

The revitalization of Bucharest's center surrounding areas by reconvertng the industrial heritage

Bîță, Claudiu

Veröffentlichungsversion / Published Version

Zeitschriftenartikel / journal article

Empfohlene Zitierung / Suggested Citation:

Bîță, C. (2017). The revitalization of Bucharest's center surrounding areas by reconvertng the industrial heritage. *Cinq Continents*, 7(16), 192-225. <https://nbn-resolving.org/urn:nbn:de:0168-ssoar-63442-8>

Nutzungsbedingungen:

Dieser Text wird unter einer CC BY-NC-ND Lizenz (Namensnennung-Nicht-kommerziell-Keine Bearbeitung) zur Verfügung gestellt. Nähere Auskünfte zu den CC-Lizenzen finden Sie hier:

<https://creativecommons.org/licenses/by-nc-nd/4.0/deed.de>

Terms of use:

This document is made available under a CC BY-NC-ND Licence (Attribution-Non Comercial-NoDerivatives). For more Information see:

<https://creativecommons.org/licenses/by-nc-nd/4.0>

THE REVITALIZATION OF BUCHAREST'S CENTER SURROUNDING AREAS BY RECONVERTING THE INDUSTRIAL HERITAGE

Claudiu BÎȚĂ

Faculty of Geography, University of Bucharest
bitaclaudiu@gmail.com

Sommaire:

1. INTRODUCTION.....	194
2. MATERIALS AND METHODS	196
3. RESULTS AND DISCUSSION	198
4. CONCLUSIONS	220
5. REFERENCES.....	221

Citer ce document:

Bîță, C. 2017. The revitalization of Bucharest's center surrounding areas by reconverting the industrial heritage, Romania. *Cinq Continents* 7 (16): 192-225

The revitalization of Bucharest's center surrounding areas by reconvertng the industrial heritage.

Claudiu Bîță

Revitalizarea zonelor pericentrale ale Bucureștiului prin reconversia patrimoniului industrial. În acest articol se vorbește despre importanța revoluției industriale și de mărturiile lăsate în urmă de la începuturile acesteia, ce ne amintește de o perioadă extrem de importantă pentru umanitate și cu mult diferită față de prezent. Arhitectura siturilor industriale din a doua jumătate a secolului al XIX-lea și începutul secolului al XX-lea, ne arată atât un stil arhitectural unic, generat de nevoile economice de atunci, cât și un mod de viață și de dezvoltare socio-economică a orașelor. Pentru a nu pierde aceste vestigii importante, în acest studiu, am propus transformarea complexelor și a clădirilor industriale importante din București în funcție de istoricul și de specificul fiecăruia, adăugând elemente inovative pentru creșterea atractivității acestora. Aceste clădiri aflate în prezent în stare de degradare, odată transformate în diferite atracții culturale, vor avea menirea de a crește calitatea spațiilor pericentrale ale orașului, vor ajuta la procesul de gentrificare a zonelor abandonate din oraș, la creșterea atractivității și a veniturilor orașului și în același timp vor păstra vie istoria orașului prin elemente identitare ce au dus la dezvoltarea acestuia.

Cuvinte cheie: revoluție industrială, patrimoniu industrial, București, reconversie, realitate augmentată, spații culturale

The revitalization of Bucharest's center surrounding areas by reconvertng the industrial heritage. This article discusses about the importance of the industrial revolution and the remains left behind from its beginnings, which reminds us of an extremely important period very different from our own. The architecture of the industrial sites from the second half of the 19th century and the beginning of the 20th century shows us both a unique architectural style, created by the economic needs of that time, but also a way of life and socio-economic development for cities. To not lose important remains such as this, in this study, we proposed the transformation of the important industrial complexes and buildings in Bucharest decided by their history and former functions, adding innovative elements to grow their attractiveness. These buildings currently in a state of degradation, once transformed into different cultural attractions, will have the purpose of increasing the quality of the spaces around the city's center, will help with the gentrifying process of the city's abandoned zones, with growing the attractiveness and the revenues of the city and at the same time they will keep alive the history of the city through elements of identity which lead to its development.

Keywords: industrial revolution, industrial heritage, Bucharest, conversion, augmented reality, cultural spaces

1. INTRODUCTION

The industrial revolution from the second half of the 18th century, which happened in Great Britain, is the creator of all industrial remains, economic changes, the increase in the quality of living across the globe, and of all the other changes it has brought (del Pozo and Gonzalez, 2012; Merciu et al. 2014). The innovations brought to the steam engine, the ways of processing iron and textiles has made the economy bloom, in general by replacing manufacturing with machining (Jansirani and Mangai, 2013). This transition from manufacturing to machining has changed humanity's way of life, the quality of living, raised life expectancy, modified the appearance of landscapes, and it has brought humanity towards other important directions in its endless evolution (Martin, 2009). In "The Nizhny Tagil Charter For The Industrial Heritage", the importance of the industrial revolution is stated as a giant step which can be compared to another important step in the history of humanity, which is the transition from the stone age to the age of bronze (The Nizhny Tagil Charter For The Industrial Heritage, pp.1, 2003).

Because the industrial revolution represents an important moment in changing humanity's way of life, the remains left behind from its beginnings, represent now important cultural remains (Sutestad and Mosler, 2015) which can be used in the touristic activity (Xie, 2015; Cercleux et al. 2012).

In the second half of the 19th century, the industrial activities reach the territory of today's Romania, leading the country towards a huge economic growth, which will lead to an evolution that had never been seen before (Giurescu, 2009, pp.337-338). Indirectly it will lead to the independence and later on forming of Romania the Great, which will further help the industrial development of the country and its capital (Chelcea, 2008, pp.102). The steam engine reaches Bucharest at the same time as the Assan Mill in the year 1853 (Cercleaux et al. 2012), before the first train station came into existence, and from here an entire city wide industrial activity is born. Liviu Chelcea notes that before 1880 there was little industry in Bucharest, and before 1850 it was inexistent, only after 1890 factories started to multiply and by 1930 their numbers were in the hundreds (Liviu Chelcea, 2008, pp.101).

In Romania industrial activities increase at the same time as the development of rail transport, the discovery of new resources and the advance in technology which will always reach this country later than in Western Europe (Giurescu, 2009, pp.316-338). In Bucharest during this time the food industry and rail transport experience a large growth, which give an increase to the growth of trade. (Chelcea, pp.102, 2008). During this period, namely the second half of the 19th century and the first half of the 20th century, in Bucharest are created the main industrial complexes, which will see activity in this field of work long after their creation, and some of them will be known

internationally. In Europe after the second World War, an economical restructuration takes place which leads it from the industrial based economy to the post industrial economy, based on the tertiary sector, which causes the economic decline of multiple industrial centers, in Romania this decline is forcefully prolonged by the communist regime. (Hancock, 1971; Cepoiu, 2009; Gavrilidis et al. 2011, Cercleux et al. 2012; Cercleux and Merciu 2013; Merciu et al.2014).

The industrial buildings which at the end of the 19th century and at the beginning of the 20th century represented just simple and normal buildings in which the people worked in, became very valuable, and a part of the heritage, because with the passing of time, everything that was once considered normal becomes an attraction for a society continuously changing, and everything representing innovation becomes a historic vestige which represents just a stage in the endless evolution of humanity. (Evans, 2005; Loures, 2008; Gavrilidis et al. 2011; Cizler, 2012; Merciu et al. 2012; Blagojevic and Tufegdžic, 2015; Ilkovicova and Meziani, 2016). All that being said, industrial buildings from that period, despite being built mostly from bricks and iron, without a lot of architectural details, in the present are valuable (Ilkovic and Ilkovicova, 2016) because they show the way in which buildings were made in a time when industries were reaching into town and needed a lot of space and inexpensive building materials. The immense machines from the beginnings of industry in Romania are important in the present as historic remains which show its evolution, while also being important tools to educate future generations about the history of the production economy is created. (Timothy D. 2007 quoted by P.F. Xie, 2015).

In general the industrial heritage is defined as: “The industrial heritage sites link the contemporary world to the work of the past, and they are the authentic documents of the progress of civilization” (Clark, J., 2013 quoted by Bellakova, 2016).

Another definition for industrial heritage, much more complex than the first, is given in “The Nizhny Tagil Charter For The Industrial Heritage”: “Industrial heritage consist of the ramains of the industrial culture which are of historical, tehnological, social, arhitectural 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, transmited and used, transport and all its infrastructure, as well as places used for social activities related to industry such as housing, religious worship or education.” (The Nizhny Tagil Charter For The Industrial Heritage, pp. 1, 2003).

Urban regeneration is defined as: „a comprehensive and integrated vision and action which leads to the resolution of urban problems and which seeks to bring about a lasting improvment in the economic, physical, social and enviromental condition of an area that has benn subject to change” (Roberts, 2000 quoted by Lang, 2005).

In Bucharest, in the present the remains of complexes from the beginning of industry are still kept, but because they reside in a state of uncertainty and the authorities in charge of them do not recognize their importance and they do not take measures in regards to their future, they will disappear because of degradation or they will be destroyed for the creation of modern architectural projects. This study can represent late warning, that the time to save Bucharest's industrial remains becomes shorter with each passing year. At the same time the article at hand draws attention to the importance of the heritage which reminds us of an essential stage in our evolution and the important role that these complexes could play in tourism if they would be transformed into cultural attractions.

2. MATERIALS AND METHODS

To create this study, we identified in the field the main industrial buildings in Bucharest which had an importance in history or have an attractive architectural design, and dated from the second half of the 19th century or the beginning of the 20th century. In deciding which buildings to include, we used the comparison method, by comparing their potential, with the potential of other such objectives from other countries, which currently serve as important touristic attractions (Figure 1). These have been chosen judging by their historical importance and the roles they've played in the city's development, but also by taking into account their architectural importance. To raise their attractiveness, we have come up with recommendations for each industrial site, categorized by their type, history, localization and architecture. Many of these recommendations are among the means of conversion used in the great European countries, where the industrialization phenomenon was more powerful and the conversion and preservation of those sites has been more important than in Bucharest, where it's insignificant.

To ensure that the bibliographical information is correct, we went on the field in April-May 2017, to update some of the information and also to take photos of the objectives. We, also, used the observation method, by making observations about the state in which the sites currently reside in, to ascertain if renovations are feasible. We made a data base with one of the objectives dealt with in this study, so that they can be used in the QGIS software and to create the maps for them.

To find out about the interest of tourists in the conversion of the industrial heritage, and to test how they see the new recommendations, we used the survey method on a sample of 100 people, of which 70 were Romanian and 30 having varied other nationalities. The surveys were done in the area adjacent to the Palace of the Parliament and Bucharest's Old Town. The people surveyed were chosen randomly, the questions were closed, and the answers had multiple options. The theme of the

questions is in accordance with the study (Table 1), and their purpose is to test the way in which the people answering the questions see the industrial heritage and the possibility of converting it.



Figure 1. The main industrial sites/buildings included in the analysis

Table 1. The perception of tourists on the conversion of the industrial heritage in Bucharest

The Subject of the Addressed Question	Responses from Romanian/foreign tourists					
1. Interest in the industrial architecture of the 19th and 20th century	Yes: Romanians: 43; foreigners: 19	No: Romanians: 17; foreigners: 3	I do not know: Romanians: 10; foreigners: 8			
2. Interest in old industrial buildings and museums of industry	Yes: Romanians: 47; foreigners: 22	No: Romanians: 9; foreigners: 3	I do not know: Romanians: 14; foreigners: 5			
3. Implementing virtual and augmented reality in museums	Yes: Romanians: 61; foreigners: 28	No: Romanians: 3; foreigners: 0	I do not know: Romanians: 6; foreigners: 2			
4. Actions and new functionalities for abandoned industrial spaces	The construction of residential neighborhoods: Romanians: 10; foreigners: 4	Restoration to be transformed into green cultural areas with museums: Romanians: 46; foreigners: 21	Commercial Complexes: Romanians: 5; foreigners: 0	Something Else: Romanians: 9; foreigners: 5		
5. The New Purposes for the newly renovated industrial centers	Museums: Romanians: 32; foreigners: 16	Theatres/Cinemas: Romanians: 11; foreigners: 6	Shops/Restaurants/Bars: Romanians: 13; foreigners: 2	Libraries/ Book shops: Romanians: 8; foreigners: 2	Residential Apartments: Romanians: 4; foreigners: 4	Supermarkets/Malls: Romanians: 2; foreigners: 0

6. Knowledge about the sites from the second half of the 19th century and the first half of the 20th century in Bucharest

Yes: Romanians: 29; foreigners: 2

No: Romanians: 41; foreigners: 28

3. RESULTS AND DISCUSSION

The Importance of preserving industrial sites Text

Industrial sites are valuable for tourism (Timothy D., 2007; Merciu et al.2011; Cercleux et al. 2012; Radu Săgeată, 2014; P. F. Xie, 2015; Summerby-Murray, 2015; Mark van Duijn et al. 2016) because this type of building represents a stage in history and a certain type of economic activity which lead to the development of cities and respectively human civilization (Bellakova, 2016). At the same time they represent a small part of the landscape of that time which offers an identity to a city, which is interesting for the post industrial societies and who feel nostalgia towards what industry used to be (Chelcea, pp.62, 2008; Xie, 2015). History must be preserved both in books, but also through physical remains which show us our origins and the ways in which we have evolved. Sutestad and Mosler, 2010, believe that post-industrial sites are important because they offer us a perspective on humanity's evolution and coexistence and on the landscape in time and, also they give to a community or city its identity and uniqueness, acting as the protectors of our origins and memories as human kind. Loures, 2008, introduces the term industrial landscape and says that it is important because it describes an important part of a place's history, representing the remains of its the social, economical and cultural conception and evolution which document and hold important values of the urban heritage.

Industrial architecture is rich and communicative, characterized by eclecticism and identity, it lead to the construction of work's cathedrals namely basilicas and classical temples, or residential spaces such as buildings and castles, in general reusing and bringing modifications to the previous civil and religious architecture (Fontuna quoted by Merciu et al. 2012). It can be said that industrial architecture is the architecture of bricks and iron which allowed the construction of immense halls and factories while keeping the costs low (Merciu et al. 2012), but besides these materials we also find in some buildings other classical architectural elements such as columns, cornices, blind arches, frontons , and other decorations which increase attractiveness. Architecture is an art, and the architecture of industrial buildings represents a combination between art and technique, which shows the social requirements and it becomes one with social traditions and technique (Ilkovicova and Meziani, 2016).

Douet (2011) and Horicka (2013) consider that the industrial heritage offers more development options in the city, offering variety, attractiveness, and uniqueness to an urban space and to public or private spaces inside it (Douet, 2011 quoted by Horicka, 2013). Besides the attractiveness offered by the history and architecture, of these industrial complexes need to be given some solutions and functions (Copic, et al. 2014) for them to become even more attractive to tourists, who aside from admiring the architecture of that time, feel the need to see some objects or machines, or to take part in some activities in those complexes. As such to increase interest from tourists, aside from renovating the buildings, which currently are in a horrible state, they must be given a touristic and cultural function (Pardo Abad, 2010; Cercleux et al. 2012; Merciu et. al 2014; Blagojevic and Tufegdžic, 2015) based on their characteristics. Some of these solutions and functions will be mentioned in this study, with the purpose of helping the preservation and development from a touristic standpoint of Bucharest's industrial zones, that currently are facing an advanced state of degradation.

The importance of restoring current industrial buildings can bring: the historical and architectural protection of the buildings; the restoration of old building who are presently lying in ruin in important areas of the city; minimal pollution and a reduced amount of time and resources needed (Petković-Grozdanovića et al. 2016), and having a positive impact on the economy by increasing the number of jobs and their specialization (Merciu et al. 2014).

About the restoration process and the importance of transforming old historical and industrial buildings into cultural complexes it is talked about in numerous studies (Gdaniec, 2000; Roberts, 2000; Lang, 2005; Mommaas, 2004; Smidt-Jensen, 2007; Timothy D. 2007; Luis Loures, 2008; McDonald, 2009; Pardo Abad, 2010; Stern and Seifert 2010; Jana Horicka, 2013; Cercleux et al. 2014; Merciu et al. 2014; Blagojevic and Tufegdžic, 2015; P.F. Xie, 2015 Eva Bellakova, 2016; Petković-Grozdanovića et al. 2016; Sonja Ifko, 2016).

By improving the quality of those spaces, we can say that we are also helping with the gentrification (Smidt-Jensen, 2007; Brueckner and Rosenthal, 2009; Merciu et al. 2011; Cizler, 2012; Merciu et al. 2014) of the central and surrounding spaces by modernizing abandoned zones, and moving here creative companies, museums, libraries, lecture halls, theatres, shops, and last but not least we must mention tourists, both from abroad and romanian, who will visit these complexes, both for the history, but also for the architecture and other attractions which will be localized here. At the same time, multiple decision factors consider now that the renovation of an abandoned industrial site represents an instrument for the modernization of neighborhoods by attracting residents with higher education, companies from the creative sector and tourists. (Mark van Duijn et al. 2016).

To demonstrate this we can take as example the conversions done in other states such as: The Orsay train station which has been transformed into the D'Orsay Museum (Paris); The Giovanni Montemartini thermo-power plant (Rome) into an art museum; The Hamburger Bahnhof (former train station) in Berlin is currently a museum of contemporary arts; The former Midland Railway Goods Depot houses turned into the Centre of the National Museums and Galleries of Merseyside (Liverpool); The water tower Favoriten (Wien) into an museum and culture venue/ exhibition space (Merciu et al. 2014). And other well known examples such as: the former power plant site, Erie, PA, US; Rheinauhafen, Cologne, Germany; King's Cross, London, UK; Kings Waterfront, Liverpool, UK; Gasometers, Vienna, Austria (Mark van Duijn et al. 2016). In Romania we can give as examples some of the few industrial heritage transformations such as: The Rahova Stock Exchange, The „Cartea Romaneasca” typography, the Glucose factory in Bucharest, The Timisoreana Brewery in Timisoara (Stănculescu, 2014; Dușoiu C., 2014; Merciu et al. 2014).

As such, by converting industrial building, most located in Bucharest's center surrounding ring an important step will be made towards the gentrification of the city will lead to stopping the migration of the population towards the suburbs by adding green cultural spaces in the central parts of the city.

Using advanced technology to increase attractiveness

After the rehabilitation of the architecture and designating some of the buildings in the complex as museums, based on the zones specialty, and other cultural functions, to grow attractiveness and to transport the tourist in the times of the industrial beginnings in Romania, they must see how the industrial activity happened in that time, how the people worked, how the machines were in motion and how they looked during that time. Because most of the machinery is not kept anymore, and founding a new functional brewery, to show the tourists how it was made, is not possible in a central part of the city, we can use new technology to make an activity with a high degree of interest from tourists a possibility.

Virtual reality can be understood as the complete absence of a real world (McLellan, 1996). It can be described as the process in which the user is placed in a world entirely generated by a computer (Hain et al. 2016). Carrozzino and Bergamasco, 2010, define VR as: „a complex technology which exploits more low-level technologies (such as computer science, 3D graphics, robotics etc.) in order to create a digital environment which users feel completely immersed inside, and which they may interact with”. In tourism we can use the concept of VR to bring extinct elements much closer to tourists. But these machines and objects are not entirely invented, what VR represents (the absence of reality), they are objected that have existed and are virtually reproduced now, which brings us to the term: AR (augmented reality), which is the concept that

brings together the virtual and real worlds (Liarokapis and White, 2005; Lanyi, 2014; Michalos et al. 2016). It is the process in which virtual information are incorporated in a real world, by placing them in time and space (Azuma, 1997) The main difference between AR and VR is that AR unlike VR, does not entirely exclude the real world, and virtual objects interact with the physical world and they are placed in the context of the real world (Vladimir Hain et al. 2016).

As such, to use cutting edge technology in tourism, we need AR (augmented reality) (Styliani et al. 2009; Younes et al. 2017; Gimeno et al. 2017), to reproduce virtual elements which we require, to replace the valuable physical elements which a building or space has lost, thus ensuring that ensuring a more complex utilization of the building or space.

Currently, we see a very strong influence in the development of technology across all fields of work: science, art (architecture) (Schwald and de Laval, 2003; Carrozzino and Bergamasco, 2010; Chairi Kiourt et al. 2016). The fabrication of architecture, machinery or objects can be materialized in the real word through highly complex mechanical systems, or they can be reproduced in the virtual world with ease (Carrozzino and Bergamasco, 2010). Taking into account the leaps technology has taken during this century, it can represent a central element, in the growth of economy, architecture, art and also tourism. By using it we can reproduce many of the lost elements, in the same place they originally occupied, to increase the immersion of the touristic activity. By reproducing the most important objects, sounds and scenes from the process, at the location of the rebuilt industrial objectives, where there are museums of the industry, the interest in them will increase without forcing the museum to own a section devoted to production meant to show the public how the factory was during that time (Hain et al. 2016).

As time goes by, we must realize that as technology progresses its great potential continues to increase and as such we much use it in any realm of activity (S. Worden, 1997; Rabbani & van den Heuvel, 2004; Merciu, 2015). Museums which do not have a lot of exhibits, but have a lot of information can enter the virtual realm, and use the data to reproduce exhibits in 3D (Styliani et al. 2009). And such museums could be more interesting and engaging than purely physical museums, because through advanced graphic animations, the visitor can be immersed and given a demonstration of the exhibit in action, and how different resources were used. The new technology also helps in combining education with the emotional engagement of the visitors (Loris Barbieri et al. 2017) which makes museums more interesting, and makes learning more enjoyable.

Augmented reality and the museum will be combined in the future and will give birth to a new generation of museums, much more complex and attractive. In the case of Romania's industrial heritage, where because of the authorities lack of care, many of the

original machines are not available anymore, as such 3D reproduction of the machinery would represent a great alternative, much more interesting and engaging for tourists, who aside from the information that they will receive here, will have the possibility to see how the factory came together, and how the machinery worked during that time, at the same time immersing themselves into the industrial era.

Examples and solutions for the existing industrial resources

The Bragadiru Brewery. Among the objectives in Bucharest's industrial heritage, the biggest potential is owned by the Bragadiru brewery (Figure 2), both through its almost completely central position, but also through the current state of its building, which despite degrading, could be renovated much easier than Assan's Mill, for example.



Figure 2. The localization of the Bragadiru brewery (west of it: the Old Customs Warehouse)

The industrial complex of the Bragadiru Brewery could play an important role in developing the tourism in Bucharest (Merciu et al. 2014). First of all the complex itself represents the beginning of the beer industry in Bucharest, which at the time supplied a part of the city's population with a guaranteed workplace, a period in which the industry was entering this city for the first time, developing it at the center and at the same time from the southern part of Dambovită (Cercleux et al. 2012). Second of all the architectural ensemble is representative of that time, it is a combination of brick and iron, some buildings include columns, arches, frontons, details and decorations, which despite being simple, are still very attractive and give uniqueness to the ensemble. In regards to the architecture of the Bragadiru industrial complex, we would have to say it is industrial but with some important classic elements. The Bragadiru Palace (Figure 3)

which is part of the complex is the best preserved part of it, and it is a true architectural masterpiece with a refined neoclassicism with renaissance elements. The Palace was built later and it served as the palace in which the beer was served, shows were being held, and other events for the workers, and it is the only building in the complex (Figure 4) which is still in use, it can be rented for all kinds of events such as weddings, baptisms, balls etc. (Dușoiu, 2014; Cercleux et al. 2012).



Figure 3. Bragadiru Palace



Figure 4. Inside the Bragadiru Complex

Source: Bîță, March 2017

Besides the architecture, the historic and cultural importance and location (Cercleux et al. 2012), after the renovation of the buildings (Meciu et al. 2014) the attractiveness and tourist interest in this area can be increased further by adding lush vegetation to it, and because of the large spaces between buildings and some of the flat surfaces on the rooftops (Figure 5, Figure 6), there would be ample place for it to grow without disturbing the rest of the complex, thus complementing it and offering it another point of interest, the plant life in the area, thus creating a green cultural park. This contrast between industrial architecture and plant life could symbolize that the polluting spaces of old devoid of vegetation, have now been conquered by it. And thus the polluting surfaces of old are replaced by new oxygenated spaces. As previously mentioned not only does the space between building allow the addition of plants, but the rooftops can be used as well and the plant life growing on it would offer it thermal isolation, phonic isolation, reduce pollution in the area, improve the visual appeal of the landscape etc.

Taking into account that the south central part of the complex is an open and rather large space, here a large central market could be arranged, with plant life of all kinds growing around it. In this south central space tables could be set up where different kinds of products could be sampled, or many kinds of events could be held.

After renovating the buildings to bring them as close to their original architectural style as possible, they must be given functions to increase interest in the

area, here an entire cultural activity could be developed: theatres, cinemas, libraries, halls for conferences or other kinds of events (Merciu et al.2014), but also restaurants and bars could be opened to make use the landscape and ambient to commercialize their products, especially beer. The most important thing that must be made after the construction of this park, to bring as many tourists and immerse them into the start of the industrial times in Bucharest, is the creation of a beer museum (Blagojevic & Tufegdzcic, 2016; Merciu et al. 2014) considering that in Bucharest there have been dozens of breweries but no museum with this purpose.

Why open a beer museum in Bucharest? Well, the Bragadiru Brewery was founded in 1894, and buildings were still raised in the area until the years 1948 (Chelcea, 2008, pp. 129; Giurescu, 2009, pp.338; Cercleux et al. 2012; Duşoiu, 2014; Merciu et al. 2014), which makes this brewery, one of the oldest beer breweries in Bucharest, together with the Oppler Brewery built in 1870, which currently does not exist anymore, and the Luther Brewery opened in 1869 (Giurescu, 2009, pp.326), which has only 3 buildings left. Among these 3 breweries who were competing during that time, at the start of the 20th century, the Bragadiru Brewery reigned supreme in regards to production and equipment (Cercleux et al. 2012), overtaking the older breweries Luther and Oppler. Liviu Chelcea (2008) noted that at the beginning of the 20th century the brewery had a 120 HP steam engine and around 60 workers (Mucenic 2006 quoted by Liviu Chelcea 2008, pp. 147), which proves the huge production output of the brewery and also that it offered a large number of jobs.



Figure 5 and 6. Buildings from the Bragadiru Brewery complex

Source: Biță, March 2017

All this historic data, and many others, could be used in a beer museum which could be opened in the cultural complex developed here. In the museum there could be exhibits on the following subjects: the evolution of the beer industry in Bucharest, objects, tools and machinery of the time which took part in production and explanations on how they were used and how they functioned respectively, photographs of the many

kinds of beer, bottles and other objects that are part of beer's history in the city, and a section for sampling different kinds of beer. In this museum there could even be exhibits on modern brewing machinery, highlighting the advances in brewing over time, and comparing the ways of the past with the ways of today. On top of the physical items in the exhibits, we can also use augmented reality to reproduce objects and machinery that does not exist anymore. This museum's mission will be to show the world a time of glory for Bucharest's many breweries, not just the history of the Bragadiru brewery, but of all breweries that have existed in the city, because as previously stated during the 20th century there have been dozens of beer factories in Bucharest.

The fact that this industrial complex is at the limit of what we believe is the old center of Bucharest, because the construction blocks from the communist era only start south from this building, make this area part of this city's old center. As such, we have an old center of craftsmen, built in the 15th and 16th centuries (represented by an economic activity which has led to the development of the town), and towards the south, an old industrial center from the end of the 19th century until the beginning of the 20th century (which also represents a historical economic activity which has led to the development of Bucharest), and despite the negligence of the authorities leaving the second in a state of degradation currently. We consider both extremely important, both being pylons of the city's development and historical places which must be preserved to represent the identity and history of Bucharest.

Taking into account that Bucharest does not have an old center of large proportions, this complex, after rehabilitation and its transformation into an industrial cultural park, could represent a continuation of Bucharest's old center south of Dambovită. As such in circuits organized for tourists starting in the center of the city, tourists can travel through history going from the medieval times in the current old center, to the industrial times in the Bragadiru brewery complex, then to the communist times considering the brewery's proximity to the People's House, and afterwards they can even reach the modern age considering it's present almost everywhere in town.

In conclusion, the importance of the complex is crucial for the future development of tourism in Bucharest, by adding an element of functionality of history, and also more choices for the tourist. The marketing for the new area can be done in multiple ways and highlighting a large number of advantages appealing to a large variety of tourists, considering this complex could be promoted for: its historic importance and location, the beer museum in the area, its park with diverse plant life, cultural activities, etc. This could make the complex even more attractive than the current old center, welcoming large numbers of tourists, which will lead to a large development for this part of the city at least from a tourism standpoint, and in the future other touristic points of interest can be added to the area.

The Old Bucharest Customs Warehouse. Also considered almost a part of the Bragadiru Brewery Complex because of its close proximity (opposite of it on the Calea Rahovei street) is the old Bucharest customs warehouse (Figure 7), whose construction started at the end of the 19th century and ended during the first half of the 20th century. (Cercleux et al. 2012; Merciu et al. 2012). Besides the main building which is an important example of industrial architecture, part of this complex are also a series of halls and warehouses, and one of the oldest water towers in Bucharest, which also keeps its architectural design like the other buildings in the ensemble.



Figure 7. The Old Bucharest Customs Warehouse

Source: Biță, March 2017

Until recently the building was in an advanced state of degradation, after a fire started, and it was abandoned for many years, but it was rebuilt and preserved after a costly restoration project part of the greater project Ark (Merciu et al. 2012). The project's purpose was bringing back the most defining elements of the industrial architecture, the building after its transformation currently serves as office space for the creative firms, a space for expositions and a market for the creative industries (Cercleux et al. 2010; Merciu et al. 2012; Dușoiu, 2014).

The refurbishing which happened opposite of the Bragadiru Brewery should serve as an example to the neighbor which despite having immense potential, lies in ruin, the possibility for its renovation lowering as years pass by and its degradation becomes closer to completion.

This area already transformed into a center for the creative industries, together with the Bragadiru Brewery, if it were to be transformed into the Bragadiru industrial cultural park, would form the biggest renovated industrial park in the country, which will attract large amounts of tourists and keep the history of Bucharest alive, in an old industrial center which will host many activities be they cultural, relaxation, information or of any other kind.

The Filaret Area. I chose to talk about the Filaret Area (Figure 8), because here we have multiple industrial objectives with potential, which through renovation and by being assigned touristic functions can lead to the development of tourism in this part of the city.



Figure 8. The main industrial complexes in the Filaret Area

This area, just like in the case of the Bragadiru Brewery, represents one of the oldest industrial areas in Bucharest, because at end of the 19th century in this area was the southern border of the city, and at the same time its periphery.

In this area at the end of the 19th century develop multiple factories and industrial halls mostly because of the existence, at their center, of the first train station in Bucharest, the Filaret train station (Chelcea, 2008, pp.116). Because of their age, these factories have an industrial architecture which is valuable and unique because the architecture of that time was a lot different from the one from the communist period, or the current one.

Filaret Train Station. It's the most important part from this previous industrial region, because it was the first train station in Bucharest, which opened in 1869 in the location which at the time was part of the city's century in this area was the southern border of the city, and at the same time its periphery, and its purpose was to unite it with the city Giurgiu and its harbor to the Danube (Chelcea, 2008, pp. 116; Giurescu, 2009, pp. 316, 325). We can say that with this train station (Figure 9, Figure 10), Bucharest is conquered for the first time by rail transport, a period after which the city saw an immense economic growth and a continuous development of its railroads. Only three years after it's completed, the Targoviste Train Station (The North Train Station) is

also built, a moment which starts the decline of the Filaret Train Station (Chelcea, 2008, pp. 116).

Around this train station multiple industrial complexes have been built because of the proximity to it which could provide them with resources for production. Currently, through renovations and assigning touristic functions, this area could bring back a part of the city's mood during that time, when this area was strongly industrialized.

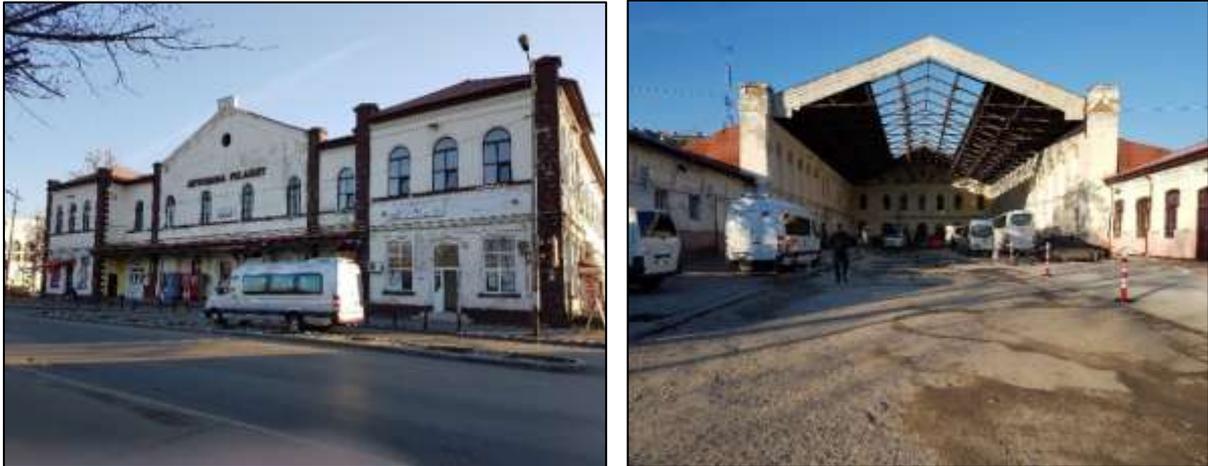


Figure 9 and 10. Filaret Train Station, currently the Filaret Bus Station

Source: Bița, March 2017

To bring back the industrial sentiment of this zone, the Filaret Train Station must be given a function closer to its first activity, the train station activity. Taking into consideration that the Filaret Train Station (currently the Filaret Bus Station) is opened in the southern part (it has the form of an U, currently giving it the appearance of a classic train station) towards an empty space which can be continued in the south and west of it (an interior court stretching for more than hundreds of meters), here can be opened an outside museum, dedicated to the first train engines of Romania and the entire world, and their ulterior evolution can be highlighted. Some locomotives can be moved from the CFR museum, there can be exhibits of small scale replicas, blueprints, information, railroad plans, even some rails and other systems can be exhibited, in the back court. Considering that Bucharest is a very polluted space, this open air museum of railroad systems and locomotives, can be combined with plant life. The plant life in this case can symbolize that in the past trains had to cross great distances through nature, and they often carried products from it such as: grains, vegetables, fruits, natural resources.

For the diversification of the touristic activities which will take place here we can open a small part of the railroad which will leave the train station and go south where tourists will be able to take a short ride with one of the oldest locomotives which

have function in Bucharest on the same route that Carol the first himself used when he inaugurated the road to Giurgiu. Another point of interest that can be given to this area is the opening of a restaurant serving traditional food which can bring together the industrial activity and some traditional meals which were served during that time period, as such the area can be promoted on multiple fronts, bringing complexity and at the same time increasing revenue. As such to an already valuable monument, because of its age and history, the museum of railroad history and gastronomic tradition is added, thus diversity of the attractions in the area is increased, making the objective more complex.

Presently the Filaret trains station serves as a bus station since 1960 (Chelcea, 2008, pp. 117) when it was transformed by the communist authorities, because of the city's expansion towards the south, leaving the station in an adjacent area. Both inside it and around it there are almost always buses, and in its exterior parts there are multiple kinds of shops and transport companies. We are absolutely sure that this bus station function given by the communist authorities without taking into consideration other alternatives, can end, or be moved somewhere else, this area could be used as a successful point of interest for tourism thus creating more revenue, and a bus station could function in other areas just as well, list of valuable areas from a historical, cultural end touristic standpoint.

The matchstick factory. Close to the old Filaret train station, in function until the year 1990 the matchstick factory (Figure 11), built in 1879 (Merciu et al. 2014) and officially opened by the king Carol the first himself, and judging by the speeches offered by the nobles present at the opening (Chitac 1996, pp. 8), it is very clear how important industry was to the development of the country during that time " the power of a nation is measured, in modern times, mostly through its forces of production. Industrial production is the most important, the safest and the least prone to fluctuations..." (Chitac 1996, pp. 8). The factory was equipped with machinery brought from France and Belgium and produced 300.000 matchsticks each day (Merciu et al. 2014). Until its construction, Romania imported 5 to 6 billion matchsticks from the Austro-Hungarian empire each year (Chitac, 1996, pp. 8).

This factory at first made matchsticks that were longer than the ones we have today, and they were packaged in cylindrical cardboard boxes, decorated with scenes from the production process or with kings of the country, such as Carol the first, queen Elizabeth, king Ferdinand, and Queen Mary (Chitac, 1996, pp. 8). These matchstick boxes were so beautifully decorated, that they are still kept by the great collectors. Over the course of the factory revolution the matchsticks evolved with it, thus they can be used in a matchstick museum. A matchstick museum would represent an innovation and it

would be simple to create exhibits, considering that products from this factory are readily available, and the museum could even show the evolution of humanity's methods of creating fire, from its beginnings and until the invention of the matches, which were the most used tool for starting a fire in the 19th and 20th centuries, and until today's tools were created.



Figure 11. Buildings of the old matchstick factory, renovated using colors that do not match the original design
Source: Bița, March 2017

This factory at first made matchsticks that were longer than the ones we have today, and they were packaged in cylindrical cardboard boxes, decorated with scenes from the production process or with kings of the country, such as Carol the first, queen Elizabeth, king Ferdinand, and Queen Mary (Chitac, 1996, pp. 8). These matchstick boxes were so beautifully decorated, that they are still kept by the great collectors. Over the course of the factory revolution the matchsticks evolved with it, thus they can be used in a matchstick museum. A matchstick museum would represent an innovation and it would be simple to create exhibits, considering that products from this factory are readily available, and the museum could even show the evolution of humanity's methods of creating fire, from its beginnings and until the invention of the matches, which were the most used tool for starting a fire in the 19th and 20th centuries, and until today's tools were created.

Currently the factory is out of use from 2000 (Merciu et al. 2014; Cercleux et al. 2014), and some of the buildings of the old matchstick factory are in a state of degradation, while others were renovated using poorly matching colors and house car services. In the complex there is also a water tower, which has been declared a historical monument (Merciu et al. 2014), it resides in a good state of conservation and it could help improve the architectural diversity of the ensemble. The industrial architecture of that time is the main attraction, but without a function given to the buildings it is very hard to promote and use this characteristic, as such we can give them the function of the matchstick and fire sources museum, which could make them attractive for tourists.

Bucharest's first power plant. On the other side of Carol Park, on the General Canadiano Popescu street, close to the old Filaret train station and opposite of the Dimitrie Leonida Technical Museum, lies Bucharest's first power plant (Figure 12, Figure 13). Which keeps its authentic architecture with arches at the frontons and imposing architectural details. The combination of the bricks with the masonry (Dușoiu, 2014), which are easy to see from the outside as well, combined with the iron in the upper part of the interior and with the imposing presence of the two water towers, transform this building into a true industrial fortress with a very high degree of architectural attractiveness. The building is in excellent condition, considering it's over a century old.



Figure 12 and 13. The building of the first power plant in Bucharest

Source: Bîță, March 2017

It's officially opened in 1908 and it is one of the top power plants in Europe (Chelcea, 2008, pp.161; Giurescu, 2009, pp. 332; Merciu et al. 2014). It bears a striking resemblance to the power plant in Lille, having very advanced machines and equipment for that time, like the Carels Freses diesel engines, each having 675 HP, experiences a rapid growth in its energy production, until the communist period when it's moved to another area (Chelcea, 2008, pp. 161). This building represents an important symbol, of Bucharest's development, namely its transition from gas lighting to electric lighting. (Chelcea, 2008, pp. 161).

Currently through its architecture dominated by massive towers, taken from the castles of old, represents one of the most valuable industrial points of interest, both through its architecture, but also through its location, situated in close proximity to the old Filaret train station and the old matchstick factory, which in the future too extensive renovations, rearrangements and after being given new functions for touristic activities, will form an entire industrial area, in which visiting tourists can become immersed in that period.

Some equipment is still kept in the building. Most of the machinery from it have been moved to the Dimitrie Leonida Tehnical Museum across the road from it. Taking into account that this museum is housed in a building built in the communist period, simple and without any architectural value, easily gives a new use to Bucharest's old power plant. From our point of view the Dimitrie Leonida Technical museum, would be better if it was moved tall building with industrial history and architecture, instead of a simple building close to it (despite the higher costs of renovating the old power plant). Another recommendation would be to keep part of the museum in the current building, and in the building of the old power plant to move only the exhibits which are associated with electricity (Merciu et al. 2014). Like so tourists will be visiting these museum can be transposed in the times when Romania's industry was starting to bloom, through the building's architecture, history but also through the equipment and machinery present which was used during that time.

Wolff S.A.R former factory. Opposite of the current Filaret bus station, on the Doctor Constantin Istrati street, lies the old factory of swiss engineer Erhard Wolf (Figure 14, Figure 15), which was built in the year 1887 and was used to produce warheads for the Ministry of War (Chelcea, 2008, pp. 117; Giurescu, 2009, pp. 317, 338). After the Army's Arsenal decides to build their own warheads, depending on the opportunities offered by the market, the factory manufactured a diverse range of products, from hinges, to machinery for the oil industry, metal bridges, equipment, hydraulic and pneumatic installations for nuclear plants (Chelcea, 2008, pp. 117; Bălteanu, 2011). Before the first World War, Wolff exported iron gas tanks and installations for burning naphtha to Turkey, Egypt and Italy (Bălteanu, 2011), and it used to manufacture metal beams which were used in the extension of the Peleş castle (Iamandescu, 2007 quoted by Chelcea, 2008, pp. 121). During the first World War he withdraws in Iași, and during communism the factory is nationalized and renamed as the Red Star metallurgic plants (Chelcea, 2008, pp. 117; Bălteanu, 2011).

Currently a part of the complex is owned by Sc. Hesper S.A (Chelcea, 2008, pp. 117), which is one of the main manufacturers of hydraulic and mechanical security technologies in Romania, and the other part of the old halls can represent an example for industrial objectives which are not properly used from a touristic or cultural standpoint, because it has been transformed through a reconditioning project of the old industrial spaces, into a cultural center which also hosts events, the project was started by Zeppelin in association with Eurodite.

This small reconditioning of some of the old halls in the old Wolff factory cannot have a huge amount of interest, taking into consideration that it's located in an area without a large number of touristic points of interest, and the marketing for this zone

does not exist. But through reconditioning all the points mentioned previously, this area which has not been able to find a concrete economic function since it ceased industrial activities, could become one of the most sought after places for tourism, which could immerse tourists into Bucharest's industrial period, while also offering a lush, green space in the form of Carol Park, which could be an attractive central point around which an entire industrial history could revolve.

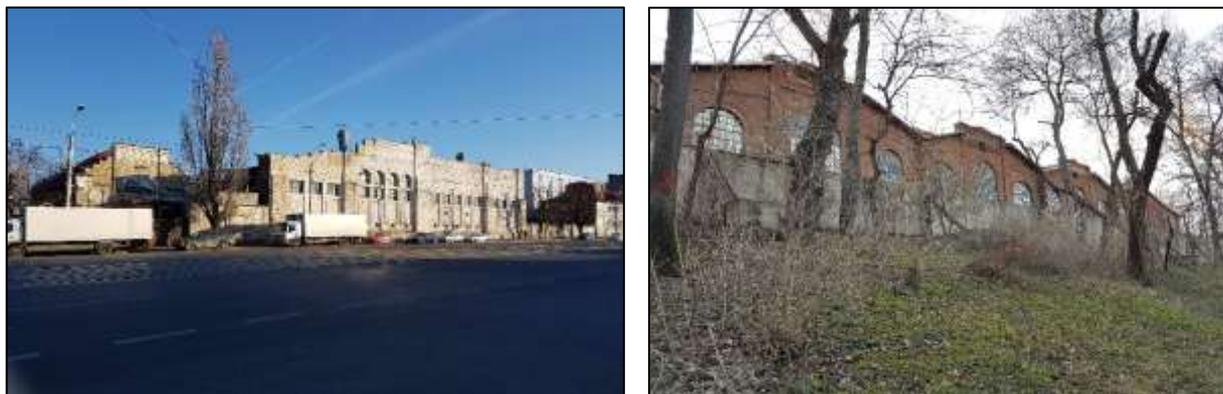


Figure 14 and 15. Buildings of the old E. Wolff S.A.R factory

Source: Bîță, March 2017

The Assan Mill. The first factory in Bucharest and at the same time the first steam powered mill in Bucharest (1853), is the most important industrial complex in the city, considering its age and importance to that time period (Cercleux et al. 2012; Dușoiu, 2014). Through it the power of the steam engine was brought to the country, which helped develop the city and the country. The mill (Figure 16) was built in the second half of the 19th century when there was no other brick factory in Bucharest (Dușoiu, 2014). The machinery for the mill was brought from Vienna, from the "Siegel" factory, they were transported through the Danube and then from Giurgiu to Bucharest, the journey taking an entire month (Zafiu, 2002; Chelcea, 2008, pp. 206). This long trek attests to the fact that it was the first steam powered factory in the city, which had some of the top equipment available in Europe, since the beginning, keeping itself to high standards by constantly obtaining the newest technologies (Cercleux et al. 2012; Pippidi, 2012, pp. 266). It remained one of the most important factories in Bucharest until it was nationalized, when it started to decline.

The steam engine enters Bucharest in a time when neither the mentality of the inhabitants or the bakers was ready for it, because in the beginning bakers could not be convinced to use this new mill because they thought a machinery powered by fire and which blew smoke, would also burn the flour (Chelcea, 2008, pp. 204). As such, we can talk about the impact it had on the society's development, helping it evolve both socio-economically, but also intellectually, by learning more about how these first steam engines functioned, enough to be convinced to use them to mill wheat.

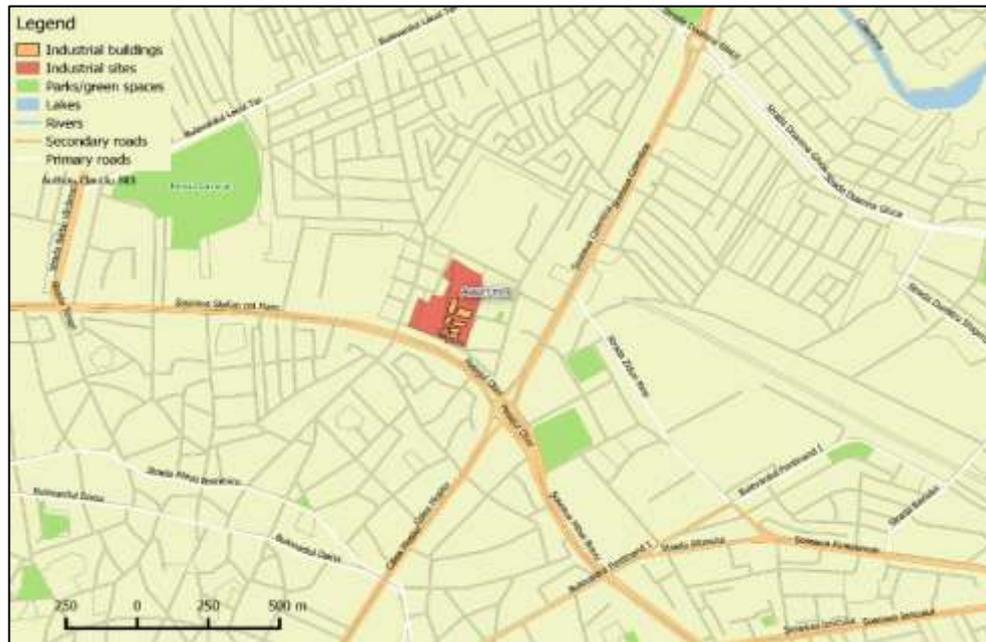


Figure 16. The location of the Assan Mill complex

In 1906, aside from the famous mill which milled each day a huge quantity of wheat (7 cars of wheat), so much in fact that the flour could be used to feed 100.000 people, there is also a vegetable oil factory, a paint factory, another for agricultural machinery fats and another for coconut extract. (Giurescu, 2009, pp. 338; Cercleux et al. 2012; Pippidi, 2012, pp. 266). The imports necessary for those factories came from many countries such as: Africa, Australia and New Zealand (Cercleux et al. 2012; Pippidi, 2012, pp. 266), which means that this mill wasn't just the first mill powered by a steam engine, but also represented an important economic nucleus at that time, offering many jobs to residents and developing the northern part of the town.

The Assan mill (Figure 17), which kept its machinery intact, all of which were very valuable, and could be important pieces for a museum, is treated today by its current owners like a bunch of scrap iron and bricks (Pippidi, 2012, pp. 267). After all the valuables had been stole, the current owners tried to destroy it by using various ways, so that they can use the land it's built on in other ways.



Figure 17. Assan mill complex. Source: Biță, May 2017

Even though this industrial monument, which has been extremely important for the industrial revolution of Romania left the communist period good state of preservation, it seems like nobody cares about its importance, and today after numerous fires and thefts, we find it in an advanced state of degradation (Cercleux et al. 2012). City Hall's and the Ministry of Culture's failure to create a strategy to save this monument, has almost lead to its destruction.

The falsifying privatization has split the factory between two different private firms, one of them already in bankruptcy, and the other is interested in selling the land to cover its debts, and also, went against the laws of the real owners which claim the complex as their property to this day (Pippidi, 2012, pp. 267). This destruction historic monument is that by so-called capitalists which only care about their businesses and not by homeless people which could help in deteriorating this monument for economic purposes (Pippidi, 2012, pp. 267). Thankfully, even though the state of degradation is almost final, it is not too late for the complex to be saved. After a well put together plan for rehabilitation and conversion, this moment could become a very attractive area from a touristic standpoint (Cercleux et al. 2012).

Taking into account that in that part of town there are very few green spaces, this complex could be transformed into a green area, and the two or three more important buildings could be saved, rearranged, and they could house cultural activities (Cercleux et al.2012), educational activities, recreational activities, sports, expositions and other activities, here we could also open a mill museum, even sell bakery products. This way we can keep the history alive through the grandiose architecture and to the location in which the mill operated from, through the museum which will bring more details about the place's history, and through the products which will represent another sentiment that will transport us to that time. On top of the location and the products, there would be the green spaces which are necessary for a city with a very large population and an increasing amount of pollution.

The Luther (Grivița) Brewery. Another example of a complex with potential in Bucharest is the old Luther Brewery, built in the 1869 and remaining market leader until the end of the 19th century (Liviu Chelcea, 2008, pp.181; Giurescu, 2009, pp.326), when it is over taken by the Bragadiru Brewery. In the newspapers of the time it was written in advertisements that the brewery owned large cellars in which millions of liters of beer were kept, of the Pilsner, Layer and Bavarian styles of beer, extracted from barley and hops from Saaz. (Direcțiunea Fabriciei de Bere E. Luther, 1898). From the same advertisement published in the Epoca newspaper in the year 1898 it is written that the Luther brewery reached a very high level of economical development because it also had a distribution service, made up of many carts, which could transport the beer to

the clients which could order it from home through the phone network which was recently installed in the factory for that purpose. (Direcțiunea Fabriciei de Bere E. Luther, 1898). After nationalization it becomes less important, and after 1989 it is privatized.

The ensemble has kept its initial architectural traits, but lost some of its initial buildings during the construction of the Basarab bridge (Dușoiu, 2014), and in 2014, the biggest part of the complex was demolished to build a supermarket in the center of it, leaving behind only three buildings from the initial complex. The construction of a supermarket in the center of a complex which could have been regenerated makes the transformation of the 3 remaining buildings into tourist attractions impossible. The only solution for the buildings from the old factory, which kept the old architecture, and were part of the initial factory, is for them to be rearranged and transformed into office buildings or private firms, without ruining the exterior architecture of the buildings, and without contrasting with these types of modern buildings built in the area. Leaving them behind as architectural remains of what was once the Luther brewery (Figure 18, Figure 19).

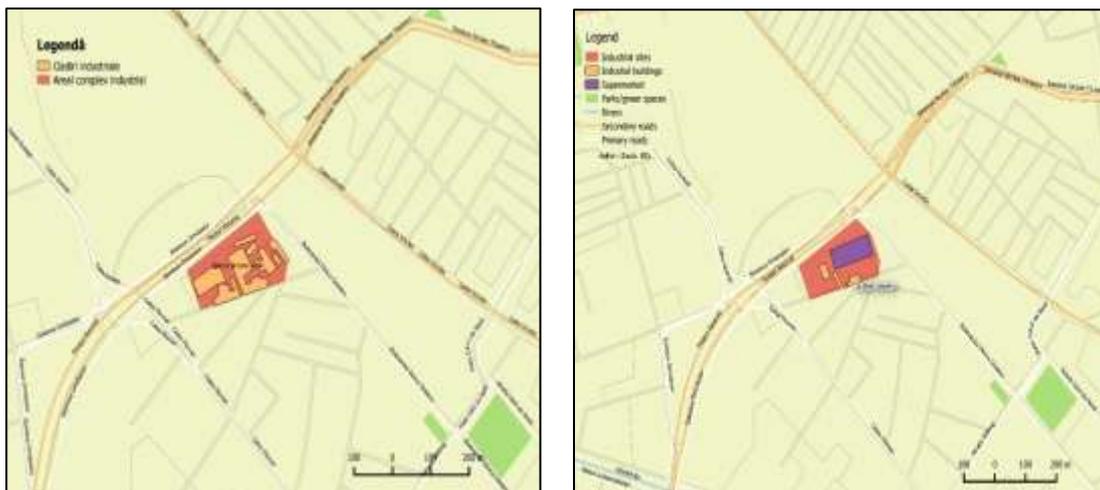


Figure 18. Configuration of the industrial buildings - former Luther brewery 2013

Figure 19. Configuration of the buildings - former Luther brewery 2017

An example that should not be followed in the conversion of these buildings, is that of the old typography "Cartea Romaneasca" where after conversion it was transformed into a center for commercial services and activities (Chelcea, 2008, pp. 194; Dușoiu, 2014), which added to the old architecture and the building itself and new modern building, fused to the old one which ruins the architectural identity of the old building (Mericiu et al. 2012). The contrast is created by the difference between building materials, the new building is made up mostly from glass while the old one is made mostly from bricks. As such, there have to be specific norms imposed during renovation, otherwise the architectural integrity of the building will suffer.

The H.I. Rieber Carriage Factory. Another building from the industrial period which has a lot of potential from a touristic point of view, seems to be hidden right in the middle of the city on the Romulus street (Epoca typography, 1898) near the intersection with the Calarasi Way. It is certified in the year 1898 by the advertisement made by the factory in the newspaper Epoca. In the advertisement the location is specified and also that it is in a new building with huge specialized workshops, to match the development which the factory was undertaking during that time (Epoca typography, 1898), which proves that the factory operated before this date but in a smaller building. The factory had fine materials and specialized workers, which could satisfy orders for carriages, broughams, coaches etc based on the newest models, which could rival the ones produced abroad (Epoca typography, 1898).

The building in the neo-gothic style with moorish and byzantine influences, looks more like a palace rather than a simple carriage factory from the beginning of the 20th century (Figure 20). Attached to this factory is the home of its owner to its left, the home is also in a neo-gothic style, which makes this small ensemble even more unique, which is only enhanced upon by the fact that it's the only factory in a neo-gothic style in the country.



Figure 20. The home (left) and the carriage factory (right) of H. I. Rieber

Source: Biță, May 2017

There is not a lot of information about this building, and it's not classified as a historical monument, and it does not draw anyone's attention enough to find a solution for it to be used in a way, and for more information regarding its past to be found, which could be used in promoting it.

Even lacking additional information, taking into account the valuable architecture and that it was the first carriage factory in Bucharest, it is enough to propose the

opening of a carriage museum, on the grounds of this wonderful building, especially since the carriage has played a very important role in the history of humanity, serving as the main mode of locomotion until the industrial revolution and the apparition of new means of transportation. An example of an item that could represent a valuable exhibit for a museum, is the carriage of king Carol I, or other carriages used by the Romanian nobles, which are still kept in some places.

Other industrial zones, with a lower value for tourism. The old Malaxa locomotive factory, currently named Faur, which has an ample recorded history of industrial activity during the start of the 20th century (Giurescu, 2009, pp. 365; Duşoiu 2014), and has an authentic architecture. Currently it has lost some of its attractiveness, because the complex has seen major changes both during communism and after it, new buildings were added and the old ones were rearranged poorly (BeloIU et al. 2015). Currently the zone is functional and it is constantly expanded upon with new modern buildings and halls, which diminish its attractiveness for tourism.

The Floreasca Ford Factory is another important industrial objective, more from a historical perspective rather than an architectural one (Giurescu, 2009, pp. 365). It has a greater historic importance, because it is the first important car factory both in Romania and Eastern Europe (Lavinia Popica, 2010). It appeared in Romania in the year 1935 and it remains in use until it is nationalized by the communist regime (Lavinia Popica, 2010). Its importance is given by the fact that it was the first car factory in this part of Europe, equipped with a fully functional assembly line, which offered dozens of jobs and could produce cars en masse (Popica, 2010). Currently the original architecture is not kept in its entirety, both because of the destruction caused during the communist period, but also because of recent renovations, which covered the bricks of the building using different materials and colors.

Other objectives important historically and architecturally are: the Obor train station, which was built in the year 1904 to reduce railroad traffic at the North train station (Chelcea, 2008, pp. 211). The building has an attractive architecture presenting the elements of a grandiose neoromanian style, which makes it perfect for restoration after the trainstation's closing. Other examples which had nothing to do with the industrial production but still had an architecture made from brick, iron and masonry are: The Fire Tower, the Obor Halls, the Trajan Hall (BeloIU et al. 2015).

The tourist perception survey

In regards to the tourists' opinion on the industrial heritage and tourism developed from it, the responses were mostly positive. When it comes to industrial architecture 61% of the Romanians and 63% of the foreigners surveyed were interested,

the rest responded negatively or that they do not know. In regards to wanting to visit museums dedicated to the industrial period, the percentage of people interested grew to 67% in the case of Romanians and to 73% for the foreigners.

When it comes to actions and new functionalities for abandoned industrial spaces, most (66% Romanians and 70% foreigners) were interested in their rehabilitation so that they can be transformed into cultural areas, after which follows the construction of residential neighborhoods (14% Romanian tourists and 13% foreign tourists), commercial complexes and office buildings came in last place, and the rest considered that other activities would be better for these complexes.

The best received idea was to use augmented reality in museums of industrial history, 87% of Romanians and 93% of foreign tourists agreeing with this innovative idea. As far as the cultural and economic activities that will take place in these complexes, the Romanian tourists felt that the best choices would be: museums 45%, followed by shops / bars / restaurants 18%, and in last place supermarkets / malls with 2%. Foreign tourists considered the museum function (53%) as the most suitable, after which the theater / cinema function (20%), followed by the residential apartments option and in last place for them was also the supermarket/mall. We observe that most tourists, whether Romanians or foreigners, gravitate towards cultural activities such as museums, theaters, cinemas, consumer activities and residential activities, rejecting the idea of office builds, supermarkets or other commercial areas.

In regards to knowing about sites from the second half of the 19th century and the first half of the 20th century in Bucharest, 41% of the Romanian tourists responded positively and foreigners only 6% because they don't know industrial sites that are currently in degradation without renovation or promotion plans that could make them known to foreign tourists. Most of the Romanian tourists who answered positively to this question were older and probably even saw some of the factories while in usage.

As such, from the responses above we can infer that most of the people surveyed are interested in maintaining and protecting the industrial heritage as important artifacts which highlight the evolution, identity and uniqueness of the urban space (Loures, 2008; Douet 2011 quoted by Horicka 2013; Sutestad and Mosler, 2015), the interest being higher when new virtual technology is used in them. In regards to functions and activities which will take place in these complexes, it becomes clear that they wish for cultural and recreational functions and they reject the idea of commercial complexes or office buildings. Based on this analysis it shows the fact that we can use the opinion of the local community to protect the industrial heritage and at the same time to help with its conversion so that it can develop the city's culture and tourism (Merciu et al. 2011; Cizler 2012). At the same time there can be public-private partnerships which

involve the local community for the development of the heritage and for local economic benefits (Horicka, 2013; Merciu et al. 2014; Merciu, 2016).

4. CONCLUSIONS

This study was meant to highlight the importance of testimonies left behind by one of the greatest revolutions of mankind. These testimonies that are extremely important for our identity and culture must be preserved, preserved with the original architecture and transformed into green cultural spaces and museums, where we can use new technologies to increase their attractiveness. These changes will improve the quality of the city's spaces and will increase interest both for locals and tourists, be they romanian or foreigners.

Currently Bucharest does not properly use the industrial heritage in the touristic activity, even though it has a huge potential in this respect, potential which decreases each passing day together with the increasing degradation of industrial buildings, which are not included in the city's rehabilitation/ development plans. The Bragadiru Brewery has a great location and a very high potential for the creation of a small historical industrial city center, especially since it can host a small market inside. The old factories and the Filaret train station have the potential to revitalize their part of the city, through different tourist attractions placed there, and the Assan mill has the historical importance needed to turn it into an extremely attractive tourist cultural complex.

The solutions for transforming them are many, but we must take into account the ones which best serve to keep alive the identity and culture of the city, the economic development and the increase of interest from tourists, which points us towards developing cultural complexes dominated by museums, theaters, cinemas, libraries, various shops, themed bars and restaurants and other activities to bring about economic development, while at the same time developing the identity and culture of the city.

In order to be able to put into practice the solutions proposed in this study, it is necessary to solve for the first time the problems related to the legislation, namely the creation of a law forcing the current owners to renovate the buildings and to give them certain functions, with the cultural functions to be the most important, and that do not obey the law, should be forced to lose ownership of the complex. In regards to the cultural heritage, the legislation must be much harsher, because with the passage of time the buildings degrade without the possibility of being recovered.

5. REFERENCES

- AZUMA, R. 1997. A Survey of Augmented Reality. *Teleoperators and Virtual Environments*, 6 (4), pp. 355-385.
- BARBIERI, L., BRUNO, F., MUZZUPAPPA, M. 2017. Virtual museum system evaluation through user studies. *Journal of Cultural Heritage*, 26, pp. 101-108.
- BĂLTEANU, A. 2011. *Studiu Istoric – Uzinele Wolff din București*, București AIR.
- BELLAKOVA, E. 2016. Analysis of Industrial Architectural Heritage – Iron and Steel Plants as a Development Potential, *Procedia Engineering*, 161, pp 1926-1931.
- BELOIU, M., MITINCU, C.G., SIMA, G.L. 2015. Dinamica patrimoniului industrial și perspective de valorificare. *Studiu de caz: Platforma industrială Republica*. *Analele Asociației Profesionale a Geografilor din România*, 6 (6), pp.71-81.
- BLAGOJEVIC, M.R. & TUFEGDZIC, A. 2016. The new technology era requirements and sustainable approach to industrial heritage renewal. *Energy and Buildings*, 115, pp. 148-153.
- BRUECKNER, J.K. & ROSENTHAL, S.S. 2009. Gentrification and neighborhood housing cycles: will America's future downtowns be rich? *Review of Economics and Statistics*, 91 (4) pp. 725-743.
- CARROZZINO, M. & BERGAMASCO, M. 2010. Beyond virtual museums: Experiencing immersive virtual reality in real museums. *Journal of Cultural Heritage*, 11, pp. 452-458.
- CEPOIU, A.-L. 2009. *Rolul activităților industriale în dezvoltarea așezărilor din spațiul metropolitan al Bucureștilor*. Bucharest: Universitară.
- CERCLEUX A.-L., MERCIU F.-C. 2010. Patrimoniul tehnic și industrial din România. Valorificare, riscuri și perspective de dezvoltare, *Analele Asociației Profesionale a Geografilor din România*, 1(1), pp. 45-54.
- CERCLEUX A.-L., MERCIU F.-C., PEPTENATU D. 2014. Conversion of water towers – an instrument for conserving heritage assets. *Urbanism, Architecture, Construction*, 5 (2), pp. 3-20.
- CERCLEUX, A.-L., MERCIU, F.-C. 2013. Effects of metropolitan economic reorganization in the Bucharest-Ilfov and Southern Muntenia development regions. *Annals of the University of Oradea*, 2, pp. 308-320.
- CERCLEUX, A.L., MERCIU, F.-C., MERCIU, G.-L. 2012. Models of technical and industrial heritage re-use in Romania. *Procedia Environmental Sciences* , 14, pp. 216 – 225.
- CHELCEA, L. 2008. *Bucureștiul postindustrial*, pp.101-204, Bucharest: Polirom.
- CHITAC, V.D. 1996. *Filumenie: Începutul fabricării chibriturilor în România*, Colecții brochure.
- CIZLER, J. 2012. Urban regeneration effects on industrial heritage and local community – case study: Leeds, UK. *Sociologija i prostor*, 50, (2), pp. 223-236.
- COPIC, S., DORDEVIC, J., LUKIC, T., STOJANOVIC, V., DUKICIN, S., BESERMENJI, S., STAMENKOVIC, I., TUMARIC, A. 2014. Transformation of Industrial Heritage - an Example of Tourism Industry Development in the Ruhr Area (Germany). *Geographica Pannonica*, 18 (2), pp 43-50.

- DEL POZO, P.B., GONZALEZ P.A. 2012. Industrial Heritage and place identity in Spain: From monuments to landscapes. *Geographical Review*, 102 (4), pp. 446-464.
- DIRECTIUNEA FABRICEI DE BERE E. LUTHER. 1898. Către apreciatorii berei „Luther”. *Epoca newspaper (Third Edition)*, series 2, year 4, no. 725.
- DOUET, J. 2011. The “art factory” a natural re-use process. *Industrial Heritage – On the Edge...*, Conf. proceedings, pp. 166-171.
- DUIJN, M., ROUWENDAL, J., BOERSEMA, R. 2016. Redevelopment of industrial heritage: Insights into external effects on house prices, *Regional Science and Urban Economics*, 57, pp. 91–107.
- DUȘOIU, E.-C. 2014. Patrimoniul industrial Bucureștean – O resursă în pericol. *Analele Asociației Profesore a Geografilor din România*, 5 (5), pp.47-55.
- EPOCA TYPOGRAPGY. 1898. Vechia și renumita Fabrică de Trăsuri H. I. RIEBER. *Epoca newspaper (Third Edition)*, series 2, year 4, nr. 725.
- EVANS, G. 2005. Measure for measure: Evaluating the evidence of culture’s contribution to regeneration. *Urban Studies*. 42 (5-6), pp. 959-983.
- GAVRILIDIS, A., IOJĂ, C., SAGHIN, I. 2011. Urban regeneration through industrial restructuring of brownfields. In: In: MEJIA I.F., BAOXING Q. (eds.), *Proceedings of 47th ISOCARP Congress*, pp. 1-12. Wuhan, International Society of City and Regional Planners (ISOCARP).
- GDANIEC, C. 2000. Cultural industries, information technology and the regeneration of post-industrial urban landscapes. *Poblenou in Barcelona – a virtual city?*. *GeoJournal*, 50, pp.379-387.
- GIMENO, J.J., PORTALES, C., COMA, I., FERNANDEZ, M., MARTINEZ, B. 2017. *Computers & Graphics*, 69, pp. 92-103.
- GIURESCU, C.C. 2009. *Istoria Bucureștilor (Third Edition)*, pp. 316-365, Bucharest: Vremea.
- HAIN, V., LOFFLER, R., ZAJICEK, V. 2016. Interdisciplinary Cooperation in the Virtual Presentation of Industrial Heritage Development, *Procedia Engineering* 161, pp. 2030-2045.
- HANCOCK, M.D. 1971. The United States, Europe, and post-industrial society. *Comparative Politics*, 4 (1), pp. 133-146.
- HORICKA, J. 2013. *Industrial heriage in urban context, Prague: Central Europe towards Sustainable Buildings*.
- IFKO, S. 2016. Comprehensive Management of Industrial Heritage Sites as A Basis for Sustainable Regeneration. *Procedia Engineering*, 161, pp. 2040-2045.
- ILKOVIC, J. & ILKOVICOVA, L. 2016. Value Fields of Detail in Industrial Architecture. *Procedia Engineering*, 161, pp. 2133-2137.
- ILKOVICOVA, L. & MEZIANI, Y. 2016. Uncovering of Industrial Architecture Values. *Procedia Engineering*, 161, pp. 2073-2078.
- JANSIRANI, S. & MANGAI 2013. *Industrial Tourism: An Introduction*, International Organization of Scientific Research Journals, 9 (4), pp. 12-14.
- KIOURT, C., KOUTSOUDIS, A., PAVLIDIS G. 2016. *Journal of Cultural Heritage*, 22, pp. 984-991.

- LANG, T. 2005. Insights in the British Debate about Urban Decline and Urban Regeneration. Leibniz-Institut for Regional Development and Structural Planning.
- LANYI, C.S. 2014. The Thousand Faces of Virtual Reality. InTech, 170 s.
- LIAROKAPIS, F. & WHITE, M. 2005. Augmented reality techniques for museum environments. The Mediterranean Journal of Computers and Networks 1 (2), pp. 90-96.
- LOURES, L. 2008. Industrial Heritage: the past in the future of the city, WSEAS Transactions on Environment and Development, 4 (8).
- MARTIN, P.E. 2009. Industrial Archaeology. In: GAIMSTER, D., MAJEWSKI, T. (eds) International Handbook of Historical Archaeology, pp 285-297, Springer.
- MCDONALD, S., MALYS, N., MALIENE, V. 2009. Urban regeneration for sustainable communities: A case study. Technological and Economic Development of Economy, 15 (1), pp.49-59.
- MCLELLAN, H. 1996. Virtual realities. Handbook of research for educational communications and technology, 457-487.
- MERCIU F.C., MERCIU L., STOIAN D. 2012. Patrimoniul arhitectural industrial românesc – trecut și prezent, Urbanism. Arhitectură. Construcții, 3 (3).
- MERCIU, F.-C. 2015. Utilizarea tehnologiilor digitale moderne pentru conservarea patrimoniului cultural. Analele Asociației Profesorele a Geografilor din România, 6 (6), pp. 61-70.
- MERCIU, F.-C. 2016. Cultural Regeneration – an Instrument of Territorial Management in Industrially Functionally – Restructuring Areas. Case Study: The Petroșani Mining Basin. Analele Asociației Profesorele a Geografilor din România, 7 (7), pp. 65-79.
- MERCIU, F.-C., CERCLEUX, A.-L., PEPTENATU, D. 2014., MERCIU, G.-L., DRĂGHICI, C.C., PINTILI, R. 2012. The role of technical museums in the regeneration of functionally-restructured regions (Romania). Geographica Pannonica, 16 (3), pp, 103-111.
- MERCIU, F.-C., CERCLEUX, A.-L., PEPTENATU, D., MERCIU, G.-L., DRĂGHICI, C.C., PINTILI, R. 2011. Revival of industrial towns through cultural regeneration—a viable solution. Proceedings of 1 st WSEAS Conference ISI International Conference on Tourism and Economic Development (TED 11), pp. 27-29.
- MERCIU, F.-C., MERCIU, G.-L., CERCLEUX, A.-L., DRĂGHICI C.C. 2014. Conversion of industrial heritage as a vector of cultural regeneration. Procedia – Social and Behavioral Sciences, 122, pp. 162- 166.
- MERCIU, F.-C., MERCIU, G.-L., PARASCHIV, M. 2014. Interpretarea patrimoniului industrial din perspectiva regenerării culturale. Provocări, oportunități și soluții de reutilizare. Analele Asociației Profesorele a Geografilor din România, 5 (5), pp.5-14.
- MERCIU, F.-C., MERCIU, G.-L., PARASCHIV, M., CERCLEUX, A.-L., IANOȘ, I. 2017. Culture-led Urban Regeneration as a Catalyst for the Revitalisation of the Romanian Industrial Heritage. ISR-Forschungsbericht, 42, pp 403-418.

- MICHALOS, G., KARAGIANNIS, P., MAKRIS, S., TOKCALAR, O., CHRYSOLOURIS, G. 2016. *Procedia CIRP*, 41, pp. 370-375.
- MOMMAAS, H. 2004. Cultural clusters and post-industrial city: towards the remapping of urban cultural policy. *Urban Studies*, 41 (3), pp. 507-532.
- PARDO ABAD, C.J. 2010. The industrial heritage in Spain: Analysis from a tourism perspective and the territorial significance of some renovation projects. *Boletín de la Asociación de Geógrafos Españoles*, 53, pp 401-404.
- PETKOVIC-GROZDANOVICA, N., STOILJKOVIC, B., KEKOVIC, A., MURGUL, V. 2016. The possibilities for conversion and adaptive reuse of industrial facilities into residential dwellings. *Procedia Engineering*, 165, pp. 1836-1844.
- PIPPIDI, A. 2012. Case și oameni din București, pp. 260-270, București: Humanitas.
- POPICA, L. 2010. Ford Motor Company in Romania. *Muzeul Național*, 22.
- RABBANI, T. & VAN DEN HEUVEL, F. 2004. 3D industrial reconstruction by fitting CSG models to a combination of images and point clouds. *International Archives of the Photogrammetry, Remote Sensing and Spatial Information Sciences (ISPRS)*, 35(B5), 2.
- ROBERTS, P. 2000. The Evolution, Definition and Purpose of Urban Regeneration. In: ROBERTS, P., SYKES, H. (eds). *Urban Regeneration. A Handbook*, pp.1-123. London.
- SĂGEATĂ, R. 2014. Turismul industrial. Alternativă de reconversie funcțională a unor centre industriale destructurate. *Analele Asociației Profesorele a Geografilor din România*, 5 (5), pp.29-35.
- SCHWALD, B. & DE LAVAL, B. 2003. An augmented reality system for training and assistance to maintenance in the industrial context. *Journal of WSCG*, 11 (1-3)
- SMIDT-JENSEN, S. 2007. The role of culture and creativity within urban development strategies. Outlining a theoretical framework for analysing Scandinavian cities. Center for Skov, Landskab og Planlægning/Københavns Universitet, Frederiksberg.
- STĂNCULESCU, M. 2014. Experiențe pozitive – Exemple – Tendințe actuale de promovare a conversiilor spațiilor industriale/culturale. *Analele Asociației Profesorele a Geografilor din România*, 5 (5), pp.15-27.
- STERN, M.J., SEIFERT S.C. 2010. Cultural clusters: the implications of cultural assets agglomeration for neighbourhood revitalization. *Journal of Planning Education and Research*, 29, pp. 262-279.
- STYLIANI, S., FOTIS, L., KOSTAS, K., PETROS, P. 2009. Virtual museums, a survey and some issues for consideration. *Journal of Culture Heritage*, 10, pp. 520-528.
- SUMMERBY-MURRAY, R. 2015. Regenerating Cultural Identity through Industrial Heritage Tourism: Visitor Attitudes, Entertainment and the Search for Authenticity at Mills, Mines and Museums of Maritime Canada. *London Journal of Canadian Studies*, 30, pp. 64-89.
- SUTESTAD, S. & MOSLER, S. 2016. Industrial Heritage and their Legacies: “Memento non mori: Remember you shall not die, *Procedia - Social and Behavioral Sciences*, 225, pp. 321-336.

- THE NIZHNY TAGIL CHARTER FOR THE INDUSTRIAL HERITAGE 2003. TICCIH (The International Committee for the Conservation of the Industrial Heritage)
- TIMOTHY, D. 2007. The heritage, tourist experience (Vol. 2). Hampshire: Ashgate Publishing Limited.
- WORDEN, S. 1997. Thinking critically about virtual museums. In: BAERMAN, D. & TRANT, J. (Eds.), Proceedings of the Conference Museums and the Web, pp. 93–109, Pittsburgh.
- XIE, P.F. 2015. A life cycle model of industrial heritage development, *Annals of Tourism Research*, 55, pp. 141-154.
- YOUNES, G., KAHIL, R., JALLAD, M., ASMAR, D., ELHAJJ, I., TURKIYYAH, G., AL-HARITHY, H. 2017. Virtual and augmented reality for rich interaction with cultural heritage sites: A case study from the Roman Theater at Byblos. *Digital Applications in Archaeology and Cultural Heritage*, 5, pp. 1-9.
- ZAFIU, C.Ș. 2002, Recuperarea arhitecturii industriale - Reconversie „Moara lui Assan”, communication within The industrial archeology workshop.