large extent

Attractiveness

To what extent the building allows the implementation of functions desired by inhabitants of the area, able to attract investment and support the development of local business?

- Not at all
- To a small extent
- To a large extent
- A very large extent

Social Criteria

Needs and requirements of the local community:

How can the reuse of the building meet the needs and requirements of the local community?

●○○○ Not at all
 ●●○○ To a small extent
 ●●●○ To a large extent
 ●●●● A very large extent

The quality of life of the local community:

How can the building contribute to improve the living conditions of the community?

●○○○ Not at all
 ●●○○ To a small extent
 ●●●○ To a large extent
 ●●●● A very large extent

Local socio-economic regeneration:

Can the reuse of the construction lead to the creation of new jobs, through the development of new business or tourism?

●○○○ Not at all
 ●●○○ To a small extent
 ●●●○ To a large extent
 ●●●● A very large extent

Maintaining the local population:

To what extent can the reuse of an old industrial building help preserve the local population?

●○○○ Not at all
 ●●○○ To a small extent
 ●●●○ To a large extent
 ●●●● A very large extent

Social cohesion factor:

To what extent the reuse of an old industrial building can help to increase social cohesion among the local community members?

●○○○ Not at all
 ●●○○ To a small extent
 ●●●○ To a large extent
 ●●●● A very large extent

Community identity and attachment

To what extent the local community is attached to the building?

●○○○ Not at all
 ●●○○ To a small extent
 ●●●○ To a large extent
 ●●●● A very large extent

Is the building a landmark for the community?

●○○○ Not at all
 ●●○○ At neighbourhood level
 ●●●○ At city level
 ●●●● At regional level

Cultural Criteria

Value of cultural identity:

To what extent the construction is significant to local history? (Historical period, event, personalities, etc.)

●○○○ Not at all
 ●●○○ To a small extent
 ●●●○ To a large extent
 ●●●● A very large extent

To what extent the community recognizes the importance of the building for the local cultural identity?

●○○○ Not at all
 ●●○○ To a small extent
 ●●●○ To a large extent
 ●●●● A very large extent

To what extent the reuse of the construction can contribute to the maintenance of traditional crafts? ●○○○ Not at all
●●○○ To a small extent
●●●○ To a large extent
●●●● A very large extent

Representativity value :

What is the representativeness of the construction for the local industry or for a stage in the evolution of the local industry? ●○○○ Poor
●●○○ Acceptable
●●●○ Good
●●●● Excellent

Artistic and / or technical values

What is the artistic value of the architectural object (integrity, consistency stylistic composition, facades, details, etc.)? ●○○○ Poor
●●○○ Average
●●●○ Good
●●●● Exceptional

What is the technical value of the architectural object (material, craft, technical and construction details, etc.)? ●○○○ Poor
●●○○ Average
●●●○ Good
●●●● Exceptional

Uniqueness and rarity values

Can the building be considered rare or unique? ●○○○ Not at all
●●○○ To a small extent
●●●○ To a large extent
●●●● A very large extent

Environmental Criteria

Ecology:

What is the amount of waste resulting from the demolition of the building? ●○○○ Significant
●●○○ Average
●●●○ Low
●●●● None

What is the scale of energy consumption and CO2 emissions required to bring the construction in proper conditions versus those generated by the demolition and construction of a new equivalent building? ●○○○ Significant
●●○○ Average
●●●○ Low
●●●● None

Impact context:

What is the impact caused by the reuse of the building upon the landscape and the built environment? ●○○○ Significant
●●○○ Average
●●●○ Low
●●●● None

Table 1 – The detailed methodological model used for the evaluation of historic industrial architecture

5. Conclusions

In order to cover the gaps existing in the current conservation methodology, the present research

consists in the development a new model for the evaluation of industrial heritage, as a means to ensure the safeguarding and reuse of these relics from the recent past. The proposed methodology completes the criteria list currently used in evaluating the architectural heritage with new standpoints (based on the economic, social, legislative, cultural and environmental implications generated by the reuse of historical industrial buildings), designed to meet future sustainable development standards. As a result, the methodological model proposes a wider understanding on the idea of cultural heritage, being focused not only on listed buildings, but also on unprotected architectural examples and areas that interest from a patrimonial point of view.

Due to its cultural and economic qualities, the industrial heritage can play a key role in the urban regeneration policies, supporting the sustainable development of the territory. The consideration of the industrial heritage as part of the evolution of the city helps maintain its distinctiveness and specific cultural identity. Thus, the proposed methodology is conceived as a theoretical and practical tool, useful for the community, authorities and investors in solving the urban problems generated by the presence of abandoned or improperly used industrial units. With support from the specialists in the field and based on the proposed evaluation model, the authorities, the non-governmental organizations, the private sector and the local community can consider an integrated valorisation of former industrial areas in Romania, following the example of other European cities (e.g. Barcelona).

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