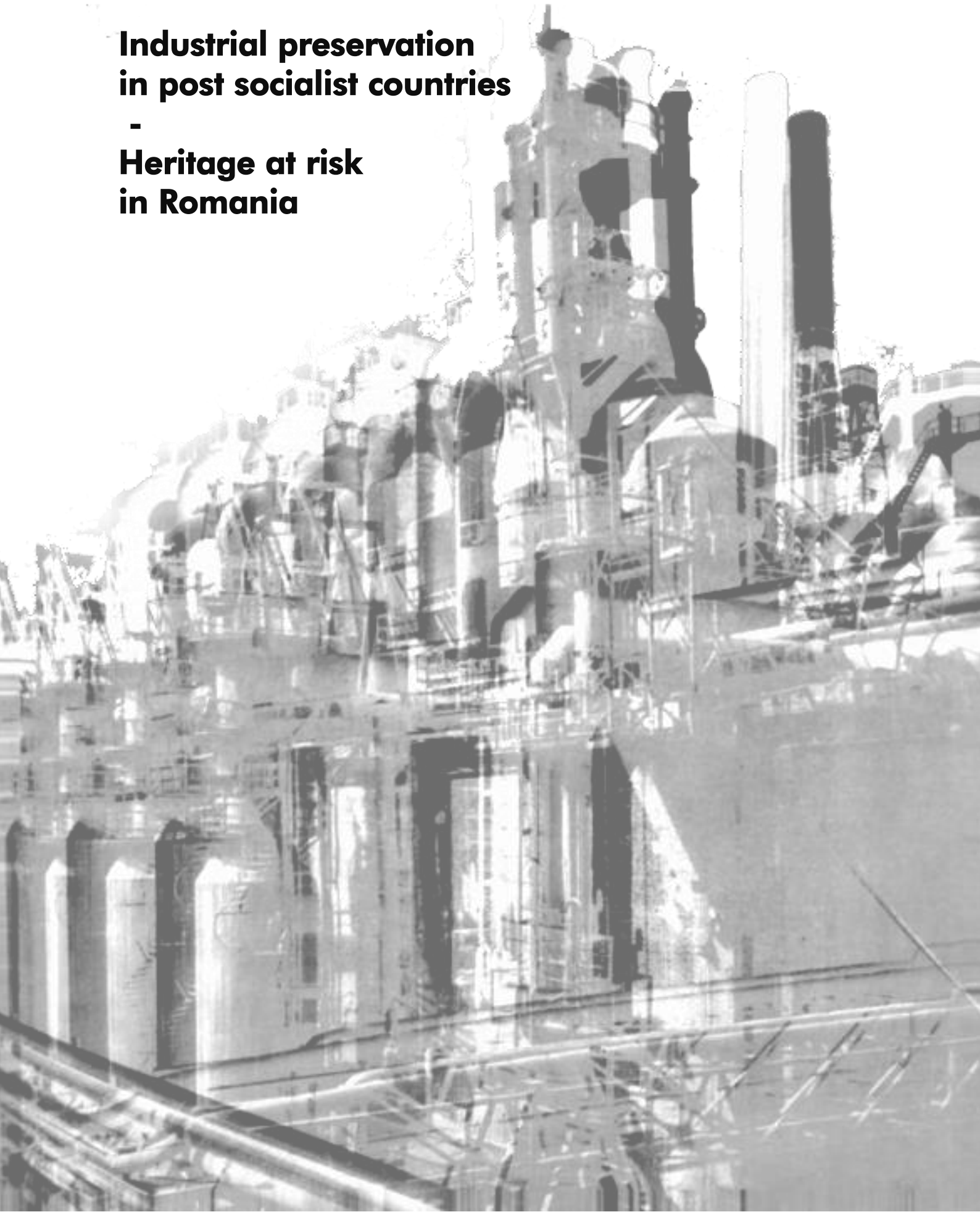
Industrial preservation in post socialist countries - Heritage at risk in Romania



AR2A011 Architectural History Thesis (2021/22 Q3)

Industrial preservation in post socialist countries – Heritage at risk in Romania

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"To restore a building is not to preserve it, to repair, or rebuild it; it is to reinstate it in a condition of completeness which could never have existed at any given time."

Eugène Emmanuel Viollet-le-Duc

Table of contents

1. Introduction

The goal of this research is to delve into and explore the restoration and re-use of the Romanian architectural industrial heritage in the context of denial, seeking possibilities of changing the negative social perception and trying to uncover the appropriation and recognition of these artefacts. The acknowledgement of the heritage at risk and the identification of the values and indicators that can create a national classification, are ways in which the past can be recognised and preserved, while the heritage is not lost or damaged.

1.1. Thesis Statement

Through this historical research, the aim is to explore the common perception about the Romanian industrial archaeology through a comparison of the Western and Eastern European preservation approaches, and an introspection of successful and unsuccessful cases and prospects for future approaches. The focus will be on Romania, a post-socialist East European country that faces a severe denial of the heritage authenticity that is often seen through 'post regime' lenses. The actual derelict state of the industrial heritage and the re-use/adapt/restore approaches or to be more precise - lack of – are issues that need to be addressed and explored.

1.2. Context worldwide

Industrial archaeology has established itself as a historical necessity because technology through its progress fades its own testimonies of development over time. The primary themes for industrial archaeology are sectors of the disappearing economy such as: railways railway construction, wood industry, heavy industry, chemical industry, transport and civil engineering, industry light (food and textile), electrical energy and lighting public, water provision and water engineering facilities, industry extrusion. (Chirita L. , 2007) Aware of the importance of preserving industrial testimonies material and immaterial, of the need to rescue from destruction, degradation or disposal, by preservation and conservation, there is an urgency to recognise and address the findings in order to assure the process of restoration. (ICOMOS, The Venice Charter for the Conservation and Restoration of Monuments and Sites, 1964) The Industrial Revolution, which made England one of the largest influential states during the late nineteenth century, aroused interest many historians for the study of industrial and technical heritage. The term industrial archaeology, that appeared in the 50's of the twentieth century, was introduced by Professor Donald Dudley at the University of Birmingham. In 1959 the University of Birmingham first raised industrial archaeology to the rank of a scientific discipline and devoted courses to it evaluation and conservation of large industrial complexes (Niculescu, 1994). England quickly took steps to save its heritage industrial. The first ensemble to benefit from protection, yet since 1960, has been the Iron Bridge. Through various organisations dedicated to saving and preserving industrial heritage at risk, one can observe the trend of restoring, adapting and re-using some of the old factories throughout the world. With examples such as the Van Nelle Fabriek in the Netherlands that has been recognised as UNESCO World Heritage with outstanding universal heritage values; the Kelham Island Museum in Sheffield that incorporates the fabrics and plants built on the manmade island, and the many more examples that have been extensively researched through scholars, ICOMOS, DOCOMOMO and ERIH organisations. (Douet j. , 2016)

1.3. From a Romanian perspective

Romania's industrial development is associated with the Industrial Revolution period in Europe. In Romania, the process took place simultaneously with the urbanisation one, which involved changing the structure of the old cities and the appearance of new ones. Between 1950 and 1966, the emphasis was on the development of large cities, the development of the industry taking place in regional centres and in new industrial towns (see Figure 1). The population working in industry increased, from 12% of the total working population in 1950 to over 20% in 1960. (Constantinescu, 2013) Between 1948 and 1974, 96 new towns appeared (some of them newly built, mono-industrial towns, others rural localities that acquired the status of town and developed according to the industrialisation of their area). Thus, in 1956 Romania had 171 towns and cities, in 1966, 183 (Tufescu, 1974), and in 1989 it had 268 towns and cities. (Constantinescu, 2013) The late industrial development has left us as a testimony of the industrial past a built heritage related to a recent past of industrialisation and implicitly of the communist period, thus a certain stigma is associated with it that wraps all former industrial sites in a state of denial. As an aftermath, the deindustrialisation left behind both declining mono-industrial towns and abandoned urban areas made up of former industrial complexes set in an urban context. (Paval, 2020) Due to the location of the former industrial areas, once on the outskirts, they were gradually incorporated into the urban fabric or even came to be in the vicinity of central areas, which made them very attractive to investors and real estate developers the past, or they have become de-structured areas, which have lost their identity as a result of abandonment. (Paval, 2020) However, it left behind a valuable resource that can be explored in accordance with current policies and principles of sustainable development, urban regeneration, and recycling of the built stock, while the recovery of the former industrial complexes becomes all the more feasible now that cities are going through a crisis regarding housing and development opportunities (necessary, but hindered by the chaotic urbanisation of the last decade). (Paval, 2020)

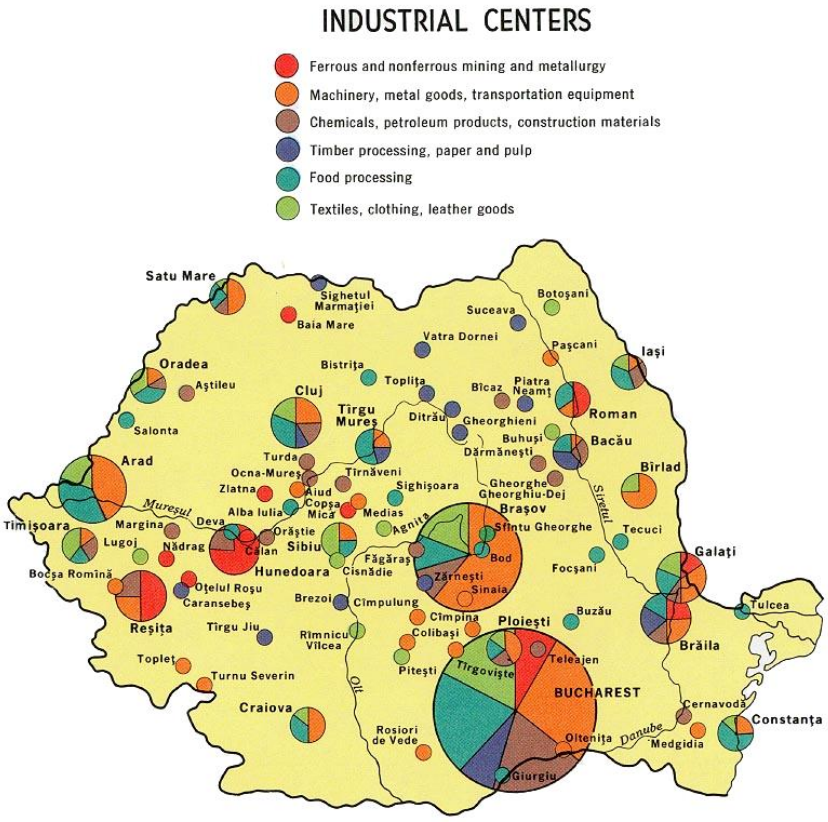

Figure 1. Map with the former industrial clusters in Romania.

In recent times, the development of industrial activities on the Romanian territory is experiencing a considerable seniority, generating as a result an industrial heritage that stands out through its versatility (history, technology, architecture and aesthetic). The industrial heritage elements are easy to be recognized at territorial level by its unique architectural style highlighting also the aesthetics of some of the establishments (Assan's Mill, Gas Plant-Bucharest, colony houses in Reşiţa, Petroşani, Roşia Montană, the furnace of Govăjdia, Bier Fabric of Timişoara, etc.). (Merciu F.-C. , Merciu, Cercleux, & Drăghici, 2014) It is important to emphases that a number of industrial heritage sights with architectural valences are currently listed as historical monuments. At the same time there are plenty examples of industrial heritage sites with architectural value abandoned and dismantled. (Merciu, Merciu, & Stoian, 2012) The intention of this research is to draw attention to the potential of these industrial heritage sites and the risk of degradation that they are facing, while finding solutions for the lack of interest regarding the preservation of some of them and the denial that can potentially have as consequences their disappearance and loss of national cultural heritage.

Figure 4. Photo of Govajdia blast furnace, 2020

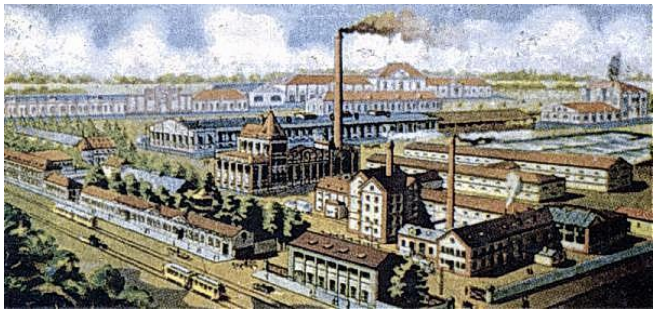

Figure 2. Illustration of Beer fabric of Timisoara

Figure 3. Photograph of the Beer Fabric of Timisoara, 2020

1.4. Goals and question outcomes

The outline proposed follows the subject starting from a large context and with every main point focusing on a certain aspect of the industrial heritage at risk: the values, its actuality, expert interviews and prospective. Through this structure, the subject is analysed on multiple scales and levels, the same way that the industrial heritage is multivalent and stratified. The goals of the thesis are to explore the case studies and draw results from successful and unsuccessful interventions while gathering the sources and resources for a national catalogue of values and attributes and prospects on salvaging the heritage at risk in Romania.

1.5. Methodology

Based on historical and critical approach, iconography and iconology, social history, politicised history and theory, interdisciplinary studies and personal writing, the methodology of this paper will try to showcase the arguments through an expert and literature-based perspective. Through expert literature reviews the social perception will be evaluated alongside the disused industrial sites in the main cities and their prospective. Through examples of industrial sites that have been forgotten or left untouched the thesis will seek prospects and propose an approach based on precedents and historical evaluation. Through examples of industrial sites that have been adapted and reused and examples of industrial sites that have been demolished and are no longer existent – erased memory – the thesis will explore the two facets of industrial heritage in Romania. Some of the materials and primary sources are Berger's 'Constructing industrial pasts: Heritage, historical culture and identity in regions undergoing structural economic transformation' (2020) and Tiganea's Modern Industrial Heritage in Romania: Extending the Boundaries to Protect the Recent Past.' (2013), studies that speculate on the broad subject of this thesis research and that through their perspective and bibliography can further the inquiry of this paper. By the agency of the literature explored and varied methodology, the thesis will explore a subject that is yet to be fully defined, and through this examination, a basis for further and more in-depth evaluations can be established.

Figure 5. Iron works photograph from the Steel and Iron works complex of Hunedoara, UAR Archives, 1965

2. Industrial Heritage values

Throughout history, several premises and concepts relating to how to conserve heritage have been formed, which have affected the creation of modern preservation approaches. Every epoch assessed heritage differently, had a different attitude toward it, and followed different standards for maintaining and protecting monument heritage. Theories and writers' thoughts have complemented and challenged one other, resulting in fresh viewpoints and approaches. (Jokilehto, 1999) Traditional historical monument conservation, Romantic restoration, and the concept of minimal interventions, all developed around the same time, roughly represent three historical approaches to saving monuments; they are now increasingly included in international documents and recommendations that direct the management of world heritage during globalisation. (Lah, 2001) The prominent members in architectural monument-protection thought in the nineteenth century were Eugène Emmanuel Viollet-le-Duc (1814–1879) and John Ruskin (1819–1900). They approached monuments, however, with diametrically opposed views, approaches, and aims. Later generations relied on these two distinct preservation and conservation approaches to shape new interpretations and notions, as well as the development of modern monument conservation (Frampton, 1992). The critique levelled at Viollet-le-Duc's interventions focused on the question of authenticity. In contrast to Ruskin's goal of preserving uniqueness, originality, and truth, Viollet-le-Duc devised the reality of the situation by refreshing architecture and introducing architectural elements that had never existed before.

Many landmarks and even entire historical centres of cities were left in ruins after WWII, but their "authenticity" was preserved through reconstruction, or, in other words, restoration returned them to their pre-demolition form, or even to their reportedly genuine state. (Petzet, 1994) The 1964 Venice Charter, which advocated for protecting old monuments for future generations "in the full richness of their authenticity" in its preface but failed to define this authenticity, was sharply critical of post-war artistic restoration. (Stovel, 1994) In addition to monument management and conservation principles, this charter includes a complete chapter on restoration, that should be based on respect for original material and reliable records; restoration must end where presumption begins. The goal of restoration is not to achieve style uniformity, but to honour contributions from all periods; replacements of missing elements must blend in smoothly with the existing structure while still being distinct from the original. (ICOMOS, International Council on Monuments and Sites, The Venice Charter, 1964) Following this basis, several international protocols, declarations, charters, and other papers attempted to specify individual expressions and recommendations for better heritage management. Authenticity did not become a conscious concept with a substantial impact on heritage protection until the third quarter of the twentieth century. (Gams, 2010) The notion of "integrated conservation" was publicly created with the adoption of the Declaration of Amsterdam in 1975, the most influential text in this regard. This notion broadened the Venice Charter's extremely restricted restrictions, defining the standards and objectives for heritage conservation as a non-renewable resource. (Pirkovič, 2005) The scope of this concept was broadened in subsequent texts to encompass new challenges and tasks. (Committee of Ministers of the Council of Europe, 1975)

Towards a better comprehension of heritage values and their diversity, the categorisation made by the The Nizhny Tagil Charter for the Industrial Heritage at the International Committee for the Conservation of the Industrial Heritage (TICCIH) can be used (2003). To begin with, the industrial heritage is a record of operations that have had and continue to have significant historical ramifications. The motivations for preserving industrial heritage are focused on the evidence's general worth rather than the rarity of individual places. In relation to the East European regions and their industrial archaeology, it can be observed that the historical repercussions of the industrial archaeology especially during the 1950’s and 1980’s has been in synchronicity with the political regime and their identity is often shared under the context of socialism in various forms. (Jigoria-

Oprea, 2017) To continue with, as part of the record of ordinary people lives, industrial legacy has social worth and so gives an important feeling of identity. It has significant aesthetic value because to the excellence of its architecture, design, or planning, and it has significant technological and scientific importance in the history of manufacturing, engineering, and building. Applying this notion to the mono-industrial cities in Romania, it can be captured how the factory sites have often dictated the urban evolution of the cities and the schedule and location (or relocation) of the residents. (Stoica, 2020) These values are inherent in the site's fabric, components, machinery, and environment, as well as in the industrial landscape, written documents, and intangible traces of industry held in human memories and conventions. In some cases, rarity offers specific value in terms of the continuation of respective areas, site typologies, or landscapes. (Martín-Hernández, 2007)

Figure 6. The Onesti masterplan showcased by Gh.Gh. Dej, 1952

2.1 The particularities of industrial heritage and preservation approaches

For every region it is preferable to identify, catalogue, and conserve the industrial relics, alongside with their particularities it wishes to pass along to future generations. In regard to the post socialist industrial sites, it is important to understand the process that they have undergone until recent times. While some have been factories or mining areas from even medieval times, most have been transformed during the socialist regime and lost their initial atmosphere and appearance while gaining another heritage layer. As seen through the perception of locals and authorities at that time, the goal of industrialization was to provide the material foundation for socialism[1]. It would enable agriculture to face a significant revolution through the use of automation and contemporary techniques. It would provide workers with material and cultural well-being. It would give birth to a genuine cultural revolution. It would create the infrastructure that a modern, efficient state would require. (Lane, 2019) The breadth of the industrial history can be determined by surveys of locations and distinct industrial typologies. In the case of the socialist industrial heritage, this stage of history is often revoked by locals and stakeholders due to the negative connotations. Through time, the locations of former factories have been redesigned or left derelict or in some particular cases, have been completely erased from the memory of the place. Through descriptions, sketches, pictures, documentations and official files, together with citations to supporting material, the heritage and historical layers of the former factories can be maintained and use for restoration or adaptive re-use strategies. People's memories are a one-of-a-kind and priceless resource that must be captured whenever possible. (Chirita L. , 2007) The use of archaeology to investigate past industrial sites is a common method of research. These are being dealt out to the same professional level as historical or cultural sites from other periods in the western part of Europe. Moreover, in the Eastern part, more prevalent in the post socialist countries, this type of research and preservation actions are slowly gaining more attention and importance. (Merciu F.-C. M.-L.-L., 2014) To implement policies for the preservation of the industrial history, historical research programs are required. Because many industrial activities are interdependent, international studies can assist in identifying places and types of sites of global significance. Following the guidelines of ICOMOS, DOCOMOMO and TICCIH, the criteria for assessing industrial buildings is continuously defined and published so as to achieve general public acceptance of rational and consistent standards, with specific adaptations and additions regarding context and new insights. On the basis of the aforementioned criteria and methods, these are used globally to identify the most important surviving landscapes, settlements, sites, typologies, buildings, structures, machines and processes. Regarding the particularities of socialist industrial heritage, the sites and structures that have been classified as significant are not yet safeguarded by legislative methods that are strong enough to assure their preservation, positioning them as heritage at risk. The enormous effect that industrialisation has had on modern existence can be recognised nationally, regionally and even added to the UNESCO's World Heritage List. (Frey & Steiner, 2011) The importance of major sites can be determined through appropriate exploration and based on both tangible and intangible attributes. Directions for future initiatives and a framework for cooperation with the appropriate legal, administrative, and financial safeguards required to preserve their worth can be implemented. At-risk sites have started to be determined so that necessary actions can be made to mitigate the danger and permit acceptable strategies for repairing or reusing them (for example the admission into UNESCO world heritage of the mining complex at Rosia Montana in Romania, a site that is at imminent risk of degradation). (Merciu & Cercleux, 2015) International cooperation, through coordinated actions and resource sharing, is a particularly relevant approach to the protection of industrial history. To construct worldwide inventories and databases, compatible criterion can be developed.

[1] Socialism emerged as a political ideology largely in response to the financial and social repercussions of the Industrialization. There is a wealth of literature attesting to the dramatic impact of European industrialization on the daily lives of individuals, notably the working classes. From this, it is extracted the impact on pre-existing industrial sites and the effect on the continuity of heritage values of the sites.

2.2 The values of the factories and plants in Romania

The industrialization operations on Romanian territory have had a considerable evolution, culminating in an industrial heritage that stands out for its functionality and adaptability. The historical aspect of this endeavor is marked by a general world industrialization after the Second World War and the beginning of the socialist regime that hovered over the Eastern side of Europe. During the Communist years (1945–89), and under the push of forced industrialization[2], the industrial architecture represented a true leitmotiv of the state's propaganda[3], in a more general context of direct political involvement in the architectural practice. For this reason, the industrial architecture dating 1945–89 started to be commonly perceived as one of the Socialist state's ideological instruments. Despite this, during 2000–2005 some architects took a stance, declaring that it was possible to identify a sort of continuity between the Modern architecture of the 1920s–30s and the industrial architecture of the 1945–89 period. Architect Ion Mircea Enescu, who was educated in the Modern principles of the 1940s in Bucharest and was practicing throughout the entire period of Communism, repeatedly suggested that the 1945–89 industrial architecture embodied some of the 'most radical modernist manifestations' among the other architectures of the time. (Idiceanu-Mathe & Carjan, 2016) Starting from these premises, and driven by the belief that a thorough material understanding of these architectures analyzed in the context of their socio–political years would be fundamental in preparing the grounds for an actual step forward in their acceptance as a built legacy with patrimonial assets possibility, the attention is directed towards the process of "forced industrialization" of the Communist period, with a critic attention towards its architectural manifestations. (Idiceanu-Mathe & Carjan, 2016)

Figure 8. Arch. Ion Mircea Enescu Glass factory design proposal in Scăieni, 1955-1962

[2] Since the early days of Romania's central economy, the essential phrase has been "industrialization," with the goal of changing the country from an agrarian to an industrial character, building an efficient economy, closing the regional divide, and improving society (at least social and economic indicators). The dismantling of the extractive industries, complicated mechanization, heavy industry (steel, machinery construction), and production automation were all used to illustrate this. (Light & Phinnemore, 2001)

[3] The focus on the development of the heavy industry is also reflected in the dynamics of industrial production. Between 1950-1989 Romania's total industrial output increased 44 times, at an average annual rate of 10%, 2%. The pace was more at the rate until 1980, after which it fell to 3, 3% per year in the period 1981-1989, and 2, 6% per year in the period 1986-1989. As a result of these investments, production of the main industrial products per capita has increased. However, with all this progress, the purchasing power of workers' incomes in 1938 was 1, 9 times higher than in 1963. (Filip & Cocean, 2012)

Because the preservation of industrial history depends on maintaining functional integrity, alterations to an industrial site may try to do so as much as practicable. If machinery or components are dismantled, or if subsidiary pieces that are part of a whole site are destroyed, the value and integrity of an industrial site may be severely diminished. This is the case for numerous sites on the territory of Romania, where the machinery and artifacts that can attest the integrity and identity of the fabric have been removed or dismantled. (Țiganea, 2016) Industrial site conservation necessitates a full understanding of the meaning or purposes for which they were built, as well as the different industrial operations that may have occurred there. These may have evolved through time, but all previous usage can and should be investigated and evaluated. In the case of the Iron and Steel works complex of Hundeoara, there have been documents and plans that showcase the transition of the former blast furnace to one of the most proficient machineries of the time during the communist regime. (Țiganea, 2016)

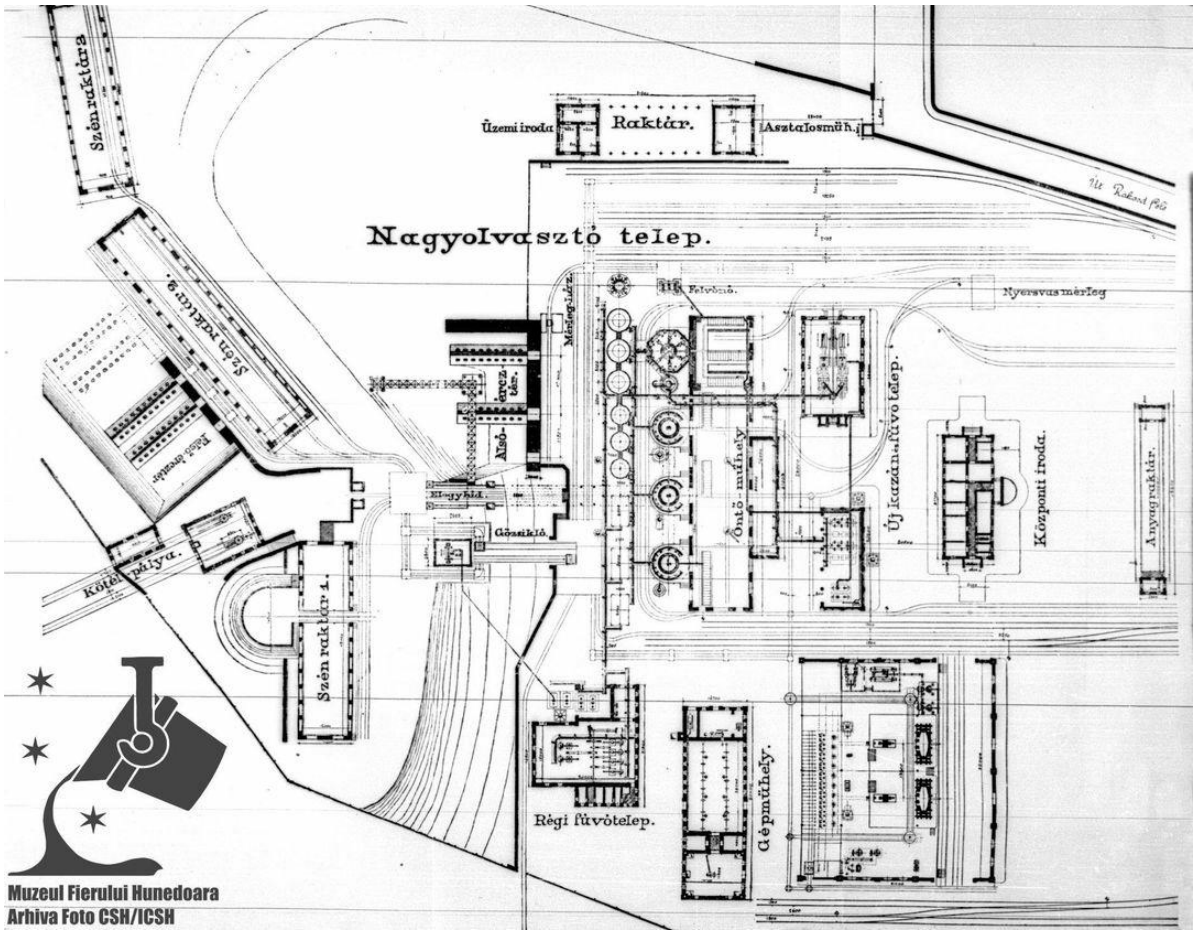

Figure 9. Site plan of Hunedoara Steel and Iron Works Complex, 1909

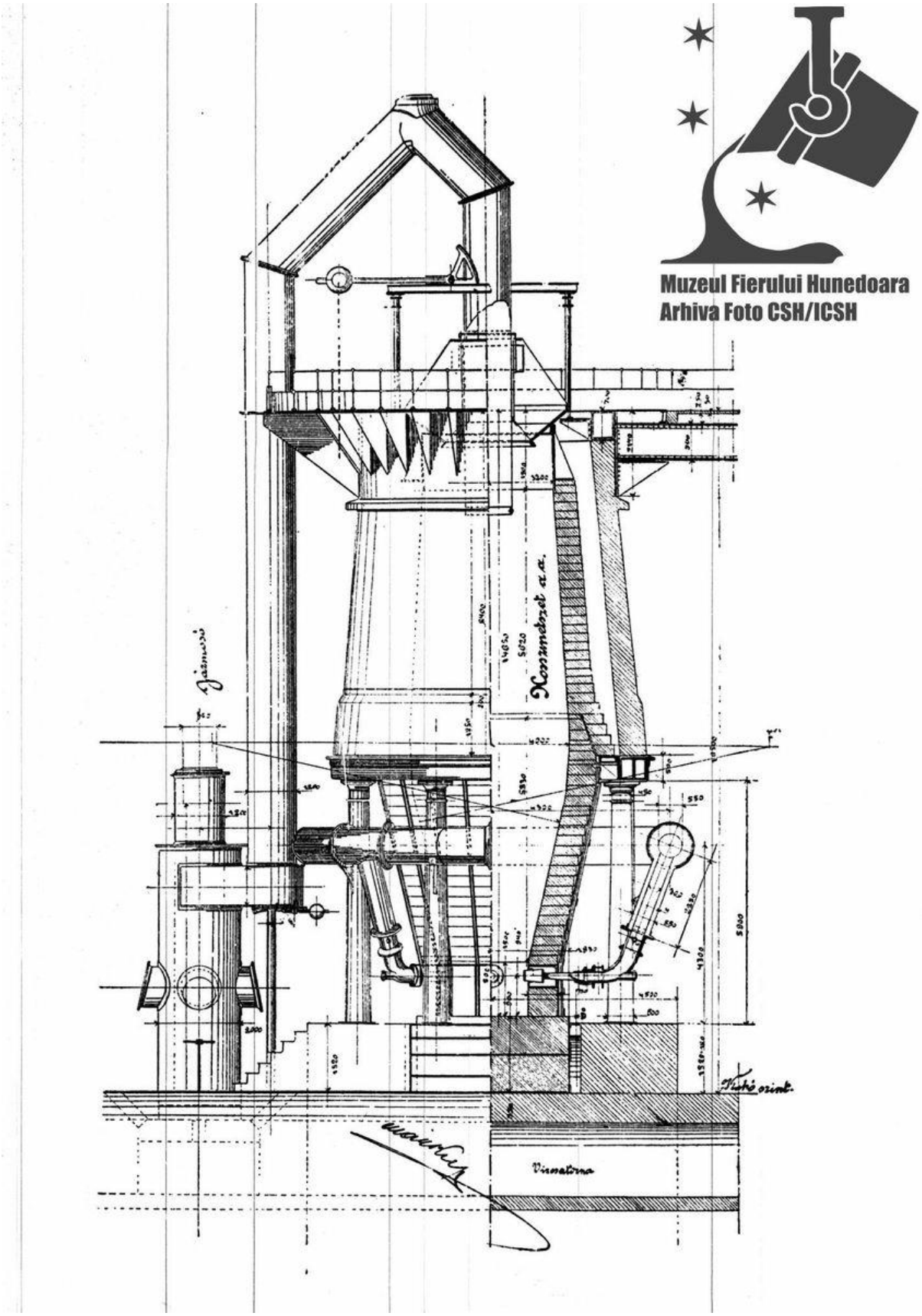

Figure 10. Sketch of one of the first blast furnaces from the Hunedoara Ironworks, 1909

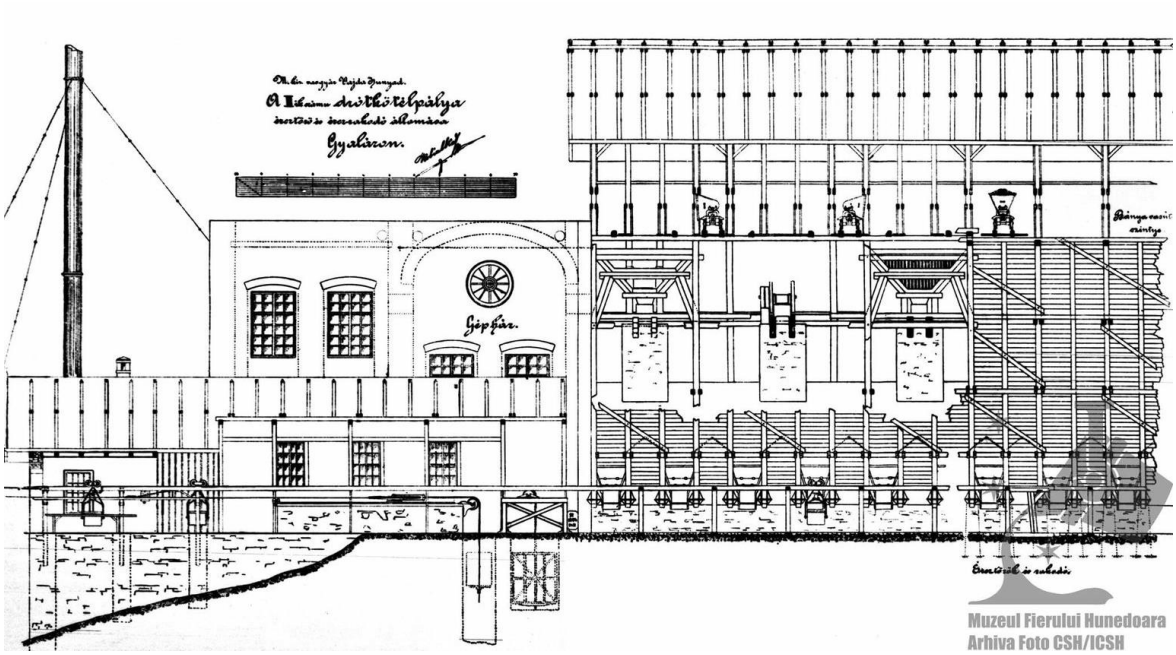

Figure 11. No.2 aerial ropeway conveyor system of the Hunedoara Ironworks, crushing and storage station from Ghelari, 1909

Preserving artifacts in situ should also be a top concern, while only when the destruction of a site is necessary by insurmountable economic or societal reasons is dismantling and transferring a building or structure permissible. In the case for most industrial sites in the Transylvania region, the factories have been privatised immediately after 1989 and they have been constantly transformed and redesigned while the heritage values have been diluted and forgotten after the machinery and artifacts have been sold or dismantled. (Paval O. S., 2020) With the exception of sites of exceptional historical significance, adapting an industrial site to a novel use to maintain its protection is usually permissible. New uses should be compatible with the original or primary use as far as feasible, respecting significant material and maintaining original circulation and activity patterns. It's a good idea to have a section that interprets the previous usage. (Douet J. , 2016) Persisting to convert and use industrial buildings reduces energy waste and promotes long-term sustainability. The economic revival of dilapidated or declining places can benefit from industrial legacy. The psychological stability that re-use implies could help communities cope with the abrupt loss of a lengthy source of employment. This can be relevant for the former mining industrial towns situated on the Jiu Valley in the Hunedoara region. (Samuil, Ionica, Leba, Noaghi, & Rocha, 2020) Interventions ought to be reversible and low-impact. Any modifications that are unavoidable should be documented, and any substantial elements that are deleted should be registered and safely saved. Many industrial operations leave a patina on the surface that adds to the site's integrity and appeal. (Douet J. , 2016) Reconstruction, or reverting to a previously identified condition, should be considered an unusual intervention that should only be used if it enhances the overall integrity of the site, or if a major site has been destroyed by violence. (González-Ruibal & Hall, 2015) Human talents are a crucially important resource that may be irreplaceable in many old or antiquated industrial processes. They must be meticulously recorded and passed on to future generations. Documentaries, firm archives, building blueprints, and sample items of industrial items should all be preserved as much as possible.

2.3 Common denominators and potential

The industrial heritage in Romania could be classified in four main categories based on what has been presented above. From large to micro scale, from urban to construction detail, the Romanian industrial archaeology can be generally organised by the following categories:

Industrial new towns – cities that have been developed as mono-industrial settlements around a plant or factory.

In the 1950s, the construction of blocks of flats was limited to workers' settlements around factories and neighbourhoods on vacant land in cities. As the new factories were being constructed, cities also started to grow or densify around them. This has led to the 'new towns' of Romania, some readapted from their previous state, some built from scratch and some that have been assimilated by their mother cities over time. A trend between these towns is their mono-industrial status, most hosting the workers of the factories and plants established in that zone. In the specific context of Romania, these new towns have slowly faded after 1989, being harshly impacted by the privatization or closure of the industrial facilities that employed the majority of locals. The urban plans of cities like Onesti, Victoria or Resita showcase the closed ecosystem of the factory workers and how the factory life can still be remembered throughout the streets and houses.

Figure 12. Aerial photograph of Victoria City, 2019

Figure 13. Set of three photographs of Onesti city, 1965

Industrial palimpsest – industrial sites that have been in constant transformation from early medieval times and have been accumulating multiple layers of heritage through their lifespan and identities.

A great example for this situation is the Hunedoara Iron and Steel Complex. During the communist regime, Hunedoara was considered one of the most important industrial regions of Romania. However, Hunedoara has an industrial tradition, old since the middle of the XVIII century. On the territory of the current county there are a number of 11 workshops for extracting and processing iron. In 1787 the first blast furnace for the extraction of cast iron was built in Topliţa, followed, a hundred years later, by the construction of the furnaces from Călan (1869-1873) and the iron factory from Hunedoara (in 1884 it was put into operation the first furnace on site). The Hunedoara Iron and Steel Works, founded in 1884, was one of the most important industrial centres in the country during the communist regime. The industrial site continued to grow and develop until 1989, after which it was privatized, fragmented and started a slow process of dilapidation. As the urbanisation of the city has brought more socialist blocks, more large and medium scale housing, the traces of the old factory buildings have started to fade and be erased from the landscape. This can be portrayed as a case of palimpsest of the industrial sites in Romania, due to its rich overlapping layers of industrialisation and their tight relation with the city and its history. (Țiganea, 2016)

Figure 14. Aerial view of Hunedoara, with the medieval castle and the Iron and Steel Complex in the background, 1974

Unique architectural style – factories and plants that present unique architectural features and that are part of the national patrimony

The applicability of the metrics used for listing historic buildings for industrial sites is relative, and their measured and nuanced implementation is obviously required – age and novelty are comparative in terms of industrial heritage, as the eighteenth century represents practically the "origins"; rarity may appear as a result of massive destructions, and technical value may be greater than architectural and urban value. On the other hand, such campaigns necessitate a certain level of specialisation because, whereas an architect or an art historian could ascertain the data and document a site with relative objectivity in the case of "classical" inventory campaigns, this is affected in many industrial sites where information is much more specialised. One could be thinking about isolated machines and tools as well as large sites, relatively simple installations as well as complex technological processes, "fossilized" sites as well as fully functional sites where the "layering" must be correctly deciphered. The predicament of Romanian industrial heritage is attributed in large part to the absence of a national policy for the specialized inventory of industrial historic buildings in the last 20 years. Thus, industrial sites can only be evaluated in relation to their immediate context, rather than within a broader context that could provide a thematic, regional, and national overview of this type of heritage. A substantial percentage of valuable heritage sites have been lost and continue to be lost without prior documentation or the ability to determine the magnitude of these losses at the national level. (Iamandescu, 2006)

Figure 15. Photograph of Resita Industrial totem, 1978

Memory of the place – factories and plants of which their memory is being kept alive by their former workers and locals, through mostly intangible heritage.

Communities of former workers and locals have found means of sharing their memory of their former place of work. Images from the personal archive of the workers, recordings of socialist propaganda saved on old VHS tapes where a grandparent or young version of the parent can be seen between the factory staff, stories passed on from generations about life at the factory and different characters, and many other forms of testimonial's touch upon the intangible heritage that the factory had upon the locals. The attachment that the locals feel to the place is not only liked to the physical space and context, but also to the social aspects and homogenous community created amongst the factory workers. This is proven through the multitude of groups on various media where former workers share their heritage and discuss about the memory and atmosphere of the working days, keeping the intangible heritage alive. This is also prevalent for example for the DRU complex in Ulft, Netherlands, and so many more, showing the universal attempt of keeping the intangible memories of the industrial sites in a zoetic state, passed on from generations.

Figure 16. Photograph of a Blast Furnace worker at the Hunedoara Iron and Steel Works, 1962

Figure 17. Photograph on the set of a propaganda movie at the Hunedoara Iron and Steel Works, 1972

Potential

The most effective means of preserving the industrial heritage are public interest and affection for it, as well as appreciation of its worth. Public authorities should use journals, exhibitions, television, the Internet, and other media to actively explain the meaning and worth of industrial sites, as well as provide sustainable access to key sites and promote tourism in industrial districts. Industrial and technical museums, as well as preserved industrial locations, are vital tools for preserving and interpreting the industry's history. Industrial heritage routes on a regional and worldwide scale can highlight the ongoing flow of industrialization and the sizable migration of people that it can cause.

Figure 18. Before and after environmental damage, photographs of a washing mill from the Hunedoara Iron and Steel works, 1984-2007

3. *Main point – Industrial Heritage actuality*

Among the systematic tracking and inventorying campaigns carried out in Europe, the British instance is noteworthy in terms of the ability to "import" certain elements that are adaptable to Romanian realities. The inventory developed in the United Kingdom, organized by the Council for British Archaeology between 1962 and 1965, nearly entirely with volunteer groups orchestrated by a single expert, is an example of the utility of civil society efforts when confronted with tangible threats and lacking state support. (Palmer, Nevell, & Sissons, 2012) This type of inventory has proven to be extremely effective in both preserving historic structures and, more importantly, serving as the foundation for the first specialized national inventory – the National Record of Industrial Monuments (NRIM). Despite the authors' status as simple volunteers, the documentation conducted during this time period has been and still is a priceless scientific milestone, ensuring access to knowledge on sites that have since vanished. (Iamandescu, 2006)

The List of Historic Buildings updated in 2015, which started 1992, contains approximately 30.154 landmarks, of which approximately 800 are historic buildings of technical and industrial valuation. Although a large portion of these are railway buildings or preindustrial traditional technical installations – water mills, sawmills, aqueducts – only about 60% are properly industrial. Unfortunately, the distribution of heritage buildings by county does not reflect the actual situation in the field (for example, the subject is almost never approached in counties with an industrial tradition, such as Brasov, Sibiu or Iaşi), but rather a lack of specialized human resources and, as a result, the subjectivity of those involved in the list's development as an emergency. This brings three imminent cases of industrial heritage in Romania: the lost heritage, the heritage at risk and the successful preservation. (Iamandescu, 2006)

Figure 19. Photograpy set of comparison images from 1974 and 2019, of the Hunedoara landscape

3.1. Case study of demolition and loss of heritage

In the aforementioned context of lack of identification, industrial patrimony constructions and afferent lands are in a unique position. Furthermore, their location in city areas that have become central today gives them a competitive advantage over other lands in the city. The expansive dimensions of the adjacent land allow for the potential development of public spaces. Because the majority of the buildings are vacant, they serve no purpose. There is a once-in-a-lifetime opportunity to renovate, rehabilitate, and re-function, to act both at the level of architectural performativity and at the level of public space performativity, in a fine mutual adjustment. In Bucharest for example, out of the 36 listed endangered industrial sites, 25 are at risk of irrecuperable damage and fragmentation.

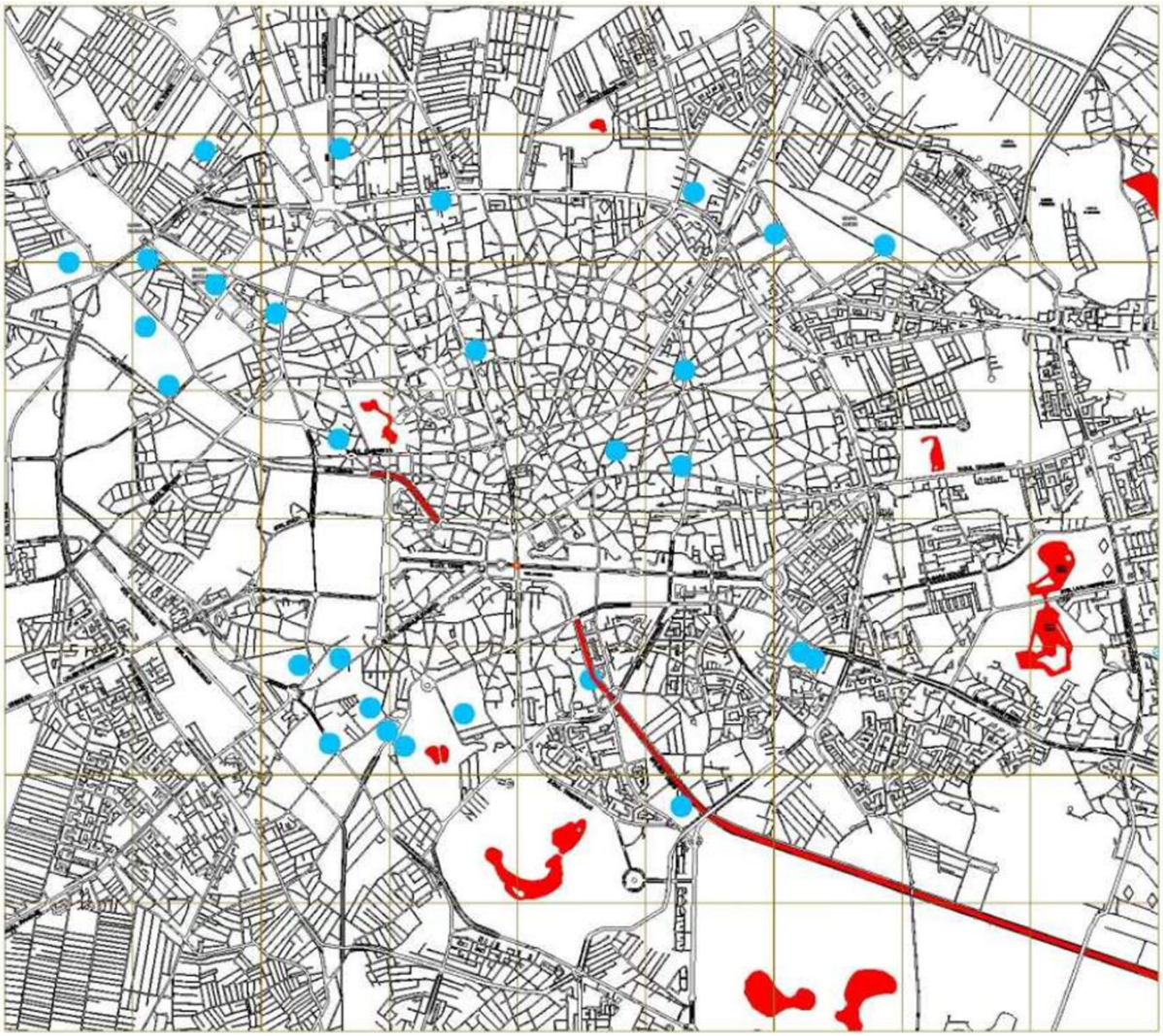

Figure 20. Map with the 36 endangered industrial sites of Bucharest

This occurs due to the lack of legislation towards heritage at risk salvation and due to the ownership of the land. Assimilated by the urban growth and integrated in the new central part of the capital, large scale factories like Progresu, Berceni and IMGB have been lost in the favour of housing and dense residential areas. Their heritage has only been kept in intangible manners, through locals and former workers.

A similar case can be directly observed in Brasov city, where the oldest factory of the city, Hidromecanica, entered bankruptcy in 2015 and today on its site there is a commercial shopping centre, with the heritage and memory of the place have been completely erased.

Figure 21. Photograph of the Hidromecanica Complex Brasov, 2003

Figure 22. Photograph of the Afi Mall Complex on the site of Hidromecanica complex, 2021

3.2. Case study of state of degradation and immediate need of intervention

In May 2008, a massive fire nearly destroyed Moara lui Assan (Assan's Mill). This was Bucharest's first steam mill and the city's tallest building when it was built in 1853. The mill, a unique monument in Bucharest's architectural patrimony, was transformed into a dilapidated collection of bricks, "a terrifying place that smells horribly due to the piles of trash that fill all its corners." Assan's Mill was also known as "The Platen Mill," "The Fire Mill," and "Assan's Ship." They also knew it because of the massive watch on the mill's tower, which had been telling time with great accuracy for several generations. During the interwar period, the mill was renamed Assan Factories and consisted of four distinct industries: cereal milling, vegetable oils, paints and colours, soaps and putty. The mill was nationalized by the communist authorities who had seized political power in Romania in 1948, and it housed a bread factory and an oil factory. The mill entered a dark era following the 1989 Revolution, which marked the end of Romania's communist regime. Unknown individuals stole the wrought iron window frames; the lead and zinc decorations on the mill's tower vanished; and the machines brought from Vienna by the Assan family in 1900 were dismembered and sold as scrap iron, despite the fact that any museum of technical history would have been proud to have such artifacts in its collections. (Visan, 2011) Several mill buildings were demolished without authorization in 2005. Another section of Assan's Mill collapsed in 2010. This is an immediate case of heritage at risk and need of intervention.

Figure 23. Photograph of Assan's Mill, 1942

Figure 24. Photograph of Assan's Mill degradation, 2019

Figure 25. Aerial photograph of Assan's Mill, 2019

3.3. Case study of successful recognition

The mining activity that has taken place at Roşia Montană for over 2000 years has had an impact on the local social, economic, and environmental conditions, as well as the development of unique cultural conditions. The gold attracted various ethnic groups in the area, resulting in the preservation of old cultural values as well as a valuable cultural and industrial heritage. The village arose as a result of mining activity and, over time, it became almost completely dependent on gold exploitation. The mines were nationalized by the government after 1948. Knowing the worth of the gold deposits, the communist regime paid special attention to Roşia Montană. A large research program was launched in the area, so existing resources were evaluated. The degree of mechanization became very high, with machines and installations nearly completely replacing traditional tools. After 1990, the mines were declared unprofitable and were closed down one at a time. Rosia Montana's mining operations ceased in 2006. The residents were left jobless and with the memory of a "gold-encrusted" past. This entire rich historical heritage palimpsest faced an uncertain future, and some of the written aspects of the past could have been able to survive as material evidence of Roşia Montană's gold culture. Fortunately, the Roșia Montană mining cultural landscape has been inscribed on the UNESCO World Heritage List by consensus by the World Heritage Committee at its 44th extended session in Fouzhou, China, on July 16-31, 2021. "The exceptional universal value of the Roșia Montană Mining Cultural Landscape - the most important, extensive and technically diverse underground mining complex of Roman antiquity, together with the mining areas, residential areas, sacred areas, necropolises - was, thus, recognized on the basis of criteria (ii), (iii) and (iv) defined by the World Heritage Convention. Simultaneously, the site has been added to the List of World Heritage in Danger, recognizing both the site's vulnerability and the need for immediate protection measures. In this regard, international cooperation is encouraged, and it is recommended that a technical reactive monitoring mission be invited to Roșia Montană to establish the optimal state of conservation and a program of measures to ensure the site's removal from the List of World Heritage in Danger.

Figure 26. Aerial photograph of Rosia Montana quarry, 2018

Figure 27. Photograph of the accesible mine in Rosia Montana, 2018

Figure 28. Photograph of the Rosia Montana pollution caused by the mining activity, 2018

Is there a success formula? The recognition of Rosia Montana as a World Heritage site in Danger prompts the urgency of preserving this industrial palimpsest while also signalling the lack of policies and proceedings after its nomination. The imminent state of degradation of the establishment and its fading historical values have reached a point of acknowledgement and stagnation, due to the absence of rapid interventions and feasibility studies needed for consolidation. This is rather important to notice, for further development of the restoration process and on a larger scale, questioning the steps needed to be taken for industrial heritage preservation from macro to micro context.

4. Main point – Industrial Heritage prospective

4.1. What are the steps to be taken for industrial heritage preservation?

Densification of cities and rising urbanization, which began with the Industrial Revolution and is being continued nowadays by the phenomenon of globalization, have a number of visible consequences which will shape how cities develop. Architecture, as a reflection of society, is continuously subject to change and the need to adapt to current conditions. In the context of change, the phenomena of globalization and urbanization continue to spread rapidly, ignoring or dismissing the discrete forms of the old assemblages, and often leading to uniformity along with peripheralization. In this regard, a major challenge for the contemporary city confronted by the effects of globalization is to incorporate buildings with strong identities that belong to that place into the existing context. "In the context of globalization (of architecture), when cultural and geopolitical boundaries are excluded, distinctive elements that can add character and significance to an area and help safeguard its identity are required." (Lakatos, 2015) The industrial heritage is, by distinction, characterized by social value, responsible for the development of a sense of identity, and is the result of a certain cluster of people's past technological, constructive, and aesthetic possibilities. With this in mind, there are certain proceedings needed to be taken for industrial heritage preservation.

Identification of all sites at risk and their historical palette is the first step to be taken towards industrial heritage preservation in Romania. As mentioned in the third chapter, the national monuments list is in dire need of an update that also includes a detailed inclusion of industrial heritage. Based upon the principles and particularities of the industrial heritage mentioned in this study, with the help of national archives and personal documents of key stakeholders, the sites and buildings can be identified and proposed for further research in order to be appraised and recognised as monuments. In the case of palimpsests, it is important to uncover, layer by layer, the fragments of the establishments that belong to each category and the new layers that can be of complementary nature or in some cases they can be the loss of cohesion. All these investigations and researches are followed up by data coordination and categorisation.

Classification is the next step to be taken, concerning the further categorisation of the industrial heritage on a national level. The brief categories mentioned in this study have been the Industrial New Towns, the Industrial Palimpsests, the Unique Architectural Styles and the Memory of the Place. However, these are rather unconventional and general categories that appeal to the public but are too vague to sustain a whole inventory of monuments. There are multiple ways in which the classification can be done, according to examples from Western Europe. Detailed in the diagrams below, some possible routes of classification:

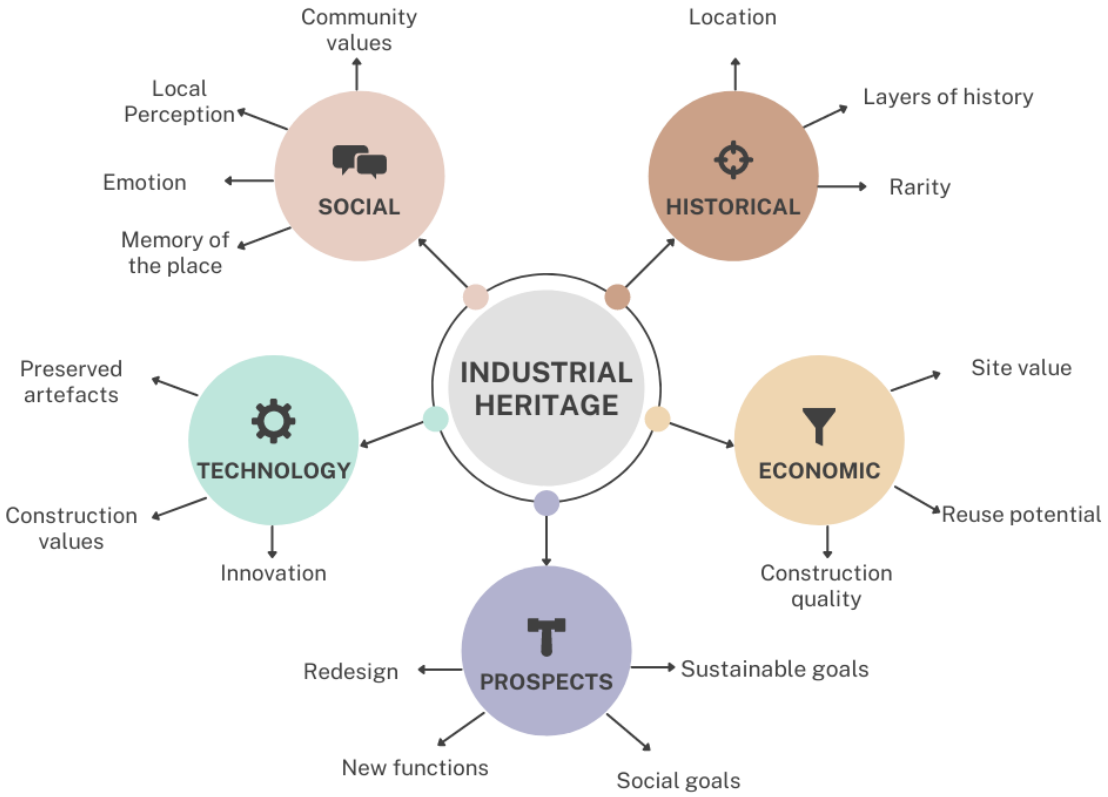

Figure 29. Diagram with the possible routes of classification of Industrial Heritage, 2022

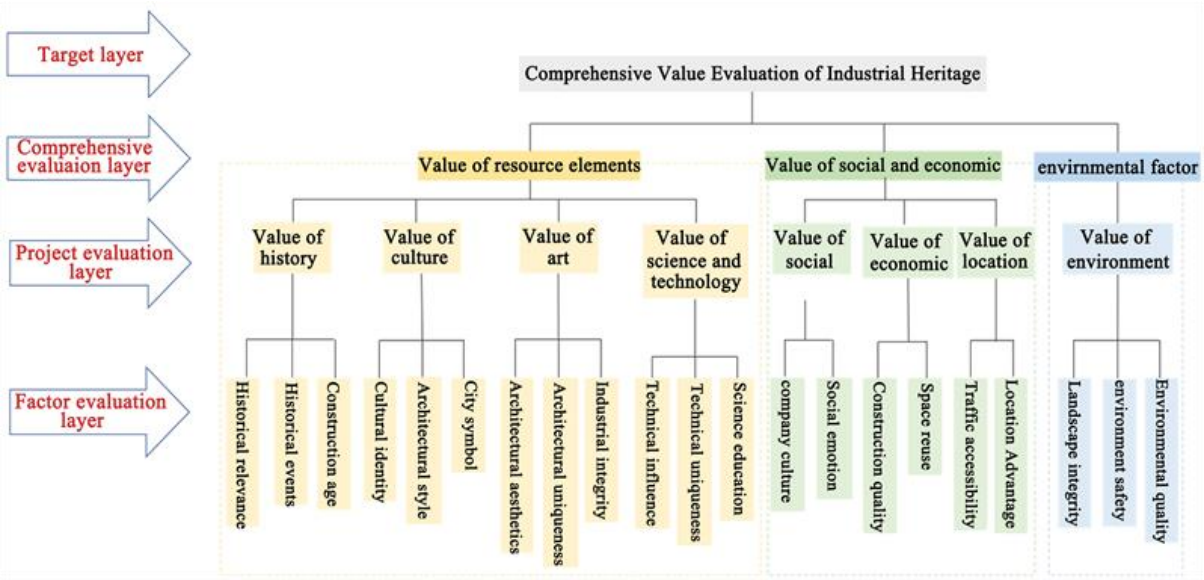

Figure 30. Diagram with the possible routes of classification of Industrial Heritage, 2021

GENERAL CRITERIA		SPECIFIC CRITERIA	SCORING CRITERIA	SCORE
COMPLEX	DEGREE OF PROTECTION	The following are considered: - the provisions of the urban planning documents - the incidence of a protection zone - part of a protected built area - buildings of the complex are listed historic buildings - the complex is listed	- without protection - tangential - partial - high - total	1 2 3 4 5
	CULTURAL-HISTORICAL VALUE	The following are considered: - development period(s) - the historical stage(s) in which the factory operated - representativeness at city level during the production period - impact of important historical events - outstanding personalities	- very low value - low value - medium value - great value - exceptional value	1 2 3 4 5
BUILDINGS	DEGREE OF PROTECTION	The following are considered: - the provisions of urban planning documents - the incidence of a protection zone - part of a protected built area - historic building of local importance - historic building of national importance	- without protection - tangential - partial - high - total	1 2 3 4 5
	CULTURAL-HISTORICAL VALUE	The following are considered: - architectural, technical, constructive characteristics - aesthetic, compositional, spatial characteristics - representativeness - age - technical value	- very low value - low value - medium value - great value - exceptional value	1 2 3 4 5
NOTES:	**GENERAL CRITERIA** - are those framework criteria that are found in the evaluation grid of the reusability of an industrial complex, regardless of the particularities given by the city in which it is located **SCORING CRITERIA** - are direct assessments made within the study, which provide references for awarding the score **SCORE** - points are awarded from 1 to 5, 1 – for the most unfavorable case, 5 – for the most favorable case			

ASSESSMENT LEVELS	CONCLUSION	SCORE	
		MINIMUM	MAXIMUM
	MINIMUM REQUIREMENTS ARE NOT MET	0	8
	CONDITIONALLY MET	9	15
	COMPLETELY MET	16	20

Figure 31. Diagram with the possible routes of classification of Industrial Heritage, 2020

The processes of identification and classification are often done by interdisciplinary teams that work concomitantly and at different scales. The next step is to create means for easy collaboration and information sharing, both at an expert and public level. Having a shared agenda and platform where information can be exchanged and support can be found, is an important progression in the industrial heritage preservation. This has been attempted at different levels both by the municipalities and volunteer groups. From organisations like Pro Patrimoniu and Ambulance for Monuments[4], to call to action and site salvation from former factory workers, the civic spirit and enthusiasm indicates the success that a platform dedicated to industrial heritage preservation will have. An example for a centralised resource space can be the site BOEi.nl that tackles the restoration and repurposing of heritage in the Netherlands. This contains advice, support and possibility of choosing experts to help in identifying, restoring and repurposing heritage buildings.

The next step is the adoption of a preservation framework that can be implemented and applied from the beginning of the research phase of every industrial heritage site or building candidate. Based upon all explored above, this framework needs to encapsulate the social aspect of the industrial heritage and be transparent in its process. From identification, data gathering and status recognition, to restoration and new purpose given to the establishments, these stages need to involve the experts, stakeholders, municipalities, authorities and the holders of intangible heritage in regards of the place. With all users involved at all stages of the framework, the heritage at risk is not only becoming recognised and proposed for restoration, but the users are getting accustomed with the rich history that lies behind the dark and repented patina of the socialist regime.

4.2. Can the heritage be preserved and accepted by locals?

Despite the negative connotations of the socialist regime, the historical layers of the industrial heritage in Romania are abundant and varied. If evaluated from the perspective of the categories presented in the subchapter 2.3, they can be distinguished as follows:

- *Industrial new towns* seen in comparison with other international new towns throughout Europe, presenting strong relation with its industrial factory and designed in harmony with the worker's life agenda, the urban plan following the arrangement of the factory. This type of heritage can be embraced and preserved by applying policies to maintain the spirit of the place while enhancing the urban development of the community (Constantinescu, 2013) (INTI, 2022)
- *Industrial palimpsests* presented through all their historical layers, from medieval beginnings and all the new facets gained through the decades, recognising all that has been lost, improved and redefined. Through the tangible and intangible attributes of these sites, the narrative and complete timeline can portray not only their rich history but also their values and resilience. (Țiganea, 2016)
- *Unique architectural styles* that can be detrimental to the national heritage and overall understanding of the evolution of industrial architectural style in Eastern Europe. By salvaging the constructions and their details, and further prolonging their lifespan by attributing new functions, these architectural gems become a sustainable solution and the risk of lost heritage is diminished. (Merciu F.-C. M.-L.-L., 2014)
- *Memory of the place* that can be transformed from a collection of factory stories told by former workers through perishable medias and that are slowly forgotten, into acknowledged and curated intangible collections, documented and preserved in order to avoid risking their loss. (Chirita L. , 2007)

[4] Expert volunteer organisations that have Government backing both financially and policy wise, with the goal to research and preserve certain monuments at risk. They provide assistance and help in regards to research, policies and restoration conduits.

4.3. Can the industrial heritage be celebrated despite its memory?

While it is commonly claimed that preservationist techniques in Romania were disrupted during the last decades of the twentieth century, a closer examination of the realities on the ground reveals a certain continuity in terms of concept elaboration, research, and listing procedure of what has been perceived as cultural heritage (Iuga, 2016). This raises the more complex issue of continuity/discontinuity in relation to the 1945-1989 period, when handling with the analysis of the built environment from a planning or preservationist standpoint. The communist era is commonly viewed as a disruptive historical period that abruptly interrupted the pre-1945 development of architectural practice, with direct reference to the modern movement. (Tiganea, 2020) In the last decades, preservationist initiatives in Romania have been rather bottom-up, the result of the work of non - government organisations interested in the protection and enhancement of cultural heritage, which have engaged local communities directly. They progressively emerged as a direct response to a variety of internal and external threats to the built environment and communities' survival. In every case, the initiative came from civil society members, as mentioned in subchapter 4.1 - originally from members of local communities who were able to enlist the help of various experts in the fields of cultural heritage, urban planning, and/or territorial administration from Romania and outside. (Tiganea, 2020)

With the prominent involvement of the community, locals and experts, the industrial heritage can be celebrated and acknowledged despite its socialist memory that has previously tainted its memory. The case studies presented in this research were chosen due to their complexity and variety that covers the different aspects that can be celebrated. The evaluation of the reusability potential and their values and historical layers were made using the criteria presented in the first chapter, adapted to their particular context and state of risk. (Paval, 2020)

Figure 32. Illustration of Tractoru Complex in Brasov, 2022

5. Conclusion

To summarize, the purpose of this research was to delve into and explore the restoration and re-use of Romanian architectural industrial heritage in the context of denial, with the goal of seeking to change the negative social attitudes and uncovering the appropriation and recognition of these relics. The identification of values and variables that can be used to create a national classification, as well as the recognition of heritage at risk, are ways in which the past can be recognized and preserved while ensuring that the heritage is not lost or damaged. Through the exploration of the three different stages of heritage at risk in Romania: the lost or severely damaged ones, the ones at imminent risk and the ones that have been recognised and are on the trajectory of restoration; this paper traced the potential and cumulated historical layers of the industrial heritage in Romania. Through the brief categorisation of the industrial patrimony in four distinct categories (Industrial new towns, Industrial palimpsests, Unique architectural styles and Memory of the place), its variety and depths are unravelled, allowing a better comprehension of its richness. Through comparisons with examples from Western Europe and framework models, the celebration and preservation of heritage at risk in Romania is proven to be possible and attainable. The industrial heritage at risk in Romania can be preserved and repurposed by recognising its values, understanding its characteristics and presenting its full narrative.

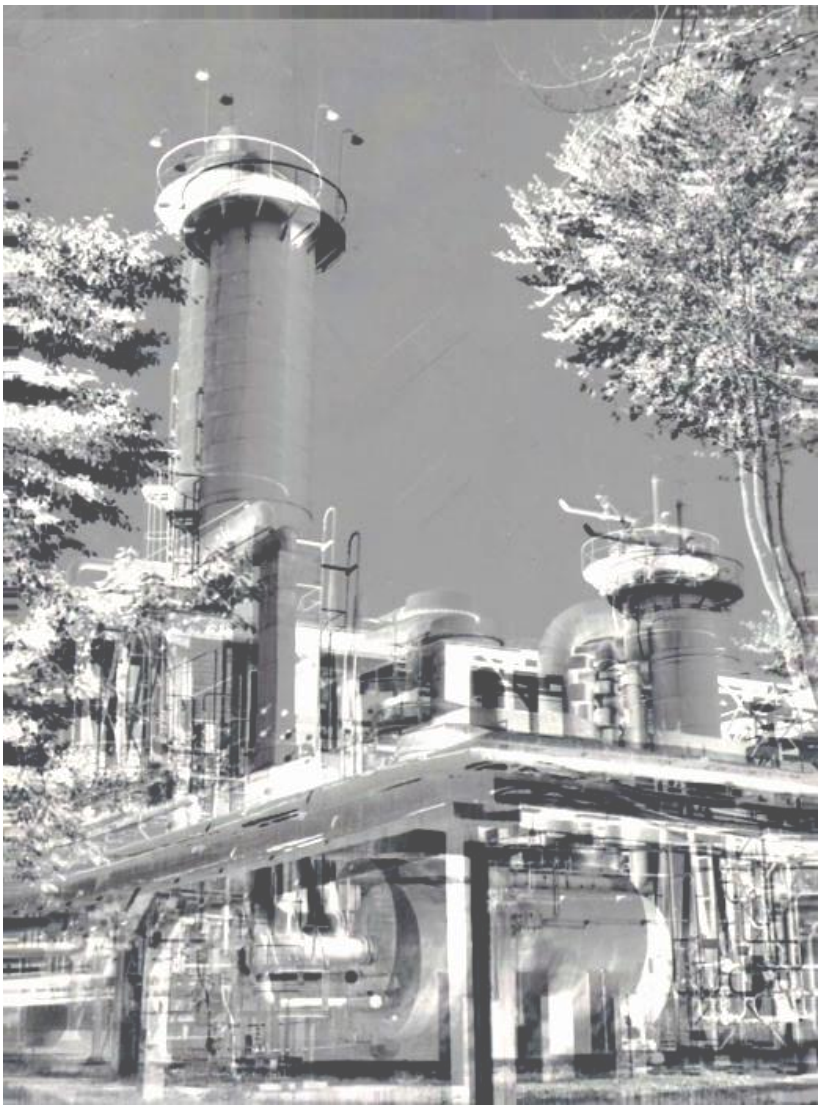

Figure 33. Illustration of Victoria Chemical Complex, in Victoria Brasov, 2022

6. List of illustrations

Back Cover figure. Own illustration edited from Personal Archive

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