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## Conference Proceedings

International Conference on Conservation of  
20<sup>th</sup> Century Heritage

From **Architecture to Landscape**

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**Editor:**

*Dr. Somayeh Fadaei Nezhad Bahramjerdi, Assistant Professor, University of Tehran*

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# Conference Proceedings

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# Conference Proceedings

International Conference on Conservation of  
20<sup>th</sup> Century Heritage

## From **Architecture to Landscape**

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| Se Khat Tala

Credit: Meraj Sharifi

## International Conference on Conservation of 20th Century Heritage from Architecture to Landscape

It's an exciting opportunity for the Research Institution of Art and Culture at University of Tehran as we continue to grow, adapt, and remain motivated, responsive and open to new ideas. The invited speakers of this conference are leaders in their respective fields, who shall assist the School of Architecture in providing a platform and opportunity for participants to network, and help this Conference in meeting its aims of creating the right environment for bringing inspired people together, ensuring for our University to remain at the cutting edge.

Similar to many countries influenced by the Modern Movement, modern architecture in Iran began in the late Qajar Period and especially in Pahlavi dynasty, through the return of Iranian architects educated abroad and the arrival of European architects in Iran; making Iran, home to significant number of lasting structures of Iranian and western architects. This has indeed marked the initiation of a similar development trends in Iran. Today, conservation of these important legacies is crucial and their negligence is a threat to their survival. Over the past years, Iranian authorities have also shown significant acts on these concerns, where particular attention has been paid to modern heritage for growing a trend in recognizing and conserving the values of modern built heritage in Iran; through some groups of academics and professionals, establishment of new publications, groups and organizations. However, obtaining the confirmation of Modernism as heritage by all professional societies and general public remains a great challenge. Experts and academics have the vision, knowledge, wherewithal and experience in assisting us pave our way into the future, they are truly our greatest asset today.

The main topics and themes that are covered in the ICC20CH Conference include as:

### **1- Concepts and principles of modern heritage and industrial heritage**

- 1-1- The economic value of the conservation and adaptive reuse of heritage;
- 1-2- Socio-cultural values of conservation and adaptive reuse of heritage;
- 1-3- Tangible and intangible value;
- 1-4- The status of authenticity and integrity in conservation and adaptive reuse;
- 1-5- The role of heritage in the formation of meaning, identity and sense of place.

### **2- Legal Capacities and processes of modern heritage and industrial heritage**

- 2-1-Registration of heritage in the World Heritage List;
- 2-1-The role and contribution of heritage in conservation;
- 2-3-Conservation, Sustainability and adaptive reuse of heritage;
- 2-4-Landscape conservation of modern heritage and industrial heritage;
- 2-5-Rules and management structures in the integrated conservation and development.

### **3- Tourism Industry and Culture Economy in the Modern Heritage and Industrial Heritage**

- 3-1-Value and significance of heritage in tourism;
- 3-2-Documenting the successful experiences of the conservation and adaptive reuse of heritage;



3-3-Actors related to the conservation and development of heritage at the national and international levels.

#### **4- The Future perspective of modern heritage and industrial heritage**

4-1- Environmental assessment and energy efficiency;

4-2- Research and Education;

4-3- Sustainability and adaptive reuse of modern heritage and industrial heritage;

4-4- New perspectives and trends on the conservation and adaptive reuse of heritage;

4-5- New technologies in the conservation.

#### **5- The Impacts of 20th century in Iran**

5-1- Urban transformations (city planning, housing);

5-2- Modern movement architecture in Iran (buildings, architects, materials);

5-3- Interior architecture from tradition to modern (interior spaces and atmosphere);

5-4- Industrial revolution (industrial buildings, products, technology).

#### **6- Bauhaus 100**

6-1- Architecture +Theory;

6-2- Education;

6-3- Technology (materials and techniques);

6-4- Interior design (interior spaces, furniture).

The proceedings includes selected papers of ICC20CH Conference which was held on 23-24 April 2019 in Tehran hosts by Research Institution of Art and Culture at University of Tehran and Docomomo\_Iran. The proceedings papers were selected from among the more than 100 papers have sent to the Conference. The review process of papers has done by more than 40 reviewers from the related fields all over the world. We would appreciate all members of the scientific and executive teams who are dedicated their precious time and efforts to prepare the selected papers into a book.

#### **Editor of ICC20CH Conference**

**Somayeh Fadei Nezhad**, Assistant Professor, School of Architecture, University of Tehran.

## The Method of Fluid Classes (An investigation on fluid classes in Yazd Faculty of Art and Architecture with looking at “The Contextology” class)

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### Abstract

Iranian current architecture educational system is inactive and learning places has been become prosaic environments. Educators who are solely considered as teachers, dictate the limited characteristics of education context and create a situation that it detracts many features, including students creativity, innovation, participation. In this current system, the students' thoughts are diminished and the relationship between the educational system and students for learning is not considered. There is no constructive engagement in the education process. This article have the critical look at the Iranian current architecture education that it is neither modern like Bauhaus or Beaux-Arts nor Iranian traditional manner. Also, a review on one of the architecture class's method that it is held in the Faculty of Arts and Architecture at the University of Yazd called “The Contextology” by Dr. M.R Owlia. This class has the qualities that they are beyond the scope of current educational planning to improve the quality of education due to the different way of class managing. This paper aims to assess these qualities in order to introduce and expand them in generalized conditions and presenting it in this article. The results indicate such classes which they provide capacity, innovation, participation education, and implicit learning which they cannot be achieved through Iranian contemporary university systems for students. Evaluation of this method in a separate article with a different research method should be done separately.

**Keywords:** Architecture education methods, Fluid classes, The Contextology, The University and the city, Yazd Faculty of Art and Architecture.

## 1. Introduction

The academic education of architecture in Iran belongs to later years. From 1940 that the College of Fine Arts in Tehran University was established, the architecture academic education was shaped. This education mechanism was obtained from Beaux-Arts academic mechanism, without any considering of education background in Iran. From that year until the 70th decade of twentieth century, the two other education institute was established one of them was the Architecture faculty of National University and the other the architecture and urban faculty of Science and Industry University. After the architecture education in Iran was formed in universities, the architecture action took distance from this mechanism, and it caused the mechanism was shaped between the theory and the action. It was obtained from the imported architecture education mechanism from others countries while it did not assess this mechanism how did it match with education's background, historical, cultural, and geographical aspects in Iran.

Yazd Art and Architecture faculty was established in 1988 in Yazd historical district and it was the fourth architecture faculty in Iran and the first faculty that it was shaped outside the Tehran city. Accordingly to the site of this faculty and vernacular profession that it is the main goal of research and education actions, this trend is the turning point of the history of Iranian architecture and urban education system. Generally, this faculty aims can describe in three factors (Mirjani, 2003):

1. Take effect from environment (take advantage from environment such as: teacher)
2. Affecting on surrounding (rehabilitation and restoration of historical buildings and its surrounding texture)
3. Make pattern (changing to specified pattern that other faculties can obtain from it)

So the mentioned desires and goals reveal that Yazd art and architecture faculty from establishing day, has tried to change to the success pattern that it has been affected by companion of its surrounding and it can effect on surrounding environment as city agent. The current architecture education system with some differences in different universities has passed more than five decades in Iran, but the satisfaction method of education has not yet been achieved by different universities. Nowadays, not only the imported Beaux-Arts system is operated completely, but also the Bauhaus system has the similar encounter while the Iranian old education architecture system was not regenerated in later years. Architecture education in Iran has three different layers: academic education, education in offices, and education in workshop while in the past the all layers were together, but nowadays, they are separated. It can cause some problems in contemporary architecture in Iran.

The fluid class pattern has been used from 30 years ago in some courses by Yazd art and architecture faculty. This pattern can be used in other architecture faculties in the despite of the fact that it may have some problems. This article aims to assess the Beaux-Arts and Bauhaus education as the first novel education system in the world, then point some problems in Iranian architecture education that they were obtained from them, so the fluid class pattern describes and explains, and finally the mentioned contents are pluralized and present the results that they can be obtained from this pattern.

## 2.Modifications of modern architecture education

Modernism broke down the mere imitation of classical merits in architecture and it was exchanged with freedom and it created a spectrum in architecture consisting works of such architects as from Gaudi, Hanes Sharon and Mendelssohn to Le Corbusier, Mies van der Rohe and Adolf Los. (Mazini, 1386) It was a social need to pass the classical architecture and end up in modern architecture, from compensation to vacancy, from heaviness to lightness, from symbolism to functionalism and after all from composing a substance as a physical appearance of a divine abstraction to physical existence of the social needs. Walter Gropius, the German architect and founding father of Bauhaus who had a key role in developing the modern art, suggested that the new architecture is the logical result of the social and technical conditions of the new life rather than a sign of the creativity of the creator of the new form. However, after a while the younger architects refused following previous generations and passed the boundaries of the early freedom of the modernism. Robert Venturi's writings show the mentioned refusal clearly. Actually, the stimulant forces which created the modern architecture were changing gradually. Venturi opposed the famous architecture professors' principles thoroughly, without proposing a new way.

Beaux-Arts demolished completely and some unprofessional architects began to teach there! Apparently, drawing and designing were put aside and discussions over socialism and capitalism were held, because they believed that the true architecture will not be created as long as capitalism is dominant in the world.

Educating architects is necessary if only the present architecture lacks high quality and is not worth teaching. It is the same as beginning of Renaissance when newer definitions and meanings were sought with rejecting the Gothic architecture. Another example is when modern architecture was just born after demolishing the old architecture like Baroque, Neoclassic, Neogothic, etc. It was coincident with founding Bauhaus and discovering and attracting talents such as Gropius, Le Corbusier and Mies van der rohe who had the chance to present new definitions and samples of architecture. Teaching architecture has a sense if only there is an integrated and accepted definition of architecture to be taught. Traditional education of architecture as studying in Beaux-Arts and Bauhaus considered an integrated definition of architecture. (Hojjat, 1382) Although there were radical differences between traditional and academic education, they had a clear definition of architecture in common.

### 2.1.The method of architecture education in Beaux-Arts:

The Beaux-Arts School was established at 1648 by Charles Le Brun for painting and sculpture, and in 1795 it was changed to Fine Arts College and that time the architecture major was added. The theory subjects were held in class while the practical subjects in atelier. The famous architects taught in this college, and each of them had a specific atelier that in this space the freshman student and seniors were seen. In other words, each architecture student could be spent from the first step in this major until he or she graduated under the supervision of the prominent architect. Registering in the Beaux-Arts was not simple. The genius and prominent artists such as: Édouard Manet, Claude Monet, Edgar Degas, and Henri Matisse graduated from this school. The pattern of Tehran Fine Arts College was Beaux-Arts that it put aside from 1979 (The Iranian Revolution).

## 2.2. The method of architecture education in Bauhaus:

The Bauhaus school was established with the combination of The Fine Arts Academy and the Industries and Profession School at 1919 in Weimar city by Walter Gropius. The Weimar Fine Arts Academy established at 1860 and their teachers believed that the head of the new institute (Bauhaus) should be an architect. So Walter Gropius was selected to head of Bauhaus department (Bani Mas'ud, 2010). The Bauhaus noun was divided from two German words Bau & Haus that their means are building and house respectively, and this word represented the goal that Gropius considered for this school. The prophecy of Bauhaus was that the new form of art and architecture that they fit with the modern vision offered (Whitford, 1984).

This school had a main role for linking between design and profession. Its courses are known as modernism symbol. These courses has fit with industrial design and it caused this school was the origin of modernism industrial design. The firstly goal of its establishment was that the creating a place that it combined with different majors such as architecture, crafty industries, and art academy. The Bauhaus' programmers did not separate the art fine with crafty industries, and they believed that the modernism art and architecture had to correspond the needs of modern's society and a good design should examine with aesthetic and engineering tests. Generally, the Bauhaus was created along the werkbund thinking about the trying to fill the well-known gap in 19<sup>th</sup> century between art and industry and artist and industries. The main philosophy of Bauhaus education:

1. Linking art and industry; the expressionists offered this idea before. In their ideas, artists and architects should experience the new ideas, techniques, materials, and forms to match the art and architecture with machine changes era.
2. Germany should educate the professional and operational artists and architecture.
3. The theoretic idea had to end up a method in design, so the main task of Gropius' group was that he should design creatively and beneficially for Germania industrial products.

## 3. Modifications of architecture education in Iran

The Background of education in Iran refers to The Academy of Gondishapur that it was the first university in the world with today's describing of university. Although in Hellene the private schools like garden were being, and the education was occurred by philosophers, but the specified building for school did not exist. In Iran, educational spaces have two different forms Maktab-Khane and School. (Table 1)

**Table 1.** Place of education in different periods of Iran (Kiani, 1987).

	Historic period	The place of education
1	Ancient Society	The education place was located near administrative offices, religion and dealing centers. Each of them nurtured the persons that they need them.
2	The Achaemenid Empire	The education belonged to the certain class of people. Education centers were located in the squares and near the squares and government buildings.
3	The Sasanian Empire	The most of the education places were located in the near of fire temples. The university of Jondi-Shapoor was well-known in medical and philosophy.

4	The Early Islam	The education was held in the mosques.
5	The Seljuq dynasty	A lot of education-religion (schools) places were constructed, and it was Unprecedented.
6	The Ilkhanate	A lot of schools were destructed.
7	The Timurid Empire	Schools and school-mosques were built.
8	The Safavid dynasty	The education was occurred in schools.
9	The Afsharid dynasty	This period was not profit for education and building schools.
10	The Zand dynasty	The promotion of schools in this period was high.
11	The Qajar dynasty	The religions schools in this period had less attention than Safavie period. The establishment of Daroolfunun school.
12	The Pahlavi dynasty	The entrance of academic education and the establishment of Tehran university.
13	Islamic Republic of Iran	Temporary closure of universities and changes in courses and established Islamic Azad university (1982), Payame Noor University (1987) and University of Applied Science and Technology (1992)

The architecture education in the traditional society, like the other form of art, was occurred by person to person. This form of teaching had the specific characteristic such as: it was started in the early age of person, slow and long, face to face, practical and in the real scale, sometimes the education was occurred by masters behaviors and ethos that the apprentice looked them and tried to behave like them, the discipleship near the masters showed him the way of responding to problems that they affected with it and it caused to learn the subtleties of work practically and this cycle was repeated until the apprentice learnt the hints of work. (Table 2)

The architecture education has three layers: academic education, education in the architecture offices, and practical education in workshops. The traditional method of architecture education has all of them continuously.

**Table 2.** The method of architecture education in Iran, after the arrival of new educational methods (Kiani, 1987).

Education method	Specification	Description
<b>Traditional method</b>	<ul style="list-style-type: none"> <li>• Personal education.</li> <li>• Masters and apprentice.</li> <li>• Person to person.</li> </ul>	<ul style="list-style-type: none"> <li>• started in the early age of person, slow and long, face to face, practical and in the real scale, education by masters behaviors and ethos</li> </ul>

<p><b>Modern method</b></p>	<ul style="list-style-type: none"> <li>• Architecture education in the atelier.</li> <li>• Match with an academic system.</li> <li>• The theoretic aspect has more attention than practical aspect.</li> </ul>	<ul style="list-style-type: none"> <li>• Independent, without any communication, without considering of traditional education system, has a specific period for learning.</li> <li>• The European education system is the only criterion.</li> <li>• Lack of consulting and communication with traditional architects.</li> <li>• Collective education and group communication.</li> <li>• The need of society demands a lot of architects that they should teach.</li> </ul>
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After the establishment of Tehran Fine Art College, managers decided to select the Beaux-Arts School as pattern, and they tried to match the courses with this school. Masters who taught in the Tehran Fine Art College graduated from Beaux-Arts School like André Godard, Mohsen Foroughi, Hooshang Seyhoun, Abdol-Aziz Farmanfarmaian, Hooshang Sanei, Heydar Ghiai, and Parviz Moayed Ahd.

The Beaux-Arts education system accomplished until the architecture was considered as art and the factors of techniques and social did not have the importance like today. As the architecture was changed from its art aspect because of industrial development and social and economic crisis, the other aspects of architecture such as: technique, economic, and social found the similar value like the art aspect of it. Indeed, the Beaux-Arts education system that it paid attention to the graphic, Proportional mass, and colors was failure, because the architecture did not belong to specific social class, and it belonged to all people and it should solve the problems, but this system did not have idea for resolving them.

With technology development, the traditional method of architecture education may be abolished especially in under developing countries, and they focus on academic education. So universities should teach the high quality architects that the society need them. On the other hand, the program of architecture courses should match with the construction plan of society, because the first teacher of architects is buildings and surrounding environment. Each building which it builds in society is remained for decades and it is looked and affected in architects' minds although it shows the value that it is designed with them. Each architecture shows the concepts and values that they start with architecture education and the buildings are result and consequence of these education in the universities. The academic architecture education in Iran is more than 5 decades while it cannot revive the Iranian ancient and traditional architecture values.

The establishment of Yazd Art and Architecture faculty shows the goals and desires that they are the underhand of system principles. Although this faculty is limited in some traditional houses in Yazd Gowdal-Mosallah neighborhood, it is expanded in the all traditional neighborhood in Yazd city. (Figure 1 and 2)



Figure1:(Left); The Faculty of Art and Architecture, Yazd University (Author).

Figure2:(Right); Aerial view of Yazd Art and Architecture faculty from Yazd Gowdal-Mosallah neighborhood (Technical Office of Yazd Art and Architecture faculty)

### 3.1. The method of fluid classes:

All of the places that people use them for their demands name “school” and these places are not only for learning and teaching believes and theories, but also they are for understanding and perception the reasons of things being and mutual relation between human and nature that they should be used (Kamelnia quotes from Louis Kahn)

The architecture is the comprehensive profession. In the past, one body called architect that he had the information of other form of art quietly. So architecture education is not limited to the specific space and place and one of the master’s duty is that notifying students of these needs and leading them to reach the goal. So a lot of education method is being. In other words, each master has a specific education method for oneself. And the relation of masters and students is necessary in each method, because the first step of each methods is the quality between masters and students for learning and teaching.

The pattern of formal classes is sequential and topics and comments are continuing continuously to reach to the result although the writing should be sequential, because the content should follow the specific system to be a book or writing finally and it is necessary for writing. While behaviorists like John B. Watson and Frederic Skinner believe that the nature of human is flexible and learning is the main role in the growth of human. So the nature of understanding is another thing that it is not linear undoubtedly. The pattern of understanding may be the branches of tree jumping like a sparrow movement on the tree from one branch to another branch. In the fluid classes, each branch of topics can be described because the time and place is special for teacher and learner and it depends on the detection of them. (Figure 3)



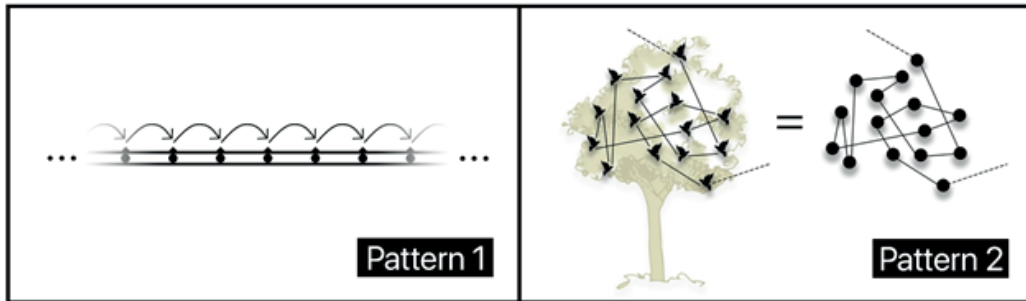


Figure3: From left to right: The sequential pattern (1) and The branches of the trees jumping pattern (2) (Author).

In the assessing the impact of environment on education, two aspects can be counted the direct education and implicit education. In the former way, the education is occurred by the investigating and analysis of surrounded environment that the positive and negative aspects of environment are analyzed and received by learner, but implicit education has a difference trend. In the later way, the information can be obtained from the different human senses by being in the environment, and it can be effective in learning process. If the method of education puts on the way that it benefits from the environment affordance, the environment will be the effective factor in the education process.

As far as referred, the fluid class method that it was invented in the Yazd art and architecture faculty (by: Dr. M.R Owlia) can be expanded into all architecture schools. This trend is being experienced and tried in the some courses of this faculty and the author passed the three masters courses with this method. One of this courses is The Contextology that it was held differently by Dr. Owlia. The place of this class was fluent and its area was Yazd city. This method prepares the context that the place of class fits with the time and daily topic. This type of education insinuates the traditional class in Iran Maktab-Khaneh, as well the ritual of sitting in this class is completely different with modern classes that everybody sits in some continuous rows like bus chairs while in the fluid classes, one or some loops are formed in the different places and the different capacity of context is being prepared for education by gaining of environment’s potential and affordance and its quality. Considering the traditional Iranian education and the advantage and disadvantage of modern system cause the new type of education (fluid classes) to be shaped. (Figure 4)



Figure 4 “The Contextology” Classes by Dr. M.R Owlia, location from left to right: The prayer room of Yazd art and architecture faculty, Jameh Mosque of Yazd, The Rasoulian yard of Yazd art and architecture faculty, The old bathhouse (Garm-Abeh) (Author and other students).

Yazd art and architecture faculty as the productive of this type of education wants to gain to goals and qualities which they are more than the contemporary education system in other universities.

#### 4. Conclusion

The Beaux-Arts and Bauhaus system is accepted until the architecture supposes like the art in Beaux-Arts or the profession with art together in Bauhaus system and others factors such as: technique and social did not have the importance. This systems were imported to Iran without any considering about the Iranian context and imitated like a clown. Over the years, it sensed that the architecture faculty in Iran should have the social insight about the different subjects and problems to nurture the juvenile architects that they could consider the different user needs like: static, aesthetic, psychological, safety and others and matched them with new industrial development, social and economic crisis.

The fluid classes is a research-educational pattern. The idea of fluid obtains from mercury that it finds its way when it dropped on the ground. Really, the fluid students' minds direct the fluid classes' topics. This pattern can be flowed from the source (Yazd Art and Architecture faculty) to other faculty and fitted with the time and place of each faculty to hold the fluid classes in them and the nature of fluid classes are the composition not dictation. The students should be fell into the habit of being in place to use the jumping movement between the branches and it is contrast with linear understanding.

The importance of this subject can be followed and seen in the flexible universities that they can organize their courses and methods of education.

#### 5. Attachments

Identifying the past and present statuses to awareness for future development is assumed as one of the feedback cornerstones in any educational system. The academic architecture educational system in Iran has been subjected to changes and developments during eleven periods as follows:

Period of opening of the first architecture school;

Period of establishment of Beaux Arts educational system;

Period of developments in 1960s;

Period of inauguration of new schools;

Period of changing of French educational system into American educational system;

Period of closing down universities;

Period of development in contents of textbooks and relative change in architecture educational system;

Period of quantitative development and opening of quasi-public schools;

Establishment of advanced education courses;

Period of tendency- centrism and changing course (degree) in architectural education; and

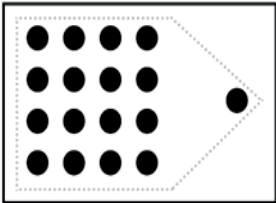
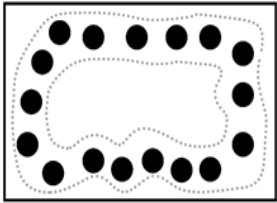
Period of developing advance education courses and static trend in theory.

Today, these changes are exposed to some conditions, which are static and they are tended to only quantitative developments while quality has not been dealt with in them so they are required for study and research in order to remove disadvantages and to develop their advantages. In Table (3), the strong and weak points as well as the existing threats and opportunities have been studied with data mining in Iranian contemporary architectural education system according to eleven aforementioned periods. Table 3

And in table (4), some specification and qualities of fluid classes are referred by author that he

has experienced them over 4 years ago. The table makes comparison between the sequential class and fluid class. Table 4

**Table 3.** The author's personal experience of the fluid classes and comparison with the formal classes (Author).

	The formal classes	The fluid classes
1	The course taught in the class is imitation.	The topics of the class are Exquisite and appropriate to the context and time.
2	Dictated.	Created.
3	There is experience and repetition in it.	While it respects the experiences, gives its personal experience.
4	There is no relation to our educational background.	it has a relationship with our educational background and it is continuing.
5	The pattern of learning is linear.	The learning pattern is volumetric.
6	 <p>The class is fixed.</p>	 <p>The class is fluid.</p>
7	Extensible by contacts ...	

**Table 4.** Analysis on approaches and method of teaching contemporary architecture of Iran (Author with adapted from Barghjelveh, 2015).

occurrence	Period	Strength	Weakness	Threat	Opportunity
Before Islamic Revolution	Period of opening of the first architecture school;	Merging of art schools/ entering in academic field in education/ development in method	Leaving away traditional educational techniques	Separation from history of Iranian architecture in subject of education	Readiness for development
	Period of establishment of Beaux Arts educational system	Assuming the method/ the existing order/ diligence in teaching and learning affairs	Project- centrist and overlooking of culture	Ignoring of human-theoretical issues	Assay of design process up to building and organizing individual persons and legal entities in architecture profession
	Period of developments in 1960s	Tools of social requirements for change	Quick changes/ overlooking of advantages of atelier system	Imitation in social-cultural issues in design approaches from the west	Paying attention to other sciences and employing them in project
	Period of inauguration of new schools	Change in method and approach/ polyphony	Lack of coordination of schools	Lack of synergy in employing methods and experiences	Entering of new paradigms
	Period of changing of French educational system into American educational system	New approach toward education	Downplaying practical design in atelier	Imitation again from the west	Application of new educational methods
After Islamic Revolution	Period of closing down universities	Paying attention to local aspects of architecture	Emotional approach toward educational curricula and system	Distance and gap between former and new systems in practical education	Pondering in the past time and thinking to present new educational system
	Period of development in contents of textbooks and relative change in architecture educational system	Considering Islamic architectural issues and subject of village in content of curriculum	Overlooking of past experiences and guidelines in teaching of architecture	Considering various art disciplines as similar to other courses	New development in educational system and opportunity for change or modification and justice in education
	Period of quantitative development and opening of quasi-public schools	Approach of privatization in universities and moving toward geographical justice in education	Shortage of specialist and experienced instructor along with special facilities for architecture	Degree- centrist	Decentralization of education
	Establishment of advanced education courses	Reliance on domestic educational system instead of sending student abroad	Non- compliance of development in educational system with professional system	Lack of quality in applied research	Focusing on architectural research and growth in theory and knowledge
	Period of tendency- centrist and changing course (degree) in architectural education	Paying attention to expertise to promote architecture knowledge	Lack of definition specialty in professional community (Engineering Council System etc.)	Shorter time for learning of architecture art that contradicts to existential essence of it	Creation of interdisciplinary approaches and methods and development of original architecture

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### **Biography**

My name is Amir Saeed Pakseresht and I am the master of architecture student in Yazd art and architecture faculty. I graduated the architecture bachelor degree from Ilam university. I have passion about architecture education, architecture design and sustainable architecture. My master thesis is making relation between city and Yazd art and architecture faculty with considering the impact of economic sustainability and I really tried to consider the top aspects. I really try and want to become a phd candidate for my post graduate studies.

## **Industrial Heritage Potential for Strengthening the Identity of the Place: Case of SILK Factory in ALMASKI KRAJ, NOVI SAD**

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### **Abstract**

The paper presents a theoretical research of industrial heritage potential for strengthening the identity of the place. It is based on the following hypotheses: understanding the genius loci and discovering the new / old meaning of a place means respecting the place; losing the identity of the place raises the question of our personal identity, so the rediscovery of the place is a critical project; the identity of the place we belong to derives from the symbols in which we find meaning and significance. The result of the research is a methodological framework for preservation and presentation of specific values of industrial heritage and use of its potential in strengthening the identity of the place. It has been tested on example of Silk factory in Almaski kraj, once-most important industrial complex in Novi Sad. An analytical approach to the industrial past indicates tangible and intangible heritage, which provides a sense of recognition and belonging, and forms the identity of the place. Although citizens are no longer involved in the production of silk, the local community transfers the skills of old craft, preserves tradition, recognizes symbols. In this paper will be presented the project of old Silk factory regeneration and transformation in a new cultural factory, which show how the symbol of the past has become a symbol of the future, in the process of preparing Novi Sad for the European Capital of Culture in 2021.

**Keywords:** genius loci, identity, preservation, industrial heritage

## 1. Introduction

Industrial heritage value is sometimes hard readable, especially by passers-by, because it is mostly hidden in deeper layers associated with a complex social and historical background. Devastated industrial ruins may not have great artistic value, but often carry huge social significance, and also the potential for strengthening social identity.

Devastated industrial heritage of the Almaski kraj, the oldest part of Novi Sad, does not mean anything to foreigners, even refuses them by its poor physical condition, while for the local community is a medium of identification with a great economic past of the area.

The research has begun with the question: Does the regeneration of the old Silk factory, former generator of city development, have a power of strengthening the identity of the Almaski kraj?

## 2. Identity of the place

The term *place* refers to the physical *space*, whose character is determined by dimensions, shapes and colours, as well as social, cultural and psychological components. *Place* gets different connotations from various scientific viewpoints - the dwelling (Heidegger 1962), the landscape, the city ... Different place-related concepts, such as the *genius loci* (Norberg-Schulz 1980), sense of place (Relph 1976), identity of the place (Proshansky 1978), reflect the interdisciplinary approach, which requires openness and continual dialogue.

The term *identity* (fr. *identité*, lat. *identitas*, *-tatis*) means a recognizable character, the specificity of a particular person, social category / group, or a place. It is being used in various fields, such as psychology, sociology, anthropology, philosophy, and phenomenology.

### 2.1 Theoretical framework

A complex relationship of identity and place, analysed from various aspects, is explained by three theories: social identity theory, place identity theory and identity process theory.

Social identity can be defined as the knowledge of an individual about belonging to certain social groups, as ethnic, cultural, religious, status, family. (Tajfel 1982) Identity theories, defined, tested and modified in the field of social psychology, usually neglect the element of the physical environment. However, the theory of social identity is very flexible and, in accordance with the basic goal of preserving self-esteem, can include the aspect of the place. Namely, certain social groups are associated with places that have a positive impact on maintaining their self-confidence. (Twigger-Ross et al. 2003)

The relationship between people and their environment is focused from many angles within interdisciplinary research in the field of environmental psychology. A 'commitment to the place' is described as a feeling that we have towards known places to which we belong or with which we identify ourselves. (Giuliani 2003) Some researchers define aspects of place's character as its identity. Place identity, as a skeleton of one's own identity, makes the knowledge of the environment: memories, thoughts, values, settings, or relationships between different elements of the environment (house, school, neighbourhood).

Breakwell formulated an identity process theory that has been useful for research on identity with respect to the built environment. (Breakwell 1986) Identity in this view is seen as a dynamic, social product of the interaction of the capacities for memory, consciousness and organized construal. Identity can thus be seen as both a structure and a process. The structure of the identity is manifested through thought, action and affect. Aspects of identity derived from places we belong to arise because places have symbols that have meaning and significance to us. Places represent



personal or collective memories. The meaning of places is renegotiated continually and therefore their contribution to identity is never the same.

Two original approaches to the concept of place identity, one based on social activities and functions, and another based on structure and aesthetic, have been merged over time. The place represents a living organism, which responds to changes in society. The place is not an abstract location, but a set of concrete, material things that, by its shape, texture and colour, determine the character or the atmosphere. ‘‘The place is thus a qualitative, ‘total’ phenomenon, which cannot be reduced to any of its properties, such as spatial relations, without the loss of its specific nature ...’’(Norberg-Schulz 1980)

The identity of the place is the result of complex, synthetic processes in which culture plays a dominant role. *Genius loci*, which makes the space special, is defined by the heritage inherent in strong artistic individuality and deep cultural rootedness. Tangible and intangible heritage, providing a sense of recognition and affiliation, forms the identity of the place.

## 2.2 The role of industrial heritage in preserving identity

The term industrial heritage refers to the remains of industrial culture of historical, technological, social, architectural or scientific significance, whereby the remains of industrial culture include: industrial facilities (factories, workshops, warehouses), machinery and industrial plants, places related to industrial activity (mines, power stations, infrastructure), as well as places related to social activities (housing, religion, education) within industrial complexes. (TICCIH 2003) However, industrial heritage also includes the intangible dimensions of industrialization.

Continuous urban development caused the transformation of the physical structure of the place, which reflected in its local identity. At the same time, due to socio-economic development, there are changes in the structure of social groups, which are identified with a certain place. In this context, the role of industrial heritage in preserving the identity of the place is of particular interest.

An old industrial complexes are located very close to the old, traditional city centres. Their original location along the river / canal, derived from strategic traffic and infrastructure requirements, today has a new, cultural and tourist character. Due to the rapid technical and technological development, most of the built infrastructure of the traditional industry completely lost its original function in a capitalist society. On the other hand, affected by drastic socio-political transformation and economic recession, industry in the former socialist society gradually collapses. In the first case industrial heritage is reactivated, while in the second case it is mostly devastated.

Given the innovativeness of the applied constructive solutions, the particularity of the architectural form, the attractiveness of the location, the symbolism of the factories, on the one hand, and their historical, social, economic and technological significance, on the other hand, it is necessary to constantly examine the role of industrial heritage in a certain social and spatial framework. The improvement of the way of life, development or appearance of craft / industrial branches, general economic development, uniqueness in relation to other buildings of the same category from the engineering aspect, and the uniqueness of the production process are some of the criteria for evaluating industrial heritage social significance. The architectural character of the building is reflected in the existence of distinctive characteristics of the type, period or method of construction, the type of materialization, the aesthetics of the building design, the harmony between the building and landscape.

During the industrial era factories had double symbolism. In the higher class they represented a symbol of growing economic power and prosperity, while for the working class they were places

of oppression. In the socialist era, the factory became a generator of new social development, a place of common rights and equality, a symbol of the new state ideology. (Draganić 2012) Factory chimney has assumed the role of the church bell tower and became an urban landmark. Integrated in the image of the city and rooted in social awareness, the factory determines the place identity. Today, when the city image is changed by rapid urbanization and social awareness accompanied by decline in the value system, the restoration of traditional and historical elements that determined the place identity is possible through the regeneration of industrial heritage.

### 3. Case study - Silk factory in Novi Sad

Silk production in Novi Sad was originally developed as homemade craftsmanship. The idea of silk factory establishment from 1765 was realized five years later. (Срајић 1941) Since there is no data on the type of production, it is considered that this first silk factory was not an industrial but a manufacturing enterprise. The decision to build a state depot for a silk cocoon in Almaski kraj was made in 1883. (IANS-F.1. 9903 1883)

#### 3.1 Development of the silk production in Novi Sad

*The State Silk Factory*, the first industrial plant in the city and the largest silk factory in all Hungary, was founded in early 1884. After the founding it had 140 spindles and a steam engine. (Mezei 1958)

The planned and constructed facilities are shown on the original plan of the factory complex from 1885. (IANS-F.1. 2770 1885) A depot, a spinning hall, a pool, a chimney and a management building were built in the first phase. (Figure 1) The following phase is planned for the construction of the workers' flats, an administrative facility, an ambulance, coal storage, as well as expansion of all existing programs.



Figure 1. State Silk Factory, beginning of the 20<sup>th</sup> century

During the first years after the World War I, production has dropped drastically, since the silk production has been suppressed in relation to other industries. This is best illustrated by the fact that the average annual production of silkworm in pre-war period was 1.200.000 kilograms, and in 1920 only 53.354 kilograms. (Stanojlović & Damjanović 1924) However, in the following period, the production was only slightly increased, and in 1923 it reached just over one-sixth of the pre-war one. In 1932 the silk business in Novi Sad was expanded by processing the raw ma-

material into the final product. (Hribar 1936) As the new production processes conditioned the new type of space, soon after in the factory complex were built spinning and weaving halls, as well as weaving and dyeing workshops. In the interwar period, besides *The State Silk Factory*, there were seven private textile factories in Novi Sad. (Ćosić & Stanić 1984)

The post-war reconstruction period marked a new phase in the development of silk production in Novi Sad. Machines from the pre-war *State Silk Factory* were found in Hungary and returned back. Production continued in 1947 at the same place, but under the new name - *Vojvodina Silk Industry*. (Figure 2) In the mid-1960s complete textile industry was integrated into *The Textile Combine of Novi Sad*. (Ćosić & Stanić 1984) In 1974 *Combine* was dislocated into an industrial area, and *Almaski kraj* has ceased to be the seat of this significant industrial activity. By the end of the 70's, the old *State Silk Factory* was demolished and replaced by multi-storey residential buildings.



Figure 2. Vojvodina Silk Industry, 1955.

### 3.2 Silk heritage in Almaski kraj

Almost four decades since the demolition of the old State Silk Factory in Almaski kraj, material remains of once the most important industrial enterprises in Novi Sad slowly disappear. Although no longer engaged in the production of silk, residents preserve memories of old factory, transfer old craft skills, nurture tradition, and recognize the symbols.

Today, two decades after its demolition, the urban block in which the silk packing and storage plant was located continues to be called Silk factory, officially, in urban planning documents, but also among the local population. This fact testifies about former social and spatial significance of Silk factory, which undoubtedly formed the identity of the place.

The former silk dyeing workshop is located in the heart of the Almaski kraj. The old, until recently abandoned factory building and the proud chimney were preserving the memory of the times when Silk factory was the generator of the social and economic development of the area.

Although they represent the remains of industrial culture of historical, economic, technological, social and architectural significance, these monuments were not officially valorised nor protected by law.

The interests of various actors have been opposed for years. Urban planners have anticipated keeping the complex within existing borders, with implementation of new, educational, cultural and residential contents. Investors, focused solely on maximum profits, were trying to replace the ruined halls with new collective housing.

The former silk dyeing workshop has multiple significances for the local community, which had a number of initiatives for the regeneration of the site. The most active was the Citizens' Association for the Preservation of Cultural Heritage "Almasani", which represented the interests of the whole community. Despite the fact that citizens recognized the potential of the silk heritage, without the support of decision makers at the local level, they failed to initiate the regeneration of the site.

### 3.3 Old Silk factory regeneration

The potential of the silk heritage in Almaski kraj is also recognized within *the Faculty of Technical Sciences*, where the scientific research of the old *Silk factory* site was carried out during 2012.

A complex research process has been realized in several phases: detailed analysis of the historical context and current situation *in situ* (Figure 3), conservation studies, a conceptual project and feasibility study, implementation program. Although the initiative for the regeneration of abandoned site was initiated by the local community, it was necessary to reconcile the views of various actors involved in the process and harmonize different attitudes through several workshops.



Figure 3. Old Silk factory, 2012.

The results showed that the most adequate would be the transformation of the complex into a cultural-educational centre. In this way, the local community would get a special place for educa-

tion in the field of old crafts and arts, as well as home crafts, which was in line with the current strategy of the *National Employment Service* and the *Association of entrepreneurs of manufacturing and service activities*. Local community would achieve multiple interests. In addition to the educational, the project also proposed a production and sales segment of the centre, which would provide it tourist character.

The restoration of traditional production methods, exclusivity, uniqueness and manual production of handicraft products were adopted as basic elements of the reactivation model. The interactive museum of old crafts would become the cultural centre of Almaski kraj, while the workshops were designed as its economic generator. The old chimney, the eternal witness of the industrial past, would get a new glow.

Unfortunately, in our transitional society, such complex process of regeneration is very difficult to be realized with success, primarily for financial and organizational reasons. All attempts to transform the abandoned factory were unsuccessful.

### 3.4 Cultural station Silk factory

Meanwhile, Novi Sad was nominated for the European Capital of Culture 2021. *Novi Sad 2021* was a platform for development of creative potentials of Novi Sad. This project motivated and inspired both cultural workers and all citizens to re-examine current values and set new goals towards democratic cultural development of the city. Re-examination of modern identity of Novi Sad, revitalisation of cultural heritage, reconstruction of the existing and opening new spaces intended for culture, developing cultural participation of citizens are just some of the principles of cultural development of the city.

Foundation *Novi Sad 2021 - European Capital of Culture* is established in order to implement the project *Novi Sad 2021*. The objectives of the Foundation are: encouraging the development of cultural and artistic scene of Novi Sad; assisting the development of traditional and modern cultural forms; encouraging cooperation between local and European artists, as well as internalization of local cultural scene; education and training in the field of culture and arts, cultural management and European integrations.

Cultural development strategy envisages establishment of four Cultural stations in culturally under developed parts of the city. Almaski kraj is recognized as one of such neighbourhoods, since there are no public cultural spaces. The transformation of old Silk factory into the new Cultural centre should provide spaces for new artists and cultural workers, as well as the production of culture intended for the engaged audience.

An architectural study was conducted by the *Department of Architecture and Urbanism of the Faculty of Technical Sciences* during the academic 2016-2017. It was a creative research project that examined the spatial and artistic potentials of the contemporary concept of a cultural station. (Figure 4) In addition to the program framework, a number of problematic levels have been established: contemporary social context and cultural habits, cultural politics and architecture, cultural institutions and their homes, houses and (un)dependent cultural scene, the home of culture as an architectural type, contemporary architectural processes, the community house...



Figure 4. Cultural station Silk factory, design project, Pajović & Milović, 2017.

Although offered solutions were highly rated by the expert public, the revitalization project was implemented according to the project of an architect engaged by the local government. (Figure 5) The Cultural Station *Silk factory* started operating in October 2018. Its main goals are the decentralization of cultural content and the involvement of the local activist and artistic scene, as well as supporting the work of the association “*Almasani*” and the nearby Academy of Arts. There are four different spaces in this cultural station: a social centre and a cafe for local NGOs and educational activities, a concert hall for various music programs and performances, a recording studio and a large “co-working” space for active organizations and creative industries.



Figure 5. Cultural station Silk factory, realised project, Vujović, 2018.

#### 4. Conclusions

Old *Silk factory* was a specific symbol of the place, but its meaning and significance were almost lost. Bravely defying the baroque church bell tower and concrete residential towers, only one

chimney was a silent witness of past times. Theoretically based rediscovering of the place meaning has led to critical approach to old factory reactivation.

Designed as an open cultural space dedicated to contemporary interpretations of heritage through the interaction of artists, organizations and individuals, Cultural station *Silk factory* has already managed to transform the symbol of the past into the generator of the future.

The sustainability of the project lies in its participatory politics and the concept of cultural decentralization, which gives priority to the local alternative cultural scene.



Figure 6. Cultural station Silk factory, workshop Chair - stool, 2018.

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## Common Approaches of the Contemporary Iranian Architecture in Dealing with Traditional Architecture and Modern Architecture

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### Abstract

The gradual expanse of Modernism values and ideas in Iran has had many influences on the traditional architecture of the country. The contrast between traditional values and Modern western culture has led to three separate concepts. The first one was to continue the traditional architecture as previous by rejecting Modernism ideas. This style has been mostly used in cultural and religious buildings such as schools and mosques. The second approach which has had a great impact on the architecture of the country was the modern architecture and the international style which mostly has been applied to design buildings with modern functions such as post offices, stations, and towers and was wholly detached from the traditional architectural values. The third manner has had a moderate viewpoint about the relationship between modern architecture and the traditional architectural cultures. Although the neoclassical architecture was trying to link Modernism to national traditions, abstractive use of principles, elements, and forms of historic architecture in the tradition-oriented architecture was a more successful way of making this connection. This article will look at the impacts of the conflict between modern architecture and traditional architecture on the contemporary architecture of Iran. The studying period of the present paper is from 1925 (the rising of Pahlavi dynasty) to 1979 (The Islamic revolution of Iran).

**Keywords:** Architecture, Contemporary architecture, Iranian Architecture, Traditionalism, Modernism, International style

## 1. Introduction

The advent of the modernism and its arrival and expansion in eastern countries was a gradual process. In Iran, this process started in the middle of the Qajar monarchy and lasted for almost two centuries. The formation of modern Western civilization has had many impacts on different aspects of culture, society, art, and architecture and had caused many changes in the last two centuries. In Safavid dynasty, Iranian started to know more about European countries and their culture and art. Knowing the Ottoman Empire as a common enemy has helped both Iran and Europe to unite, and this led to establish embassies and develop the commercial, cultural and diplomatic relations with each other. "The Travels and Adventures of Sir Anthony, Sir Robert, & Sir Thomas Shirley" is a book which describes the relationship between Iran and Europe during the Safavid era.

Many studies have investigated the contrast between modern and traditional values in Iran, among them Zibakalam (Zibakalam 2019) has studied the arrival of modernism in Iran, and its conflict with traditional values and Tabriznia (Tabriznia 2009) has discussed the controversy between them. There are also many sources available which had studied the impact of this controversy on contemporary Iranian architecture. Banimasoud, Shariatzade, Ansari, and Mokhtar are among them. Mirmiran has mentioned two different significant approaches in the contemporary architecture of Iran. The first one is respecting the history and considering it as a valuable cultural background while the other approach neglects the value of the historical and cultural context. While accepting these two categories, Memarian describes postmodernism as a connector between today's architecture and historical architecture. Shariatzade rejects the idea of accepting the traditions as an unchangeable determining factor in architecture then he emphasizes on the necessity of adaptation of traditions with today's human's life. Mokhtari addresses Iran's contemporary architecture based on lessons from world architecture concepts and Lessons from Iran's historic architecture. Falamaki adds the lessons from the central Europe Renaissance architecture to this category.

During the Qajar monarchy, the development of diplomatic relations continued, and technological innovations such as the invention of railways and steamships made the transportation more accessible.

The constant traveling of some Qajar kings in Europe made them aware of the massive developments changing the face of cities in Europe so on their return they applied some changes on the country. Among these changes, the government started to send students to European universities trying to fill the lack of knowledge gap in the governance of the country. Returning of the graduated students, which many of them have studied engineering, construction, architecture, and art led Iranian become familiar with European art and architecture and its ideology. Sending students to study abroad, the establishment of newspapers, the establishment of modern schools (daar\_al\_fonoon) were among the actions led Iranian to understand the undeveloped condition of the country. The significant changes in Iranian art and architecture were influenced by rising the modernism in the western countries occurred in the late Qajar especially when Nassereddin Shah Qajar was the king of Persia. (Ansari 2016)

Since architecture is a symbol of technology advancements, the architecture of Iran changed to look like western architecture. Therefore, the lack of meaning and values in buildings that are

copied from western architectural styles is significant. Many palaces and royal residences have been built using this approach. At the late Qajarieh period, changes in Iranian culture, art, and architecture Accelerated but instead of internal sources of inspiration; these changes were influenced by western ideology so as a result, this style never achieved popularity and acceptance and could not last long. Using European neo-classical style in the architecture of Iran, mostly been applied to design government buildings in cities like Tehran, Isfahan, and Tabriz or used by wealthy people to design luxury houses but it barely impacted the architecture of the people, and they continued to use traditional architecture, which they knew it very well.

By spreading of the modernism, discussions began. While some pundits considered the modernism a path could lead the country to the development, some others respond prudently to the modernism. However, the religious and traditional leaders disagreed with the modernism values and its expansion. They thought that modernism is a tool to destroy religious values in the country. Due to the conflicts between the modern and the traditional values, many questions raised about the role of historic architecture in defining architectural identity. Different approaches have emerged trying to determinate the relationship between modern architecture and traditional Iranian architecture. The current research aims to study these approaches, their origins and the differences between them.

## **2. The impact of the modernism on the contemporary architecture of Iran**

After the extinction of the Qajar dynasty and the foundation of Pahlavi dynasty by Reza Shah Pahlavi in 1925, massive changes occurred on different aspects of the country such as politics, economy, culture, and so forth. The architecture and art also faced enormous changes when Pahlavi came to power. During the ruling of the Pahlavi dynasty on the country which was also concurrent with the rise and fall of modernist architecture, three different approaches on the relation of traditional and modern architecture were obvious.

1. The first approach was emphasizing on returning to valuable historical ideas by rejecting modernism.
2. The second one was to deny traditional values and accepting modernism and its ideas without any doubts and questions.
3. The third approach had a mediocre vision about this relationship. This approach is trying to define a new identity by combining both traditional and modern (Ansari 2016)

Using these three approaches is obvious in different architectural styles during the Pahlavi dynasty.

### **2.1. Continuing the traditional architecture**

Modernism faced resistance at its arrival. Most of the disagreement was from Traditional and religious Community which have had a significant impact on the major part of the country especially on the people of lower social classes and people living in rural areas. They believed in this theory that western countries are trying to destroy Iranian culture and their religion, Islam. This idea directly impacted the architecture of the late Qajar period. Although knowing the Ottoman Empire as a common enemy has helped to ally with European government during the Safavid and Qajar dynasty, but military occupation of southern parts of the country by Portuguese and British forces have convinced a part of the society to believe that Europeans are Unreliable.

One of the approaches in Iranian architecture in dealing with modernism was to continue the traditional architecture, and it was a consequence of anti-modernism ideas aiming to resist with the western ideas and architecture. Besides, that part of the society couldn't stand the freedom and independence the modernism have brought to Europe, and they were afraid of the happening of the same occurrence in Iran and couldn't stand the modernism Ideas and architecture so as a result, they continued the traditional Iranian architecture same as its previous manners. Before the arrival of the modernism, buildings could be divided into two categories.

1. Religious buildings, mosques, schools, mausoleums, and houses.
2. Bazaars, caravanserais, bridges, bathhouses, palaces, dovecotes and, minarets.

Changes in people lifestyle especially during the reign of Reza Pahlavi decreased the construction of the buildings in the second category and these buildings mostly replaced with their's modern samples, for instance, malls and shopping centers were built instead of bazaars and modern bridges made by construction steel and reinforced concrete took the place of traditional bridges.

The contemporary architecture of Iran could be divided into three different periods the Qajar, the first Pahlavi, and the second Pahlavi and this style was a popular style in all of these eras. Albeit the traditional architecture was a typical style, it was mostly applied to design buildings with a smaller scale (except mosques). In many cases, the government was the employer, and they did not prefer to use traditional architecture. The limitations of traditional and its technical restrictions such as the limited number of floors and the span limitation due to the structural and material attributes of this architectural style was another reason. Because the religious members of the society mostly supported this style, its chief application was to design mosques and schools. The Imam Hossain mosque in Tehran (Figure 1) is a sample of traditional architecture in the modern age. Hasan Lorzadeh designed it, and its construction ended in the 1940s.



Figure 1. Imam hossain mosque in Tehran. A sample of traditional architectural style. (Momeni et al., 1993)

During the life of this architectural style, some changes appeared in this style mostly influenced by modern architecture. Using modern materials such as reinforced concrete and stainless steel

as structural parts are among these changes. This technological advancement made spanning the broader spaces easier. As a result of using these technological advancements, we can see greater domes and higher minarets in the mosques. During the reign of Mohammadreza Pahlavi, this style was a popular style, but after the Qajar period, it never became the main style of Iran's architecture again.

## 2.2. Post-Islam neoclassical architecture

After the extinction of The Qajar dynasty in 1925, a massive wave of nationalism followed by efforts to develop the country began in Iran, and buildings like train stations, ministry offices, factories, etc. were built all over the country. Although the European neoclassical architectural style was vastly applied in Qajarieh period, the use of this style in the Pahlavi period was in contrast with the government's nationalism slogans, so the European style replaced by the Persian neoclassical style. Persian neoclassical style mostly refers to pre-Islam powerful empires especially the Achaemenid empire and the Sasanian empire. Using this style was due to the government's political and social purposes.

This style was the main architectural style of the country from 1926 to 1936 (Mokhtari 2017). In many cases, European architects and engineers who were working in Iran designed structures which could be considered as the pre-Islam neoclassical architectural style. Buildings constructed using this style were mostly governmental and large scale building, and this style was more about the facades than other aspects of construction. In the remaining samples of this style, there is a noticeable difference between the interior style and the exterior style of the building. Although using Persian neoclassical style in the facades, the plan of those buildings is pre-modern and western neoclassical style. The symmetry of buildings both in facades and plan is a significant aspect of this style. Brick, stone, and gypsum are three main materials used in these building facades.

A museum of ancient Iran in Tehran (Figure 2) is a sample of Persian neoclassical architecture. This building was designed by André Godard and Maxime Siroux in 1935. Architects have borrowed elements from previous periods. The architects of the museum have inspired the huge arc at the center of the main facade from Taq Kasra, a massive structure built in the Sasanian period at Ctesiphon.



Figure 2. Museum of ancient Iran in Tehran. N.d.

When the government as an employer started to give more freedom to architects, the use of this

style decreased and the first modern building in Iran, Girls vocational school in Tehran designed in 1935 by Vartan Hovanessian (Figure 3). It was also the first building in the country selected in an architectural competition.



Figure 3. Girls vocational school, One of the first samples of the modern architecture in Iran. (Samiei, 2016)

### 2.3. Modern architecture and the international style

Reign of Mohammadreza Pahlavi in 1941 was concurrent with massive changes in Europe and the United States of America's art and architecture. These changes influenced Other countries architecture including Iran. International style is one of many architectural styles that emerged between the world wars around the 1920s. Its roots go back to the cubism style and the Bauhaus. The style was characterized by emphasizing on the functions of the buildings and the presence of economic factors in the design process was undeniable. The sudden increase in the country's Income after the rising oil price Helped the Shah to start his renovation plan. It led to an enormous amount of construction in the country. During this period, many buildings designed in Iran by the world's most recognized architects such as Jørn Utzon, Minoru Yamasaki, Philip Johnson, Kenzo Tange, Alvar Aalto, and many other architects.

The first samples of modern architecture in Iran appeared in the 1930s. Later it became the dominant architectural style of the country until the Islamic Revolution of Iran (Mokhtari 2017). Appreciation of land prices in Tehran during the 1940s and the 1950s and technological advancements in the field of constructions led to an era of high-rise buildings. Abdol-Aziz Farmanfarmanian was one of the most famous Iranian architects who had designed many buildings using international style. Abdol-Aziz Farmanfarmanian and Associates designed high rise buildings like the ministry of petroleum's building, the ministry of agriculture's tower, and many other high rise buildings in Tehran. All these buildings were excellent samples of international style architecture, but they all had something in common, ignoring the contest and local cultures and traditional architectural values.

### 2.4. Tradition\_oriented architecture

At the beginning of the Pahlavi dynasty, Architects tried to involve architectural heritages in their designs throughout the neoclassical style, but their approach was superficial and was not support-

ed by theoretical backgrounds. After the rise of the international style, some architects could not stand its lack of connection with the architectural heritage of the country. They were seeking to find the true identity of Iranian architecture. To find the proper answer to this question, two conferences on the subject of modern and traditional architecture took place in Iran. The first conference was about the impacts of traditions in architecture, took place in Tehran in 1965 and the other one was a conference on the subject of traditions and technology which held in Isfahan in 1970. Louis Kahn, Buckminster Fuller, and some of the world's prominent architects were among the speakers. After these two conferences, some young Iranian architects which many of them have studied architecture abroad and were familiar with both Iranian and modern architecture tried to find a proper answer to the question about making a balance between modern and traditions. Unlike the experiences from the first Pahlavi, they avoided imitating previous eras architectures, and by having a broader view on the subject, they tried to catch the concepts and ideas of Iranian architecture. This group of architects had an abstractive view about architectural heritages and looked in that as a source of inspiration. They believed that the concepts and ideas behind the traditional Iranian architecture do not depend on materials and structural forms and its more about the sense of the places. Rajabi has named this style as the linking style which shows its instinct to bridge between modern architecture and traditional architecture of the country (Rajabi 1976).

Nader Ardalan, Hossein Amanat, Kamran Diba, and Yousef Shariatzadeh are some of the well-known architects that their works categorize in this style. Iran center for management studies by Nader Ardalan is a good sample to introduce this style. After his graduation, Ardalan returned to the country from the United States of America and started to work as an architect in Abdol-Aziz Farmanfarmaian and Associates (AFFA). Although in his first work the Saman twin towers, he used the international style, in his later works the orientation toward traditional heritages is apparent. Iran center for management studies (Figure 4) later called the Imam Sadiq University, was a school known as an affiliate of Harvard University in Iran. In his design, Ardalan has inspired by traditional Iranian schools called Madrasas. This center has been designed as a rectangular shape garden, and the functional spaces have been arranged on the sides of the garden. The library has



Figure 4. Iran center for management studies by Nader Ardalan

been located in the middle of the garden which in Persian gardens was a place for Koushks. Using Bricks as the main material and the proper use of water and green elements in the design have provided a unique quality and nostalgic identity for this building.

Another example of buildings used this approach is the Avicenna mausoleum in Hamedan designed by Hooshang Seyhoun in 1951 (Figure 5). Seyhoun has designed valuable buildings such as monumental buildings, houses, and offices and this is probably one of his masterpieces. In the design of this tomb, he was influenced by the Gonbad-e Qabus (Figure 5), a historical spindle-shaped tower which is also a monumental building lasted from 1006 AD. In this building, Seyhoun has translated an old heritage to the language of modern architecture.



Figure 5. The Avicenna mausoleum in Hamedan (left) and Gonbad-e Qabus tower (right)

### 3. Conclusion

The modernism changed people's lifestyle and the faces of the cities. It also changes the architecture of the country. Before the modernism, traditional architecture was the dominant style of Iranian architecture, but after the modernism, it never became a dominant style again, and new styles emerged in the country, but the traditional architecture has left its impact on the later styles. Some style characteristics were defined by respecting the architectural heritage, and some others were defined by ignoring it. The major architectural styles of Iran during the modernity are traditional architecture, Persian neoclassical architecture (which was trying to build a formal connection with Iranian architectural heritages), Modern architecture and international style (which was denying historical values), and tradition-oriented architecture which was aiming to connect traditional ideas to modern architecture. Studying these approaches, their origins, their similarities and differences and the idea behind each of them is necessary to know the history of contemporary Iranian architecture.



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## Biography

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## A Framework for Sustainable Regeneration of Industrial Heritage in Cities

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### Abstract

World Heritage Committee has declared heritage to be “an instrument for the sustainable development of all societies”. Regeneration of industrial heritage aims to display their technical and industrial patrimony assets by launching measures to convert them into cultural spaces. Meanwhile, current regeneration processes through the long-term strategic orientations and solutions, are integrated with sustainable initiatives based on extensive community participation for satisfying environmental, social, and economic demands in the city. On this base, use of the industrial areas mainly as an economic resource must be avoided. Moreover, industrial heritage as an important part of social, cultural, and technological past, is the most complex category. Because of this complexity, reclamation and conservation of the industrial heritage constitute an important cultural objective and consequently must be identified in a way that highlights their architecture, cultural, and economic usefulness. Hence, this paper looks for a framework for sustainable regeneration of the industrial heritage. The suggested framework is mainly based on the Burra Charter Process, adopted by Australia ICOMOS, including steps in planning for and managing a place of cultural significance, which has been modified and detailed by reviewing other related research and experiences on industrial heritage. Therefore, three key steps of Initiation Phase including understand the characteristics and assess the significance, Planning Phase including study the feasibility, develop a policy, and prepare a reuse plan, and Execution Phase including implement the plan, monitor the results and review the plan should be taken into consideration regarding the sustainable regeneration of industrial heritage in cities.

**Keywords:** Industrial Heritage, Sustainable Regeneration, Reuse, Framework, City

## 1. Introduction

World Heritage Committee has declared heritage to be “an instrument for the sustainable development of all societies” (Landorf, 2009). Swensen and Stenbro (2013) point out that “Activating cultural heritage in new contexts plays a more important role than preservation as such in these transformation processes the activation of historic contexts can best be understood as a precondition to ensure the future of cultural heritage in ever-changing urban contexts. The values added by the heritage are the contrast and variation they give to the new urban landscapes. Although some of the structures might have lost part of their authenticity as pure historic sources, they have been supplied with new qualities, for instance vitality”.

The post-industrial and global era requires the reinvention of cities, from industrial centers into cultural ones. This transformation necessitates new specializations for abandoned areas, often combined with cultural activities. Moreover, it leads to incorporate assets into the heritage, grounded in the principle of choosing a sustainable development, focusing on creativity, and increasing the cultural sustainability (Cercleux et al. 2012). In the face of deterioration, regeneration of industrial heritage with manifold significances such as oldness, cultural, technological, architectural, and aesthetic values aims to display their technical and industrial patrimony assets by launching measures to convert them into cultural spaces. Hence, the conversion of abandoned industrial areas mainly as an economic resources must be avoided. However, the challenges of cultural reuse of industrial sites as an alternative to the destruction of them indicate that beyond the decommissioned buildings and landscapes, there may arise multifold perspectives for capitalization (Florentina-Cristina et al. 2014). Meanwhile, current regeneration processes through the long-term strategic orientations and solutions, are integrated with sustainable initiatives based on extensive community participation for satisfying environmental, social, and economic demands in the city (Martinovic and Ifko, 2018; Landorf, 2009).

Miles and Paddison (2005) indicate that “The idea that culture can be employed as a driver for urban economic growth has become part of the new orthodoxy by which cities seek to enhance their competitive position. Industrial heritage transformation as a key approach in response to the cultural demands of the post-industrial society brings forth the inevitable challenges beyond the economic dimension, from the sustainability perspective. Commercialization of the culture and city marketing lead to neglect the cultural and social sustainability. On this base, How to rationally and sustainably reuse the industrial heritage, instead of following image-making and economic benefits, becomes a significant issue. This transformation is beyond bricks and mortar and pertains to physical, social, and economic well-being of an area (Niu et al. 2018).

Moreover, industrial heritage as the most complex category of heritage, is an important part of social, cultural, and technological past (Cossons, 2012; Ifko, 2016). Because of this complexity, reusing these types of heritage constitutes an important cultural objective and consequently must be identified in a way that highlights their architecture, cultural, and economic usefulness. “This is inherently sustainable in that it encourages the positive reuse of redundant buildings that are part of the industrial and commercial heritage”. Accordingly, the issue consists in the manner or mechanism of conserving and refurbishing industrial sites and turning them into eminently cultural spaces (Florentina-Cristina et al. 2014). Zhang (2007) points out that “the reuse of industrial heritage gives rise to new cultures and helps achieve the twin goals of cultural innovations and economic development. As the conservation and reuse of industrial heritage is intertwined with

the strategies of the cultural development of cities, we should carry it out in a well-controlled manner and associate it with city renaissance”.

Accordingly, developing successful models is necessary in order to prevent demolishing operations and to foster the change in destiny of industrial heritage sites (Cercleux et al. 2012). This process requires balance between preservation and adaptive reuse, involves generating institutional rationales and schemes to create new cultural objects, and encompasses creating new functions for obsolete spaces. These aspects are essential in deciding appropriate methods to preserve heritage values (Cho and Shin, 2014). The key issues of regenerating industrial sites not as obstacles to be removed, but as opportunities for development, are models of governance, relationship between the plan and the project, sources of financing, and the goal of conservation in relation to other goals of regeneration (Tufegdzcic and Siladi, 2006). Thus, this paper is looking for a framework for sustainable regeneration of industrial heritage in cities. To this end, firstly, the industrial heritage has been explained in terms of concepts and characteristics. Then, the necessity and dimensions of sustainable regeneration of the industrial heritage have been addressed. Finally, based on the theories and views of identified related research, the proposed framework of this study has been discussed and concluded.

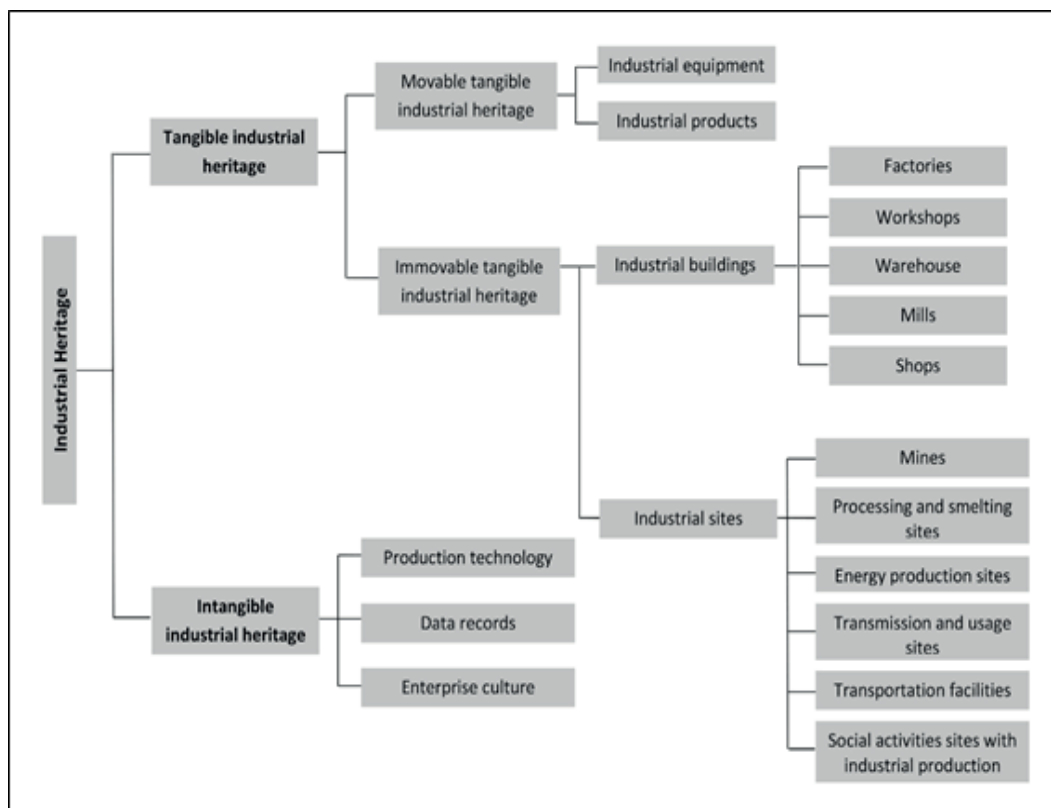
## 2. Industrial Heritage

After the Budapest Declaration on World Heritage in 2002, Amsterdam Conference on Linking Universal Values and Local Values: Managing a Sustainable Future for World Heritage in 2003, acknowledged that “World Heritage properties are dynamic entities where cultural and social values evolve. They should not be frozen in time for purposes of conservation. Indeed, the continuity between the past and future should be integrated in management systems accommodating the possibility for sustainable change, thus ensuring that the evolution of the local value of the place is not impaired” (UNESCO World Heritage Centre, 2004).

International consultation institutions such as the United Nations Educational, Scientific, and Cultural Organization (UNESCO), founded in 1946 and the International Council of Monuments and Sites (ICOMOS), founded in 1965, focus on the cultural heritage sites. Some platforms, like the International Committee for the Conservation of Industrial Heritage (TICCIH) as special adviser to ICOMOS, founded in 1973, and the European Federation of Associations of Industrial and Technical Heritage (EFAITH), focus specifically on the industrial heritage. In the year 2000, the TICCIH and the ICOMOS signed up an agreement on cooperation in the survey, research and conservation of industrial heritage. Recent events like the 2012 EFAITH weekend in London and 12th International Conference on Urban History in Lisbon in 2014, with its special session on industrial heritage, indicate that there is increasing interest in industrial heritage management. In addition, EFAITH proposed 2015 to be the European Industrial and Technical Heritage Year and aims to give importance to industrial heritage as part of world cultural heritage that should be conserved and developed. Consequently, several special scientific conferences and meetings have been held to raise awareness in this regard. A TICCIH Congress that held in France in September 2015, had similar purposes regarding industrial heritage in the 21 century (Zhang, 2007; Ozkan Altnoz, 2016).

“Industrial heritage consists of the remains of industrial cultures which are of historical, technological, social, architectural or scientific value. These remains consist of buildings and machinery, workshops, mills and factories, mines and sites for processing and refining, warehouses and stores,

places where energy is generated, transmitted and used, transportation and all its infrastructure, as well as places used for social activities related to industry such as housing, religious worship or education” (ICOMOS, 2003). However, industrial heritage includes not only tangible evidences, such as relics, artifacts, buildings, constructions, machines, products and tools, but also drawings, photographs, written documents, audio and video recordings and other intangible evidences related to the development of a certain industry. Figure 1 shows an instance of industrial heritage classification in tangible and intangible. A piece of industrial heritage has historic value in terms of abundant important and accurate information in reference to science and technology. Moreover, the physical appearance of industrial architecture has particular aesthetic value with regard to an identification to the urban culture and an important part of contemporary urban life. Therefore, transformation of industrial heritage should take into account the adaptive reuse of structures. We should not only conserve the industrial features and their inherent historical information, but also infuse new spatial elements into them for developing new functions. Accordingly, not only preservation, but also revitalization of industrial sites and weaving them into the urban fabric are necessary (Zhang, 2007).



**Figure 1:** An instance of industrial heritage classification in tangible and intangible (Yao, 2014)

Many of these post-industrial sites have gradually been merged into the larger urban fabric of city centers. The demand for developing these sites increases the attractiveness of them. Moreover,

the fact that industrial heritage has special qualities or valuable architectonic forms, can influence its role in the regeneration processes. Therefore, old industrial sites are a basis for incorporating a wide range of recreational activities, and giving rise to new contexts in which historic structures and modern architectural forms coexist. Such symbiosis, in which industrial heritage has found new uses and is contrasted by new architectonic idioms, has had wide appeal among general public, politicians, and professionals such as planners, developers, and etc. (Swensen and Stenbro, 2013).

Martinovic and Ifko (2018) indicate that “one of the most important factors regarding regeneration of industrial sites is how the local community feels about these sites. If they are abandoned, they can be a powerful source of negative memories. On the other hand, by enhancing the idea of their regeneration they can boost social cohesion and work as a tool to strengthen the local identity. These sites, already perceived as a certain landmark in the city, with a new function, could become a catalyst for urban regeneration in the city, instead of contributing to the negative perception of the city”.

### 3. Sustainable Regeneration of Industrial Heritage

Industrial heritage transformation as one of urban development options in order to turn obsolete spaces into viable places is often adopted in urban regeneration which looks for historic, aesthetic, and economic upgrade of degenerated areas (Cho and Shin, 2014, 69). Regeneration policies include strategies to make cities more favorable places and prime locations. This approach is best described as ‘to attract people back to cities and persuade others not to leave, and is captured in its most explicit form in construction works and aesthetic investment in the central areas of cities.’ Accordingly, these projects seek to make a connection between the physical forms of the city and its social realities. Thus, they simultaneously aim to prevent the physical and social decline and deterioration of the city. Meanwhile, the goal of improved quality of life in the cities integrates with objectives on sustainable production, consumption, and socialization, at the same level (Ozkan Altinoz, 2016).

Since the 19th century onwards, urban regeneration generally aims to reactivate obsolete urban areas and structures. In recent decades this goal is closely integrated with sustainability initiatives for satisfying economic, environmental and social demands of a city. Accordingly, achieving sustainability within an urban regeneration process has become essential. In this context, industrial heritage sites provide a great opportunity for incorporating sustainability principles and can be used as catalysts for urban regeneration in the future (Martinovic and Ifko, 2018).

Niu et al. (2018) believe that “culture and creativity have played an active role in urban regeneration in the post-industrial era, including the promotion of physical environment renewal, stimulation of urban economic growth, and reshaping city image”. Sustainability especially from cultural and social aspects is an essential issue when discussing sustainable urban regeneration. The main issue is to change the economic preference and give priority to the cultural and social dimensions such as cultural innovation and production, social equity, public participation and identity. Therefore, analogizing the three pillars of sustainability including economy, environment, and society, the sustainability perspective of urban regeneration signifies a good parity between economic, cultural, and social dimensions.

Transforming heritage environments, especially regeneration of industrial sites, means interacting

within a complex consisting of differing discourses or planning perspectives, such as architecture, urban development, and heritage conservation (Oevermann and Mieg, 2017). The sustainable regeneration of industrial heritage and transformation of industrial sites into cultural creative spaces need a more rational development. Firstly, non-profit organizations should be encouraged to stimulate greater vitality from the social level. From the sustainability perspective, instead of entertainment, profit, and property development, the cultural regeneration model needs to consider how to create viable urban places and communities. Secondly, the government indeed has a key role, but inadequate governance, incompetent institutions, and insufficient laws may lead to an uncertainty of sustainable development after the implementation. Thirdly, support of cultural production instead of cultural consumption is essential. It takes time but is the most useful approach to guarantee the sustainability of the local economy. Continuity of policy and action must be ensured to improve the efficiency of industrial heritage reuse at the urban level (Niu et al. 2018). Landorf (2009) points out that “world heritage properties contribute to the social and economic development and the quality of life of our communities”. Moreover, she emphasizes the need for “the active involvement of local communities at all levels in the identification, protection and management of our world heritage properties”. In her view, the conceptual dimensions of sustainable development emphasize the planning based on long-term and holistic process and the active participation and empowerment of multiple stakeholders. On this base, Landorf suggests a framework for sustainable heritage management based on a study of UK industrial heritage sites. This framework consists of four main dimensions including Situation Analysis based on broad trends and effective issues, Strategic Orientation as negotiated priorities and causal vision, Stakeholder Values for grassroots influence on proactive decisions, and Stakeholder Participation based on delegated authority and iterative communication.

The future of industrial heritage sites is determined by their potential to be filled with new functions. Redevelopment processes have to be decided by discussions and considerations based on the balance between different needs (Swensen and Stenbro, 2013). Moreover, choosing a new functions must be done according to the characteristics including age, nature of the past function, and the current situation. Also, important factor in the decision to suggest the cultural reuse is associated to the analysis of the local conditions and needs, the characteristics and features, and the degree of the suitability of them to transformation (Cercleux et al. 2012; Florentina-Cristina et al. 2014).

Yao has been tried to establish a set of reuse protocols for the industrial heritage in China cities. He says that “for the situation and existing problems of the industrial heritage reuse in China, there is a need to construct a comprehensive protection and reuse system”. His proposed framework includes two phases of assessment and reuse. Assessment phase is mainly through preliminary and detailed investigation and assessment to find the reuse object and establish its values. Accordingly, the reuse phase as the guides and restrictions consists of feasibility study based on analysis of factors influencing and determining the reuse, reuse orientation, and principles of reuse (Yao, 2014).

Sustainable urban regeneration that means achieving an economic development, revitalizing abandoned areas, generating prosperous community, and producing innovative and creative society, gives best methodological framework for industrial areas transformation. Yet, an appro-

priate and careful management is needed that should include different bodies and stakeholders, long-term cooperation between experts and investors, and harmonizing the needs and interests of public, private, and non-government sectors. In the international context, the issue of reuse has been discussed from the ethical view, in terms of minimum intervention, respecting the existing purpose, and the compatibility of purposes, but also from the aesthetic perspective, in terms of integrity, character, and harmony. On this base, values, intervention level, and reuse proposal are the main dimensions of operationalizing conservation and rehabilitation policy of industrial heritage (Tufegdzcic and Siladi, 2006).

According to the Burra Charter, a sequence of investigations, decisions, and actions, is illustrated as key steps in planning for and managing a place of cultural significance. The Burra Charter was first adopted in 1979 at the historic South Australian mining town of Burra. The last reviewed version of it has been adopted by Australia ICOMOS in 2013. Thus, it seems to be a good basis to propose a sustainable regeneration process in reference to the industrial heritage sites as places with cultural significances. On this base, three main steps of Understand Significance including understand the place and assess cultural significance, Develop Policy including identify all factors and issues, and Manage in accordance with Policy including implement the management plan and monitor the results and review the plan, are important. Community and stakeholder engagement should occur throughout this process (Australia ICOMOS, 2013).

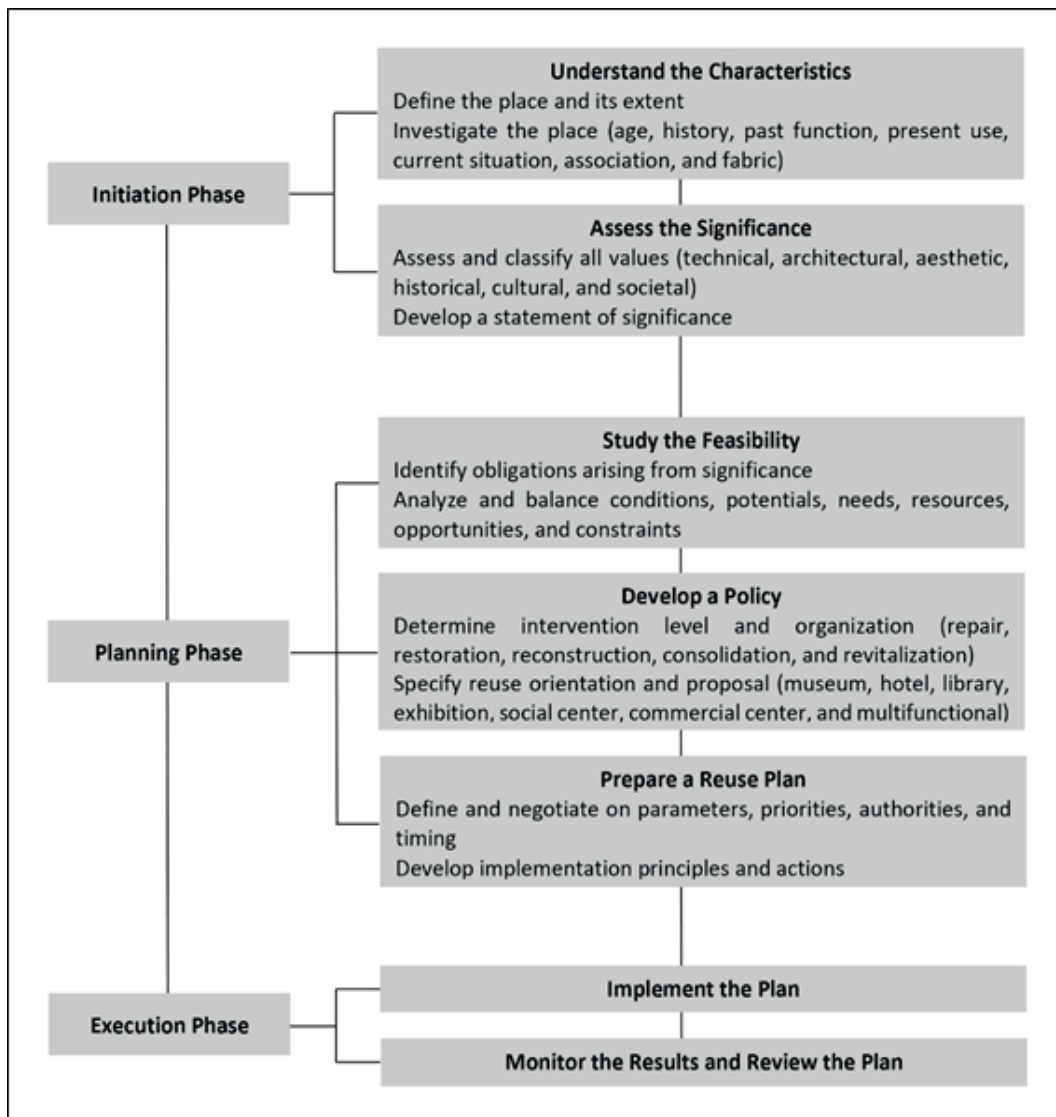
Ifko (2006) points out that “it is important to study the possibility of reusing the existing structures and knowledge potentials, which are, typically, an important capital of industrial areas”. In according to principles of the Burra Charter Process that are well accepted and applied, Martinovic and Ifko have developed a methodological approach for dealing with industrial heritage. Their approach consists of further phase of on-site experiment in a form of bottom up procedure which must be considered in several steps including 1.establishment of the contact between all interested stakeholders, 2.on-site intervention organization, 3.gathering information through surveys and interviews, 4.defining influencing parameters regarding socially sustainable heritage regeneration, and 5.evaluating influencing parameters regarding socially sustainable heritage regeneration (Martinovic and Ifko, 2018).

#### 4. Discussion and Conclusion

Industrial heritage sites with significances and values of technical, architectural, aesthetic, historical, cultural, and societal, are one of the most important potentials and opportunities for development in cities and urban areas. Because of the nature and characteristics of this type of heritage, adaptive transformation and reusing process of industrial assets should simultaneously integrate preservation with conversion and conserving with refurbishing. Hence, the appropriate response to dealing with these sites is regeneration which deliberately aims to reactivate obsolete and abandoned spaces and turn them into cultural and viable places. This goal has been incorporated to achieving sustainability as a good balance between economic, cultural, and social dimensions. Therefore, sustainable regeneration is a key approach for transforming industrial heritage. Through this approach, sustainable changes as cohesion between the past and the future and integration between physical forms and social realities will be possible by conserving noble special features and infusing new compatible functions. On this base, developing and proposing a framework for sustainable regeneration of industrial heritage in cities has been scrutinize in this study.



The suggested framework is mainly based on the Burra Charter Process, adopted by Australia ICOMOS, including steps in planning for and managing a place of cultural significance, which has been modified and detailed by reviewing other related research and experiences on industrial heritage. Therefore, three key steps of Initiation Phase including understand the characteristics and assess the significance, Planning Phase including study the feasibility, develop a policy, and prepare a reuse plan, and Execution Phase including implement the plan, monitor the results and review the plan should be taken into consideration regarding the sustainable regeneration of industrial heritage in cities. Figure 2 presents the sub-steps of the proposed framework which can be tested and adjusted through further studies or applying in real industrial heritage regeneration projects.



**Figure 2:** Suggested framework for sustainable regeneration of industrial heritage in cities

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## The Effects of Preserving Modern Heritage on Urban Mindscape

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### Abstract

Each city, in addition to its natural and objective perspective, includes another point of view which named Mindscape that is based on the general view of the city. Urban Mindscape is the result of the combination of the landscape of the city and the visual and cultural perceptions of the inhabitants. A city, as a social context, is always dynamic. The entrance of Modernity into the history of the cities makes them have a new identity. Preservation of modern heritage is necessary due to enhancing the quality of memories for the next generations. Damavand Mountain is one of the most outstanding natural elements of Iran. Besides its inherent striking characteristics, it has some intangible values. A mixture of these natural and cultural Landscapes of this dormant volcano through centuries has inspired sanctity, myths, and folk beliefs of the area throughout history. Rineh Garrison is in the nearest city to the Damavand peak and on the primary route of reaching it. The history of this military heritage structure goes back to the 1st era of Pahlavi with the influence of aggressive behavior such as high speed of construction, order, and integrity. This garrison has been entirely deserted since 2006 and has lost its functionality since then. Therefore, this paper as a kind of qualitative strategy and measures seeks to investigate the importance of preserving Rineh garrison as a modern heritage with an approach to safeguard the memories of its military heritage values by re-use it into the base-camp for Damavand Mountain.

**Keywords:** Modern Heritage, Preservation, Adaptive Re-use, Urban Identity, Urban Mindscape, Military Heritage

## 1. Introduction

Under the rule of the last Qajar, especially during the long reign of Naser al-Din Shah (1831-1896) Tehran as the capital city of Iran, which experienced a rapid population development at the end of the 19th century, entered the modern age. The absolutist ruling Naser al-Din renewed the urban infrastructure on the European model: from the electrification of cinemas to banks, hospitals and army barracks (Fakouhi, 2013).

The first and second Pahlavi (1925-1979) also pushed ahead with the modernization of the city. Reza Shah (1877-1944), the founder of this dynasty, wanted to turn Iran into a small Europe at any cost and complete the work of the great Qajar Shah (Cronine, 2012). Reza Shah, who was a supporter of Hitler and neutralized his country in the Second World War, had to give up his throne after the occupation of Iran by the British and Soviet troops in 1941. At the Tehran Conference in 1943, Churchill, Roosevelt, and Stalin then not only discussed the further course of the war and exchanged their plans for post-war Germany; they also decided to put the son of the dictator, Mohammad Reza Pahlavi (1919-1980) on the throne, but at the same time to curtail its powers. A little later - history repeats itself - the formerly weak ruler Mohammed Reza Shah felt so strongly that he forgot his political roots and only wanted to realize the dream of the "Great Persian civilization." Tehran was chosen as the modern "Queen of the Middle East" (Fakouhi, 2013). In general, the main features of architecture in the Pahlavi era are the lack of support for religious architecture and modeling due to the influence of German architectural experts in this period, and have a flashback to Iranian ancient architecture instead of the recent Qajar's style because of being overthrown by the coup. Moreover, the getting power of Reza Shah was almost in same time with the new discoveries of archeology in Iran. What matters here is that paying attention to ancient architecture caused a break with the ancient Iranian culture and Islam. After 1941, some architects who were familiar with the architecture of Iran and the west, like Adre Godard and Maxime Siroux, turned to the integrated architecture (traditional-contemporary). In the 60's, when was simultaneous with post-modern period in Europe, some architects pay attention to the traditional Iranian architecture and its link with modern technology.

Thus, Iran first quickly modernized in Tehran and other big cities, and then in small towns which increased the migration of villages and small towns to metropolitan areas. This rapid growth led to the destruction of a part of local identity because life in a modern city, regardless of how it was, was regarded as a value and success. This fake success led some people to hide their authenticity and rituals in the city while local and traditional thought was still under the skin of the cities.

Iranian revolution in 1979 prepared the community to take a new step in modern architecture although there were some anti-modern elements in this progress. At the beginning of this period, the country witnessed a fundamental change in the name of urban places and environments. Besides that, some especial architectural structures in the cities which were made by the Pahlavi's government lost their functions such as palaces due to the fact that they were directly related to the political side of the previous government. Furthermore, there were some modern built heritages which were abandoned during the Pahlavi era too. These landmarks were used after executing of adaptive reuse projects. However, it can be said that the adaptive reuse of architectural heritage in recent decades has become more noticeable to older historical buildings, while valuable modern monuments are often destroyed in urban development programs. This multiplicity of destruction

will destroy the modern identity, the disturbance of the mental landscape of cities and the historical breakdown. A clear example, which is studied in this paper as a case study is Rineh garrison in Iran. The history of this modern military heritage structure goes back to the 1st era of Pahlavi. This garrison has been entirely deserted since 2006 and has lost its functionality since then.

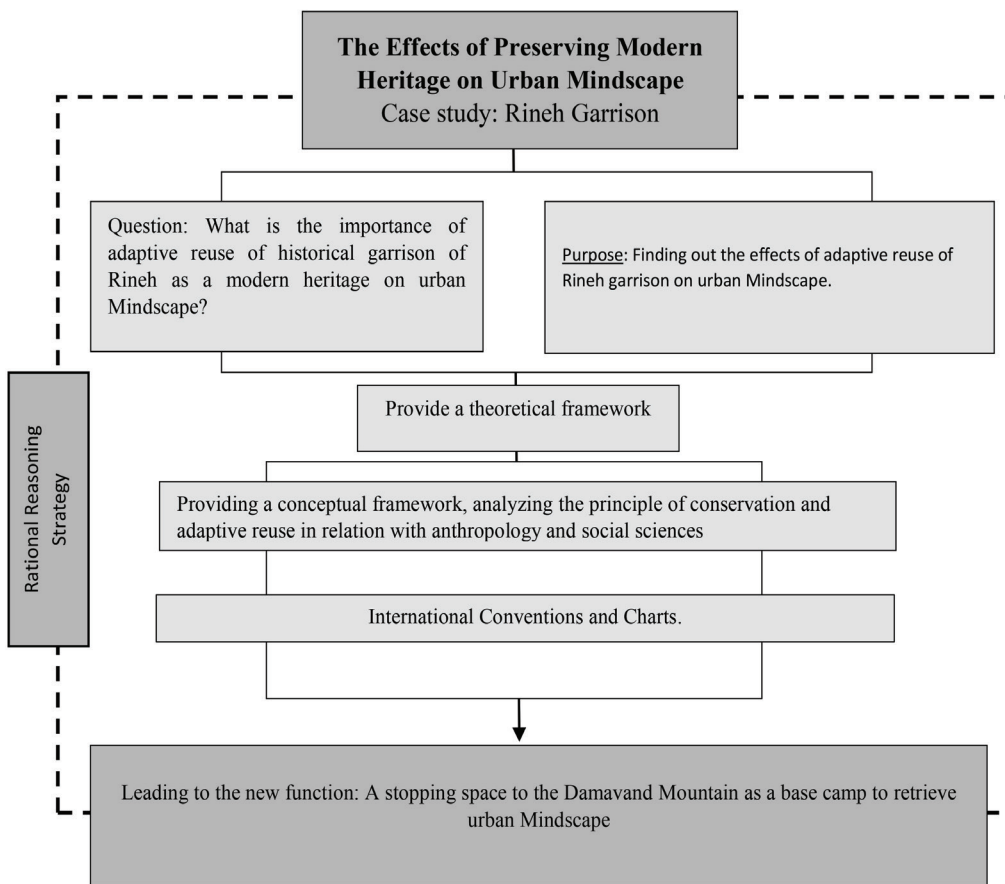


Figure1: Research Framework, Source: Author

## 2.Literature Review

Each city, besides its natural and physical landscapes has another section which named Mindscape; a perspective based on the city's overall image. The urban Mindscape is a structure for contemplating about the city. It refers to the quality which is the result of the combination of the physical landscape of the city and the visual and cultural perceptions of its inhabitants, which can be interpreted as a vision of the mind. Magoroh Maruyama, who used this term, defines it as equivalent to a person or community's worldview: a structure of reasoning, cognition, understanding, and conceptualization (Maruyama, 1980). Urban Mindscape consist of the native and exterior images of the city (Bianchini, 2006) such as urban representation in literature, cinema, music, visual arts, and also myths, media, the view of inhabitants, monuments, rituals, and tourist guide books.

The identity of a city includes its physical part, and its semantic nature which, fed by material and immaterial dual-shaping systems. The most important components of urban identity are the physical shape, the culture and the relation among them which named urban anthropology. Therefore, the identity is directly related to the factors "Time" and "Place" which make it not to be solidified around one or two social traits so identities are conceived as a process, as performed, and as unstable (Fincher and Jacobs, 1998: 26). In other words, the identification depends on different situations, times, and places so it is inappropriate to focus on a place as a bounded one. Moreover, the effects of global flows through the local which is always dynamic make the boundaries permeable too. The entrance of Modernity into the history of the cities makes them have a new identity.

Adaptive reuse happened in the past simply because demolition and the construction of new buildings would need more time, energy and money than reuse so it is not a recent phenomenon by any means (Velthuis, K & Spennemann, D. H. R. 2007). Adaptive reuse has been started to discuss architecturally during the 1960s and 1970s due to the growing concern for the environment (Cantell, 2005). A successful adaptation is one that respects the existing building and its historic context and add a contemporary layer to the heritage building rather than destroying its character (Deh, 2004). Unfortunately, there is a lack of clear methodology for adaptive reuse decision making of heritage buildings. It mostly focuses on environmental, physical and functional aspects of heritage building sand there is less support on socio-cultural aspects of heritage buildings (Misirlisoy and Günce, 2016).

In the anthropological explanation of the concept of space, the notion of Henri Lefebvre is noticeable. Especially in space production, he considers space not a natural or transcendental phenomenon, but a historical integrity and a social production. In fact, on the one hand, space is our historical experience, and on the other hand, it is the experience of our everyday lives. The production of space or place has varied in different historical periods. This means that changing actors, changing positions, changing functions, values, types of livings and relationships have all influenced the change in production space. Lefebvre criticizes the classical opposition between natural-physical space and mental space, and believes that what really matters to humans is the social space (Fakouhi, 2004).

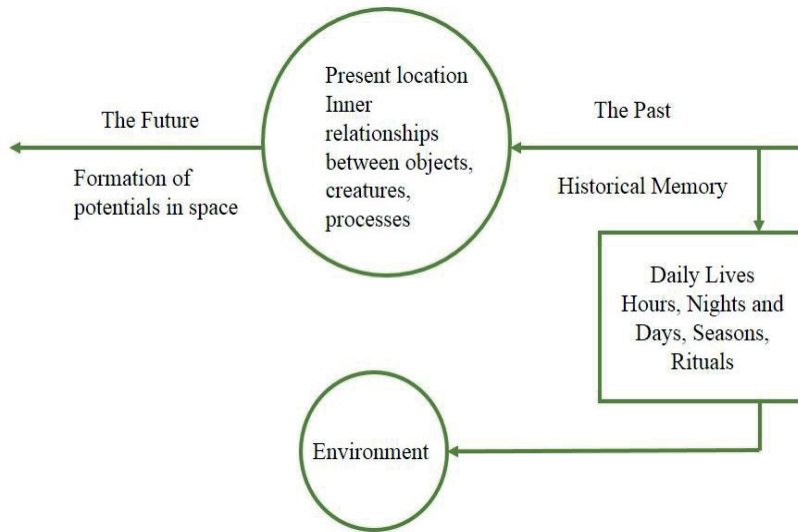


Figure2: Space/ Place Relationship in the Viewpoint of Lefebvre – Fakouhi, 2004

### 3. Description and History of Rineh garrison

#### 3.1. Location:

The Larijan division is located in the south of the city of Amol, Mazandaran province in the north of Iran. The distance of the center of this section is approximately 85km to the administrative center of Tehran (Tehran) and about 75km to the city center of Amol.

#### 3.2. Damavand Mountain:

Damavand is the most famous peak, which can be mentioned in Larijan. This mountain is a Stratovolcano that is formed in Holocene era - the fourth geological era - which is relatively young. The volcanic activity of Damavand is currently limited to the substitution of sulfur gases. The last volcanic activity of this mountain was 38,500 years ago (Geological Survey of Iran, 2016). Damavand has 60 edges. The southern boundary is the main route for climbers to access the peak. Damavand Mountain is one of the most outstanding natural elements of Iran. Besides its inherent striking characteristics, it has some intangible values. A mixture of these natural and cultural Landscapes of this dormant volcano through centuries has inspired sanctity, myths, folk beliefs, and unique customs of the area throughout the history. So the goal of summiting Damavand is more than just reaching a peak. Moreover, the mountains have always been a symbol of strength and since long ago have sheltered man as a strategic area too. This soul of resistance and power can be observed as human-made elements of the domain of the mountain.

#### 3.3. City of Rineh:

The main access route to the peak starts from Rineh, which is the closest city to the summit. One of the remarkable points about this city is the native folk narratives of mythology related to Mount Damavand. It can also be noted that the lives of people are significantly intertwined with Damavand Peak and surrounding nature. For example, local occupations such as livestock, agriculture, and also numerous native guidance to climb to the summit can be pointed.



### 3.4. Military Architecture- Rineh Garrison:

*Military installations contain a diverse collection of buildings, representing a unique architectural record of military acquisitions and construction as the military evolved over time (Michael, Smith and Sin, 2011: 3). Garrisons and fortifications (fortresses, troop stations, gun enclosures, etc.) were built in strategic areas that required protection against invasion and capture, along with a dense network of railways, cableways, and roads, etc. (Gatti, Cacciaguerra, 2014). Rineh garrison is one of the most critical architectural spaces in the city of Rineh which was designed by anonymous military engineers in the first era of Pahlavi. In this case, the military heritage relations with Damavand mountain as a strategic place beside.*



Figure3:Hypothetical boundary of Rineh city and the location of Rineh garrison next to the Damavand peak. Kheyrikhah, 2017.

Among the features of the Rineh garrison is its military architecture which is influenced by the architecture of the West, especially the architecture of countries such as Germany and Austria and other countries under the rule of Nazism. During this period, when Germany had a lot of militaries and economic strength, and the desire of Reza Shah to cooperate with the government, it resulted in a periodic presence in architecture, which undoubtedly could be traced back to Western architecture in particular features The works were made. He created a new army with a military mindset over the course of twenty years, resulting in the architecture of a series of buildings which are classified as the first Pahlavi architecture. The architectural features of this era can be summarized as follows:

- Construction of separated buildings with four similar faces in different views.
- Geometric windows that are indicative of the order of the military architecture of this period
- The use of features of Western architecture, especially the architecture of Germany and the

light, mainly known as Western architecture style, called modern architecture and the method of Nazism

- Use of cement and iron and new building technologies
- Repeater columns and rows of architectural elements

Rineh garrison had 30 buildings which had diverse functions such as military quarter, administrative, dining room, services, etc. One of the buildings completely collapsed, and two of them were partially destroyed. All buildings have one floor with the flat roof.



Figure4: Green fields and vacant spaces in the Rineh garrison from Google earth photo

The materials used in the garrison include the metal structure of the buildings, the stone in the facade, the cement in the flooring and the stairs, the cluster for showing the ways and for the walls of the gates, the stone on the floor and the stairs, the existence of narrow metal windows on different fronts of the buildings, Metal and wooden doors, wells with brick walls, cisterns for the heater, chimneys on the ceiling and the electric grill.

#### 4.State of Conservation (tangible and intangible values)

The garrison was the property of the Islamic Republic of Iran's military until 2009. After the army's departure and the garrison's abandonment, it was assigned to the municipality of Rineh. On July 23 in 2017, a conference was held in Rineh city on the occasion of the National Day of Damavand. In the environmental panel of the conference, a meeting was held in the presence of Dr. Mohammad Hassan Talebian, the deputy director of the Cultural Heritage Organization, on which the historic Rineh Garrison was designated as the universal Damavand Register. It should be noted that after the Iranian revolution in 1979, the garrison was torn apart and its southern half, which lacked buildings, was dedicated to the construction of residential houses for the victims of the devotees and martyrs of the sacred defense.

Due to what was mentioned, the garrison as a modern military heritage which has an acceptable situation in the structure of the buildings should be preserved. Also, according to the tangible

and intangible values of Damavand peak as an exciting destination for climbers beside all of its cultural and economic benefits for Rineh inhabitants that can strengthen the urban Mindscape on a local, national and global scale by Preserving Rineh garrison, adaptive reuse of this site gets a particular significance. Furthermore, according to Hubbard, many studies emphasize the importance of local and naturalistic myths in building and retrieving national identities (Hubbard, 2006). Finally, to consider the essential points of conservation, the conventions and charts related to preservation of the militia and Damavand peak and also adaptive reuse of this modern military heritage are summarized below as a timeline:

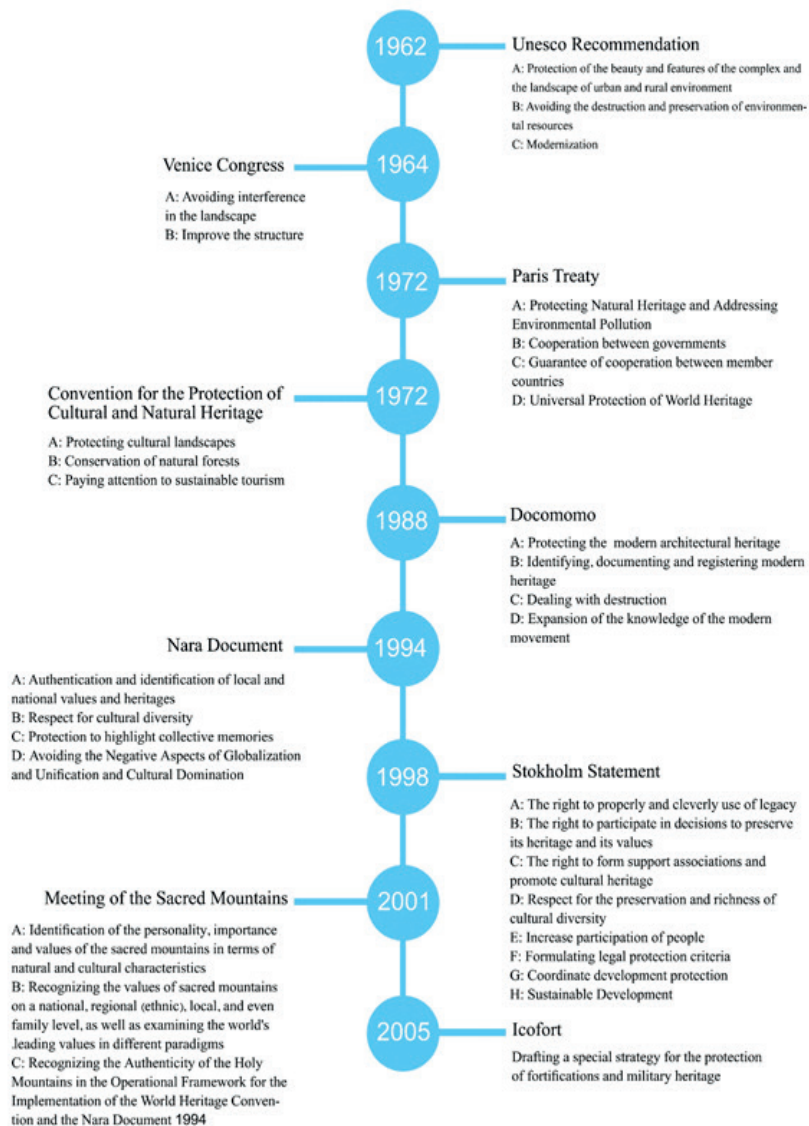


Figure5: Timeline of International Conventions and Charts relating to conservation of natural elements, sacred mountains, modern architecture and military heritage and also safeguarding intangible heritage. Kheykhah,2017

## 5.Strategic Proposed Plan

According to the studies, the best function for Rineh garrison is to be a base camp for climbers. Preparing a visiting center in the nearest city to the Damavand's peak can flourish the potential of nature. Moreover, it can increase the job opportunities which diminish the migration and safeguard the urban narratives among local people. Vacant fields can be filled with military shelters in specific places which help local people to recall the martial soul of the previous function. In many cases, they would not even have to be built as they were already part of the Pahlavi era plan since the most of the structures are strong enough to be preserved. It means that many barrack buildings could be adapted to a suitable range of purposes with only a minimum of work. All of these actions can strongly influence urban Mindscape, which is nearly to be forgotten. Additionally, the mixture of natural elements of Damavand Mountain, myths, and folk beliefs causes a compelling attraction for people who enjoy wintry sports such as climbing and also who are interested in literature and folkloric social activities. Thus, a strategic plan in large scales is proposed as an idea to present the adaptive reuse of Rineh garrison.

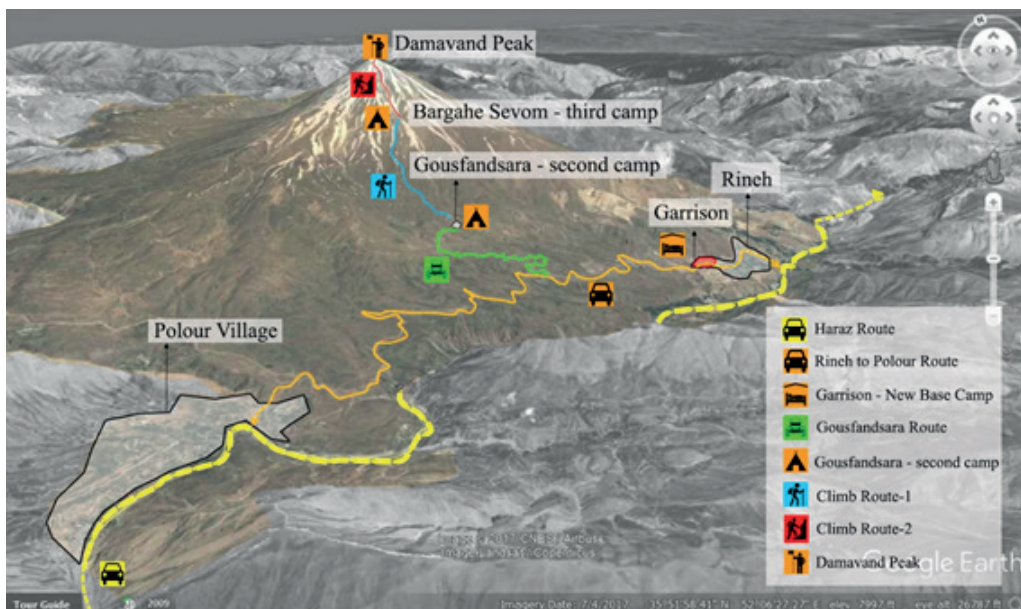


Figure6: The strategic proposed plan of the site in a large scale. Kheyrkhah, 2017

## 6.Conclusion

After the invasion of modernity, the architecture and urbanization of Iran during the four periods (Qajar, Pahlavi I, Pahlavi II, and post-Islamic Revolution) had to face fundamental changes. These changes have been related to economic, political and cultural issues in each era. So the type of change in the city and its impact on native culture have been different. On the other hand, the construction of monumental and valuable buildings contributed to the flourishing of modern architecture and urbanization, while the development of many of them depended on the widespread destruction of historical places in cities and villages. Besides, political events at low historical intervals led to a change in the function of numerous urban spaces, abandoning them and renaming places. This instability in urban areas during a long period has led to a distortion of urban identity

and disturbance in the urban Mindscape. Historical Garrison of the Rineh, which is the case study of this research, is located in the nearest city to the highest peak of Iran - Damavand. This garrison was built in the Pahlavi era and is now abandoned. Protecting this modern military architecture and adaptive reuse it to the Damavand basecamp by maintaining the military sentiment of the place has brought about the revival of historical identity, the employment of the inhabitants of that area, the reduction of the migration of people to the neighboring cities, the encouragement of domestic and foreign tourists to visit the town, and motivate Attractions for climbing. All of these together lead to the rehabilitation of the urban Mindscape of the Rineh next to Damavand Peak.

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## Biography

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## Historical Facts and Reality—An Unsure History and Tourist Attraction of a Former German Merchant House in Taiwan

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### Abstract

The Julius Mannich Merchant House is a historical building in southern Taiwan, and is known to have been built in about 1877 and served as a place of business for German international commerce. Due to one of numerous heritage preservation processes in Taiwan, the building has already been listed as a local heritage site, and was first restored in 1983. It has since transformed for a new purpose, having been taken over by a German-themed restaurant, which introduces German history and culture through both the building's architecture and its interior decoration. Moreover, it offers traditional German cuisine, including roast pork knuckles and beers to the delight of their many customers. The restaurant even celebrates Oktoberfest by promoting special dishes for a limited time. According to historical evidence, the building was erected by the British in 1877 and sold to a German businessman. As such, the restaurant takeover was challenged, as the building served not simply for purposes of leisure but as a monument to historical and cultural values. Even in keeping with the historical evidence, in reality, the restaurant enjoys a wide variety of visitors who have come to appreciate the European scene. The main focus of this article is to discuss the relationship between historical fact and reality, specifically where a tourist attraction may emerge from a historical building. When a heritage site is reimagined as a place to attract tourists, what core meaning is assigned this heritage by visitors?

**Keyword:** historical evidence, colonial architecture, tourism heritage, built heritage

## 1. Introduction

Like the tropical climate in which Taiwan is located, the Taiwanese are passionate and easy to befriend. Taiwan has a long history of colonization, and its history and heritage are often not taken seriously. Even so, the tourism industry of Taiwan has prospered in recent years. Many well-known web-content creators have introduced Taiwanese tourist sites by writing blogs or taking selfies, and these posts tend to attract many visitors to see Taiwan for themselves. However, when historical sites are transformed into a place of tourist attraction, the original meaning of these heritage sites may transform as well. Is the correct historical message being conveyed to visitors? This is the issue at hand for historical preservationists.



Figure 1: Former Julius Mannich & Co. Merchant House (Author)

## 2. Taiwan: One Land, Two Histories

### 2.1 Political background

After the end of World War II in 1945, Taiwan had ended fifty years of Japanese colonization. The Japanese no longer occupied Taiwan, but there was no plan for gradually and systematically determining the future of the small island. As a result of its insecure international sovereign rights, Taiwan became something of an international orphan. In 1947, Chiang Kai-shek lost the Civil War in Mainland China, and fled to Taiwan, bringing the Koumintag-owned (abbr. KMT) regime to the newly dubbed Republic of China in Taiwan. In the same year, he enforced martial law. Because the KMT lost their regime in Mainland China, they attempted to strengthen their Chinese identity and legitimacy with the United Nations. They wanted to return to Mainland China, and saw Taiwan as nothing more than a temporary location. KMT established a committee of Chinese cultural revival in 1967 in order to introduce the real Chinese culture in Taiwan as compared to the People's Republic of China (PROC), attempting to educate the Taiwanese to be Chinese. The function of this committee was mostly propaganda. In the same period of time, the important heritage conservation event, the 1964 Venice Charter, was not known in Taiwan. The martial law blocked all international correspondence with this isolated island.

Gradually, many Taiwanese scholars became aware of the issue of Taiwanese heritage conservation, after having studied abroad and experiencing the many different cultures of the world. The



list of heritage sites was managed by the government only passively. The Lin An Tai Old House Preservation Act of 1970 was the first active movement to protect a heritage site, and was led by both scholars and professionals. The old house was partially preserved but moved to another location. This unsatisfactory result led many people to rethink the meaning of heritage and conservation, especially in terms of the conflicts that arise among home-owners, governments, and preservationists. Hsia (1995) posited the question: for whom to preserve, for what to preserve? In 1971, the United Nations officially recognized the Chinese PROC. The ROC, which was owned by the KMT, lost official international recognition. Many so-called Chinese refugees realized that it was almost impossible to return to Mainland China. The people of the island were faced with reevaluating their collective identity. The Taiwanization movement developed both from active preservation of heritage sites and this jarring loss of international identity. Under command of the United States, the KMT declared the dissolution of martial law in 1987. The biggest local opposition party, the Democratic Progressive Party or DPP, won the first presidential election in 2000 and was largely recognized as the first peaceful regime change on the island, putting Taiwan on the path towards true democracy. The DPP supports many local cultural heritage sites and promotes historical education from a Taiwanese point of view. Due to the dramatic changes in both the political situation and the historical perspective of such, the people in Taiwan began to develop different identities. The image of Taiwanese culture became unclear. Some people identify as Chinese, but do not want to be citizens of the PROC; still others identify as Taiwanese and refuse association with a Chinese identity. These two large groups represent two different national identities. As a result, it is hard to agree on the value of heritage sites to be preserved. One obvious example is that of the Chiang Kai-shek Memorial Hall in Taipei. It was built in 1981 and listed as a heritage site when the mayor of Taipei belonged to the KMT. In 2000, the opposition party, the DPP, won the presidential election for the first time. The president of the DPP proceeded to change the name of the Chiang Kai-shek Memorial Hall on the entrance gate to the "Place of Freedom." This act enraged many Taiwanese people who identified strongly with the Chinese culture, and called into question the president's blameworthy decision. The action made many Taiwanese who has the identity of Chinese to blame the rude action of president. Even though the construction is much newer than the Japanese colonial buildings, it is now listed as a cultural landscape heritage, possibly due to the fact that the current mayor of Taipei does not belong to the KMT. The issue of transitional justice is fresh in the Taiwanese collective memory as a symbol of dictatorship. Does the Memorial Hall's listing as a heritage site fly in the face of democracy? Dealing with the site remains a hot topic of discussion in Taiwan – should the Memorial hall be destroyed or at least partially preserved?



Figure 2: Presentation about Chiang Kai-shek memorial hall (Author)

Different historical backgrounds inform the value system of these competing heritages. Taiwan's insecure political situation poses different identities, values, and visions of Taiwan's political future. This is Taiwan: one land with two histories.

## 2.2 The Cultural Heritage Preservation Act and Change in Preservation Thinking

The Cultural Heritage Preservation Act (CHPA) was first enacted and enforced in 1982, but was, notably, not the first preservation law to take effect in Taiwan. Prior to the CHPA, the Antiquity Preservation Act (APA) of 1931 was enacted in Mainland China, during which time the island of Taiwan was under Japanese colonial control.

In the beginning of the 20<sup>th</sup> century, Mainland China witnessed a trend of archaeological fever. Many people – including international scholars, art collectors, and archaeologists – came to Mainland China to brought tomb relics back to their home countries. In an effort to stop this kind of action, the Chinese government introduced the APA; its aim was to preserve the various rich heritage sites of China that have gained recognition over its millennia-long history.

In 1947, the KMT came to Taiwan and enforced the APA. The work of heritage conservation in Taiwan via the APA brought about a number of difficult situations. The history between China and Taiwan is quite unique and their cultures are distinct from one another. If an old site in Taiwan which was less than one hundred years old was not listed as a heritage site per the APA, a more recent site could still be listed as such. On the other hand, Chinese central ideology does not list Japanese relics as national heritage, even if it has significant historical meaning and aesthetic value, such as the office of the president of the ROC in Taiwan, which was built during the period of Japanese colonial control which was not listed as first level of heritage (national heritage). The unlisted historical buildings and heritage sites were neglected and occupied or even destroyed by the KMT. Many scholars wanted to preserve these Japanese structures for familial reasons – calling up memories of childhood, parents, grandparents. More and more people began to realize that Japanese history was inextricably linked to Taiwanese history. In 1982, the APA was annulled and the CHPA was newly enforced. The CHPA was first drafted with reference to the APA, but the definition of “heritage” was much broader, which allowed for flexibility in listing heritage sites by more and more important factors than simply the year of construction.



Figure 3: Lin a Tai historical house (Taipei city government).

The scholars who strongly advocated for preservation were mostly historians who had little or no knowledge of the technology of preservation. Heritage sites were still preserved mainly in museums as untouchable antiquities, keeping the lives of real citizens at a distance. The historical site was preserved but also stilled after restoration. The temples were still being used for their original function, but some other buildings which had no original function were restored without a new function; this led to the joking coinage of the term “house of mosquitos” in reference to the only sentient visitors to the site. Some scholars have criticized this preservation method as “frozen,” acknowledging the lack of connection between the heritage sites and the lives of people in the present day.

Later, the call for reuse of heritage sites began to grow. The preservation movement that followed was called the Revival of Heritages. The preservation work was not only to focus on restoration, but also to reuse the building as a mean to connect the sites’ histories with their modern-day visitors. In the 1990’s, tourism took on a larger role in Taiwan after the department of labor enacted more federal holidays for workers. Heritage sites changed from museum-like structures to tourist attractions, and this change was promoted by departments of culture.

According to Shiue (2017), the goal in amending the CHPA would be to connect to the trend of international cultural policy as per UNESCO. What makes this achievement especially noteworthy is that the designation as a heritage site comes from citizens themselves, rather than via a government entity. Another method would be to allow Taiwanese people to find their own historical message at the heritage sites by reporting to list the heritages themselves, rather than trying to manage how they understand the significance of these monuments.

As of 2019, the CHPA has been revised no less than eight times. Via the internet, international information is quickly distributed, allowing Taiwanese scholars to keep up-to-date on the international trend of heritage preservation. Even if the CHPA tried to fit the current trends in preservation, the most important factor would still be education: offering the visitors of historical sites the correct cultural message.



Figure 4: Former Government-General of Taiwan in the Japanese colonial period, now an office of the president of the ROC. (Office of the President of the Republic of China (Taiwan))

### 3. The Developing Tourism Culture in Taiwan

The culture of recreation in the West is well-developed when compared to that of the East. For example, throughout life in Ancient Rome, people recognize recreation as an important part of a person's life. Taiwan tradition leans more towards a culture of work. The public image of recreation is relatively negative among the Taiwanese labor force. Even though Taiwan is an island, any activities close to the sea were prohibited under the martial law of the KMT. The people of the island had to forget about going to the beach and learn to obey the dictator, who encouraged adherence to authority. For many Taiwanese people, history was strict and uninteresting. After ending martial law and moving toward democracy, free speech, and the free exchange of information, the people of Taiwan began to experience the influence of Western culture. Gradually, regulation became an important part of life for the young population of Taiwan.

Taiwanese culture started to recognize the joy and importance of gourmet foods, unable to ignore the delicious variety of food available to tourists. It would be hard to manage a tourist site in Taiwan without offering delicious food in addition to beautiful sites and a connection to the cultural history of the island. Reused historical sites would have to provide access to this rich culinary heritage in order to attract the attention of tourists.

Because Taiwan was colonized for such a long time, awareness and knowledge of the island's history is relatively weak. When tourists visit a heritage site, they are more likely looking for a good place to eat than to be interested in learning about the history of the site. The government encourages managers of reused heritage sites to attract tourists by allowing them close contact with the heritage site. The number of visitors is an important metric to record for business-owners operating out of a listed heritage site, and can determine whether they extend their rental contracts. As a result, reused heritage sites generally become restaurants or coffee bars. Business owners know they must attract more visitors to earn a profit, but few are apt to concentrate on the historical significance of the site. This situation may lead to the heritage sites in question providing a steadily uniform range of offers to fulfill the needs of Taiwanese tourists. In this scenario, the heritage sites lose their unique character over time and may ultimately fail to attract visitors.

With this kind of problem in sight, there are steadily more heritage tours which concentrate on conveying historical information, rather than providing food as the main attraction. Knowing the history of the site and conveying a culturally appropriate and historically correct message would only highlight the value of heritage preservation in Taiwan.

#### 4. Architecture

The building in question has already been listed as a heritage site and demands consideration of an appropriate preservation method. Compared to the architectural description from Lan (2013), as of 2019, the building is said to have carried out restoration construction in 2018; however, the main construction and interior decoration have not to change yet.

##### 4.1 Architectural description:

The historical building is situated at the former Anping port, to the southeast of Fort Zeelandia, which is also a listed building of heritage dating back to the 17th century. It is a one-story building with a garden and two large banyan trees in front of the main entrance, facing the old Anping port in the west. As Anping is located at the zone of the Tropic of Cancer, where the climate is very hot and humid, the two banyan figs in the west side of the garden provide visitors with cooling shadows from the hot sunshine and a placid garden scene.

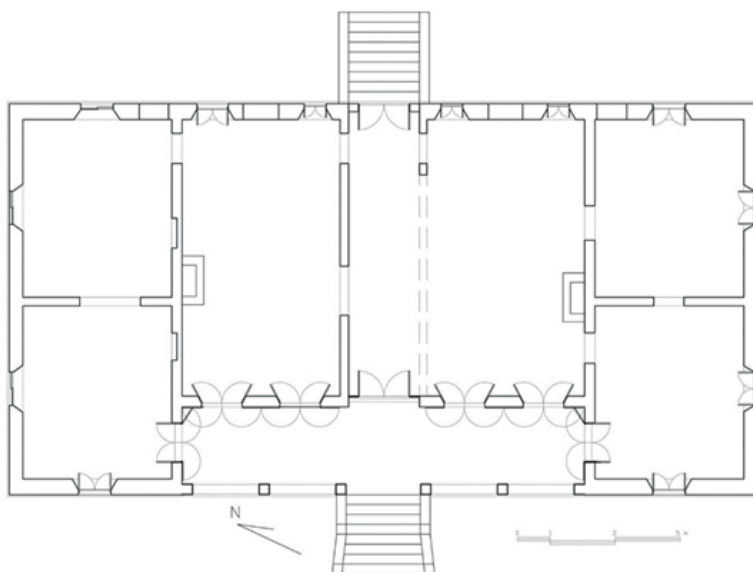


Figure 5: Plan of Julius Mannich & Co. building (Kuo: 1983)

Except the main aisle in the middle of the plan, which faces the main entrance, the symmetric ground floor embraces three rooms at both sides with each side having one big room equipped with a fireplace and two small rooms at both sides. Considering the hierarchy and proportion of space, the big room should have been used as a public space such as lobby and entrance, and the small rooms for private and office functions. There are still many vestiges of former stands of windows or doors, which were refilled as a wall for different uses. For the reuse of historical exhibitions, some walls and openings were refilled or reconstructed.

The façade faces south-westwards to the former Anping port to facilitate direct harbor business. The raised basement with openings in a four brick arch form left the first floor higher than the ground. Generally, the higher basement should have been used as a refrigerator for storing alcoholic drinks, and the opening of the basement for lighting of the room, but this building's basement with brick arch openings has no lighting and refrigerating function. It should have been used to prevent against the damage of tides and humidity. There is a stair with eight steps facing the main entrance in the middle of the façade. Near both sides of the stair are small ramps with several flats on the 1<sup>th</sup>, 5<sup>th</sup> and 8<sup>th</sup> step.

The plan of the building is rectangular. The façade is at the side of long lateral with an arcade consisting of 5 brick round arches without plaster on the surface, namely veranda, which is more common in tropical areas. The balustrades in the form of a green vase are between each of the arches. Except the façade, the other three elevated faces are white-brushed walls and windows with light blue shutters.

It has a hipped Roof which is covered with traditional Taiwanese tiles, with two chimneys at both sides. Chimneys are rare in Taiwan's traditional architecture. The edge of the eave, which is relatively short, is near to the top of the wall. The white cornice is decorated in Taiwan or the so-called southern Chinese traditional patterns.

The character of the historical building with one-storey, higher basement, veranda, pitched roof and round-arch brick wall without plaster tends to be the colonial style of British East India Company. Comparing to other English consulate buildings i.e. British consulate at Takao, south Taiwan, the consulate or colonial buildings have similar characters: one- or two-storeys, veranda with balustrades and round-arch brick walls. The original pattern may have come from the villa form, considering the local humid and hot climate in south Asia, and then transformed to a colonial building with a European style. In comparison with German buildings in brick style, former Julius Mannich & Co. house is like a British colonial building in a far eastern style. It could be the case that the Germans, believing that the British were more experienced at governing colonies in far Asia, referred to the English colonial building form to make their buildings. It might also be possible that the building was designed and constructed by the British, and then used by the German later. The brick surface is unique and form the architectural character of the old trade houses area.

## 4.2 Historical evidence

### 4.2.1 deed of 1880:

According to a deed of 1880 circuit intendant the Qing government granted the German consulate-- Dr. Merz in 1880, the building was constructed by a British company and then taken over by a German company. The architectural style and historical evidence of Julius Mannich & Co. show a close relationship of the building with British. Should the current decoration of the restaurant in a German style be added with an introduction of the British historical culture or should the restaurant serve both German and British foods?

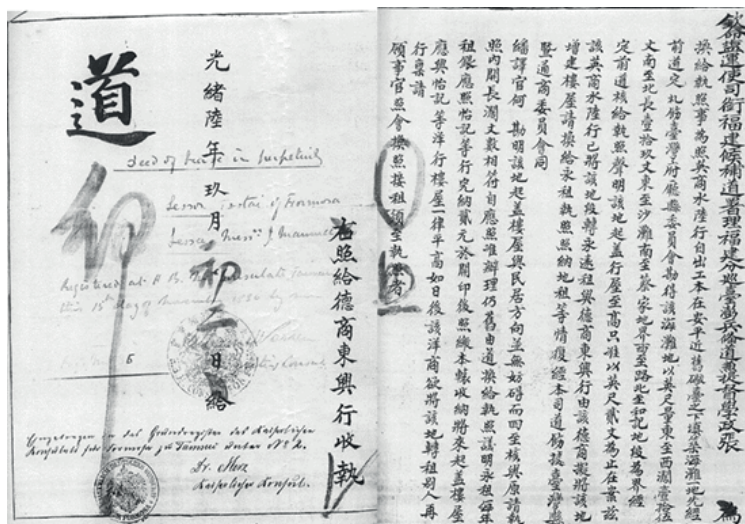


Figure 6: Deed of 1880 circuit intendant of German consulate, Dr. Merz (David Oakley from Queen of England)

#### 4.2.2 Other Evidence:

The location of the Julius Mannich House is an area called the Houses of International Trade Area, which was home to five centers of international trade, mostly American or English companies. Those houses have been partially destroyed, but there are some stone signs showing the original location of the form international houses. The only preserved houses are the English Tait & Co. Merchant House and the Julius Mannich House. The figure of the English Tait & Co. House is quite similar to that of the Julius Mannich House, as compared to the former German consulate building in Da-Dao-Chen, which has since been demolished. The Julius Mannich House appears to have considerable architectural influence from the English Merchant House.



Figure7:(Left); English Tait & Co. merchant house (Tainan city government)



Figure8:(Right); The former German consulate building in Da-Dao-Chen, north Taiwan. (Fischer: 1900)

The historical evidence strongly suggests that the Julius Mannich merchant building was erected by the British in the English colonial style. If the Julius Mannich House is to be reused, the history of the British colonists in Taiwan should be taken into consideration. The British and German influence in Taiwan had a number of significant influences on international affairs and business.

### 4.3 The Reuse of Julius Mannich Merchant House as a German-Themed Restaurant

Julius Mannich Merchant House was taken over by a hotelier and managed as a German-themed restaurant. They offered mostly German beers as well as, occasionally, other international beers. Its visitors were happy to enjoy themselves and didn't seem to care about the authenticity of the restaurant. The pork knuckle, a typically German main dish, was especially popular among the Taiwanese. The beers did not have to be authentically German as long as the pork knuckle was prepared according to popular demand.



Figure9:(Left); The German food provided by the restaurant. (Lincy)

Figure10:(Right); The fun cultural activities for Oktoberfest in Julius Mannich house. (Lincy)

The pork knuckle dish and the fun activities offered by the restaurant reflect the image of the southern German tradition, a farming culture. As for the historical evidence, the proverbial German businessman may originate in the traditions of northern Germany. The cultures of northern and southern German each have a unique, distinctive character, a difference that may well be unknown to many Taiwanese people, whose image of Germany as a whole is reflected in the themes of this restaurant. From an educational standpoint, the projection of German culture to Taiwanese tourists is inaccurate.

In 2018, the city government of Tainan began restoration work to strengthen construction after an earthquake. After the publication of Lan (2013), the city government of Tainan decided to change the main theme of this building. The process of bidding is ongoing, with the hope that preservation and tourist management can continue to coexist peacefully.





Figure11:(Left); Photo under construction. (Tainan city government)

Figure12:(Right); Outside under construction. (Liu, Wan Jun)

## 5. The Meaning of Preservation for Heritage

As to the meaning for preservation, Article 2 of the Venice Charter (Abbr. VC) proposed the definition:

*The conservation and restoration of monuments must have recourse to all the sciences and techniques which can contribute to the study and safeguarding of the architectural heritage.*

This means that preservation is supposed both protect and make a record of heritage. In Article 16 of the same charter:

*In all works of preservation, restoration or excavation, there should always be precise documentation in the form of analytical and critical reports, illustrated with drawings and photographs. Every stage of the work of clearing, consolidation, rearrangement and integration, as well as technical and formal features identified during the course of the work, should be included. This record should be placed in the archives of a public institution and made available to research workers. It is recommended that the report should be published.*

The preservation process should allow for any necessary forms of documentation and publication, and is recommended for the purpose of future research in keeping with the meaning of heritage preservation as a tool for scholars. As defined by The Bavarian Law for the Protection and Preservation of Monuments (Monument Protection Law, abbr. MPL) in Article 1.:

*Monuments are man-made things or parts thereof from a past epoch whose preservation, because of their historic, artistic, urban design, scientific or folkloristic significance, is in the interests of the general public.*

The definition of monuments is perfectly defined. The preservation is to keep the history, artistic, urban design, scientific or folkloristic significance. This includes the content and categories of heritages widely. The interests of the general public are the preservation goal. Should the interests of the general public be achieved and informed?

The definition of monuments is, therefore, clearly established. The purpose of preservation is to

protect sites of historical, artistic, scientific, and folkloristic significance, as well as important sites of urban design. This definition broadly defines the content and categories of what constitutes a heritage site. The interests of the general public are another important goal of preservation. Should the interests of the general public be determined, achieved, and informed?

Article 1 of Taiwan's Cultural Heritage Preservation Act has made the following comment as to the task of heritage preservation<sup>1</sup>:

*This Act is enacted to preserve and enhance cultural heritage, ensure the universal and equal right to participate in preserving cultural heritage, enrich the spiritual life of the citizenry, and promote the cultural diversity.*

Article 1 of the CHPA has detailed the main purpose of preservation, and concludes that the goals of preservation are in keeping with protecting cultural heritage as well as promoting cultural diversity.

Throughout the three definitions of heritage preservation, the meaning of preservation has centered on monuments and heritage sites. Preservation should involve many different people, including researchers and especially tourists, whose intentions involving heritage may differ significantly from those of academics. Not every heritage site can or should fulfill the immediate needs of all tourists because the tourists are different also and have different demands. As such, providing historically accurate and culturally appropriate information is important before tourists attempt to enter heritage sites. Education may need to take precedence over maximizing the number of visitors to heritage sites, at least for now.

As for the goal of conveying an accurate history to tourist, the reuse of the Julius Mannich House is not an appropriate example. As for tourist attraction, providing interesting activities and delicious food to welcome visitors is a primary goal of the Tainan city government. According to Shen (2002), in order to attract more tourists, the tourism site would need to fill the tourists' needs in a manner that affects historical authenticity, but the fabrication of history needs to be seriously considered. Even if the intention of the tourists is based in feeling and imagination rather than in historical fact, fabrication would likely lead to an inaccurate understanding of history and a loss of the meaning of preservation. Her argumentation implies the same concern, that when a heritage site changes its function to attract more tourists, maintaining the meaning of the heritage site must be consistently given more consideration than the immediate needs of the tourists.

Different heritages have different histories to tell. The concentration camps and the Julius Mannich Hosue provide different historical contexts. Concentration camps aim to provide more historical thinking through education rather than focusing on the immediate needs of the tourists; the Julius Mannich House has the opportunity to offer more pleasant activities and as a result, fails to provide education of its resident historical site.

## 6. Conclusion

Heritage conservation is important for the interests of the general public, including not only researchers, but also tourists, even as their roles can sometimes change in relation to the heritage site in question. In addition to research into historical evidence, tourists should be given a chance to understand the meaning of heritage sites. As a tourist, they seek recreation and a respite from working life, which means that a heritage tour might lean towards providing a relaxing atmosphere for visitors. However, when the cultural heritage of the site and the needs of the tourist are not evenly balanced, the heritage site may need to adjust their business targets in order to avoid

conveying inaccurate or inappropriate cultural and historical information to tourists, allowing for the potential inappropriate handling or even damage of important historical sites. The construction of the Julius Mannich building was unstable after the earthquake. In 2017, the second attempt at preservation work had begun after almost thirty years of initial efforts. Towards the end of 2018, the preservation work had been completed, and the Tainan city government plans to take bids for a business to manage the building as a historical tourist attraction. In light of the research presented in Lan (2013), the Tainan city government recognized the lack of British history, and plans to keep this in mind in search for the next appropriate site-manager.

Whether the “mosquito house” method of preservation or the famed Revival of Heritages, the goal remains to attract more tourists and invite them to learn about the region’s history. The new manager of the historical building may continue to provide European foods and entertain visitors, but should keep in mind the goal of conveying accurate historical and culture information, rather than simply joyfully forgetting the importance of the historical site at hand. Recently, many young people began taking selfies in the Jewish Museum in Berlin, as well as at the Auschwitz concentration camp; visitors reported these acts, reprimanded young people to conduct themselves in a more respectful manner. Touring a historical site, depending on the character and nature of the place, may not always be fun, but education prior to visiting the site is still important. Preventing the education as to heritage sites and their histories is misled and misleading, and contradicts the important work of heritage preservation.

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## Strategic Planning of Industrial Heritage Conservation in Yazd with Tourism Approach (Case Study: Textile Factories)

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### Abstract

Yazd city has long been one of the most important producers of handmade textiles in Iran. In the early of twentieth century, textile transformed to industrial setting. With the establishment of large factories, Yazd was recognized as one of the main hubs of textiles production in Iran. Unfortunately, this industry has been declining for decades since, most textile factories have been shut down. The heritage of those days is abandoned valuable buildings in terms of architectural style. This study proposes a strategic plan for conservation of the industrial heritage of Yazd textile factories with the aim of tourism development. The research method is qualitative-quantitative and in terms of purpose is applied. In this study, survey method and SWOT technique were used to collect data and analyze the current situation. Then, the internal factor evaluation matrix including strengths and weaknesses (IFE) and the external factor evaluation matrix including opportunities and threats (EFE) were calculated and based on them, the aggressive, conservative, competitive and defensive strategies were presented. In addition, by analyzing the findings of internal and external evaluation matrix (IE), it became clear that the priority is with aggressive strategies and Yazd textile factories in terms of capacity and potential for tourism development are faced with strength in the internal environment and with opportunity in the external environment. Based on the results, the strategies should be considered, such as holding tours to get acquainted with the industrial heritage, especially the textile industry in Yazd; considering Yazd textile factories as a place for seasonal and regional exhibitions; providing a master plan for the restoration and rehabilitation of textile factories; promoting industrial tourism attractions in Yazd on national and international levels, and conducting conferences to introduce successful experiences in the field of industrial heritage.

**Keywords:** Strategic Planning, Industrial Heritage, Conservation, Yazd, Tourism, Textile Factory.

## 1. Introduction

Heritage is a key element and an important factor in attracting tourists, and heritage-based tourism has been eagerly accepted around the world as a way of creating unique experiences for visitors. In this framework, industrial heritage which is seen as having a significant weight in the construction and maintenance of a national or local identity like other types of heritage (Palmer, 1999). Industrial heritage subjects include the material remains of industry such as sites, buildings and architecture, plants, machinery and equipment. Industrial heritage also consists housing, industrial settlements, industrial landscapes, products, processes and documentation of the industrial society (Xie, 2006).

The concept of industrial heritage was introduced in the mid-20th century in England in the period when several industrial buildings and urban landscapes were destroyed. Since then, many efforts have been made to identify the effects of industrial heritage. Industrial sites are a turning point in human history. They contain memories of the days that have brought about both progress and annoyance, and at the same time are a symbol of better life expectancy. Industrial buildings show the technological development of countries through their architecture and reveal the social and cultural values of their time. These complexes are quickly demolished due to the loss of industrial use in cities and their social failure. Transmission of functional spirit and architectural style that belong to global experiences emphasizes the need to preserve and study these cases. Then it is important, how to conserve the buildings which are no longer able to adapt to new use (Hanachi and Taymourtash, 2017).

Traditional industry, including many underground sites (such as mines) or on the surface of the earth (such as factories), offers visitors nostalgic and new experiences. In addition, with the emphasis on the value of the local industrial past, the transition to tourism may also enhance the identity of the residents and encourage localization in an exceedingly globalized world. Although there are many ways to develop regional economics, industrial heritage tourism could be an interesting “new combination” (Hospers, 2002). Cities and regions with a rich industrial base are the most important industrial tourism destinations. Industrial tourism is a potential growth sector that matches with their identity. This section offers opportunities to strengthen their characteristics and image, especially by organizing their existing assets (Otgaar et al., 2016).

Over the centuries, women with spinning wheels and men in traditional workshops produced diverse and beautiful textiles from ordinary fabrics such as “Karbas” and “Jim” to fine fabrics like samite and “Termeh” for courtiers and governors in Yazd city. Furthermore, a variety of rugs and “Zylous” for mosques and homes were another product of this city which in addition to fulfilling local needs, a large part of them were exported throughout the country. In the early of twentieth century, by importation of industrial machinery from Europe and the United States, industrial form dominates at textile. With the establishment of large factories, Yazd was recognized as one of the main centers of textiles producers in Iran, and for more than half a century was a major part of the urban economy. Unfortunately, this industry has been declining for decades since reasons such as wasteful textile imports and lack of competitiveness, and most textile factories have been shut down. The heritage of those days is valuable buildings in terms of architectural style, which has been declined by lack of use. The purpose of this research is to propose a strategic plan for the conservation of the industrial heritage of Yazd textile factories with the aim of tourism development.

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## **2. Literature Review**

### **2.1. Strategic Planning:**

In tourism, there are many influential trends that local authorities should be aware of (Zargham Boroujeni, 2010), because these trends determine the extent of tourism development in each region. Therefore, it is necessary to seek full cognition of the current situation so that, in addition to preserving current benefits, the disadvantages of negative drivers will also be reduced and the conditions for sustainable tourism development will be provided. This requires identifying the internal and external influential factors. In other words, identifying and analyzing strengths and weaknesses, opportunities and threats. Consequently, strategic planning will provide practical approaches for managers and decision makers. These approaches would be able to deal with very complex, uncertain and unpredictable environments, because strategic planning could play as an effective process in the context of tourism, taking into account decision-making fields, expressing the reasons for decision-making and providing executive suggestions (Zamanian et al., 2010). Strategy is the basic pattern of present and planned objectives (Sarfaraz et al., 2013).

Strategic planning refers to the process of establishing long-term coordination between managerial goals and changing market opportunities. All practices and operations related to tourism should be based on a strategic plan. Strategic planning of tourism industry makes governments able to identify strengths, weaknesses, opportunities and threats and use these findings to improve and enhance the benefits of tourism. Strategic planning of tourism is essential for conservation of attractions and sustainable development (Asadi, 2011).

### **2.2. Conservation of Industrial Heritages:**

Conservation means to maintain and preserve (Petzet, 2004). Conservation of cultural heritage in all its forms and contexts seeks values that are dependent on heritage features (ICOMOS, 1994). The purpose of conserving, preserving the authenticity and integrity of the cultural heritage (ICOMOS, 1964).

Managing Resources and Uses, interpret industrial heritage for educational or archaeological purposes that protects and takes care of the irreplaceable elements of the site, assumes restoration of buildings, lands, machinery and processes and finds new uses for the elements that are without the industrial landscape (Alfrey and Putnam, 1992). Stratton (2000) describes the success of the development of the industrial heritage as follows: "regeneration works best if it is based on broad principles of conservation, building incrementally on surviving resources in terms of buildings, landscape, and people".

By the middle of the twentieth century, historic urban quarters, including industrial sites, were often considered, and the theme of proposals for clearance and comprehensive redevelopment. However, the preservation movement in the 1960s also brought a series of problems, most importantly, limitations on what could be dealt with culturally significant building areas. The movement perceived that all such spaces could not be considered as museums, so the aim of conservation must adopt with the need for a healthy socio-economic base in the community. Since the moti

vations of those who invest and revitalize historic places are probably different from those initial preservationists who refer these areas into public awareness (Tiesdell and Oc, 1996), the potential conflicts between different stakeholders must be regarded (Xie, 2006). Industrial heritage tourism is based on the importance of creating a sense of place strongly (Gunn and Var, 2002), in which unique, imaginative, authentic, sustainable, and participative are indispensable (Xie, 2006).

### 2.3. Industrial Heritage Tourism:

Industrial heritage tourism widely includes visiting industrial centres (old places or actually the current industry which has a history in that place) to expand the cultural experiences of tourists in learning about the economic activity of other peoples, past and present. This sector is partly related to a type of visitors who are looking for a new type of experiences or emotions and have a special interest in the technology on show and the socio-economic history of the places being visited (Vargas-Sánchez et al., 2007).

Industrial heritage tourism refers to the development of touristic activities and industries on man-made sites, buildings and landscapes that emanated from the industrial processes of early periods. The emergence of industrial tourism has been assumed by many people to be a mixed blessing for the host community, because the benefits and costs are consistent in practice. Industrial tourism is often noted as a means by which urban areas can compensate the effects of economic reconstruction (Harris, 1989, Oglethorpe, 1987), increase the tourists presence in cities and regions (Kerstetter et al., 1998) and improve the image of the region and to act as a public relations tool to nullify public biases towards industrial areas in decline (Goodey, 1994, Harris, 1989).

### 2.4. Implication of SWOT Analyses:

On the issue of industrial heritage and the use of tourism using the SWOT approach, there are two main researches in Iran that include:

Pahlevanzadeh et al. (2018) in an article using a strategic planning approach (Internal Factor Evaluation Matrix, External Factor Evaluation Matrix and SWOT model) and using SPSS software, through library method and field studies (Panel of Experts), have developed and prioritized the most important strategies of tourism development in the Isfahan Risbaf Factory. The results of this study indicate that considering the tourism situation in the Isfahan Risbaf Factory, its extraction strategy is growth and construction strategy and focus strategies include market penetration, market development and service development should be implemented.

Ayenehchi and Qasemi (2015) have reviewed contemporary industrial complexes, factories and workshops in Iran, which are currently only a few and are facing serious destruction. In this research, the current status of contemporary factories of Tehran has been analysed by identifying internal and external factors using the SWOT method. And finally, by understanding the effect of each effective factor, using their analysis appropriate strategies are presented. Finally, it is concluded that in Iran, the revival of the industrial heritage and that part of the monuments with a rich history of contemporary architecture which are facing destruction can be used to prevent abandonment and to regulate the existing status of industrial complexes for the development of tourism industry.

## 3. Case Study



### 3.1. Genesis and Development of the Textile Industry in Yazd:

“Marco Polo” writes in his travelogue: “Yasdi also is properly in Persia; it is a good and noble city, and has a great amount of trade. They weave there quantities of a certain silk tissue known as Yasdi, which merchants carry into many quarters to dispose of” (Yule, 1875). Barbaro and Contarini (1873) write: “The people of this city are all engaged in textile and texture of various fabrics. They import silk from Astarabad and Joghatai County and through Baku Sea (Caspian Sea)”. Yazdi people, with their own effort, export a lot of these textiles to India, Iran, Joghatai, China, part of the Khitan, Russia and Turkmenistan. Those who buy Syrian soft silk textiles, if visit Yazd, will choose the Yazdi silk textiles... it is said that Yazd city needs 600 kilograms of silk every day (as cited in Qalamsiah, 2000).

This industry, even during the Mongol invasion of Iran, did not decline. During this period, Yazd city was considered as a medium-sized city where is the centre of producing silk goods and textiles for exporting to major global markets (Ravandi, 1980).


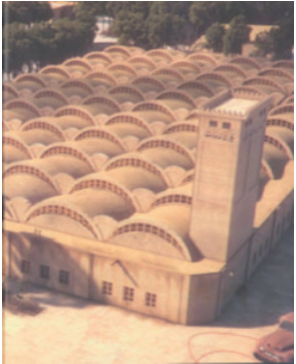



Cotton cultivation and production of silk also were flourishing in the city with a good quality, and many people worked on winding silk. In this city, sericulture (silkworm breeding) was also common; but since this industry was not able to meet the needs of textile production in Yazd, a portion of the silk needs was imported from the adjacent cities by the weavers. Nevertheless, silk could be considered as the major production of Yazd and the best silk in Iran; so that MacGregor (1879) writes in this regard: “One of the major productions of Yazd is silk. Its raw materials are often brought from Gilan. This silk is converted into various fabrics, the most beautiful of them, which is known as Hossein Gholi Khani. Its quality is excellent; the colour is mild and is very suitable for women’s wear” (as cited in Ramazankhani, 2008).




This situation continued for a long time, but with the advent and expansion of knitting machines in Yazd province, the local textile handicrafts completely changed. The most hands knitting workshops were shut down due to lack of competition and adequate support, and the number was minimized since 1963 (Ramazankhani, 2008). Also the emergence and prevalence of wide single-phase automatic machines for knitting in the province, had a significant influence on the textile production especially in Termeh textile. Then the number of Termeh Weaving handy machines reduced from 300 to 80 in 1971 and it was completely vanished 5 years later, so this year can be considered the end of life of handmade Termeh and other textiles in Yazd. At that time, the Yazd’s capitalists thought about establishing and developing modern textile industries and setting up factories. Eventually, they managed to launch three big factories within a few years. If we added three other big factories which were established between 1949 through 1955 in the total factories before that time and also consider the increase of manual textile machinery in these few years; Yazd was the second-largest city of Iran in the textile industry field (Ramazankhani, 2016).

### 3.2. Introduction of Yazd Textile Factories:

The textile factories of Yazd (Table 1) using modern technology from the beginning of twentieth century and based on traditional and historical experiences, were established in the form of buildings which had a unique pattern and structure during its time.

**Table 1.** List of Textile Factories of Yazd (Ramazankhani, 2016)

Num	Name of Factory	View	Establishment Year	Current Condition
1	Iqbal		1931	Reused
2	Saadat Nasadjan		1934	Abandoned
3	Dorakhshan and Herati		1935	Abandoned
4	Seyed Moahammad Agha		1948	Abandoned
5	Dastbafan		1948	Abandoned

6	Yazdbaf		1956	Active
7	Jonub		1959	Abandoned
8	Afshar		1963	Active

Although the spatial organization of these buildings was influenced by the industrial production method based on modern technology; traditional Iranian architecture could be recognized from their forms and spaces. The signs of them are as follows:

- Use of traditional spaces such as “Shabestan”, central courtyard, Portico and so on in a new combination.
- Implication of Iranian architectural elements such as Wind catcher, Minaret, “Iwan” and etc. Of course, these elements have been often changed in industrial buildings from the term of formal and functional details (for example, the minaret has transformed to the factory chimney).
- The use of traditional technology, such as vault system with specific structural elements, including brick column, pillar, vault, arc and dome.
- The use of traditional decorations on the facade of buildings, office spaces, entrances and etc.

But over the years, the most beautiful industrial buildings which were created by skilled and local architects who used traditional patterns in Yazd declined quickly and these heritages (except Iqbal factory) were not protected (Ramazankhani, 2016).

#### 4. Methodology

In this research, after field and survey studies and with the help of SWOT analysis method, the internal and external factors affecting the conservation of Yazd textile factories with tourism approach were identified. According to the severity of the effect, each of the factors were scored and weighted.

The scores reflect the affect intensity of factors, thus scores 1 (low negative affect) and 2 (high

negative affect) were assigned to weaknesses and threats, and score 3 (low positive affect) and 4 (high positive affect) were assigned to strengths and opportunities. For weighting each of the factors, the weights were given from range 0 (no matter) to 1 (very important). Then the average of scores and weights were calculated individually. Since the total average weights should be equal to 1, the following equation was used for normalization:

$$d_{ni} = \frac{d_i}{\sum_{i=1}^n d_i}$$

Where  $d_i$  is the initial weight-average (not normalised) of each of the internal or external factors,  $\sum_{i=1}^n d_i$  is the sum of the averages of the internal or external factors and  $d_{ni}$  is their final weight after normalization. To determine the final score of each factor, the final weight was multiplied by the average score of that factor.

Then, the final scores of the internal factors in the internal factors evaluation matrix (IFE) and the external factors in the external factors evaluation matrix (EFE) were individually summed up, which these numbers indicate the current status of textile factories conservation in Yazd. In the next step, the initial strategies were compiled using the SWOT matrix into four categories, including offensive, conservative, competitive and defensive. Finally, according to the total final scores of the external and internal factors in the IE matrix, it was specified which type of strategies have priority. The steps of the study are shown in (Figure 1).

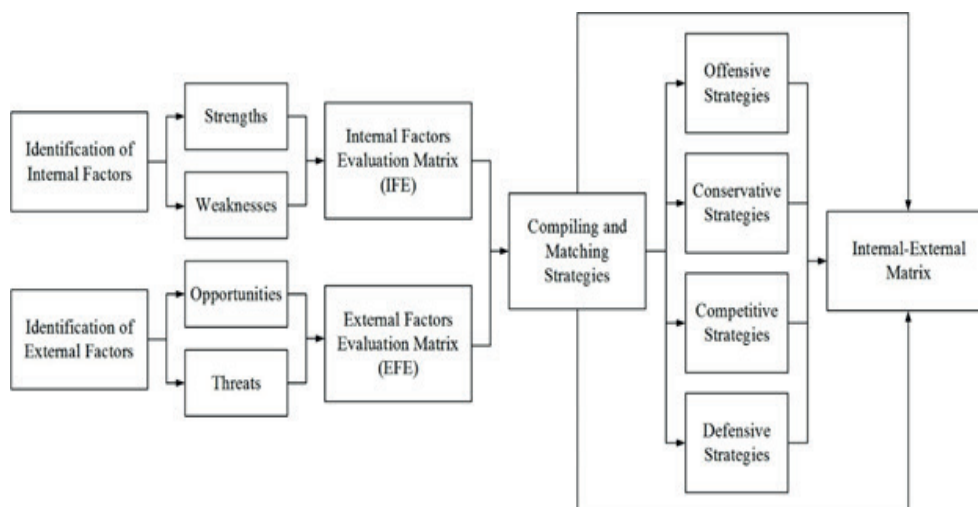


Figure 1: Research model of the study

## 5. Findings

### 5.1. Internal Factors Evaluation Matrix (IFE) and External Factors Evaluation Matrix (EFE):

All internal and external factors do not have the same importance, so all of these factors must be evaluated and most important factors identified. Strategic planners can evaluate the economic, social, cultural, ecological, environmental, political, and other factors using the External Factor

Evaluation matrix and also using Internal Factor Evaluation Matrix, they can identify and evaluate the relationships between the different subjects and provide solutions for them (David, 2011). The sum of the final scores of the factors in the IFE matrix is the total final scores of the internal factors, and the sum of the final scores of the factors in the EFE matrix is the total final scores of the external factors, which is a number in the range of 1 to 4 and the average is 2.5 as presented in (Tables 2 and 3).

**Table 2:** Internal factors evaluation matrix (IFE)

Factors		Average of score	Weighted average	Final weight	Final score	
Strengths	S1	Dispersion of textile factories in the city	3.333	0.400	0.041	0.136
	S2	Broad yard of textile factories	3.666	0.533	0.055	0.201
	S3	Unique style of industrial architecture of textile factories	3.666	0.766	0.079	0.289
	S4	Adaptive reuse experience in one of the textile factories	3.666	0.566	0.058	0.212
	S5	Alive retired staffs who were formerly employed in textile factories	3.666	0.500	0.051	0.186
	S6	Convenient distance and access to tourist attractions	3.666	0.333	0.034	0.124
	S7	Capability for adapting all types of tourism in terms of purpose	4	0.466	0.048	0.192
	S8	Specific ownerships without opponents	3	0.433	0.044	0.132
	S9	Existence of appropriate urban infrastructure within the textile factories area	3.333	0.433	0.044	0.146
	S10	Inscription of the historic city of Yazd on UNESCO's World Heritage List	4	0.833	0.086	0.344
	S11	Private sector willingness for investing on adaptive reuses	3.333	0.166	0.017	0.056
Weaknesses	W1	Large floor area of textile factories	1	0.333	0.034	0.034
	W2	Lack of old factories machineries	2	0.633	0.065	0.130
	W3	Lack of proper maintenance of existing factories buildings	2	0.700	0.072	0.144
	W4	Lack of documentation and compilation of relevant historical documents	1.333	0.700	0.072	0.095
	W5	Lack of public awareness about the importance of industrial heritage in Yazd	2	0.633	0.065	0.130
	W6	Multiplicity of textile factories more than Yazd city demands	1	0.266	0.027	0.027
	W7	Lack of governmental supports in helping the textile industry	2	0.933	0.096	0.192
<b>Total</b>			9.627	1	2.770	

**Table 3:** External factors evaluation matrix (EFE)

Factors		Average of score	Weighted average	Final weight	Final score	
Opportunities	O1	Reflects the industrial identity of the historic city of Yazd	3.666	0.666	0.089	0.326
	O2	Adaptation to the historical landscape of Yazd	4	0.733	0.098	0.392
	O3	Ability to allocate large-scale land use at the regional level	3.666	0.400	0.053	0.194
	O4	Acceptability of tourists, especially those interested in industrial heritage on a global scale	4	0.700	0.093	0.372
	O5	Possibility of balancing tourism development in Yazd city and reduction of pressure in high season	3	0.600	0.080	0.240
	O6	Ease in the process of planning and implementing proposals	3.333	0.400	0.053	0.176
Threats	T1	Closure of existing textile factories	2	0.766	0.102	0.204
	T2	Abandon and non-use of textile factories for decades	2	0.666	0.089	0.178
	T3	Lack of cooperation between organizations and the lack of proper planning for the conservation of textile factories	1.666	0.766	0.102	0.169
	T4	Possibility of forgetting collective memories and creating a historic gap	1.333	0.866	0.115	0.153
	T5	Destruction of buildings affiliated to textile factories	1.333	0.900	0.120	0.159
<b>Total</b>			7.463	1	2.563	

## 5.2. Compiling and Matching Strategies

At this step, initial strategies are compiled through the SWOT matrix (Table 4). Regarding the current situation, four categories of strategy can be compiled:

- Offensive strategies (SO) which utilize the external opportunities using the internal strengths.
- Conservative strategies (WO) which improve the internal weaknesses using the external opportunities.
- Competitive strategies (ST) that reduce the effect of external threats using the internal strengths.
- Defensive strategies (WT) that direct at reducing the internal weaknesses and avoiding the external threats (Golkar, 2005).

**Table 4.** Recommended strategies based on SWOT matrix

		Internal environment	
		Strengths (S)	Weaknesses (W)
		Offensive strategies (SO)	Conservative strategies (WO)
External environment	Opportunities (O)	<ul style="list-style-type: none"> <li>- Holding tours to get acquainted with the industrial heritage, especially the textile industry in Yazd;</li> <li>- Considering Yazd textile factories as a place for seasonal and regional exhibitions;</li> <li>- Providing a master plan for the restoration and rehabilitation of textile factories;</li> <li>- Promoting industrial tourism attractions in Yazd on national and international levels;</li> <li>- Conducting conferences to introduce successful experiences in the field of industrial heritage.</li> </ul>	<ul style="list-style-type: none"> <li>- Holding workshops for local people to raise public awareness about values of the industrial heritage;</li> <li>- Adapting valuable factories to memorial museums of textile history;</li> <li>- Announcing public calls for collection of documents related to the textile industry in Yazd;</li> <li>- Providing financial facilities to the private sector interested in investing in this sector.</li> </ul>
		Competitive strategies (ST)	Defensive strategies (WT)
	Threats (T)	<ul style="list-style-type: none"> <li>- Using retired textile workers in jobs which are created after the regeneration of the factories;</li> <li>- Adapting textile factories to cheap accommodations</li> </ul>	<ul style="list-style-type: none"> <li>- Holding public competitions in textile factories with the aim of keeping alive memories of the industrial heritage in Yazd city;</li> <li>- Establishing workgroup on conservation of the industrial heritage in cooperation with the involved organizations and departments.</li> </ul>

### 5.3. Internal-External matrix (IE)

The total final score of the internal factors and the total final score of the external factors are transferred to the IE matrix (Figure 2). In this matrix, which is similar to a mathematical coordinate system, IFE is the x-axis (horizontal axis) and EFE is the y-axis (vertical axis). The point of intersection of the two-axes represents current strategic situation.

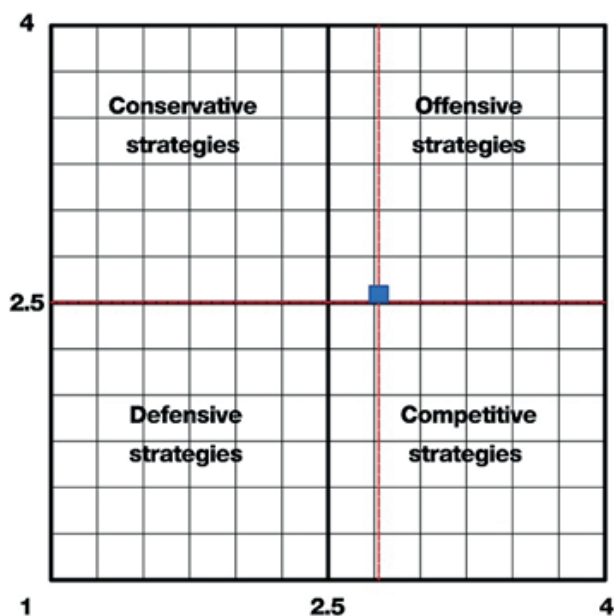


Figure 2: Internal-External matrix (IE)

## 6. Conclusion

In this study, textile factories of Yazd city were evaluated by the SWOT method. For this purpose, a list containing strengths, weaknesses, opportunities and threats was prepared in order to obtain the impact of each of the internal and external factors. Then, the final scores of the internal factors in the IFE matrix and the external factors in the EFE matrix were calculated to conserve the textile factories in Yazd city in direction of tourism. In the next step, 13 initial strategies were compiled into four categories, including SO strategy for turning opportunities into strengths, WO for converting weaknesses into opportunities, ST for turning threats into opportunities, and WT strategies to eliminate weaknesses and threats. According to the results of the IE matrix, Yazd textile factories in terms of capacity and potential for tourism development are faced with strength in the internal environment and with opportunity in the external environment, and offensive strategies include “holding tours to get acquainted with the industrial heritage, especially the textile industry in Yazd”, “considering Yazd textile factories as a place for seasonal and regional exhibitions”, “providing a master plan for the restoration and rehabilitation of textile factories”, “promoting industrial tourism attractions in Yazd on national and international levels”, and “conducting conferences to introduce successful experiences in the field of industrial heritage” have priority. Also, the values of  $IFE= 2.770$  and  $EFE= 2.563$  in the IE matrix indicate that the internal factors are in a better situation than the average and the external factors are in a situation close to the average. Hence, competitive strategies include “using retired textile workers in jobs which are created after the regeneration of the factories” and “adapting textile factories to cheap accommodations” are at the second level of priority. It is suggested that in the future researches, the internal strengths and weaknesses factors and the external opportunities and threats affecting the conservation of textile factories in Yazd should be evaluated by more experts and proper strategies should be compiled according to the new requirements. Other researchers can extend the effective factors, and use methods such as the quantitative strategic planning matrix (QSPM) to evaluate alternative set of



strategies and select the best strategy from among them. The findings and results of this research can be considered as a basis for local policy makers, especially government organizations such as the Cultural Heritage, Handicrafts and Tourism Organization and Yazd Municipality within the desired range.

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## Façade Illumination for Industrial Heritage Buildings: A Case Study of Olive Oil Factory in Tirilye District, Bursa

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### Abstract

The façades of buildings that have urban value and shape the silhouette of the city are often illuminated. Besides cultural and historical buildings, illuminating industrial heritage sites is a way of expressing a city's modernity, development and memory in the context of today's urban design. This growing interest may foster social awareness and help to promote conservation and preserve these landmarks.

Dating back to Byzantine times, Tirilye is a multi-cultural district of Bursa province on the west coast of Marmara Sea. As an example of industrial heritage site "Tirilye olive oil factory" was selected built by the Greeks in the 19th century. The site embodies technical equipment used in the olive oil production process and represents the development of production technologies of 1950s. Even though the building is out of use and waiting to be preserved today, olive trade is still one of the main sources of villagers' income as well as tourism and fishery.

This paper presents an outdoor lighting design proposal to highlight architectural characteristics of the site by advancing observation and experience of the place's identity in night time. It is aimed to agument the attractiveness of the factory complex for citizens and visitors and contribute tourism and indirectly local economy by illuminating the building's main façade and details. The site was modelled in 3D and lighting simulations were performed via DialuxEvo 8.1 program. Quality and quantity of lighting application together with aspects of future user profile, recommended museum function of the existing building and its surroundings are considered.

**Keywords:** Urban lighting, façade lighting design, industrial heritage, olive oil factory

## 1. Introduction

Light is necessary to illuminate task areas in conformity with relevant standards and to design a glare-free and convenient space for health, well-being and performance of humans. Besides the visual and biological functions, light is important for emotional perception since lighting enhance the architecture by creating scenes and effects. Outdoor lighting encompasses the illumination of urban and artistic values that take place in their surroundings, where residents live and passers-by discover for a certain period of time. Examples of urban, artistic and architectural values that are the subject of outdoor lighting are historical buildings and ruins, obelisks, squares, monuments, sculptures, theaters, concert halls, hotels, administrative offices, parks, gardens, fountains, water-line, bridges, springs, benches and pedestrian areas. Besides inspiring visitors and locals to visit places, urban lighting improves visual comfort, user's navigation and safety while enhancing the city's ambience, identity and quality at night.

Building's façade lighting occupy an important place within the outdoor lighting context. The façades of aesthetically and architecturally important buildings that have urban value and shape the silhouette of the city are often illuminated. General features of façade illumination with artificial lighting are to strengthen the architectural expression of the building, to stimulate the aesthetic emotions of the observer and to be economical. Viewed from a technical perspective, in current systems the way that artificial light is used has a crucial impact on the ecological and economical performance of façade lighting. Light is very often directed very imprecisely and the use of light causes light pollution. There is, however, a better alternative than simply shining light on buildings' envelope. Nowadays, LED technology is widely used for the illumination of building's exterior as well as in the refurbishment of the façade lighting with traditional lamps. Since LED systems can be used in point or linear light sources, integrated with façade due to their dimensions, integration into lighting management system, reduced energy consumption, long service life, low maintenance effort and supporting a wide light range of colour temperatures, they are preferred instead of conventional lamps. Besides, LEDs support dynamic façade lighting as well as static lighting. As a result, façade lighting with LEDs are lately applied in different historical or modern building typologies. On the other hand, the following aspects should be taken into account for illumination of façades with any kind of light sources (IESNA 2011, BS EN 12464-2 2014):

- Targeted illumination for both horizontal and vertical of the areas should be visualised
- Three-dimensional perception of the space through different brightness levels and shades should be created
- Brightness distribution should be balanced
- Strong dark-light contrasts should be avoided
- Glare effect for residents and passers-by should be limited
- Matching light colour and colour rendering should be chosen
- There should be no unused stray light
- When illuminating horizontal areas, there should be no light emission in the upper half of the space
- Darkness should be respected at night

In order to restrict the interfering effect, BS EN 12464-2 specifies the luminous intensities and luminances quoted in Table 1 for outdoor spaces. In the related standart, it is stated as *"in the event that there is no enforcement time, the higher values may not be exceeded and the lower values*

*should preferably be taken as limit values”.*

**Table 1.** Maximum permissible interference effects of outdoor lighting systems (EN 12464-2 2014).

	Light at the place of immission		Luminous intensity of the luminaire		Environmental Zone	Luminance
	E <sub>v</sub> , lx		I, cd		R <sub>UL</sub> , %	L <sub>b</sub> , cd/m <sup>2</sup>
Environmental Zone	Before enforcement time	After enforcement time	Before enforcement time	After enforcement time		Building Façade
E1	2	0	2500	0	0	0
E2	5	1	7500	500	5	5
E3	10	2	10000	1000	15	10
E4	25	5	25000	2500	25	25

E1 Dark areas such as national parks or protected places

E2 Areas with little local brightness, such as industrial or residential areas in rural surroundings

E3 Areas with moderate local brightness, such as industrial or residential areas in suburbs

E4 Areas of high local brightness, such as city centres and commercial centres

E<sub>v</sub> is the maximum vertical luminous intensity at the place of immission in lx

I is the luminous intensity of each individual light source in the potential direction of interference in cd

R<sub>UL</sub> is the share of the light output of the luminaire(s) radiated above the horizontal plane with the luminaire(s) in its/their installed position and location in %

L<sub>b</sub> is the highest mean luminance of a building's façade in cd/m<sup>2</sup>

This paper represents an outdoor façade lighting design arrangement to highlight functional and architectural characteristics of an industrial heritage site by advancing observation and experience of the place's identity in night time. As an example of industrial heritage sites in Bursa, Tirilye olive oil factory was selected whose conservation project was previously conducted within the scope of the second author's master's thesis in Uludag University (Acar Bilgin 2015). It is also aimed to agument the attractiveness of the industrial site for citizens and visitors and contribute tourism and indirectly local economy by illuminating the building's main façade and architectural details at night. In the results part, general evaluations of the case building were made and suggestions were given to promote conservation of such industrial heritages and improve the quality of nighttime environment for similar adaptive re-use projects.

## 2.Façade Lighting Techniques

Different approaches can be applied to the façade illumination depending on the architectural features of a building and the night-appearance that it is desired to be revealed. Façade illumination techniques can be classified in seven groups as floodlighting, grazing, accent lighting/selective highlighting, silhouette lighting/backlighting, building openings, contour lighting and media façade. More than one of the façade illumination techniques listed above can be applied

depending on the architectural context of the building, the texture of the materials used and the desired effect to be created. The specified lighting techniques above have either static or dynamic character. In static lighting, light color, light distribution on the surface and glare contrasts are applied according to lighting design decisions. Thus, façade luminous characteristic is maintained during light application. In dynamic illumination, the emphasis in different parts of façade can be constantly changed by using white and/or colored light. The difference in the night-time appearance of building elements is created by adjusting the luminous intensity via dimming and/or light colors without changing the location of the light sources (CIE 94 1993). Façade lighting techniques are briefly explained below:

In CIE International Lighting Vocabulary (CIE 2011) *floodlighting* is defined as “illumination of an object or a view, often with projectors, to strongly amplify luminance relative to its surroundings”. In the Society of Light and Lighting manual, the use of floodlight has been described as filling a surface with light (wash lighting) or highlighting a particular feature of a structure (SLL 2009).

*Grazing* technique can be considered as a different approach from floodlighting due to the location of the lighting fixture. The lighting device located at a certain distance from the building, ensures that the architectural elements such as balcony, bay window or horizontal and vertical architectural lines to fall onto the façade. However, wall grazing does not reveal the textural character of the building material. Conversely, the natural material texture such as brick and stone may appear even more flat. Farther the lighting device is placed from the building, shorter the length of the shadows on façade, thus the shadow effect diminishes. On the other hand, the lighting fixture placed too close to the façade results in the shadows of small protrusions on the surface to fall on the surface. This was, three dimensional features and textural properties of the materials become more evident.

*Accent lighting* (selective highlighting) is used to highlight special objects; for artistic elements to be exhibited, conspicuous architectural features to be brighter than the surrounding surfaces. This lighting technique is similar to floodlighting and is used to emphasize the details.

*Silhouette lighting* (backlighting) is the illumination of the background to reveal a silhouette of the main façade, leaving the surfaces in the dark in front of the illuminated background. In some circumstances, it is necessary to use a low level of lighting in order to reveal the shape of the main façade (CIE 94 1993). A typical silhouette illumination is generally applied in buildings with coarse columns, allowing columns to be perceived as silhouettes. Another example of this technique is applied by leaving the main building in the dark and illuminating the façade of a simple building that is behind the main façade, thus revealing the architectural features as silhouettes.

In the *building openings technique* the structure is used as a lantern. The windows determine the architecture and the building is externally perceived through the openings.

The *contour lighting* technique is described by simplifying the outline of the building (Philips 2014). The purpose of this technique is not to illuminate the surfaces, but to illuminate the light source itself so that the luminaires are appeared. Thus, the geometry of the structure is clarified and the architectural lines are revealed. This technique is more appropriate to highlight the ge

ometrical form of the building rather than the details of the architecture. For instance, large entrances, bridges, arches and contemporary structures can be enlightened by this technique (CIE 94 1993). Lighting fixtures used in contour lighting are generally in the form of linear or point modules. These modules can be inserted end-to-end, revealing the outline of the structure through light lines.

As a result of the integration of the media with architecture, building façades become a dynamic communication medium transforming cityscape. Pixel-driven media (*communicative*) façade uses light to convey specific information. Façade lighting consists of a large number of small lighting points or luminous fields. Images, graphics, texts and videos can be played back on a usually grid-shaped matrix. The lighting fixtures used in the media façade technique are directly located into the field of view and can be created on a large-scale covering the entire façade (Philips 2014, Zumtobel n.d.).

### 3. Case Study: Tirilye Olive Oil Factory

In the context of façade lighting, Tirilye Olive Oil Factory is selected which represents the development of olive oil production techniques and is a collective industrial heritage of olive culture in the Mediterranean region. The building located in Tirilye on the west coast of Mudanya district in Bursa. The place has been a peaceful multicultural and multi-religious hometown for Roman, Ottoman and Turkish people through centuries. Today as a suburban site, it became a daily tourism center for visitors with its olive trees, inland sea, fish restaurants, architecture and landscape (Acar Bilgin 2015). The town's economy is based on olive production, agriculture, fisheries and wine production. The suburban area has been legally registered by Bursa Council of Natural and Cultural Monuments Conservation since 1981 (Ertürk 2009).

Bursa is a well-known olive producer city over centuries. Olive and olive oil production technology has been developing from antiquity to the present day around the Mediterranean basin. After the industrial revolution, early modern factories were established in Anatolia as well as in olive producer towns of Bursa between 19th century and the first quarter of 20th century (Kaplanoğlu, Oğuzoğlu 2010). Therefore, the case study building can be counted as a reflection of industrialization to architecture in Bursa.

The factory complex was built by Greeks in the 19th century and was operated until 1950s. It is located in the southeast of Tirilye, at the end of the residential district. The location and the prevailing wind direction keep the residential area's air fresh and unaffected by the fume outlet. The complex consists of four parts; i) olive oil factory where human and animal power was used for production (second half of 19th century), ii) atelier that has been used by property owner's workspace and house now (early 20th century), iii) service area including kitchen and toilets (second half of 20th century), iv) worker dormitory (second half of 20th century). The brick chimney was added to the factory late in the 19th century in connection with the steam engine. After the population exchange between Greece and Turkey in 1923, the factory was owned by a private family and two-leveled building was added to the complex in 1940s. Since 1972, the property has been owned by Tirilye Agricultural Advance Cooperative. The map of Tirilye, site plan and images taken from the main (NW) façade of olive oil factory are given respectively in Figure 1, Figure 2 and Figure 3.





Figure 1. Location of the case study Olive Oil Factory in Tirilye (GoogleEarth 2019)



Figure 2. Site plan of Tirilye Olive Oil Factory (Acar Bilgin 2015)







Figure 3. Photographs taken from the main (NW) façade of Tirilye Olive Oil Factory (Acar Bilgin 2015)

The olive oil factory has a rectangular plan scheme with 5,1 m high single-storey. There exist six wooden window openings and three iron doors on the main façade of masonry building. The cornices, jambs and windowsills were built of brick. The two-storey 7,5 m high atelier attached to the factory was also built with masonry construction technique using rubble stone and brick bonds. In this part of the façade, there exist four rectangular and four arched windows on both sides of the iron main entrance door. At ground level, front façade openings are rounded with brick architraves and have cast iron railings. The façades of two buildings are plastered with lime mortar and painted in yellow in the 20th century. The timber frame roofs are covered with Marseille tile.

### 3.1. Façade Lighting Proposal for Tirilye Olive Oil Factory

The case study building was modelled in 3D using Autocad, Google Sketchup and lighting simulations were performed in DialuxEvo 8.1 computer program. To decide the quality and quantity of lighting application, aspects such as façade material properties, recommended museum function, future user profile, surroundings of existing factory building, permissible illuminance (lx), luminance (cd/m<sup>2</sup>) and luminous intensity (cd) in BS EN 12464-2 standards and requirements (E2), colour temperature and colour rendering properties of the light sources, the harmonisation of the lighting equipment with architectural features of the conservation project, energy saving, the negative effects of glare, sky glow and light pollution and visual comfort are considered. Specifications of luminaire products are summarized in Table 2. Google Sketchup day scene and Dialux Evo night scene images are given in Figure 4 and Figure 5. The proposed façade lighting system's total output is 4,1kW.

**Table 2.** Façade lighting methods and luminaire specifications (Philips 2019, Artemide 2019)

Façade Lighting Method	Detail of Façade Integrated Lighting	Luminaire Product Image	Luminaire Specifications Overview
Floodlighting	19 window elements Windowsill mounted luminaire		Philips BCP280 G3 20LED-HP Delivered flux output: 3560 lm Initial Input power: 40 W CCT: 2200 K (warm white) Efficiency: 99,25% Efficacy: 89 lm/W CRI:80
Up/downlighting	4 doors Doorjamb mounted up and downlight		Artemide T41952NW10 Calumet Delivered flux output: 467 lm Initial Input power: 16 W CCT: 3000 K (warm white) Efficiency: 98,7% Efficacy: 29,2 lm/W CRI:80
Grazing	Masonry walls Ground recessed wall washer		Philips BCS467 L1219 1xLED-HB-10x60-/RGB Delivered flux output: 1620 lm Initial Input power: 60 W CCT: 3300 K (neutral white) Efficiency: 99,25% Efficacy: 27 lm/W CRI:100
Accent lighting	Chimney Rooftop mounted spotlights		Philips DCP776 1xLED-HB/RGB +ZCP770 BSP A63 Delivered flux output: 7408 lm Initial Input power: 273,8 W CCT: 3000 K (warm white) Efficiency: 99,86% Efficacy: 27,1 lm/W CRI:100

\*CCT: Correlated colour temperature, \*\*CRI: Color rendering index

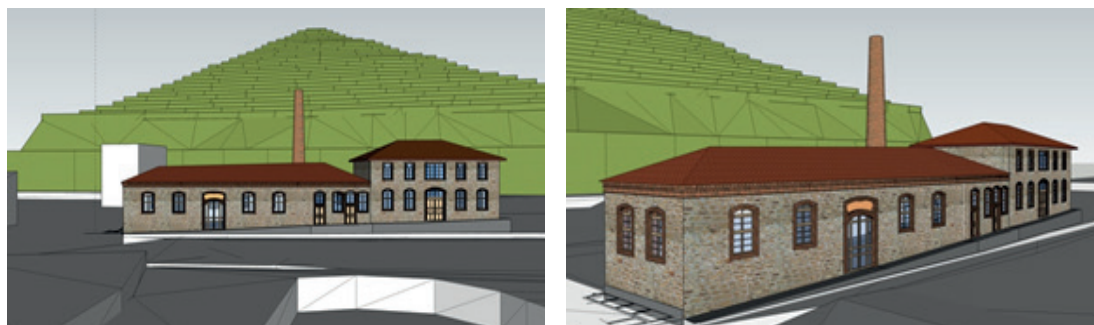


Figure 4. Google Sketchup 3D images of Tirilye Olive Oil Factory

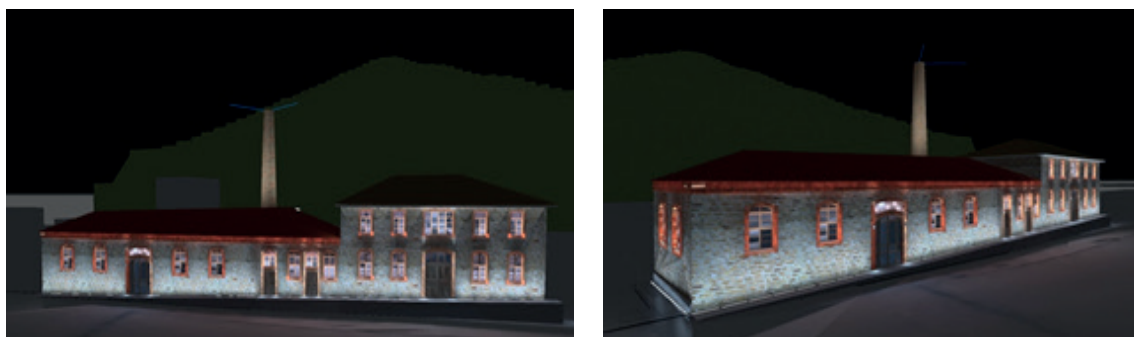


Figure 5. Dialux Evo 3D night scene images of Tirilye Olive Oil Factory

#### 4. Conclusions

Urban memory is a collective memory that comprised of experiences of citizens in historic and social environment of urban spaces. Industrial buildings are the spatial traces of this collective memory by means of experiences, traditions, habits and knowledge of citizens. Preservation and improvement of industrial heritage can provide continuance of this collective memory for future generations (Elhan 2009). The International Committee for the Conservation of the Industrial Heritage (TICCIH) defined that “Industrial heritage consists of the remains of industrial culture which are of historical, technological, social, architectural or scientific value” (Douet 2012). Olive oil factory in Tirilye is a social and cultural component of urban life in Marmara region. The building itself is a document of local history and can play a significant role on creating and sustaining of urban memory. Even though the building is waiting to be restored, the architectural features still represent the social, cultural and economic relationships in Bursa by being a part of daily life (Acar Bilgin 2015).

Outdoor lighting is a key factor to improve user’s visual perception and the quality of life, to create a cityscape and unique experiences through local identity. After dark it becomes a vibrant, social space for tourism and nightlife. By the help of lighting, empty spaces can be changed into a living space while lighting environment make spaces more inviting and support human activity. Outdoor lighting may turn familiar streets into something new and unexpected, capture the imagination of people, help orientation, encourage a sense of belonging to the place, improve the human experience of landmarks. Therefore, façade lighting for heritage is a matter of projecting memory, legacy, conservation and innovation all in meanings of light.

Within the scope of this paper, a façade lighting proposal is presented for an industrial heritage building in Bursa. The olive oil factory is expected to attract both passers-by and residents into historical district, as well as draw attention to the industrial heritage site of the city. The proposed scheme aim to integrate LED lighting solutions into the main façade, highlighting masonry stone and brick surfaces with light and shadow, accentuating the architectural details and revealing the building’s remarkable elements. Floodlights were applied to windowsills with a narrow beam to enhance the architectural elements and create wall-washing effects. Grazing light sources were positioned close to the masonry walls to reveal the texture of external walls and geometry of the and to obtain an homogeneous wash of light. The close offset of the source made it suitable for

revealing rubblestone and brick details by dropping shadows. Two wider beam fixture were also used to create a soft effect to reveal the chimney like a statue while creating a contrast with the background.

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## The Renovation of Industrial Heritage; Case Study: Isfahan Risbaf Factory

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### Abstract

In many cities, the change of expansion and development process causes the industrial collections, that once located outside the city, to integrate into and within the urban context. Over time, shutting down these factories and abandoning them have led to some problems. One of the key strategies to overcome this problem is to restore these collections into the urban life cycle, alter them to suit today's requirements, and revitalize them. Isfahan Risbaf is the only factory which has remained in Chaharbagh area in Isfahan. The importance of this historical site and the achievements of industrial complexes revival in recent years on the one hand, and the extent of the factory on the other hand, has created a special circumstance for it. The purpose of this paper is to explain the specific situation of the factory at the intersection of the natural-historical axis of Isfahan, to improve the quality of the urban life. The main question is that how the revival of this contemporary industrial heritage can increase the interaction of the citizens and tourist with it and meets the needs of the city today. The answer to these questions, which have been made in the form of research hypotheses, is that the use of Isfahan Risbaf factory with new and diverse functions can fulfill the existing needs, in addition, it can provide an opportunity for recreational and Tourism activities of the city's residents. In terms of its purpose, this research is an applied one and from the point of view of the researcher's action, is analytical and interpretive based on library research process.

**Keywords:** Renovation, Industrial Heritage, Contemporary Heritage, Revival, Isfahan Risbaf Factory

## 1. Introduction

Industrial heritage as a relatively recent phenomenon is the production of the mid-20th century. The industrial heritage represents the culture, historical situation, processes, technologies and outstanding achievements of each region. Based on the value of contemporary architecture, it is necessary to protect them. It is not only an issue of monument protection or heritage preservation, nor is it only about identity, memories, and cultural traditions; it belongs to cities and their transformations. The management of industrial heritage sites requires rethinking in the context of urban change; the issue of how to balance protection, conservation, and development.

The historical factories of Isfahan are symbols of the beginning of the industrial era in Isfahan and Iran which combine traditional and modern technology. Most of the city's spinning and weaving factories were constructed about eighty years ago and designed in the style of Western industrial architecture popular at the time. The factories had a special place in the city due to their unique architecture and could have been used for various purposes. The entire site of the Isfahan Risbaf historical factory, covers an area of 65,000 square meters. Meanwhile, the old Nahid, Rahimzadeh, Vatan, Zayandeh Rud, and New Shahreza factories were demolished and are being replaced by tall buildings, Risbaf is saved and this is the note that makes it so important.

The value and necessity of the current renovation and reuse of old industrial buildings are visible to all. In this sense, historical areas and buildings should be regenerated and adapted to the needs of modern times by providing them with adequate purpose and continuous maintenance. At international level, however, there are many examples of industrial heritage that were regenerated through modern ways of presentation and new purposes which justify the large economic investments in their preservation and presentation as monuments of technical culture. Therefore, industrial heritage renovation involves more than dealing with the protection and conservation of the heritage site itself; it also encompasses the urban transformation of the city and the site. This brings into play new challenges, not only through the known conflicts between heritage conservation and contemporary architecture, but also the increasing demand for reusing industrial heritage sites as a driver of economic urban development. Beyond the theme of cultural heritage, the conservation and reuse of industrial heritage is an issue for planning and urban development. Recognition and management of industrial heritage sites—as protection, re-uses, or partial demolition—go hand in hand with conflicts in planning practices. The following contribution discusses industrial heritage and renovation of its.

## 2. Industrial heritage

The industrial heritage represents a part of architectural and urban history which shows the industrialization aspects of today's world (Xie, 2015). With the change of urban function and the adjustment of industrial structure, the traditional industry gradually decline, industrial building such as the original factories, warehouses, docks, etc. lose their original functions and a large number of facilities be left unused. These abandoned industrial buildings and sites have often been seen as obstacles. Due to the unaware of the value of these disappearing "live industrial history" and their potential reuse values, it took a long time for the acceptance of these industrial heritage.

### 2.1. Definition:

Industrial heritage consists of the remains of industrial culture which are of historical, technological, social, architectural or scientific value. These remains consist of buildings and machinery,



workshops, mills, factories, mines and sites for processing and refining, warehouses and stores, places where energy is generated, transmitted and used, transport and all its infrastructure, as well as places used for social activities related to industry such as housing, religious worship or education. The historical period of principal interest extends forward from the beginning of the Industrial Revolution in the second half of the eighteenth century up to and including the present day, while also examining its earlier pre-industrial and proto-industrial roots. In addition, it draws on the study of work and working techniques encompassed by the history of technology. (The Nizhny Tagil Charter for the Industrial Heritage, 2003).

## 2.2.Conservation background:

The end of the World War II and the expansion of protective activities was the beginning of the serious process of attitudes towards industrial heritage (Cho & Shin, 2014). In 1950, a group of researchers from the United Kingdom investigated the roots of the industrial revolution and the architecture of the buildings of that era (Song, 2007). In 1955, Michael Rix, from Birmingham University in the United Kingdom, published an article titled “Industrial Archeology” and called for the conservation of England’s industrial works (Jianguo & Nan, 2007). In 1973, the Association for Industrial Archaeology (AIA) was founded. Additionally, in the same year, the First International Congress on the Conservation of Monuments (FICIM) was held in England with 61 members from countries, including the United States, Canada, Germany, Ireland, the Netherlands, etc. (Song, 2007). The second conference in Germany and the third international conference for the conservation of industrial heritage in Sweden (1978) led to the establishment of TICCIH (The International Committee for the Conservation of the Industrial Heritage); (Ibid). Since 1980s, European countries have begun to devote serious attention to the industrial heritage. First, England, in the 1970s, put the conservation of industrial heritage on the agenda. Then, France also considered the conservation of several industrial sites in the early 1980s. Like England, the United States have always been pioneers in this way. One of its large-scale examples was the protection and design of the urban landscape of cotton factory in industrial city of Lowell, whose landscape design in the form of a museum and its perimeter design as a park began in the early 1980s and continued until 2013 (Douet, 2013). In addition, holding 1982 competition to design the Parc de la Villette in Paris (the old slaughterhouse) was the first propounded European project that revealed the urban process in the form of the landscape. The designs presented by Bernard Tschumi and Rem Koolhaas with the aim of designing a city park for the 21st Century established the position of landscape architecture in post-industrial areas in this competition (Farahmand, 2011). In 1996, Netherlands which has been one of the FICIM members, began its activities to conserve industrial sites (Jianguo & Nan, 2007). One of the most successful projects in this country was landscape design and the protection of brewery factory of Amsterdam, which was designed by Bob Rogers in 2004 with the aim to strengthen the relationship and create the sense of belonging in the Amsterdam urban community and introduce the history of the brewery factory. The beginning of 21st century brought more serious international activities to conserve industrial heritage (Aminzadeh & Ariaman, 2004). During this period, industrial heritage was included in urban policies more than before. In 2000, ICOMOS and TICCIH agreed upon preserving the industrial heritage (Song, 2007: 482). Focusing on resources architecture issue, the International Congress of the Union of Architects (UIA) in Berlin (2002) showed the importance of revival of industrial sites more than before (Jianguo & Nan, 2007). In 2003, the International Committee for the Conservation of the Industrial Heritage (TICCIH), Nizhny Tagil, Russia, suggested the Charter for the Conservation

of Industrial Heritage and its nomination on the UNESCO World Heritage List (Cho & Shin, 2014). The Nizhny Tagil charter was approved by TICCIH and in consultation with ICOMOS (Romeo et al, 2015). Currently, this charter is the most important international achievement for conservation of industrial heritage. Nizhny Tagil's charter has emphasized on registering and archiving documents and maps of industrial heritage. In addition, this charter refers to the remained industrial works which have historical, technological, social, architectural and landscape values (Cho & Shin, 2014). Understanding the importance of industrial heritage, Asian countries also organized industrial spaces with regard to European countries and the ERIH Council of Europe and the establishment of the ARIH Council. In 2007, South Korea put the policy implementation of urban conservation called "cultural regions" on the agenda with the aim to reuse cultural heritage and their landscape design; conservation of industrial heritage was also part of this program (Ibid). Eight years after Nizhny Tagil charter, in order to more widely conserve the 20th century heritage and its achievements, the Madrid document was prepared in Madrid with the aid of ICOMOS and by focusing on the provision of guidelines for conservation of 20th century heritage sites. This document states that identifying and evaluating the importance of the 20th century architectural heritage and its expression should be made based on criteria (ICOMOS, 2011). In the same year, the Dublin Principles also came into force. Like Nizhny Tagil charter, Dublin Principles (2011) also define industrial heritage and refer to its importance. It has been stated that industrial heritage includes "sites, buildings, complexes, regions and landscapes, machinery, and documentary objects indicating the past industrial process" (ICOMOS & TICCIH, 2011). It is also stated that in the previous decades, research, international and interdisciplinary cooperation and social development led to better understanding of the importance of industrial heritage and its position in the city's landscape. But they are often very vulnerable and are at risk due to lack of documentation and their conservation and identification and sometimes due to economic process change (Ibid). Additionally, Taipei's declaration in the east (2012) was approved by the ARIH council in the 15th session of TICCIH in order to pay attention to the Asian industrial heritage and its landscape perception more than before. It states that the Asian industrial heritage is the integral part of collective memory and socio-economic changes and cultural landscape of that region (ICOMOS, 2012). These industrial measures or actions indicate that the communities and other beneficiaries' cooperation are integral parts of the conservation of industrial heritage programs and of the cultural landscape of historical cities. The appropriate policies (legislation and enforcement measures) should be done for conservation of industrial heritage. Measures (policies) should be toward creating a close relationship between industrial heritage, industrial products and local economy. This should be in a way that creates the appropriate opportunities for investors' cooperation (ICOMOS & TICCIH, 2011) and on the other hand, creates the appropriate opportunity for the industrial cooperation in the urban policies.

### 3. Renovation

Renovation is the act or process of repairing and improving a building so that it is in good condition again, or the improvements that are carried out (Cambridge dictionary, 2019). Renovation of an existing building is a successful branch of the construction industry because it provides financial diversification for construction stakeholders. The construction industry has utilized renovation projects as a method of diversification to remain profitable during a down economy. (Nistorescu, 2010).

### 3.1. Terminology:

The term ‘renovation’ is used in statistics to distinguish between construction work on existing building stock and new construction; it includes both repair work and work undertaken for other reasons. Sometime the superior term for the concept discussed here is not ‘renovation’ but ‘repair’, defined as the altering of a built object towards a desired state, either technologically or functionally. Hierarchically they are an umbrella term for the following:

- ‘refurbishment’ and ‘renewal’, where a building or parts thereof are renewed,
- ‘modernization’, ‘rehabilitation’, ‘retrofit or refit’, ‘refresh’ and ‘upgrading’, where the quality of the object is significantly improved, for instance by improving the energy efficiency of a building, linking it to the water and sewer networks, or installing a lift,
- ‘rebuilding’ and ‘reconfigure’, where the purpose or manner of use of a building is altered and
- ‘restoration’, which aims to preserve or bring back the cultural historical value or architectural value of the object. ‘Demolition’ is the destruction of a building. Materials can be ‘reused’ or ‘recycled’. If a new building is then built on the same plot, even if it is similar to the previous one, this is ‘rebuilding’. (Vainio, 2011).

### 3.2. Renovation of industrial heritage:

Renewal of built heritage, since ancient times rooted in social responsibility to cherish and safeguard cultural goods, nowadays should balance the historical values, implement efficient energy consumption and satisfy the user’s comfort. Energy efficiency measures within the built heritage require creativity in order to pre-serve embodied energy, modernize construction, and implement advanced energy systems. On the other hand, the requirements and behavior of users should be ethically justified in order to preserve the historical values, authenticity and integrity of heritage (Worthing,2008).

Although renovations of historically significant buildings are in high demand, structural engineers often encounter costly design challenges (Erdem, 2015). The balance between historical significance, building functionality, and economics presents unique challenges when deciding between renovation and new construction (Steinberg,2003), techniques to model human dynamic loads on structural floor vibrations of historical buildings (Ebrahimpour,2005). Proper integration with the urban context, land use as an integration of buildings and landscape inside the site are the key elements of the industrial heritage renovation. Not to be forgotten that all these should provide a vibrant promenade to encourage individual’s interaction in public spaces both in local scale and city scale.

In recent theoretical debates crucial for the valuation of heritage, the structural, functional and visual aspects of integrity are also present (Jokilehto, 2006).The most relevant for built heritage is the functional integrity, which provides a reference for understanding the various historical processes, but also for planning and managing its modern-day use, while structural integrity defines the current condition through the relation between elements that survived based on developing/ deepening the functions remained from the past. In order to preserve the integrity, interventions on the monument should be reversible, reduced to a minimum, i.e. To the extent necessary for its survival, with a minimum loss in existing materials and clearly differentiating what is new and what is old (Worthing, 2008).

Some industrial buildings and site after renovation have the same function. In recent years, with diversity of investment subjects and policy adjustment, some industrial heritage was beginning to be transformed to the office, community service facilities, business, cultural leisure, hotel, exhibition and urban open space, etc. These industrial sites were conserved and renovated in order to strengthen the urban landscape and preserve the historical continuity of industrial cities. Among them, we can refer to the landscape design of the England's coal mine, the Hornos Museum of Mexico, the Manufacture Museum of textile Factory in Lodz, Poland, the site of Shipbuilding and Meiji Coal Mining in Japan. In addition, the renovation of leather factories in Tabriz, Pashmbaf factory of Isfahan, Qum Risbaf factory is the examples in Iran.

#### 4. Case study: Isfahan Risbaf factory

Isfahan Risbaf factory is one of the remarkable industrial heritages in Iran. Following the Visit of Reza Shah to Isfahan in November 1932, and his meeting with Isfahan businessmen, the construction of the Risbaf factory, the title of which is a combination of two words spinning and weaving, was started. Professor Motamedi under the supervision of a German engineer, Max Etusunman, assumed responsibility for the construction of Risbaf, and erected this factory with a special style of architecture. Risbaf began working on the production of cotton yarn, cotton fabric and wool fabric at the time of its inception (Isfahan times, 2017).

##### 4.1. History

The Constitutional Revolution in Isfahan at the beginning of the twentieth century had economic motives, but what compelled Iranian merchants to import manufactured factories was the passing of a law called "the law of government's monopolization of foreign trades" on February 25 1931. In the single article of this law, it is stated: "All foreign trades of Iran are restricted to the government and exporting all natural and industrial goods and temporary or permanent determination of the amount of the aforementioned imports and exports are entrusted to the government effective as of the date this law is enacted." One year later, in 1932, Isfahan Spinning and Weaving Company was founded. This company intended to import a factory to produce yarn and textile. Finally, Risbaf Factory was established in November 1934 (Akhgar Newspaper, 1934).

From the 1940s through the mid-1960s the consumer goods industries grew through private investments, but the textile industry still retained its unique position and vital importance in the economic life of the city. The politically unsettled 1940s were, however, a period of industrial decline for Isfahan. Many new plants were forced to curtail their operations or to shut down completely, largely due to shortages of raw materials and spare parts caused by the war. On the other hand, this situation created an impetus for the redevelopment of small-scale industries, especially textiles and carpet, which continued to be the biggest source of employment in the urban and rural areas. These circumstances changed in the 1950s, when the textile industry of Isfahan began to flourish again (Floor, 1984). This historic monument, was registered on August 8, 2002 with the registration number 6018 as one of the national heritage sites of Iran.

##### 4.2. Site location

Risbaf factory was established in the form of a joint stock company in the southeast of Si-o-Se-pol Bridge, it was located at the gardens of "Etemaddoleh" and "Hatam Beyg", on the east side of Chahar Bagh, which at that time was called "HezarJarib", furthermore It was built on an area of over 69,000 square meters. The factory can be called the second textile factory in Isfahan. Most

of the factories were located along the ZayandehRud River, which runs across the city. This construction could be considered a violation of riverfront zoning laws and will increase pedestrian and automobile crossing. As it is obvious risbaf factory site location near the river and Chaharbagh Street is great and unique, so it is an opportunity to renovate it (Figure1).

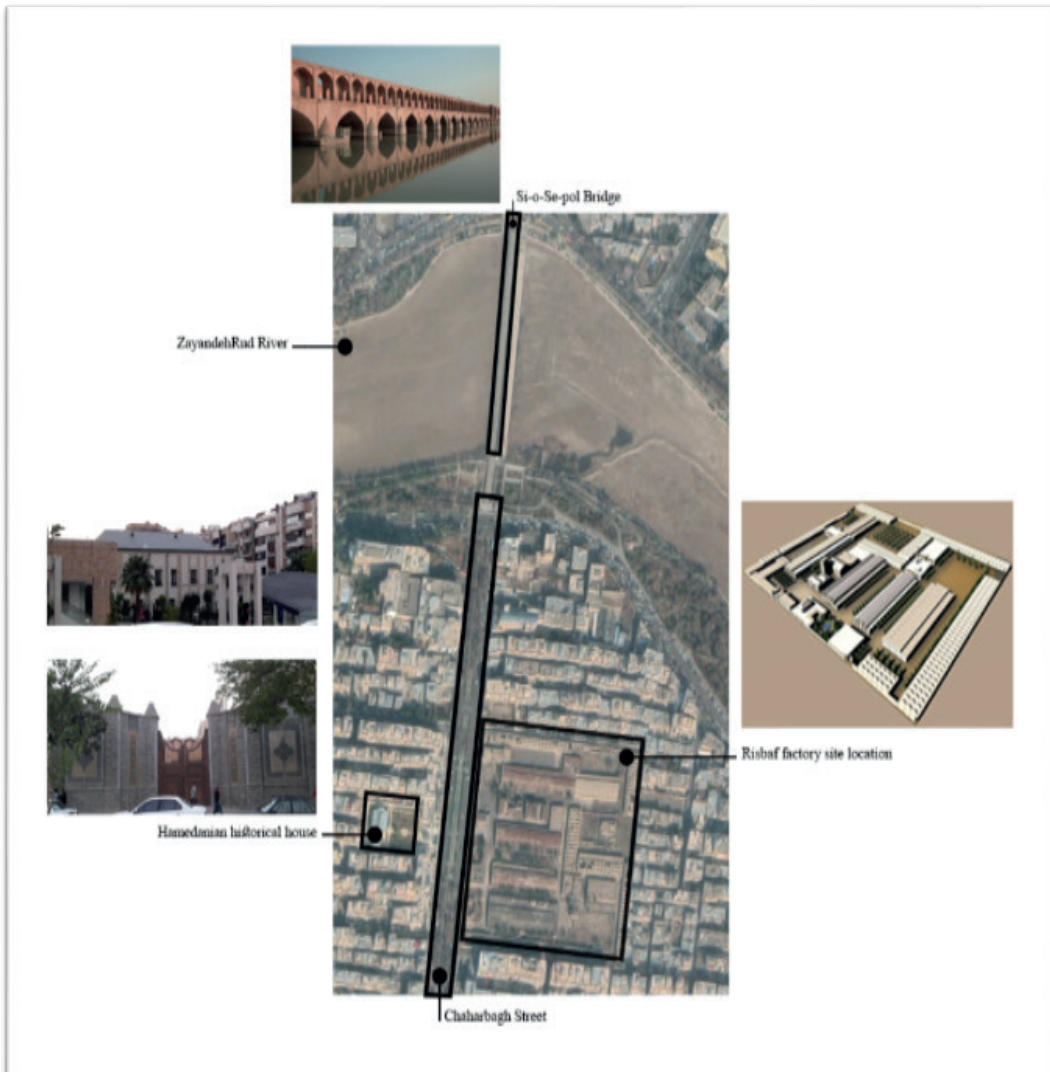


Figure 1. Site location

### 4.3. Significant points

Besides, factory great site location, it has unique architectural points that make it valuable for conserving and renovating (Table 1).

**Table 1.** significant points of the Risbaf factory

Architecture	Structure
<p>Under the influence of contemporary European architecture</p> <p>Resemblance to Peter Wilhelm Jensen Klint's Grundtvig Church in Copenhagen (1921-1940; fig.2) Hans Poelzig's Grosse Schauspielhaus (Great Theater) in Berlin (1919; fig. 3) Tony Garnier's Halle Tony Garnier in Lyon (1905-1924; fig. 4)</p> <p>Traditional architecture, with new technology by the Iranian architect.</p> <p>The detail of "the jug of water of life," which often adorns mosques, into the corners of its cooling tower</p>	<p>Modern materials, such as steel structures, joists, cement, coated and combined with traditional materials such as brick</p> <p>Structural and exterior facade unity, rhythm of the openings of the exterior of the workhouses, consistent with the rhythm of the metal pillars of these spaces</p> <p>Flexibility of the structure, depending on the functional requirements, changes occurred in the height and spacing of the columns</p> <p>curved beams in the ceiling of the workhouse, in form of traditional arches (fig. 6)</p>
Decoration	Equipment
<p>In accordance with the structure</p> <p>Combination of modern materials with traditional ones, covering the top of some of the metal columns with brick decorations such as great pillars of Ali-Qapu</p> <p>Gere chini and colored glass, brick ornament, metal working (fig. 5)</p>	<p>Spinning ducts</p> <p>Engines from the Benz company</p> <p>Engines from the MIA company (fig. 7)</p>



Figure. 2: Pair of images comparing the main entrance of the Risbaf Spinning Factory in Isfahan, c. 1935, to Grundtvig Church in Copenhagen, by Peter Wilhelm Jensen Klint, 1921-1940



Figure. 3: Berlin, Grosse Schauspielhaus (Great Theater), Hans Poelzig, 1919.



Figure. 4: Pair of images comparing the Risbaf Spinning Factory to the Halle Tony Garnier, Lyon, 1905-1924, by Tony Garnier.

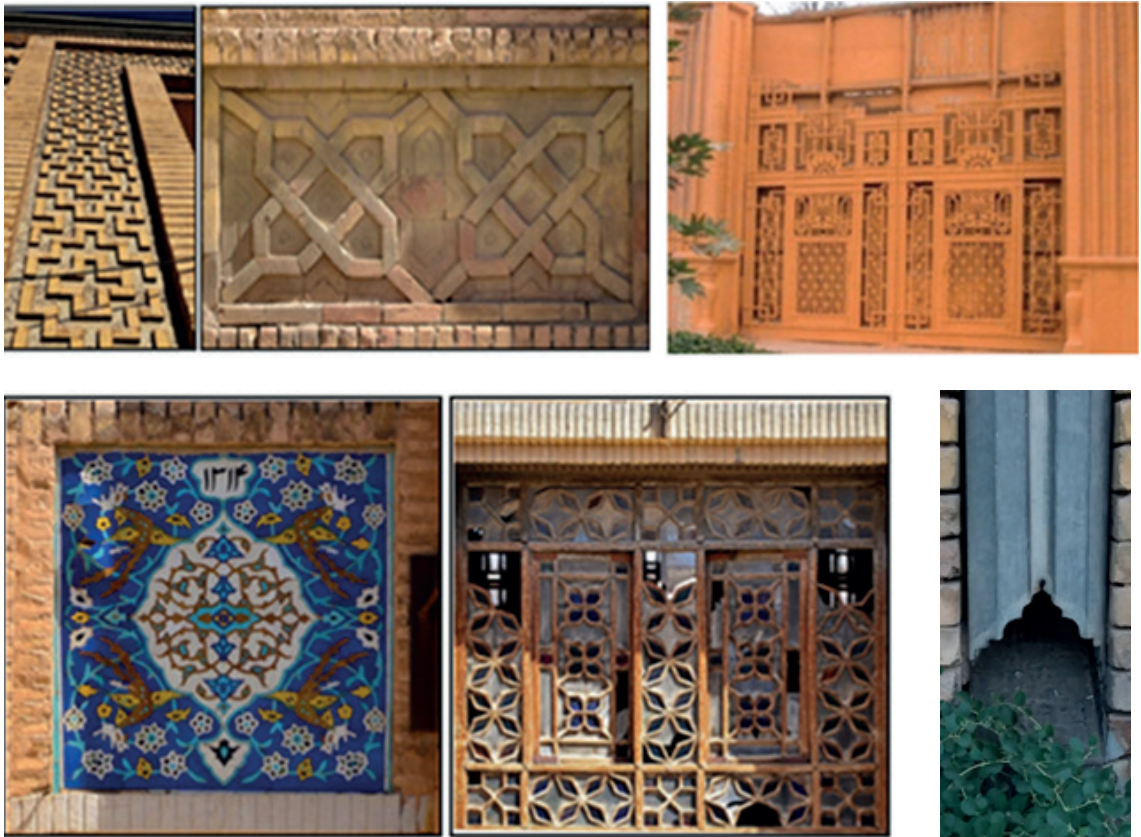


Figure 5: Decoration of the factory



Figure 6: Structural elements of the factory





Figure. 7: Equipment of the factory

## 5. Conclusion

Starting the project, further investigations both historically and in the level of the urban studies, reveal opportunities on the Risbaf Textile Factory such as rich historical value, great location regards to the Isfahan city center, laterally unifying with the Chaharbagh street skyline, and a unique urban context of the city remained in the site. Striving for a higher level of life quality led us to start this project. Modular structure is suitable to give different new functions to factory and renovate it. Unfortunately, the lack of cooperation from the current owner of the site in addition to no proper response from the local municipalities - regions 1, 3, 4 and 9 - and lack of documentation by the Iranian National Heritage Organization, which was quite unexpected as the whole site has been registered in the list of national heritages, are problems in the renovation way of it that must be solved.

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## Biography

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## **Redefining the Habitation Concept in contemporary Architecture, a Step Towards the Protection of the Heritage of Modern Architecture (Case Study: Residential Architecture of the middle fabric of Shiraz)**

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### **Abstract**

The transition from tradition to modernity in Iran, as in most other countries of the world, took place very quickly and sometimes unwittingly. This leap aftermath of the Influence of the Revolution industrial revolution followed by the import of technology has undergone fundamental changes in the industry, and the education of the building and its architectural aspects. An Iranian architecture rich in a thousand years is said to have been forgotten, and modern architecture is in its place. The rich and unique background of many historic cities in Iran, including the city of Shiraz, has also contributed to the flourishing of this flow. In reviewing the historical evolution of the city of Shiraz, valuable and significant architecture is evident in the city's middle fabric -The gap between the old fabric and modern city- which unfortunately has been neglected today. In this regard, identifying the experiences of contemporary Shiraz architecture is very important as the most serious and tangible new architecture thinking in the context of a city with a rich historical background. The attempt to identify and study of transitional Architecture Index (from tradition to modernity) and the analysis of the concept of habitation in contemporary architecture in the city of Shiraz, in fact, provides the basis for obtaining valuable information and documents that can be a new approach in identifying the effective patterns of traditional Iranian architecture (Shiraz city) in the modern architecture of this city. The leading study maintains its hypothesis on this principle that the ecosystem culture of the nations is a good guide for adaptability in the developments. Identifying the effective components in native architecture can also lead to the formation of an atmosphere suitable for the adaptability of today's needs to the leading challenges. On this basis, it is predicted.

**Keywords:** Contemporary, Architecture, Heritage, Modern, Middle Fabric, Shiraz.

## 1. Introduction

The transition from tradition to modernity in Iran, as in most other countries of the world, took place very quickly and sometimes unwittingly. This leap aftermath of the Influence of the Revolution industrial revolution followed by the import of technology has undergone fundamental changes in the industry, and the education of the building and its architectural aspects. An Iranian architecture rich in a thousand years is said to have been forgotten, and modern architecture is in its place. This disconnection, which intensified from the late Qajar and early Pahlavi times by inviting European architects and the presence of educated Iranians in Europe, directly reflected the developments in Western architecture in Iran (Bani Masoud, 2009). The first graduates of the Faculty of Fine Arts of the University of Tehran (founded in 1319), as the heir to the first generation of educated architects in Europe, have been called the most influential group in consolidating the principles and concepts of modern architecture in Iran. Through the developmental programs of that era, especially in the field of housing, the modern architectural face overcomes the traditional architecture of cities (Bani Masoud, 2009). Although this type of tendency after the Islamic Revolution (1979) sought to push Iran's architecture towards authentic identity and reconcile the tradition with the developments of modern architecture due to the leverage of the architecture of important government buildings with the financing of sovereignty, so the new generation of architects is still in line with Western architecture flows ahead, and the face of cities is increasingly globalized.

It is obvious that the main intellectual and execution flow of the new Iranian architecture is influenced by the socio-political context of Tehran's time and place. The rich, unique and rich background of many historic cities in Iran, including the city of Shiraz, has also contributed to the flourishing of this flow. In reviewing the historical evolution of the city of Shiraz, valuable and significant architecture is evident in the city's central fabric -The gap between the old fabric and modern city- which unfortunately has been neglected today. In this regard, identifying the experiences of contemporary Shiraz architecture is very important as the most serious and tangible new architecture thinking in the context of a city with a rich historical background. The attempt to identify and study of transitional Architecture Index (from tradition to modernity) and the analysis of the concept of habitation in contemporary architecture in the city of Shiraz, in fact, provides the basis for obtaining valuable information and documents that can be a new approach in identifying the effective patterns of traditional Iranian architecture (Shiraz city) in the modern architecture of this city.

## 2. Contemporary architecture, the heritage of the twentieth century

Due to the richness of Iranian architecture, numerous styles of passage of time emerged in the struggle for the eclipse of modern architecture and traditional Iranian architecture. Among them, one can mention the national style of architects such as André Godard, Nikolai Markov and Behzad during the Second Pahlavi era and the pseudo-modernist style of architects such as Vartan Hovanesian and Paul Abkar. Considering the history and the context continues to be seen behind the efforts of Iranian architects, according to historians of Iranian contemporary architecture, the holding of two international congresses and the publication of some architecture books contributed greatly to the orientation of these efforts. According to them, "The Congress examines the possibility of linking traditional architecture with modern building methods" in September of 1970 in Isfahan with the presence of Louis Kahn and the conference "The Role of Architecture and Urbanism in Industrialized Countries" in Persepolis with the presence of James Stirling,

Hassan Fathi, Kenzo Tanghe and Moshe Safdi in October 1974 and the publication of the book *Architecture for the Poor* (Hassan Fathi, 1969) and “Sense of Unity: The Mystical Tradition in Iranian Architecture (Nader Ardalan and Laleh Bakhtiar, 1973)” the style of “historicist” and “indigenous” architecture in Iran has begun to demand the restoration or continuation of the traditions and beliefs of indigenous culture (Bani Masoud, 2009).

*Vahid Vahdat*, 2017 believes that the difference between the later architecture of the Qajar era with European architecture, which many believe were due to the incorrect imitation of the West and the incorrect understanding of the theoretical roots of modernity, is due to the indigenous roots of modern architecture of the Qajar era, and the descriptions of the artificial space of the Iranian travel journalists of the Qajar era from European cities are due to the Iranian utopian projection of European space. In this sense that, the Iranian architecture and the role of the indigen and context there is such a richness that even brings the mind of the modernist architect from absolute adherence to its principles and leaves its footprints in their works. The urban identity crisis of the present age is rooted in the sudden oblivion of tradition and modernity and its cultural mismatch. The Decreasing the viability of cities, the crisis of quality, resilience and existing anomalies are threatening the urban life of the inhabitants. The leading study maintains its hypothesis on this principle that the ecosystem culture of the nations is a good guide for adaptability in the developments. Identifying the effective components in native architecture can also lead to the formation of an atmosphere suitable for the adaptability of today’s needs to the leading challenges. On this basis, it is predicted.

### 3. A Review of Residential Physical Changes in the Contemporary Age

At the end of the Qajar era, housing architecture gradually showed a lot of changes, so that different types of housing at the beginning of the Pahlavi era, was no longer entirely similar to traditional housing; although the introversion of the houses in this era was like a traditional houses, some changes such as pitched roof, European style stucco works, circular vault, and even interior wall paintings, were adapted from many Western houses (Janipour, 2002). Of course, these signs of change were slowly observed in the housing of a particular social class and were mostly square, and what was emerging in the community-based residential architecture was followed traditional patterns and maximum coordination with them. Considering the review of contemporary different physical types, it can be found that the Pahlavi housing types are completely distinct from the later ones. Despite the changes in the housing spatial organization of this period, the traditional house spirit is still in this housing, thus, the first generation of contemporary housing is dedicated to the first Pahlavi era. (Table 1)

**Table 1.** Periodization of Architecture in the Pahlavi era (Source: Bani Masoud, 2016)

Period	Year
<i>First Period of Pahlavi I era (Reza Shah)</i>	1304-1312
<i>Second Period of Pahlavi I era (Reza Shah)</i>	1312-1320
<i>Pahlavi II era (Mohammad Reza Shah)</i>	1320-1357

#### 4. Shiraz Residential Architecture in the Pahlavi era

In the Pahlavi period, the introspection of houses disappears gradually, the buildings are located in the form of a pure volume, in the courtyard. The architectural style and decoration have changed and geometric objects appear simpler. These changes are outstanding in the form and dimensions of doors, windows, columns and column capitals, stairs, and so on. The abundant use of bricks spontaneously leads to brick slip decoration, so that, reduce the use of ornaments and decorative materials such as tiles and increase applying brick ones.

##### 4.1. Plan:

Over the first Pahlavi period, the most significant changes occurred in the building plans, where, due to the rapid presentation of new functions in architecture, the plans were fully integrated into the Iranian architecture without any local and cultural adaptation. The development of such plans mostly appeared in educational spaces, such as schools and universities, administrative and governmental buildings such as ministries and police stations, post offices and banks; in this period, some buildings were able to keep the past elements of architecture, however, the interior spaces of buildings were not successful to maintain their previous styles. Meanwhile, stairs and corridors were greatly important to regulate the relations and performance of interior spaces.

Buildings, according to the performance and scale were divided into two or more halls; long and uniform corridors with many rooms on both sides became as their main characteristics, which can be seen in the architecture of buildings in the first Pahlavi era, from factories to the palace. On the other hand, the buildings' interior stairs, which before the contemporary period, had a lower spatial value than the rest of parts, and this feature was prevailing in all buildings, from houses to mosques and palaces, has converted to a large and impressive ceremonial spaces, and in terms of the composition of spaces has become as an important, valuable, and accessible part. The use of stairs was not just limited to interior space of buildings, but the magnificent processing of the buildings has made necessary using them before entering the building (Kiani, 2015).

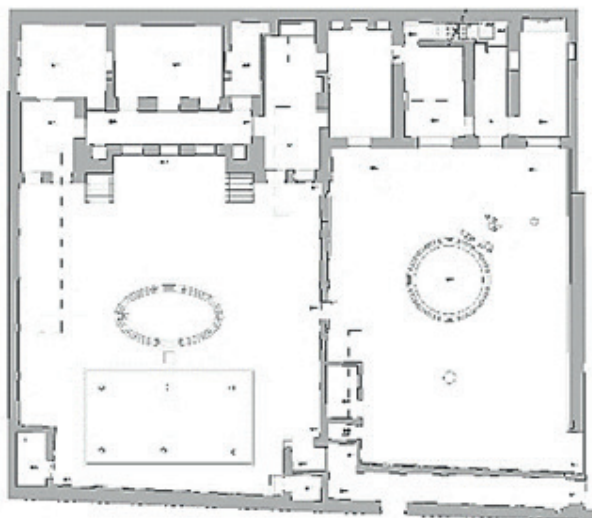


Figure 1. The plan of “Kheradmand House” in the middle fabric of Shiraz

#### 4.2. Façade:

The facade in Shiraz houses consists of three parts including: Plinth/Skirting, Piers and openings above the plinth and its upper cope, Cornice or cymatium.

There are masterpieces of carvings and geometric shapes in the context of utilized stones in the plinths. In the conventional type, there are, on the plinths, some carving-like and hollow caved flowers, which in addition to the beauty of the house facade, have been used to the lightening of the basement.

The height of the building from the ground, as well as its appearance in the middle and near the entrance to the building almost are prevailing in all buildings of the first Pahlavi era. Rising of building from the ground was deliberately rather than due to site's condition, which emphasizes on facade design and glory of building. The high entrances and high pillars of buildings tend to architecture of the German power period and beginning of the 20th century in one hand and to ancient Iranian power in the sense of Iranian neo-classicalism on the other hand and whatever; it is in the pursuit of authority and majesty. The facades of building in Reza Shah Era have taken the most utilization from signs and linear-vertical elements. Pillars and windows have played the most roles in this application, so that they can add a sense of grandeur to the viewer. Contrary to this vertical movement, the buildings themselves have been elongated in horizontal direction and placed on the ground in a heavy and massive form (Kiani, 2014).



Figure 2: (Left): The facade of "Emitaz House" in the middle fabric of Shiraz  
Figure 3: (Right)The Cornice of "Yazdian House" in the middle fabric of Shiraz



Figure 4. The facade of "Jamshidi House" in the middle fabric of Shiraz

### 4.3. Openings:

During this period, windows were opened toward new constructed alleys and streets for the first time. The windows of that period from old streets indicated the sense of maintaining privacy of house through an appropriate window height from the street or lack of direct view.

For the first time, the metal materials were used in windows in the form of fences and shields in addition to utilizing from wood and glass in a simpler and more efficient form.



Figure 5. The façade of a house and its windows toward street in the middle fabric of Shiraz

### 4.4. Decorations:

In the first Pahlavi era, decorations were influenced by several factors:

- Using bricks in buildings led to a more and new role of brick decoration due to the speed and ease of use.
- The architecture of this period had still a tendency in the past in the term of proper use of simple, concise and transformed decorations.
- The new occasion in this period was the approach to volumetric elements and sculptures, which is clearly recognizable by a twofold perspective of ancient and western (Kiani, 2014).



Figure 6. The decorations of "Jamshidi House" in the middle fabric of Shiraz



## 5. The characteristics of house spaces in Shiraz

Entrance, creates no direct visual relation to the interior and located in the middle and in direction of main axis of the building and a harmony with organizing the interior spaces of building. However, the number of entrances varies according to the number of courtyards and overall organization of spaces. Courtyard: is the main element in organizing the space which has been designed based on the common local method. The composition of the pool and e garden and spring room is one of the characteristics of Shiraz houses. Garden and pool are the main elements of courtyard and their longitudinal axes are usually perpendicular to each other and the spring room and five-door room are located in the main direction of house, which create a direct visual relationship between the people stand in the room and pool and garden.

The pool is in the shape of quadrangle, circle, rhizome or a combination and the gardens are embroidered with evergreen plants such as orange and sour orange and this kind of space is directly linked to interest of Shiraz's residents to green space. The other characteristic of courtyard in Shiraz houses is the formation of a kind of small outcrop, which is closed on three sides and connected on one side with a bigger yard. The samples of such courtyard can be seen in the houses of Zaynat al-Molk, Basiri and Afsharian.

Room: Rooms have been organized in combination with different compositions and harmony. They are called by different names, such as one-door rook, two-door room, three-door room, five-door room, Shahneshin room, Gooshvar room and spring room, each of them with a special function. Five-door rooms have been used as living room and Shahneshin rooms have been constructed in both forms of with pillar or without pillar. Spring rooms with various types of two, three, five or seven-door has a special role in Shiraz houses.

Hall and Porch (Iwan): there are in some houses, semi-enclosed spaces, to use both in the summer and winter (summer and winter stay), which is called hall, and due to its stability consist of several columns (Arg of Karim Khan). The porch is a smaller space than the hall and is located in front of a room, and some instance of it can be seen in the houses of Dr. Mansouri, Basiri, Forough-ol-Molk, and Zinat-ol-Molk.

Basement: it is a space with a few stairs lower than the yard, which has been used in summer for rest and, or as a warehouse.

Springhouse (Hoz khane): is an octagonal and summer stay space, which has been effective in designing spaces, for example, at Forough-ol-Molk house, springhouse has connected the interior and exterior parts or with the Basiri house, several courtyards have connected them.

Corridor: The corridors are the main communication paths of the house due to their narrow (porch to the courtyard), medium (between rooms) and wide widths (besides the Alcoves (ShahNeshin)). There is usually Gooshvar Room at the upper parts of the corridors.



Figure 7. The Location of the Middle fabric (First Pahlavi 1922-1942) in Shiraz (Source: Writer)

## 6. Conclusion

Contemporary architecture, in accordance with temporal, spatial, and social, cultural and educational processes, has experienced different variations, which each one reflects the specific political, social, and cultural situation of its time. At the same time, ignoring the great and distinct structural transformations of Iranian architecture in this era is impossible. Moreover, paying attention to various components in architectural courses has sometimes been accompanied with extremes and followed various purposes, and sometimes has been used as a means of superiority and hegemony, the stabilization of fanatical ideas, and extreme nationalism, and sometimes has been used to mitigate the negative consequences of the modern period that in recent years has encountered by the globalization phenomenon. Rapid and comprehensive transformation and changes in Iranian architecture are such that, it can be found that the tendency to traditional Iranian architectural approaches has suddenly undergone various changes, which have taken place due to the influx of modernization, and at a glance, we can see that they are the consequence of the modernism. This approach along with the contemporary Western architecture, and as a result of its effectiveness, has produced works in numerous styles, ranging from primary modernism to post-modernism. Undoubtedly, in order to achieve the modern architectural elements, past architectural factors should also be used; as well as, there is no doubt that any architect must recognize his legacy, learn from them and most importantly enjoy it, and participate in their spatial experiences. However, this experience should not stop at the surface, instead, past architectural works should be internalized. This is more highlighted by comparative attitude toward the Iranian

architecture; in any case, each historical period, according to its time, has an impact on the architectural tendencies and thought of the architectures, and these effects and the familiarity with the current developments of the world in the architecture cannot be ignored in creating architectural works. This article discusses the division of the tendencies and approaches of contemporary Iranian architects according to their intellectual attitudes and studying contemporary Iranian architects by their signs in the context of their work and design elements. For example, investigating the works of Iranian contemporary architecture shows that, although these works are not symmetrical in their general form, there is a kind of geometric order in them.

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## Biography

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## A Cultural Route Proposal for Early Republican Architectural Heritage of Bursa

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### Abstract

Bursa, the first capital city of Ottoman Empire, became a silk trade center and a gate between Anatolia and Europe. Bursa inscribed into the UNESCO World Heritage List in 2014 with its significant monuments; Sultan Complexes (külliye), Khans Area (commercial center) and Cumalıkızık Village that represents the creation of an urban and rural development system of Ottoman Period in the early 14th century. Both in 19th century and after Turkish Republic was founded in 1923, Bursa was one of the first modernized and industrialized cities of Turkey. Industrial buildings such as a weaving factory, a silk factory, a textile machine factory, a power plant and transformers; public buildings such as banks, cultural center, theater, school, court house, finance office and a city park were built in first decades of Republic. All these functions and buildings are representatives and witness of a modern architecture and lifestyle. At present, Bursa is very famous with its World Heritage sites but local people and especially tourists are not aware of modern architectural heritage enough. Although some of these buildings are protected and reused, some of them were demolished. This paper aims to promote the modern architectural buildings in Bursa and raise public awareness. For this purpose, a cultural route is recommended as a contribution to cultural tourism integrated with World Heritage Sites in Bursa.

**Keywords:** Industrial heritage, modern heritage, conservation, cultural route, cultural tourism, Bursa.

## 1. Introduction

The architectural style of Turkish Republic Period influenced by works of architects in Late Ottoman Period. Facades have become more important than plan schemas. They have been designed as a decorative element of building by replicating religious monuments (Sözen and Tapan 1973). Aslanoğlu (2010) has studied the developments in architecture recognizing the economic determinant in two periods: years of liberal economic policy from 1923 to 1932 and the years of statist economic period from 1932 to 1938. The first style has affected by the history-oriented trend and ideology of Turkism. It was revival of the Ottoman monumental architecture such as domes, vaults, arches, porticos, monumental entrances, decorative elements, symmetrical forms of buildings, and rounded plan schemas. This style is called the First National Architectural Style. In 1920s, building technology was primitive, the workmanship was not well-qualified and was inherited from Ottoman Empire. Therefore, the government started to invite foreign architects to modernize architecture and architectural education.

The second quarter of 20th century was the time to introduce national style as a response to foreign architects (Sözen and Tapan 1973). In this period, foreign architects continued to design neo-classic and international style buildings. While some local architects approved the similar architectural style with foreigners, the others tried to create a national style under the influence of nationalist ideology. Researches on traditional residential architecture were mainly conducted by Sedad Hakkı Eldem at Academy of Fine Arts in 1934 and this style is called the Second National Architectural Style (Aslanoğlu 2010). Public administration and institutionalization took precedence of modernization in Early Republic Period. The reflection of this idea in urban design area is to create “Republic Squares” surrounded by new administrative, social, and cultural buildings which characterizes a new architectural style (Durak and Vural Arslan 2011).

Bursa, the fourth biggest city in Turkey, is located on the northwestern skirts of Uludağ Mountain in the northeast Anatolia. The history of Bursa is dated back to the 2nd century B.C. The city was founded by Bithynia King “Prusias” as “Prusa” in the Hellenistic era. Bithynia region was dominated by the Roman Empire in 74 B.C. Prusa joined Byzantium governance following the split of Roman Empire. The city came under the domination of Ottomans in 1326. Orhan Ghazi constructed his complex and set a commercial zone called Khans Area (commercial center) outside the city walls. This innovative urban development approach enlarged the city and became a trade center on the Spice Road and Silk Road in the 15<sup>th</sup> century (Bursa Site Management Unit 2013). Thus, Bursa became one of the most important commercial center in the world between the 15<sup>th</sup> and the 17<sup>th</sup> centuries.

As the first capital city of Ottoman Empire, the urban area of historic city center consists of monuments such as Sultan Complexes (*külliyeler*<sup>1</sup>), Ulucami (grand mosque), Khans<sup>2</sup> Area (commercial center) and traditional houses surrounding them. From the 14<sup>th</sup> century to present day, the urbanization activities in 19<sup>th</sup> century after Tanzimat; foreign planners’ activities during Turkish Republic period and the urban planning decisions after 1960s form the three phases of changes and developments in the structure of the city (Tekeli 1999). From the second half of the 19<sup>th</sup> century to the 20<sup>th</sup> century, Bursa transformed in economical, social, political, and physical ways in accordance with modernization attempts (Dostoglu 2002). Bursa inscribed into the UNESCO [United Nations Educational, Scientific and Cultural Organization] World Heritage List in 2014

with five Sultan Complexes (külliye), Khans Area (Fig. 1) and Cumalıkızık Village. These significant monuments represent the creation of an urban and rural development system of Ottoman Period in the early 14th century (UNESCO 2019).



Figure 1. Aerial view of World Heritage Site; Khans Area and Ulucami (Bursa Site Management Unit, 2019)

## 2. Methodology and Scope

World Heritage Sites in Bursa are well-known by locals and tourists; yet, the same situation is not applied to the city's modern architectural heritage. Although some of these buildings have been protected and reused, most of them have been demolished and out of use due to a variety of reasons. In this paper, the Early Republican modern public service buildings located in the old city center, close to the World Heritage Site of Khans Area were focused together with industrial heritage which were built in the Early Republic Period. Early republican buildings, complied from the literature, are classified as public service and industrial buildings; and explained briefly according to their construction date and architectural style throughout the historical process chronologically. It is aimed to raise public awareness by promoting the modern architectural heritage in Bursa province. Accordingly, two cultural routes were proposed to contribute to city's cultural tourism integrated with UNESCO World Heritage Sites. In the following section, the history and architectural characteristics of buildings are explained shortly; summarized in Table 1 and Table 2 including plan schemas, old and current photos.

## 3. Early Republican Architectural Heritage in Bursa

The image of historic center consists of Ottoman monuments dated back to 15th century, traditional timber framed houses and modern buildings of the 19th and early 20th century. The process of modernization began on the second quarter of the 20th century both on urban and building scale. New buildings reflecting the perspective of Republican revolutions in social, economic, and cultural area were built. As a result, the city itself became a representative of modernization both in physical environment and social life.

### 3.1. Public Service Buildings

Bursa city center represents two periods; Orhangazi Complex, Ulucami and 19th century Municipality building constitutes the central conception of Ottoman Period, while Republic Square surrounded by Government House, Court House and Finance Office constitutes the Republic Period approach. In 1931, the Republic Square was enhanced by placing Atatürk statue (Durak and Vural Arslan 2011).

As a physical trace of development and revolutions in Early Republic period, Atatürk Street is the main artery reaching to the historic city center and it connects the Ottoman period with Early Republican period buildings. The Government House, Court House, and Finance Office buildings, locating on the east part of Atatürk Street, demonstrate the modernization in administrative policy of the Republic Period. These significant buildings were constructed in 1926 by Ekrem Hakkı Ayverdi who artifacted in the First National Architectural Style (Figs. 2-3-4). The Court House, designed by Architect Kemaleddin, has a monumental entrance with a portico and there exists tile ornaments on the arched windows referring to Ottoman Architecture (Dostoğlu 2002). The facades of these two storey buildings have rectangular and arched windows, broad eaves, and symmetrical plan schema with monumental entrance in the center (Dostoğlu and Dostoğlu 2011). Government House sustains its original function; yet, Court House has been converted to Bursa City Museum and in service since 2004 together with attached Finance Office function.



Figure 2. The Government House by Republic Square (Photo: Acar Bilgin)

Figure 3. The Court House functioning as Bursa City Museum (Photo: Acar Bilgin)

Figure 4. The Finance Office and Republic Square (Photo: Acar Bilgin)

#### 3.1.1. Tayyare Cultural Center

Tayyare Cultural Center was designed as a theatre and concert hall by the architect Arif Hikmet Koyunoğlu. He won the first prize in architectural contest organized by Tayyare (Airplane) Society of Theatre. The building's construction was completed between 1930-1932 and opened to service in 1934. The two storey R.C. (reinforced concrete) building represents the International Architectural Style with its rationalist and functionalist design decisions. The bay windows on south facade facing Atatürk Street refers to Bohemian Cubism (Akkılıç 2002; Dostoğlu 2002; Duman and Acar Bilgin 2014).

#### 3.1.2. Bursa Public House (Ahmet Vefik Pasha State Theatre)

Ahmet Vefik Pasha Theatre was designed by a female architect Münevver Belen who won the first prize of the architectural contest in 1938. The building was constructed in R.C. system and completed in 1940. There exist a cinema hall and classrooms on the ground floor and adminis-



tration offices and Atatürk room on the first floor. The terrace on the second floor facing Atatürk Street was closed by adding a storey during renovation of the building between 1950-51 (Özaydın Çat et al. 2014; Dostoğlu 2002). This building is known to be a successful interpretation of architecture with courtyard typology (Erdoğan Erkarıslan 2002).

### 3.1.3. Bursa Marketplace

Bursa Marketplace, located at the intersection of Tuzpazarı Streets, was designed by the architects Halit Femir and Feridun Akozan (Femir and Akozan 1950). The building is estimated to be built in 1940s (Okumuş and Okumuş 2016). The Marketplace has a rectangular plan schema with 500 m<sup>2</sup> bazaar hall in the center, and 2 storey stores surrounding the hall. The bazaar was constructed with R.C. concrete system with brick infill units whereas the stores were built with masonry system with concrete slabs. The iron arched windows under the cross vault envelope are divided into hexagon pieces (Femir and Akozan 1950). The building's plan is almost a reflection of Bedesten typology which is the first marketplace of Ottoman Empire in Bursa. The stores facing the streets look like traditional houses. Although Bursa marketplace refers to monumental and traditional civil architecture of Bursa, it is a modern interpretation of them (Okumuş and Okumuş 2016).

### 3.1.4. Haşim İşcan Primary School (Osmangazi Government)

Haşim İşcan Primary School, located in Altıparmak Street, was built in 1948 during Haşim İşcan's governorship and named after him. The building was constructed with R.C. system. There were 13 classrooms, 4 offices, 1 teachers' room, 1 gymnastic room, and 1 multipurpose hall. This building was operated as an institute in 1958 and as an academy till 1982. Today, it is refunctioned as governor house and police department. The building's interior has been changed partly due to transformations (Özkılavuz and Türkan 2015). The monumental entrance with the stairs and the portico, symmetrical plan schema, eaves, and bay windows refer to II. National Architectural Style.

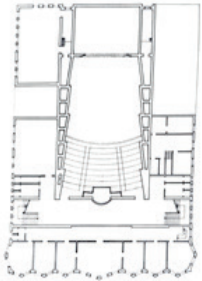


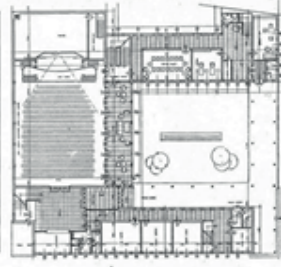


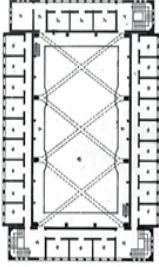


### 3.1.5. Yapı Kredi Bank Office


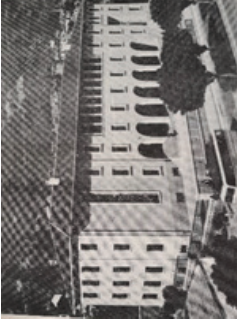





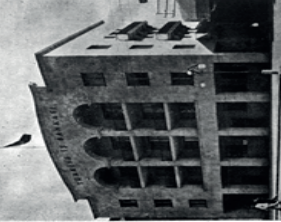

Yapı Kredi Bank Office was designed by Emin Onat, one of the first architects and academicians of Early Republican Period. The construction was completed in 1948. The two storey R.C. building has a rational plan schema. The basement floor was utilized for safe deposit; ground floor for customers and bank services and partial mezzanine floor for offices. On the same level, there exist a residence house for the bank manager with a second entrance on south facade (Onat 1949). The large concrete eaves, rectangular windows with iron railing and stained glass windows refer to traditional architecture. The building represents II. National Architectural Style which was influenced from vernacular and local architecture (Acar Bilgin and Duman 2014).

### 3.1.6. Türkiye İş Bank Office

Türkiye İş Bank Bursa Office, located on a corner parcel across the Grand Mosque (Ulucami), was designed by the architect Arif Hikmet Holtay and constructed with RC system in 1950. Greater than the rest of the floors, ground floor was designed for customers, lobby, and manager's office. The main entrance of the building is on Atatürk Street; yet, there exists a second entrance from the side street for residents (Holtay 1951). The portico and columns on the main facade refers to Neo-classic style (Dostoğlu and Dostoğlu 2011). The color of stone cladding matches with the colors of monumental buildings' stone and brick facades from the Ottoman period. This building

is an example of II. National Architectural Style. At present, the space surrounded by columns was closed to extend interiors  
**Table 1.** Examples of Early Republican Public Service Buildings (A: Administration, B: Bank, Co: Commercial, Cu: Cultural, E: Educational)

Type/ Name/ Year/ Regist. Date	Architect/ Architectural Style	Current Function	Authentic Plan Schema of Building	Old Image of the Building	Current Image of the Buildings
(Cu) Tayyare Cultural Center 1932 Registered in 1986	Arif Hikmet Koyunoğlu / Bohemian cubism	Theatre / Concert hall + Office	 First floor plan (Sözen 1984)	 Front façade of the building (Kuryayzıcı 2008)	 Front facade with bay windows representing Bohemian cubism (Photo: Acar Bilgin)
(Cu) Bursa Pub- lic House (Halkevi) 1940 Registered in 1986	Münevver Belen / Rational- ist-Function- alist	Theatre (named Ah- met Vefik Pasha State Theatre)	 Ground floor plan (Belen 1938)	 Front façade and terrace of Public House(- Source: Archive of BKVKBK 2015)	 Front facade (Photo: Acar Bilgin)
(Co) Bursa Mar- ket-place 1940s	Halit Femir, Feridun Akozan / I. National Architectural Style	Food shops and depot	 First floor plan (Femir and Ako- zan 1950)	 General view of Market-place from north (Femir and Akozan 1950)	 North facade of marketplace (Photo: Acar Bilgin)

Type/Name/ Year/ Regist. Date	Architect/ Architectur- al Style	Authentic Plan Schema of Building	Authentic Plan Schema of Building	Old Image of the Building	Current Image of the Buildings
(E) Haşim İşcan Priamry School 1948  Registered in 1986	Unknown / II. National Ar-chitectural Style		Ground floor plan (Archive of Govern- ment, in Özklavuz and Türkan 2015)		
(B) 1948 Yapı Kredi Bank Office  Registered in 1990	Emin Onat / II. National Architectural Style		Ground floor plan (Onat 1949)		
(B) Türkiye İş Bank Office 1950  Registered in 1986	Arif Hikmet Holtay / II. National Architectural Style		Ground floor plan (Holtay 1951)		

### 3.2. Industrial Buildings

Bursa was a trade center, a warehouse and a gate between Anatolia and Europe in the 14th century (İnalçık 2014). This commercial feature of the city has turned into production in the second half of the 19th century with silk factories established and started to produce raw material for European countries. After the World Economic Depression in 1929, Turkish Republic adopted statist principles for economy. During industrialization period of Republic, 1930s was a period of conservative and statist economy (Boratav 2014). The First Five-Year Development Plan came into operation in 1933. As a consequence, İpek-İş and Merinos factories came into operation as statist investments of young Turkish Republic in Bursa (Aktar 1996). The basic production area was silk and weaving industry in the city (Acar Bilgin 2018). As the industrial investments of Turkish Republic, the first factories built in Bursa are shown in Table 2.

#### 3.2.1. Power Plant and Transformers

Power Plant and transformers, the first one in Bursa, is located on Bursa-Ankara highway, in Altıparmak neighborhood. In order to distribute energy to different locations of the city, the power plant and transformers were designed by a French company named Omnium D'entreprises in 1926 (Akkılıç 2002). There is a 12-meter-high dynamo room and 3-storey structure on the east part which was used as atelier and storage (Archive of BKVKBK 2015). The company was expropriated by Ministry of Foreign Affairs in 1939. The power operated until 1970 under the name of Turkish Electricity Institution. The dynamo was dismantled in 1973 (Ceyhan 1999; Yalman 2011). After remaining unfunctional, the 12-meter-high dynamo hall divided into four storey and it was reused as offices of the company in 1990. The building's original rectangular and pointed arched cast iron windows were renewed in 2006. The original R.C. system is still visible through the facades. Large eaves and windows with narrow glass partitions are some of the typical features of modern factories (Acar Bilgin 2015).

#### 3.2.2. İpek-İş Factory

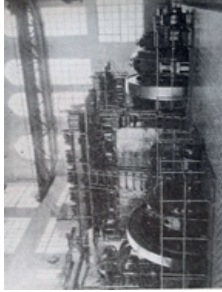

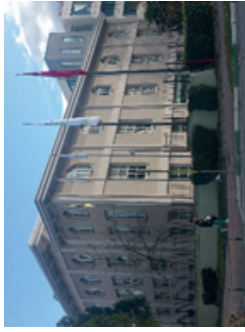






The factory, designed by the architects Halit Femir and Feridun Akozan, was completed in 1927 (Femir and Akozan 1951). İpek-İş Factory, located in Reşat Oyal Cultural Park in Altıparmak neighborhood which was a new settlement of Bursa in the early 20th century, was founded as an incorporated company with the directive of Atatürk, the founder of modern Turkey. The construction of the factory was started in October 1st, 1925 with the participation of the president. The factory has been operated by a private company since 1991 and a new factory was added in the industrial zone of the city in 2012 (İpek-İş Company 2019). It has a symmetrical plan schema with simple facades and rhythmic windows. The building exemplifies of rationalist architecture (Savaş ve Okumuş 2018). Even though, the factory is a part of modern heritage, the building was demolished except the management part in 2016. With the typical shed roofs in factories, the building witnessed Early Republican industrialization period with its document and technological values.

#### 3.2.3. Merinos Factory

Sümerbank Merinos Wool and Woolen Textile Industry Company (Merinos Factory) was built in 1935 close to the Bursa-Ankara highway. Atatürk opened the factory officially on February 2nd, 1938. Besides the production ateliers, the factory complex included tennis court, football pitch,

swimming pool, cinema, kindergarten, labor union building and residences for employees. The factory represented a modern life for workers both in social and cultural sense (Elbas 2015). By adding new buildings in the years 1938, 1944, 1954, 1976 the company became an integrated factory complex. The yarn factory was constructed in R.C. system, covered with shed roofs. The complex operated for 66 years and then given to Bursa Metropolitan Municipality in 2004. Most of the buildings in the complex were demolished. The weaving factory area was converted into exhibition halls, art center, a migration museum, and a textile museum partially. The power plant is transformed into an energy museum. The concrete plastered facades of the factory were clad with terracotta panels and lost its authenticity.

Table 2. Examples of Early Republican Industrial Buildings (1: Industrial)

Type / Name / Year / Registration Date	Architect / Architectural Style	Current Function	Authentic Plan Schema / Photo of Building	Authentic Photo of Building	Current Photo of Building
(1) Bursa Power Plant 1926 Registered in 1986	Unknown / I. and II. National Architectural Style	Office	 Dynamo hall-3 floor high (Ceyhan 1999)	 The rectangular windows of east facade (Ceyhan 1999)	 The arced windows on north and west facades (Photo: Acar Bilgin)
(1) İpek-iş Factory 1927	Halit Fehir, Feridun Akozan / Rationalism - Functionalism	Demolished partially	 Ground floor plan schema (Fehir and Akozan 1951)	 Production atelier-demolished (Fehir and Akozan 1951)	 Administrational building of factory (Photo: Acar Bilgin)
(1) Merinos Factory 1935 Registered in 1991	Unknown / Rationalism - Functionalism	Cultural center, Museum, Exhibition hall	 Site plan of factory complex (Elbas 2015)	 Facade of weaving atelier (Archive of BKVKBK 2015)	 Facade of weaving atelier covered with terracotta (Photo: Acar Bilgin)

#### 4. Early Republican Cultural Route Proposal for Cultural Tourism

Cultural routes are defined as the local, territorial or national ways that have been used in past or proposed today. These routes host cultural and/or natural heritage values which are mostly evaluated for protection, rural development or improvement of tourism. Cultural route contributes to creating a holistic approach for preservation, revitalization, promotion and presentation of cultural heritage. It also provides perceiving the identity of territory together with monuments and architectural characteristics of the buildings. While contributing to a better appreciation of touristic experience, it provides economic development for local people (Karataş 2015).

Cultural Routes not only respect the actual value of individual elements but also recognize and emphasize the value of all elements as substantive parts of a whole. Cultural Routes represent interactive, dynamic, and evolving processes that reflect the contributions of different peoples to cultural heritage. The consideration of Cultural Routes as a new concept or category does not conflict nor overlap with other categories or types of cultural properties of a given Cultural Route. It simply includes them within a joint system enhancing their significance. The intangible assets are another fundamental inputs to understand its significance and its associative heritage values. Therefore, material aspects should better be studied in connection with other values (ICOMOS 2008).

Cultural routes can be classified according to their territorial scope, cultural scope, goal or function, duration in time, structural configuration and natural environment. Cultural scope means a process of reciprocal influences in the formation or evolution of cultural values (ICOMOS 2008). The modernization idea of Early Republican Period both in economic, political and social life constitutes the cultural scope of theme. The concept of a route for Early Republican Architecture in the center of Bursa was created according to cultural scope and function. In relation to its context, two routes are proposed to interpret and present of multilayered character of the city.

##### 4.1. Early Republican Public Buildings Route

The public service buildings shown in Table 1 are located in the buffer zone of Khans Area which is an urban conservation site of the World Heritage. Although the buildings on the route are close to Ottoman Monuments, visitors especially tourists are not aware of Early Republican architectural heritage of the city. Being in the list of World Heritage Sites prioritizes Ottoman Architecture; yet, this can be turned into favor to promote modern heritage. Daily tours can be organized including both Ottoman heritage in World Heritage Site and Early Republican modern heritage buildings.

The route starts from Republic Square and City Museum, following Tayyare Cultural Center, Yapı Kredi Bank, Marketplace, bazaar, Ulucami, İş Bank, Orhangazi Square and finally ends in Kozahan, the old khan refunctioned as café (Fig. 5). Recognizing the older and current functions and architectural features, the City Museum can be visited, a cultural event can be organized in Tayyare Cultural Center and Ahmet Vefik Pasha Theatre for visitors as a part of daily tours. Other public buildings such as banks and government house can be sightseen from outside and can be presented by guides.

##### 4.2. Early Republican Industrial Heritage Route

The location of industrial buildings shown in Table 2 were used to be out of city center in the beginning of 20th century. However, the city enlarged in time and they stayed close to city center now. Only Merinos Factory and its complex can be visited today. Energy Museum, Textile Museum and Bursa Migration History Museum were arranged in Merinos Cultural Center in the

old factory complex (Fig. 6). Atatürk Congress and Cultural center was built in 2010 with open recreational areas. Merinos Factory has a significant role on industrialization of Bursa and social history of citizens comprising tangible and intangible values. The eight World Heritage properties in Bursa constitutes an Ottoman Architecture Route. The Early Republican Industrial Heritage Route can be integrated to this route by including these museums and cultural events for tourism.

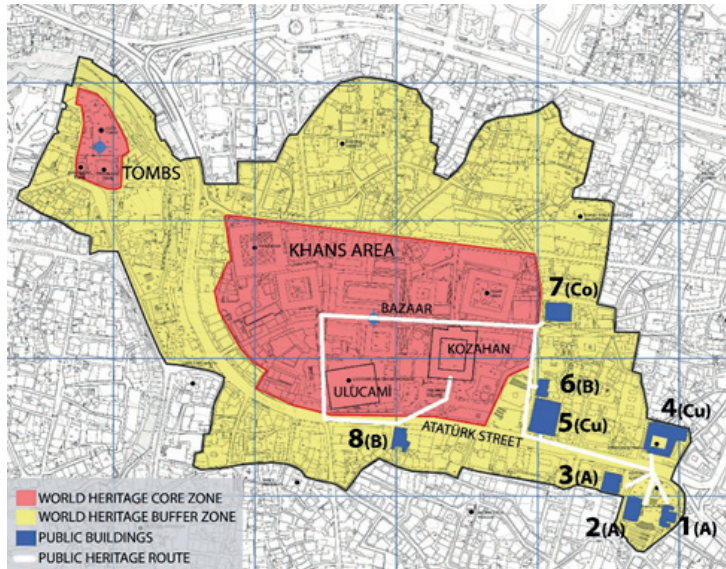


Figure 5. Location of Early Republican Public Buildings in Khans Area and the Public Route Proposal (Source: Adapted by authors from the site map obtained from UNESCO, 2019)

1: Finance Office (City Museum), 2: Court House (City Museum), 3: Government House, 4: Bursa Public House (Theatre), 5: Tayyare Cultural Center, 6: Yapı Kredi Bank, 7: Marketplace, 8: İş Bank



Figure 6. Location of Early Republican Industrial Buildings and the Industrial Heritage Route Proposal (Source: Adapted by authors from the satellite image obtained from Yandex, 2019)



1: İpek-İş Factory (Administration building), 2: Bursa Power Plant, 3: Merinos Factory and its Power Plant  
(Energy Museum)

## 5.CONCLUSION

Beside the modernization of the city at urban scale, new buildings with new uses have been constructed to constitute modern social and economic life for society. The Early Republican Architectural Style was shaped by the social, economic and cultural context inherited from the past. Bursa hosts various cultural properties dated back to Roman Empire, Ottoman Empire and Early Turkish Republic Periods. All these monuments with urban structure and natural landscape constitute the multilayered character of the city. Orhangazi Complex and Khans Area have been the core of the city sustaining its commercial character since Ottoman Period. Atatürk Street is the main axis of city connecting a bridge between the past and the future. Early Republican architectural heritage buildings are witnesses and representatives of that period. They were built in R.C. system, have rationalist or symmetrical plan schemas and have modern facades influenced by both Ottoman and contemporary architectural styles of the 20th century. They seem familiar to historic buildings but at the same time they were built in modern times and changed the urban silhouette. The proportions of these buildings are in harmony with historical urban texture yet they became the modern face of the historical city. In addition, these buildings contribute to cultural significance; enriches the cultural layers of urban texture.

The act called “Law of Conservation of Cultural and Natural Properties, no: 2863” came in force in 1983 and some sections revised in 2004. This law comprises the buildings which constructed in 19th century and previous times; clearly defines them as heritage. Modern buildings of 20th century and contemporary architectural assets can only be registered according to Conservation Councils decisions.

İpek-İş Factory has been demolished although it was under legal protection. This shows that registration is not enough to protect Early Republican architecture heritage. Public awareness and intangible values associated with heritage buildings may prevent such destructions. The memory of workers, the knowledge of production style can be counted as the intangible values of industrial buildings. Considering the lack of clear legal instruments protecting the modern heritage, intangible values needs priority while assessing the heritage.

Cultural routes have an inclusive role on conservation of tangible and intangible values in spatial, historical and social point of view. World Heritage Sites should be utilized to promote other cultural layers of the city. Cultural maps, digital story maps, brochures and guidebooks should be prepared by local authorities to inform public about these routes. Digital technologies such as mobile applications and QR codes can be used to convey information to young generations in order to present and promote modern cultural heritage.

## End Notes

1. Külliye – Complex; educational, social services and charitable dependencies of a mosque (Bursa Site Management Unit 2013).
2. Han – Khan or inn, usually in towns. Lodging house for travelers and merchants (Bursa Site Management Unit 2013).

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### **Biography**

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## Tehran's Decentralization Project: a Lasting Heritage of the 20th Century

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### Abstract

Tehran has neither characteristics of a polycentric city nor a mono-centric one. This paper addresses the complexity of Tehran's urban structure by tracing it back to the radical transformation of the city in the mid-twentieth century; at the time when decentralization was introduced by Western advisors and became a panacea to accelerate national growth and to decrease the pressure on the capital. Since the 1960s and by the emphasis of the third and fourth national development plans, the policy of decentralization reflected in successive urban plans provided for Tehran. Based on archival research and a flourishing literature of secondary sources, the paper explores how certain values and ideologies of decentralisation and Tehran's urban reforms interacted in mutually transformative ways. The paper examines two leading urban plans: the first comprehensive plan prepared by Abdolziz Farmanfarmaian and Victor Gruen in 1968; and the Action Plan provided by the Greek planner, Constantinos Doxiadis, and EMCO consulting engineers in 1972. Despite distinct positions, both plans shared the urgent need of decentralization of population and accumulated services, and contributed to the excessive expansion of urban infrastructures as well as land consumerism in Tehran. Arguably, they became a spatial remedy to move people further away from the problems of the inner city and led to the emergence of an extended metropolis with fragmented spatial distribution of activities. In turn, investigating these modern urban projects demonstrates the extent to which Tehran's decentralization project contributed to the secularization of the society by diminishing the dominance of the historical (religious) city centre.

**Keywords:** Tehran, Urban Decentralization, Tehran comprehensive plan, Tehran Action Plan

## 1. Introduction

Since the beginning of the twentieth century economists, planners and architects have proposed decentralization as a means to restructure cities and to promote social and economic reforms. Decentralization is a multi-faceted term with political, economic, administrative and demographic aspects. All these fields are interconnected, and they all play out in the spatial context. The term urban decentralization has a twofold meaning (Hoyt 1940). Everett S. Lee, an American sociologist, in his now classic 1971 book *An Introduction to Urban Decentralization Research*, explained that ‘decentralization seems most often to mean dispersal of population and services over a wider area’, which can be considered either as ‘movement from the core of a city to its immediate suburbs or the outer reaches of its metropolitan area and region (localized decentralization)’, or as ‘dispersal from the more highly populated metropolitan area to the less populated areas and regions (decentralization on a national scale)’. The term urban decentralization in this study addresses both national and local scales. More specifically in the post-World War era, decentralization became a world panacea, and many modernist urban planners followed the trends of decentralization as a way to resolve the increasing problems of growing cities (Tyrwhitt 1952). In the political atmosphere of the Cold War, planning was regarded as a powerful political instrument to influence Third World development; it became a tool to ease ‘political unrest and counteracting communist or capitalist influences’ (Wakeman 2016). The Cold War oil-led geopolitics put Iran at the cross-section of transnational exchanges, providing the setting for Mohammad Reza Shah’s modernisation project. The ideological motivations of the anti-communist king of Iran towards the rapid modernization of the country opened up Iran to Western professionals and international institutions. The notion of decentralization was adopted by Iranian policy-makers to on the one hand accelerate industrialization of the country and on the other hand to reduce the centrality of the capital. This paper argues that at the urban scale, the application of decentralization notions clashed with the king’s attempt to secularize the society. Therefore, urban decentralization in Tehran was aligned with the dissolution of the historical religious centre. This gave rise to the decline of the old centre as a dominant religious and economic core of the city, and the fragmented development of the capital. By raising the question of how the decentralization policies of the 1960s and 1970s affected modern urban planning discourses in Iran, this study identifies two stages of decentralization in Tehran modern urban planning: polycentrism envisioned by the first Tehran Comprehensive Plan (TCP); and planning a centre-less city proposed by the Tehran Action Plan (TAP).

## 2. Values and Ideologies of decentralization in Iran

In the political context of the Cold War, decentralization policies played a key role in the modernization of the rapidly developing country of Iran, at the time when Mohammad Reza Shah Pahlavi (1941-1978) came to power. In that time, the capital city of Tehran was the dominant political, economic and administrative centre of the country, and other cities did not have any decision-making powers or fiscal autonomy. To both accelerate the national economic growth and to reduce the centralization of the capital, in 1948 the Plan Organization—a government-sponsored institution—was formed and became a ‘technocratic headquarter’ linking Iranian political elites and professionals to international experts and agencies (Mashayekhi 2018, 2016). Influenced by planning debates in North America and Europe, the Plan Organization eagerly took up Western decentralization concepts and used them as a foundation for the reimagining of Iranian cities.

Thus, the concept of decentralization was engaged with political and economic ideologies in the country. According to Hooshang Amirahmadi, decentralization became ‘the main propaganda message of the six national development plans’ (1948-1982) (Amirahmadi 1986). Throughout the first two national plans (1948-1962), decentralization and regional planning were depicted as ‘intensive investment in regions with natural resources capable of attaining maximum economic output’ (Amirahmadi 1986). At that time, decentralization in Iran did not mean an even development of regions, as development favoured resource-rich regions. The ultimate beneficiaries, therefore, were the international corporations (such as Morrison-Knudsen International and Ital Consult) who assisted the development rather than local people.

Consequently, the first two national plans led to a huge regional disparity in Iran (Plan Organization 1962). Moreover, Tehran’s centralization was exacerbated as public and private firms continued to be concentrated in the capital. As a reaction to the rising regional disparity and the alarming urban problems of Tehran, the provision of welfare and distribution of social services became the most significant feature of the third development plan (1962-1968). The Plan Organization established the High Council of Urban Planning and Architecture to guide the preparation of master plans for Tehran and a number of other major cities. In recent years a substantial amount of scholarship has appeared that studies the form and physical transformations of Tehran against the backdrop of the Cold War political, economic and cultural dynamics (see: Khosravi 2014, Mashayeki 2018). However, few studies consider the long trajectory of evolving policies of decentralization in Iran and their constant interaction with the architecture and urban planning of the capital. Arguably, the advent of technologies, automated transportation, telecommunications and new modes of energy cannot not thoroughly represent centrifugal forces for extreme expansion of Tehran since the mid-twentieth century. In order to have deeper understanding of Tehran’s transformation and its fast-paced expansion, the evolving policies of decentralization and its constant translation into urban debates needs further studies.

### **3. Tehran before the advent of modern urban planning**

Since the 1960s and the rapid development of new state-led industrial poles over the country and the accumulation of their money and headquarters into the capital, the centralization of Tehran at the country scale was accentuated. As a result of this, on the one hand the historic centre of Tehran became a dominant political, economic, and administrative centre; and on the other hand, the increasing congestion of the central district induced the spatial redistribution of the population (Rabiei-Dastjerdi 2016). Therefore, affluent families left the congested central areas and moved to less dense places in the northern and western peripheries. As affluent people relocated, the deserted central areas were refilled by the urban poor and newcomers. The social duality between the north and south gained political dimension when in 1960 Mohamad Reza shah moved from the Marble Palace in the centre to the Niavaran Royal Complex in the north (Habibi and Salimi 1996). Thus, the new palace became the centre of political and monarchical power, yet the religious and economic power was left in the historic centre and the old bazaar (Grigor 2016).

Increasing social, political and physical problems of the capital compelled the state to think of ways to: ‘decentralize the power of urban interest groups; to break Tehran’s vertical axis of social promotion; and to find a solution for rural migrants’ (Grigor 2016). The newly established Social

Research Institute organized the first seminar of ‘Examination of Tehran’s Social Problems’ in 1962 to indicate the depth of urban crisis in Tehran. To ameliorate the lack of urban services in the city, the seminar called for a need to provide new service centres for the growing city of Tehran. The development of new centres—introduced as complementary centres—was put forward as a way to provide facilities for new development districts, particularly in the north and west. It was emphasized that further study and investigation would be necessary to determine the most strategic locations for these new urban cores, preferably existing vacant lands in the urban fabric. More specifically, the 800,000-square-meter vacant land of Baghe Shah (the king’s garden) located at the west side of the central areas was proposed to be developed as a modern centre including ‘an American shopping mall, offices, recreational and cultural facilities, parks, car parking, a central bus station hub, and small hotels to accommodate visitors coming from remote areas’. In the 1962 seminar, new urban centres were discussed as a way to improve the urban life of the existing new development areas and not as a way to promote the dissolution of the old centre.

#### **4. The First Tehran Comprehensive Plan (1966-1969)**

To mitigate the socio-spatial problems of Tehran and to steer its future expansion, in 1966 Abdolaziz Farmanfarmaian began his collaboration with Victor Gruen to propose a 25-year master plan for the metropolitan Tehran. Farmanfarmaian, who had graduated from the École des Beaux Arts in Paris, was best known as a pioneer in the design of high-rise buildings in Iran and his firm was one of busiest architectural offices in the country. According to the Plan Organization’s policy of collaboration with Western experts, he invited Victor Gruen Associates of the United States to co-develop the TCP and to learn from his theory of the future metropolis, ‘A Cellular Metropolis of Tomorrow’ published in his 1964 book *The Heart of our Cities*. Establishing new centres of activities became Gruen’s recipe for restructuring future cities and creating social cohesion. In his book, Gruen proposed a cellular metropolis with ten satellite towns united by a mega-centre. He envisioned the modern centre as ‘the most densely built-up and the most intensely utilised land area’ with a hierarchy of different scales: metro-centre, city-centre, town-centre, and community centre (Gruen 1964). The decentralization program outlined in Gruen’s proposal called for: reorienting the direction of new construction to satellite towns; making satellite towns self-sufficient by evenly distribution of facilities and services among their centres; and finally rebuilding and revitalizing the mega-centre.

When Gruen and Farmanfarmaian began to work on the TCP, the state’s aspiration to diminish the centrality of the historic core was conspicuous (Keshavarzian 2007, Kamali 2009, Mirsepassi 1994); moreover, the excessive farm lands around Tehran (as a result of the 1963 land reform of the White Revolution) was considered as assets for Tehran’s expansion. After three years of research and close collaboration with the Plan Organization, the planners saw an urgent need to diminish the centrality of the congested core of the capital. To eliminate the monopoly of the historical religious centre and to secularize the city, the TCP changed the single-centred structure of the city by redistributing urban facilities throughout the proposed modern centres. Besides, in order to counteract the north-south axiality and social polarization, the TCP superimposed a west-east linear structure upon the city. Gruen utilized new urban centres as ‘urban crystallisation points’ (Mumford 2000) which could satisfy a wide variety of social needs [Figure 1]. The TCP underlined the changing traditional habits of Iranian society and their increasing tendency towards Western urban recreational facilities rather than traditional and religious urban spaces:



[...] the old shopping patterns will disappear; the bazaar and the downtown centre are likely to diminish in importance, and the demand will arise for large out-of-town centres fully equipped with parking, restaurants, supermarkets and community facilities (Gruen and Farmanfarmaian 1966-1969).



Figure 1. The proposed linear urban structure for Tehran consisting of ten satellite towns. Source: Tehran Comprehensive Plan, the Plan Organization, 1966-1969

By the lure of modern centres, the planners attempted to guide the extension of the city beyond its existing parts. Counting on agricultural lands around the city, the TCP tripled the city's area—from 180 km<sup>2</sup> to 600 km<sup>2</sup>—and pushed the growth of the city westward. To ensure the implementation of this ambitious plan, the TCP emphasized the prompt development of Vardavard and Latmer, the two new satellite towns located at the western end of the proposed linear structure. With plans for an Olympic centre, a huge recreational park (Chitgar park), new universities and the new extension of Mehrabad airport, the satellite town of Latmer was projected to become one of the most attractive hubs of the capital, counteracting the existing centrality and the north-south axis [Figure 2].

Dismissing the circular movement radiating from the old centre, Gruen transformed his concentric urban model into a linear structure to potentially accommodate unlimited urban expansion [Figure 3]. This was in complete contrast to his original concept of future metropolis, as Gruen determined the workable size of a metropolitan area in his book; he emphasized that 'when the size is reached, then it would be wiser to limit further growth of the city' (Gruen 1964). But, the capability of unlimited expansion of Tehran arguably emanated from the planners' belief that Tehran's population would exceed 5.05 million and reach to 8-12 million in 25 years (Gruen and Farmanfarmaian 1966-1969). According to Bahram Farivar Sadri, Iranian urban planner and scholar, the planners' proposal for 8-12 million population encountered with the strict opposition

of the High Council of Urban Planning and Architecture and the Ministry of Energy (Farivar Sadri 2014). This reaction was basically according to the limited water resources in Tehran.



Figure 2. The image shows a detailed plan for the west extension of Tehran, notably the new satellite town of Latmer. The TCP prioritize the construction of Latmer in the second phase of implementation and introduced it as a model town for modernization of Tehran.

Source: Tehran Comprehensive Plan, the Plan Organization, 1966-1969

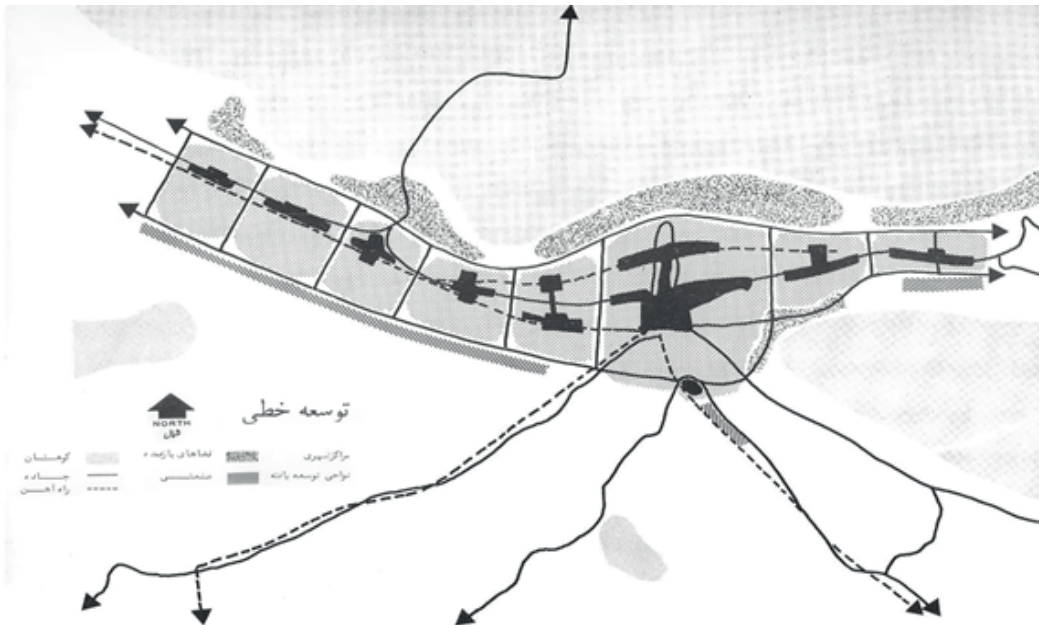


Figure 3. The diagram shows the capability of the linear structure of Tehran to grow unlimitedly.

Source: Tehran Comprehensive Plan, the Plan Organization, 1966-1969

## 5. The Tehran Action Plan (1972)

The trend of urban decentralization gained a new momentum in the early 1970s when the booming economy of the oil industry gave the urbanization of territory a new importance. A few years after the approval of the TCP in 1972, the Plan Organization commissioned Constantinos Doxiadis, Greek urban planner, to prepare an Action Plan for Tehran; the Action Plan was viewed as a short-term counterpart to the longer-term TCP. Funded by the Ford Foundation, Doxiadis was one of the largest urban planning firms of the Cold War, and played such an outsized role in the development of Third World countries, notably the Middle East and Africa (Wakeman 2016). He worked in Iran from 1957, mostly in the oil-rich region of Khuzestan to examine the impacts of the oil industry on the region's development (Madanipour 2010) In collaboration with an Iranian joint venture, EMCO Iran Consulting Engineers, Doxiadis put together a document summarizing the main urban problems of Tehran and objectives of the Tehran Action Plan (TAP). He relied on a pattern of centre-less continuous growth for Tehran. Advocating his concept of Dynopolis (Doxiadis 1963), he introduced another stage of decentralization to Tehran, and remarked that 'the TAP goes far beyond the Master Plan' (Doxiadis 1972). By exemplifying global major cities, Doxiadis underlined that the municipal effort for limiting the expansion of Tehran would not be successful. Therefore, the only solution was to investigate the potential areas of growth, and disperse the administrative, commercial and recreational activities throughout a wider region, while the existing city would receive maintenance treatment (Doxiadis 1972):

As Tehran continues to grow, it is heading towards disaster. [...] It is clear that Tehran's growth between 1956-1969 was concentric, with some apparent trends towards west. [...] These developments affected negatively the functioning of the central area. [...] Tehran's growth must be guided.

To guide Tehran's growth and to enable the city to sustain its boom, the TAP proposed the development of West Tehran in a way to reach to the small towns of Karaj and Qazine [Figure 4]. He put emphasis on the creation of incentives which 'would allow the existing city centre to break through the massive present city and develop freely in new lands of the west' (Doxiadis 1972). Thus, 'the central areas would always have ample space to grow' (Doxiadis 1972). Besides, the proper network of roads and utility corridors were introduced as one of the cornerstone for the creation of West Tehran, and the improvement of the functioning of the present and future daily urban system of the city. The plan noted that 'such a network should have a non-convergent (non-radial) configuration' (Doxiadis 1972) [Figure 5]. Similar to the TCP, the TAP's approach widened the gap between the renewal of the old centre and the new developments; however, the TAP considered this gap temporary, as it should be filled later on with 'very careful consideration of interconnecting the old and the new Tehran'.

In the mid-1970s Tehran's decentralization project was extremely criticized by Tehran Development Council established in 1975. Local planners and experts believed that decentralizing Tehran would lead to 'the development of a heavily populated strip between Karaj and Tehran'. To counteract the city's westward growth, they proposed 'to encourage the growth of counter-attracting centres in the west hinterland' (Tehran Development Council 1976). Therefore, in 1976, Tehran's municipality divided the city into twenty districts plus limiting zones (Hareem) to restrict the westward growth (Amirahmadi 1993). But the rapid construction of the linear infrastructure proposed by the TCP became a major landscape-forming in the west and made the west extension

a fertile ground for mushrooming of state-funded industries as well as low- and middle-income residential complexes such as Fakouri military residential, and Peykan Shahr for the workers of the Iran National Car Factory.

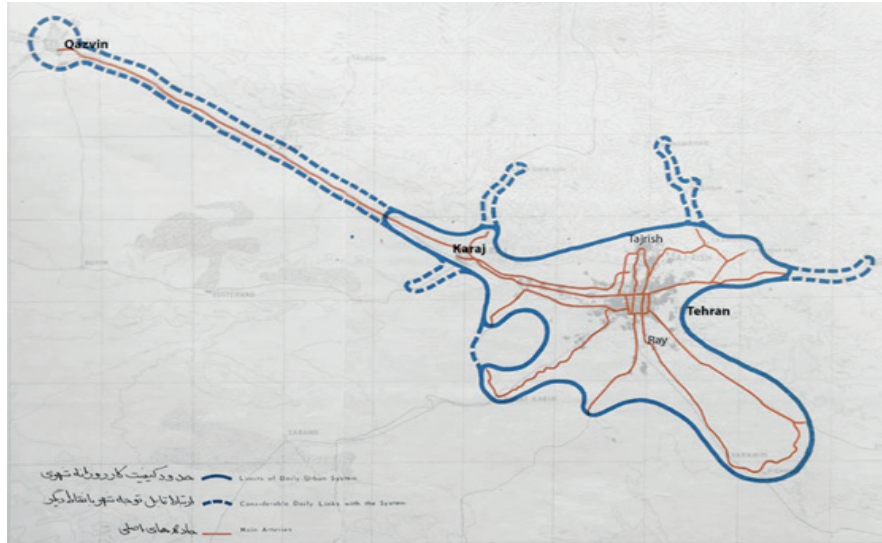


Figure 4. Doxiadis's proposal to release Tehran's west lands for new development.  
Source: Tehran Action Plan, the Plan Organization, 1972

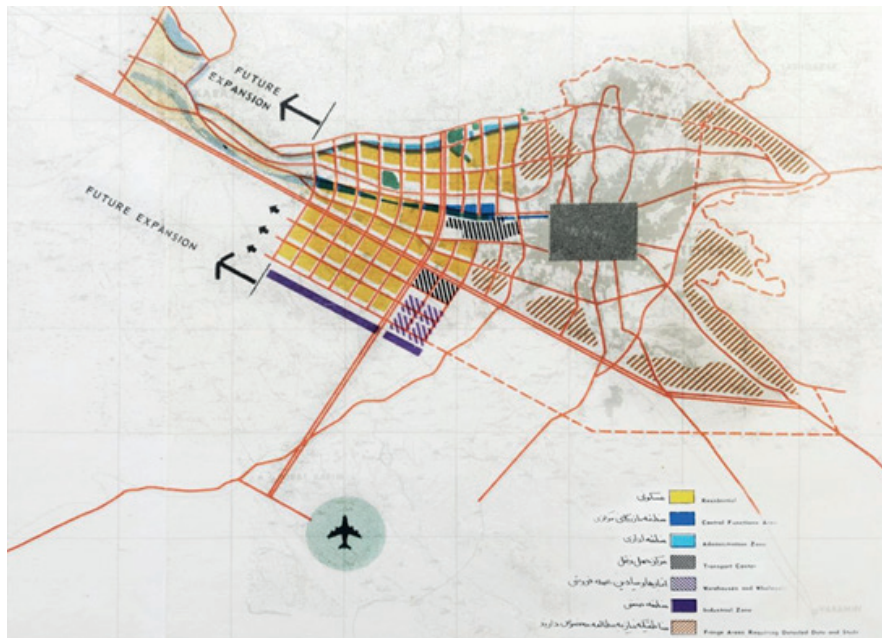


Figure 5. The plan shows Doxiadis's proposal for the dispersion of urban services throughout the city.  
Source: Tehran Action Plan, the Plan Organization, 1972

## 6. Conclusion

Studying Tehran's challenges of transition from a centralized city into a decentralized one, this paper demonstrates the extent to which the evolving policies of decentralization affected urban planning discourses and practices during the 1960s to 1970s [Table 1]. As the spatial manifestations of the king top-down secularization project, the TCP and the TAP could not see the future of modern capital in the existing city, as they regarded the empty stretches of land as tabula rasa to envision a modern image for Tehran. Both plans saw the old centre as the remnant of the past and incapable of change and integration with modern development. Although the plans were not completely realized, their impacts on the way that the city is expanding is noticeable. The plans' policies of decentralization became a spatial remedy to move people further away from the problems of the inner city, which eventually promoted regional sprawl over suburban sprawl. The paper concludes that Tehran's decentralizing project was not a complex process with a singular outcome upon the capital, but rather, it was a multi-faceted assemblage of political and socio-spatial objectives which brought about multiple outcomes affecting sustainable development of the city to this day.

**Table 1:** the overview of Tehran's decentralization project during the 1960s and 1970s

Source: The author

Time period	Urban structure	Explanation
Tehran during the 1960s	Monocentric	Leapfrog development of residential projects in Tehran's peripheries
The Tehran Comprehensive Plan (1966-1969)	Polycentric	Tripling the city's area from 180 km <sup>2</sup> to 600 km <sup>2</sup>
The Tehran Action Plan (1972)	Centre-less	Reaching Tehran to the small towns of Karaj and Qazine

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### **Biography**

*Elmira Jafari* is PhD candidate at Department of Architecture, TU Delft. She is studying the transmission of urban planning initiatives into Iran and scrutinizing the complex process of reception and implementation of Western planning ideas in the development of Tehran.

## Elaboration on the architectural Structure of the industrial heritage of Tabriz Silo

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### Abstract

Grain is basically stored in silos, then distributed for consumption or export. After the Industrial Revolution in Europe, in light of modernization numerous industrial complexes were constructed especially in Iran known as industrial heritage. Due to insufficient research about silos, the present study tries to recognize the architecture and the ways of storing grains in silos. The needed information is gathered through field and library form. The approach within this research is cultural which can reuse silos as cultural functionalities. The strategy used is descriptive-analytical and the plans are taken in the form of environmental-physical and structural changes into creating an innovation of this building. The grain elevator was originally made up of wooden bins in rectangular form. Essentially, the structure of the silos and their evolution process have evolved from an individual towards group structure. During the Pahlavi era, several concrete wheat silos were constructed in Iran, including Tehran, Shiraz, and Tabriz silo, now known as the oldest silos of Iran. Therefore, the aim of this research is to present Tabriz Silo as a case study constructed in Iran after the end of the World War I in Tabriz. The results of this research indicate that Tabriz silo is of a concrete type. It is built in an industrial complex on the outskirts of the city then has been located in the center of the city since the urbanism development and has the potential to be transformed into a cultural complex.

**Keywords:** Industrial Heritage, Silo, Structure, Tabriz silo



## 1. Introduction

Understanding the way of life, storage, transportation of wheat in the silo structure as an industrial building is important before and after the industrial revolution. The Industrial Revolution was characterized by major changes that occurred first in the mid-eighteenth century in England and with some delays in other European countries: population growth, industrial production, and the mechanization of manufacturing systems (Zareh & Shaterzadeh 1395). The foundations and inventions that were founded on this revolution are now considered as industrial heritage; Many authors and documents tell about industrial heritage and its significance in cities today (Stratton 2000; TICCIH, 2003; Edensor 2005; Mihajlov 2009). As defined by TICCIH Industrial heritage consists of the remains of industrial culture which are of historical, technological, social, architectural or scientific value; These remains consist of buildings and machinery, workshops, mills, factories and mines and sites for processing and refining, warehouses and stores, places where energy is generated, transmitted and used, transport and all its infrastructure (TICCIH). Thereupon Silos are considered among industrial heritages. Silos and the pit have been a favorite method of keeping grain from ancient times in all eastern lands (Encyclopedia Britannica 1911). In the Dehkhoda dictionary, Silo, is defined as a storage bin for wheat that is made into a tower or pit, with machines and devices for cleaning of wheat (Dehkhoda Silo). Due to silos architectural, social, historical and technological significance, it could be an important factor in the city's identity and can have a role in the urban regions ration and serve as a catalyst for it (Cizler 2012). Industrial heritage sites may have been abandoned long ago, they may have gone through many changes of use over the years, or they may have only recently ceased being used for their original purpose. Sites in continuous use for a particular industry also often undergo significant physical changes as the technologies change (Heritage Council Victoria). The concept of living heritage is employed to investigate the tangible and intangible cultural heritage associated with grain elevators using a temporal framework economy (Douet 2012). The changes in the core of the global economic system, especially after the economic crisis of 1930, had an effect on the orientation of Iran's industrial plans, as in other peripheral countries of the world system (Gholami 1393). In Iran, industrialization has been underway as The first factories were built in Iran and Tehran until the end of the first Pahlavi government, industrialization to an extend surface are among the first-level programs of the country (Ismaili Joulodar and et al. 1395). Industrial poles have been included Isfahan, Tabriz and Ahwaz (Asayesh 1354). Therefore, Grain silos are income-producing properties of a specialized nature, due to their unique form of real estate and characteristics, construction, buyers and sellers (Winckler & Boshoff, 2016).

## 2. Methodology

This investigation is a type of practical research. The taken methodology is descriptive-analytical. The required Information for that has gathered through the library studies, documents, and historical texts, along with field surveys. Documentation in the case study place, observation of tools and equipment used in the construction and operation of the factory and also survey of All components of the factory site is done. Therefore, after studying the types of silos and their built machines in the world, an analytical comparison of Tabriz silo in order to obtain and define the architectural and structural features for its utilization was carried out.

### 3. Background and literature Review

The first recorded mention of grain storage is found in the Bible (Genesis; Wallace 1994; Brown 2013). The commercial grain elevator was invented in the United States and was quickly adopted by Canada and later other grain producing countries; the grain elevator acts as a receiving station for such products, where they are weighed, graded for type and quality, cleaned, and dried. (Reconnaissance Report and Historic Context). The primary method of storing grain prior to 1842 was in warehouses; these structures were a single story designed to store sacks or piles of grain prior to transport to end users (Frame 1990; Henderson & Brennan 1999). The elevators did more than unload grain, they were built with huge bins for storage, and often were equipped with devices for the cleaning and screening of grain (Odle 1952). First of all, storage capacity continued to expand (Milling Baking News). In the second half of the nineteenth century, cereal crops were prevalent in a bed shaped stores that were divided into smaller warehouses, and the cereals were packed after cleaning and weighing. The size of such warehouses was typically 8 x 20 x 40 feet, Thus the classic grain silos were made in the early 1180s with a standard plan; The main structure of the warehouse was made using lumber, which was copied and rigged with regular coated corners (Everitt, 1992). The types of classical grain elevators are illustrated in table (1).

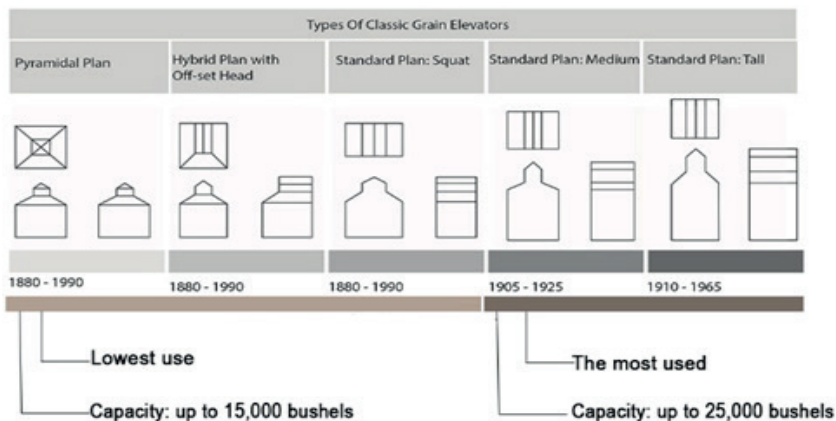


Figure 1. Types of classic grain elevators (Source: Everitt 1992 & author)

There are six types of materials used in the construction of grain elevators: wood (frame and cribbed), brick, steel, clay tile, concrete, and iron. (Reconnaissance Report and Historic Context). The changing agricultural economy, reduction in rail transportation, and outdated mechanical functionality of the wooden grain elevators has led to their disappearance (Banham 1986). Since the beginning of the 20th century, reinforced concrete has been used extensively for construction of grain silos, which differ basically from other reinforced-concrete structures (Theimer 1969). Concrete quickly became the most popular fire resistant material for grain elevator construction thus, concrete grain elevators draw their inspiration from earlier wood elevators; Although, concrete elevators are taller and have greater capacity, they generally exhibit the same physical features as wood elevators, namely a central workhouse with an elevator leg. Regardless of whether the bins are square or round, the design of concrete elevators seeks to create structural stability and minimize wasted space (Mahar-Keplinger 1993). A wide variety of round and square binned elevators, elevator workhouses, and other similar structures resulted from these creative efforts in

design (Frame 1990). This is truly a concrete age for grain silo, as most of the large storage and central market elevators as well as many country elevators, are now built of reinforced concrete for attaining more years of usefulness, reducing the fire hazards, and the cost of fire insurance on elevators and contents.

### 3.1. Silo types in Iran:

The silo pit, as mentioned, has been a favorite method of keeping grain since ancient times in all eastern lands. In Turkey and Iran, villagers used to purchase wheat in a season when the price of wheat or barley was relatively more profitable than the other seasons, and in return they kept them in seasons scarce (Zimmer 1911). In the past, they used a bowl with curved walls that was called khomreh derived from khom which the type of pottery with a convex and abdominal body that held the capacity of liquids and grains, and the smaller ones called khomcheh (Tabrizi 1341; Hosseini & Sepidman 1396). Also, in one of the old houses of Tabriz, related to the Qajar era, two wooden classic silos are found with dimensions of approximately 160, 120, and 200 centimeters (image 1) (technical and cultural office of Tabriz Cultural Heritage). In the garden of Moshiral-mamalek of Yazd there was also a warehouse with broad columns and dome ceilings that had the floor of that reservoir to hold wheat and barley (Majedi et al. 1392). In recent years large hopper bottom metal-bins and concrete silo designs have become the standard type of annex addition (Everitt 1992). Among the cited heritage status representativeness as a “rare surviving example ... Cylindrical reinforced concrete silos, like Tehran, Shiraz, Ahvaz silos; and the Tabriz silo is known as the oldest survived silos of Iran after the first world war.



Figure 2. Wooden grain storage of an old house in Tabriz (source: author, photographer: author, December 31, 2018)

### 4. Tabriz Silo

In Iran, during the Pahlavi period, several concrete silos were made. Therefore, seven of the old silos are located in Tabriz, Tehran, Mashhad, Shiraz, Esfahan, Kermanshah and Ahwaz. Tabriz's wheat silo is one of Iran's most unique monuments in the category of industrial heritage, which was first built in Tabriz as the first wheat silo in Iran after the end of World War I. The historic site of Tabriz Silo, which is located on Imam Khomeini Street, is considered as one of the most

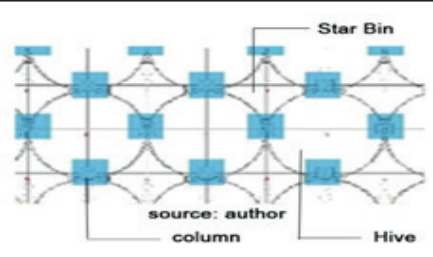



important historical works of Tabriz in terms of its industrial activity and design. The Tabriz Silo Land is 50,000 meters wide. The equipment of this building belonged to 1935 and its operation was in 1938 and is completely intact. Elevators and wooden halls are of the most important features of this building and there seems to be no silo or building with such characteristics in Iran. The special architecture of halls is distinguished by the wooden ceilings. This is a symbol of the engineering capability, the circle of Tabrizi artisans, and a symbol of the merging of knowledge and up to date science with the ancient experience of men. The continuous and stable activity of Tabriz Silo after eighty years since the first days of its establishment, indicates the unique design of this building. The simple disassembly of wheat, with its elegance and complexity in the wood-working industry, to the metal stairs above the generator room, reflects the age of the metalwork industry and art. The interior parts of the silo have not changed much in different periods, so that most of the machines in the past, despite the presence of new technologies, are still being used (image 4). Recently, Tabriz Silo has the features of fire safety conditions with fire extinguishing cylinders. In this heritage, tubes have been used for voice and message transmission in various floors. There are also sockets and electrical wiring. The spatial design includes vertical elements, stairs and elevators, walls and pillars, doors and pipes, and related equipment. The walls and floor are made of concrete, and some parts within corridors are painted blue. Horizontal elements in floors include floor and ceiling, as well as equipment necessary for keeping wheat and transferring it to hives or exporting them. The Russian logos on some older equipment date back to 1937 and its exporter is Exports troy, a Bulgarian supplier of silo equipment, and has several branches throughout the world, including Russia. Entries on Transformer are: Transformers Alarm, Alarms, Underpasses, Super Silos, Section, Tampons, Tour Operations Series.

#### 4.1. Tabriz Silo Architecture

The discharge cavity is an essential part of the silo, which is based on roof trusses made of Russian wood. Tabriz Silo is divided into two parts, the tower and the hive, architecturally. Its tower generally consists of six floors. The height of three floors is equal to the height of three floors of the residential building. It is divided into two distinct, but related sections, and access to floors is provided by both stairs and elevators. Tabriz Silo consists of thirty-three hives, each of which is twenty-six meters high. The capacity of the main hive is 16,000 tons, and eighteen of its hives, called interstices or star-shaped gaps, have a capacity of 100,000 tons, and are located in interstices at the confluence of each of the four hives. Hives are represented in numbers from ground floor from 100 to 500, and are classified into two main hive and star types. 100, 300 and 500 are the main hives, and 200 and 400 represent star-shaped hives. Also, their hatch on the third floor, are seen as having a main hive and then a star hive. Each main hive has two lids and each star hive has one lid. (image 2) Wheat loads are discharged into the elevators after being evacuated to the evacuation cavity by a transporter located in the tunnel, and then, after the cleaning process and the separation of dust from wheat by eight- axle devices on the outer part of the silo building, they are sent for storage on top of the hives. Thus, wheat is fed into the devices from the silo basement section and is guided into the hives through the elevators and other auxiliary devices. Access is possible through both stairway and elevators. The staircase is both internal and external. The internal staircase is the main route accessible to all floors and the stairs are made of concrete and their fences are metal. The external staircase has two parts for access to exterior silo equipment, and another in the shape of a ladder for access to the roofs of the silos, both of which are made of metal. The stairs of the main staircase are in concrete form and embedded in the edge of each step

of the iron hinge. Recently, there is also an elevator for access to all floors.

**Table 1.** Pictures and plan of Tabriz silo

<b>Pictures of Tabriz silo</b>	
	 <p style="text-align: center;"><b>Hive hatch draw      Star bin hatch</b></p>
<p>Figure 3. Plan of Tabriz Silo Source: author</p>	
	
<p>Figure 4. External structure of Tabriz Silo Source: author</p>	<p>Figure 5. Ground floor of Tabriz Silo Source: author</p>

#### 4.2. Structure:

Of unique features of the silo are concrete structure and, specially designed ceilings. According to historic experts, the Istanbul Bridge can be considered as an equal to this building. Trusses with wooden structures used in the silo dock are of architectural and structural importance, which are the best examples of wooden structures in Tabriz and even Iran in the twentieth century. Structures with concrete slabs have been implemented on all floors, ground and underground. On the third floor (the floor of the upper part of the hive), concrete and metal trusses are used with clear placement of hives on pillars. The internal dimensions of the pillars are 0.86 meters and the edges of which the hives are located are 1.86 meters; In fact, there is a hive between all four pillars. Outside hives are smaller than inner hives. At the bottom of the hives, there is a hopper for wheat depletion using gravity, which varies according to the type of application in the silos.

#### 4.3. Discussion and analysis:

The structure of the primary silos were in the form of storage and elevators of cereals. Due to the need to store wheat as a raw material for the preparation of bread and other foods, followed by other economic and social issues, measures were taken in this direction. Primary silos were constructed with wooden materials, tiles and bricks. To facilitate the discharge of wheat, load and

storage in hives, a grain elevator was invented and later it was mechanized using steam power. The need to increase the storage capacity and measures taken by the industrial revolution within the twentieth century led to the emergence of reinforced concrete silos that, in addition to having more capacity, more resistance and much more heights, they were more secure against combustion. The general structure and movement mechanism governing all types of silos consist of four sections, the drainage cavity, and the elevator for transfer, storage hives, and the drainage channel, among which the elevator has been the most important human invention in the silo structure. This mechanism is shown in the diagram (1).

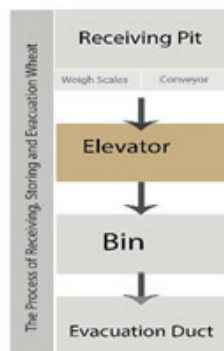


Diagram 1. Process of transferring and storing and evacuation wheat (Source: authors)

Due to economic crises in 1930s in the world as well as in Iran, and the need for industrialization and construction of wheat silos to cope with these crises, the construction of a wheat silo in Tabriz as one of the country's main industrial poles started. The documentary evidence suggests the use of the main silo equipment in 1935, and utilization of wheat reserves in the silo building in 1938. The beginning of the construction of this building dates back to 1935, indicating that the Silo of Tabriz is the oldest silo built during the Pahlavi era in Iran. Unique and special features of Tabriz Silo Complex make it the best place to switch to a cultural and museum collection to showcase the cultural and industrial history of Tabriz and Iran.

## 5. Conclusion

According to studies on silos and their evolution, it has been observed from the time they came to the operation of concrete silos that primary silos were created in the form of wooden or brick wares and finally concrete, as a place for storing cereals; therefore, the evolution of Silos are initially modified in terms of used materials and, secondly, changes in the structure of the architecture, but the main and consistent features that have been changed over this period are the four-stage process of receiving pit, grain elevator, storing in bins and the evacuation duct. The process mentioned above, in addition to the new architectural structure of concrete wheat storage silos, has made the ancient silos available in the world with such features as the industrial heritage of the past. As a result, the wheat silo of Tabriz has been introduced because of its inclusion in the list of silos with such structure and features, as well as the concrete and modern silos in Iran after World War I. Some instruments of this silo have been manufactured by Russian factories and this fact is an indication of the relationship between Iran and north countries and among these, Tabriz railroad helps for transitions like silo built materials. Therefore, adapting Tabriz silo as an industrial heritage monument to a cultural complex due to the lack of any cultural atmosphere in that region, helps as a strength to improve the cultural poverty of the region.

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## Explaining the Relationship between Industrial Heritage and Landscape Case Study: Khuzestān Oil Industry

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### Abstract

The industrial landscape implies the evolution of the human community and his habitat over time and is influenced by the physical constraints and opportunities that are being imposed on it by the natural environment and external, internal, social, economic and cultural constant forces. The 21st Century cultural landscapes contain vast post-industrial landscape of the world. Due to their natural resources and features, these lands are encroached by mankind and have been poisoned through the process of absolute productivity. Therefore, if we imagine the landscape as a progressive discourse on society and culture, then human intervention in nature, whether good, bad or ugly, should be regarded as an industrial landscape. One of the important issues is the observation of the landscape and the industrial heritage alongside each other. Therefore, the repurposing needs to be addressed more thoroughly and comprehensively as changes are made. In this regard, the purpose of this study was to investigate the constructive components of the adaptive landscape as a missing link between the landscape and the industrial heritage left over from the past.

This research is a qualitative research and using library studies and content analysis, comparing and analyzing case examples in order to achieve the research purpose, after presenting constructive components of the adaptive landscape, the mentioned components and the industrial heritage of Khuzestan will be compared adaptively.

Findings of the research indicate that adaptive landscape can be considered as a bridge between landscape and industrial heritage. Also, post-industrial sites in Iran, especially in Khuzestan (oil industry), can be considered as an appropriate option as an adaptive landscape and the link between the landscape and the industrial heritage of the country.

**Key words:** Industrial heritage, landscape, adaptive landscape, Khuzestan oil industry

## 1. Introduction

The use of the “post-industrial” common term by landscape architects, architects and urban planners involves a wide range of contaminated or abandoned industrial sites, which are usually seen in the destroying parts of the city. Because of their specific features and special barriers, these recycled lands cannot be returned to urban functions in common forms of development, and their reclamation requires special measures in the field of landscape design and urban planning. Nowadays, landscape architecture, as a discipline that seeks to reconcile humans with their construction bed and nature, has taken various approaches to dealing with post-industrial landscape as latent potentials in the city texture. The application of the landscape architectural approaches leads to the return of post-industrial sites to the urban life cycle, the elimination of its various problems, and the creation of modern varieties from a contemporary landscape. In this regard, the researchers and the designers around the world have considered purposing and repayment at a macro level and in its subcategory “Regeneration and Adaptability” as one of the optimal conservation options (Cho, Shin, 2014).

Conservation which includes three components of originality, value and integrity, can maintain heritage forms and create new functions for them, provided that the historical content of the site is not compromised and it pay attention to the original functions. At the same time, it presents conservation of the cultural significance and a long-term conservation solution and appropriate planning processes (ibid.). As we know, “adaptability is a development and continuity method of effective and useful life of the buildings and it is one of the goals of sustainability of continuous development. On the other hand, one of the main functions of sustainable development is adaptability and along with it building reconstruction (Moradi et al., 2008). Considering that adaptability and compatibility are the way of for the environmental sustainability, therefore, the adaptability of buildings through life cycle (LCA) in purposing and underlying layers can generate best conditions due to reduced material energy and other effects. Life cycle assessment can help to understand the potential benefits and environmental impacts of repurposed projects to inform about the future of the building. (Getachew Assefa, Chelsea Ambler, 2017). Life cycle assessment can also be an effective way to improve the modern managerial approaches to the sustainability, the conservation and the reconstruction of industrial heritage by assessing the environmental and economic impacts (Ferrari & el, 2017).

As we know, industrial heritage generates requirements for the macro-targeting and in the underlying layers for the adaptability and regeneration by looking at the environmental sustainability due to operational damage and the exploitation or the technological obsolescence, as well as the underlying changes in the social and cultural structures, and ... etc. On the other hand, one of the approaches which change the use of adaptability is landscape, because it is not only the result of the interaction of the components of perception and aesthetics, but also it includes the cultural, social and environmental components which can resolve many problems by coordination with each other. Due to the studies carried out in some professional projects in the field of rehabilitation and reconstruction and ... in Iran, and because of the planning in one-building scale and lack of comprehensive theory, the need for this research is required. The question arises: What are the components of the adaptable landscape in linking with landscape of the industrial heritage? In below the process of doing research is shown in the form of a diagram.

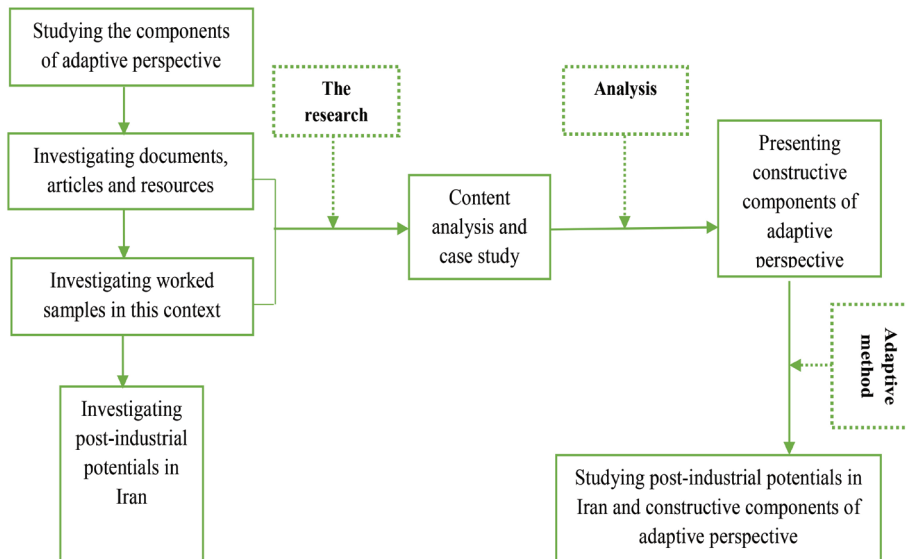


Diagram 1: research process

## 2. Research background

In the article entitled “The Industrial Heritage and Their Fields,” Sunnva Sutestada and Mosel (2016), while examining industrial heritage, have studied effective and intangible variables and also the awareness and understanding of the people on industrial heritage as production places, collective and personal memory, and identity. In 2007, Sean Weiss, while studying the industry in Paris as an industrial supporter, emphasizes reuse and adaptability for cultural and economic heritage buildings in a city. On the other hand, Fuying Liua et al. (2018) believe that the flexibility is not limited to the heritage, and extends it to other areas of evaluation, such as decision making, information analysis, and crisis detection. Hojjati and Shirazi (2011), while investigating the projects carried out by the Peter Latz, acknowledged that the measures taken in his projects, in addition to create spaces with diverse and attractive applications, and good relation between the site and the city structure could present new ways in the reconstruction of post-industrial site. On the other hand, Mokhles (2011), while investigating the approaches of Alan Provo, argues that considering the past governing on these sites and required spaces of people at different social and age levels has generated green and sustainable pieces as a reconciliation with nature but with linear and formal pattern with inner city spaces that will contribute to the living sustainability and the improvement of life level based on industrial patterns. In addition to above issues in the research, it can be mentioned to some of the projects in the field of landscape, especially the industrial landscape in the world. For example, it can be mentioned to the Former sewage treatment silos in Amsterdam’s Zeeburg district, the high-line park in New York, Sinterbeckenplatz, Esch Belval, LU in Germany, Gas Park in in Seattle, Washington, an area surrounding the former Sugar Factory in Florida (FLORIADE GRONINGEN).

## 3. Theoretical framework of the research

**Post-industrial community:** This community is mentioned with other titles such as consumable community, information community, e-community or high-tech, and so on (Baharloo, 2009).

Jameson considers contemporary status as one of the stages of capitalism and he claims three stages for capitalism: “These three stages include market capitalism, the monopoly stage or the stage of imperialism and our era which is called mistakenly post-industrial era, but perhaps it would be better to call it the multinational capitalist era.”

**Post-industrial landscape, a golden opportunity in urban landscape:** if post-industrial areas are recycled well, in spite of their unfavorable conditions, can be considered as a developmental stimulus for their peripheral context on the one hand and on the other hand, a possibility for modernization of the metropolis (Specialized workshop on study the role of coarse grains in urban development, 2007). Given that these sites are often located in strategic positions, in addition to the ecological regeneration potential of the region, the valuable and important opportunities for city regeneration can be provided to designers (Pakzad, 2009, pp. 26-95).

Interventions in historical textures can be accomplished in three main ways, each of which includes a set of actions that will be elaborated in detail: reclamation, renovation, reconstruction (Habibi and Maghsoodi, 2003).

**Renovation:** renovation includes a set of measures that make renovate the complex or the ancient urban space, the related space organization in addition to the conservation of the building and provides the possibility optimum efficiency. Renovation includes seven categories of actions (Ramezani, 2012):

- a. Revitalization
- b. Adaptation
- c. Restoration
- d. Conversion
- e. Conservation
- f. Renewal
- g. Repair

**Adaptation:** Adaptability is the ability to coordinate a space with new conditions. This ability in practice causes variability of the internal components and the possibilities of the various combinations of them (Dashti Nejad, 2010: 63). Adaptability involves a series of actions that causes compromise between the body and the ancient space to the needs of today by creating the appropriate conditions in the space-physical organization, (Habibi and Maghsoodi, 2003).

**Table 1:** criteria for analyzing content of texts related to industrial heritage and perspective, sourced by writers

Author-Date	Criteria	Author-Date	Criteria
Enrica Dall’Araa, Elisabetta Mainob,2018	Integrating environmental issues with cultural, aesthetic and perceptual aspects, harmony of technology and nature, and also integration of design and ecological features	Flurina M.Wartmann Ross S.Purves *2018	Emphasis on the effect of sense of belonging to place and standard evaluation of cultural ecosystems services

Marjan Rafaati, Mahdi Haghighat-Bin 2015	Paying attention to industrial landscapes as an evidence for cultural, social and economic changes of city, emphasis on urban heritage values by making readability, sense of belonging and sense of place	Habibi & Seyed Berenji, 2016	Emphasis on keeping identity and collective and physical memories
Mihye Cho a, Sung-hee Shin, 2014	Emphasis on preserving industrial heritage and making cultural values in outdated spaces, paying attention to keep values and spatial identity	Sepide Movahed, Hasan-Ali Farah-Habib 2015	Emphasis on ecological design due to landscape design principles, stable development and preservation, environmental conditions of area and optimal use of them
Mahdie Khaje-Piri 2012	Focusing on the nature of spaces and activities and creating visual effects, emphasis on promoting identity component and cultural-industrial perspective, paying attention to attractive function appropriate with contemporary needs, connecting memory with objects and place	Valentina Ferretti, Marta Bottero, Giulio Mondini *2014	Emphasis on values (historical, artistic, cultural, economic, etc.) in historical buildings

By placing ecology knowledge in center of the current views of the landscape architecture in the world, today, we are witnessing the adoption of adaptive design policies in the recycling of post-industrial landscape and the framework of ecological urban planning system. In such projects, the principles of design and planning are rooted in the industrial age, and the planning interventions and design forms are planned in adaptive and flexible way in dealing with sudden and unpredictable environmental changes; the developments which are natural, but it is not definitively predictable and controllable; the concept of flexibility and sustainability in this approach is not limited to survival in an ecological context and it means maintaining health which necessarily involves economic and ecological health and cultural happiness and are planned as goals (Lister, N.M., 2010).

**Table 2:** sub-criteria and final criterion achieved from analysis of studies due to adaptive components, sourced by writers

Constructive components	Sub-criteria	Final criteria
Cultural perspective	Identity	Cultural values
Spatial identity		



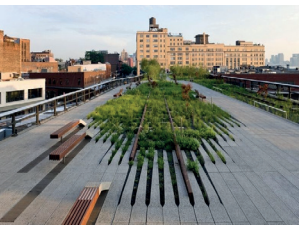






Creating a clear sense of the past	Collective memory	Emotional value
Challenging the mind of the audience		
Connecting memory with objects and place		
Sense of belonging		
People participation		
Restoring relationships and site performance	Design approach	life cycle assessment
Relationship between site and structure of city		
Challenging the mind of the audience		
Reducing cost and energy		
Correlation between art and engineering		
Information of native ecological layers	Ecologic values	
Harmony of technology and nature		
Integration of the design and ecological features		
function appropriate with contemporary needs	function value	
Responsing function		

#### 4. Case study





In this section, while analyzing and comparing the case studies on research inside and outside Iran, we will examine and present the adaptability components in creating a mutual relationship between landscape and industrial heritage.

In the landscape field, in particular the industrial landscape, the first park in the city of New York, Park LOWLINE, was introduced in 2011 as the DELANCY underground project, which is placed around the bridge of the former Williamsburg train terminal in eastern Manhattan. The Latez Architectural Group focuses on designing a structured approach to the history and variety of constituent layers of the site landscape. Designing with the least interference on the site with a conscious approach to layers of information on the surface leads to the destruction of the information data and historical footprints there (Hojjati, Shirazi, 2011). Also, the wastewater treatment plant in Amsterdam, Netherland, is introduced by Annie MG Schmith House as a multifunctional cultural center and will be reused. The adaptability of the area around the former Sugar Factory in Florida and connecting the industrial heritage to the heart of Florida is done by WEST 8 group with integrated design and creating spaces such as the church, restaurant, garden, and etc. Melk can design the public park for integrating with future repurpose in the adaptability of the Zil automobile plant in Moscow. In such projects, he designs a system based on the interplay of humans and the ecological bed, adaptability and flexibility in interaction with sudden and non-periodic environmental changes. Also, the economic, cultural, ecological and energy aspects are considered as the design and planning objectives. In this field, the projects such as the Renovated Textile Factory of Shiraz (Taro Pood Museum), Qasr Prison, and ... have been implemented in Iran.

**Table 3:** analysis and investigating regarding adaptive reuse approach case studies of the world, sourced by writers

Adaptive components taken from case study analysis in the world	After adaptation	Before adaptation
<ul style="list-style-type: none"> <li>Cultural perspective</li> <li>Spatial identity</li> <li>Challenging the mind of the audience</li> <li>Sense of belonging</li> <li>People participation</li> <li>Restoring relationships and site performance</li> <li>Relationship between site and the structure of city</li> <li>Correlation between art and engineering</li> <li>function appropriate with contemporary needs</li> <li>Attractive functions</li> <li>Harmony of technology and nature</li> </ul>	<p>into a multipurpose cultural center, Annie M. Schmidt</p> 	<p>Sewage Treatment Plant in Amsterdam, Netherlands</p> 
<ul style="list-style-type: none"> <li>Cultural perspective</li> <li>Spatial identity</li> <li>Sense of belonging</li> <li>People participation</li> <li>Lack of unique pattern</li> <li>Challenging the mind of audience</li> <li>Restoring relationships and site performance</li> <li>Relationship between site and the structure of city</li> <li>Correlation between art and engineering</li> <li>Function appropriate with contemporary needs</li> <li>Attractive function</li> <li>Harmony of technology and nature</li> </ul>	<p>High line park in New York City, James Coroner, Diller Scofidio, Renfro and Piet Ouldorf</p> 	<p>high line- rail way, 1999</p> 
<ul style="list-style-type: none"> <li>Relationship between site and the structure of city</li> <li>Correlation between art and engineering</li> <li>Lack of unique pattern</li> <li>Challenging the mind of audience</li> <li>Connecting memory with object and place</li> <li>Sense of belonging</li> <li>People participation</li> <li>function appropriate with contemporary needs</li> <li>Attractive functions</li> <li>Cultural perspective</li> <li>Spatial identity</li> <li>Restoring relationships and site performance</li> </ul>	<p>Into public places such as amphitheater, restaurant, aquarium, ... Latzoo et al</p>  	<p>Two cooling ponds at the former sulfur factory in Germany</p> 
<ul style="list-style-type: none"> <li>Spatial identity</li> <li>connecting memory with objects and place</li> <li>sense of belonging</li> <li>people participation</li> <li>restoring relationships and site performance</li> <li>relationship between site and the structure of city</li> <li>correlation between art and engineering</li> <li>function appropriate with contemporary needs</li> </ul>	<p>Seattle gas park, washington, Richrd Heg</p> 	<p>Gas Plant in Seattle</p> 



**Table 4:** analysis and investigating of adapted industrial heritage case studies of Iran, sourced writers In the following, in order to study the potential of industrial heritage in Iran and constructive components of the adaptive landscape using an adaptive method, we will examine the constructive components of adaptive landscape in relation to the post-industrial landscape of Khuzestan (as a case study) in Iran.

adaptive components taken from case study analysis in Iran	After adaptation	Before adaptation
<ul style="list-style-type: none"> <li>connecting memory with objects and place</li> <li>sense of belonging</li> <li>people participation</li> <li>relationship between site and the structure of city</li> <li>spatial identity</li> <li>creating a clear sense of the past</li> </ul>	<p>Into a museum, gallery, coffee shop, collective green space</p> 	<p>Textile factory (Tar-o-Poode Shiraz)</p> 
<ul style="list-style-type: none"> <li>Sense of belonging</li> <li>Connecting memory with objects and place</li> <li>People participation</li> <li>Relationship between site and the structure of city</li> <li>Spatial identity</li> <li>Creating clear sense of the past</li> </ul>	<p>into a meuseum(not implemented yet)</p> 	<p>Risbof factory, Isfahan</p> 









### 5.Khuzestan Oil Industry; Case Study of Industrial Heritage in Iran

Considering the history of Iran during the industry period, we are now faced with a wide and left collection of industrial heritage that once was an important part of human life. Among the examples of valuable industrial heritage in Iran, it can refer to the Khuzestan oil industry, such as the first oil well in Naftoon, pumphouses, Water Supply Facility of the Naftoon, the Tumbai boosting Pressure Pumphouse, the Masjed Soleyman Pipeline to Abadan, the Abadan Refinery, Kot Abdullah Oil Pumphouse, Darkhovin pumphouse.

**Table 5:** adaptive comparison between post-industrial heritage in oil industry of Khuzestan and suggested functions, sourced by writers

Suggested function	Adapted samples	Future suggestions due to analysis and investigation	Criteria	Current images	Remained works
Outdoor and natural resources parks-garden of the museum		As a jump platform for upgrading urban public spaces	Cultural values (identity) Emotional values (collective memory)		The first oil well of the middle east in the Nafton square



Outdoor and urban parks		Integration and exchange between environmental (natural) and substructure systems (engineered)	Cultural values Emotional values		Bi-Bayan refinery, sulfurization
May be changed into replanned industrial buildings		Integration between environmental and substructure systems in order to reach a post-industrial urban landscape	Cultural values Emotional values		Masjed Soleiman distillation plant
It can be changed into commercial and cultural or replanned buildings		The site has the potential to become a prototype and productive sample for a post-industrial urban landscape	Cultural values Emotional values		DarKhomein petroleum pump plant, near Abadan
It can be changed into replanned industrial buildings		The site has the potential to become a post-industry urban landscape	Cultural values Emotional values		Bi-Bayan Petroleum pump plant no. 9, Masjed Soleiman

**Table 6:** adaptive comparison between post-industrial heritage inside and outside of Iran and adaptation constructive components, sourced by writers

Investigated samples outside of Iran (Latez, Richard Heg, Vest, Megg Smitt, Jamez, Coroner, ...)	Industrial heritage in oil industry of Khuzestan (potentials)	Investigated sample (textile plant of Shiraz)	Constructive components	Sub-criteria	Adaptive perspective criteria
+	+	+	Cultural perspective	Identity	Cultural values
+	+	+	Spatial identity		
+	+	+	Creating clear sense of the past	Collective memory	Emotional values
+	+	-	Challenging the mind of the audience		
+	+	+	Connecting memory with objects and place		
+	+	+	Sense of belonging		
+	+	+	People participation		

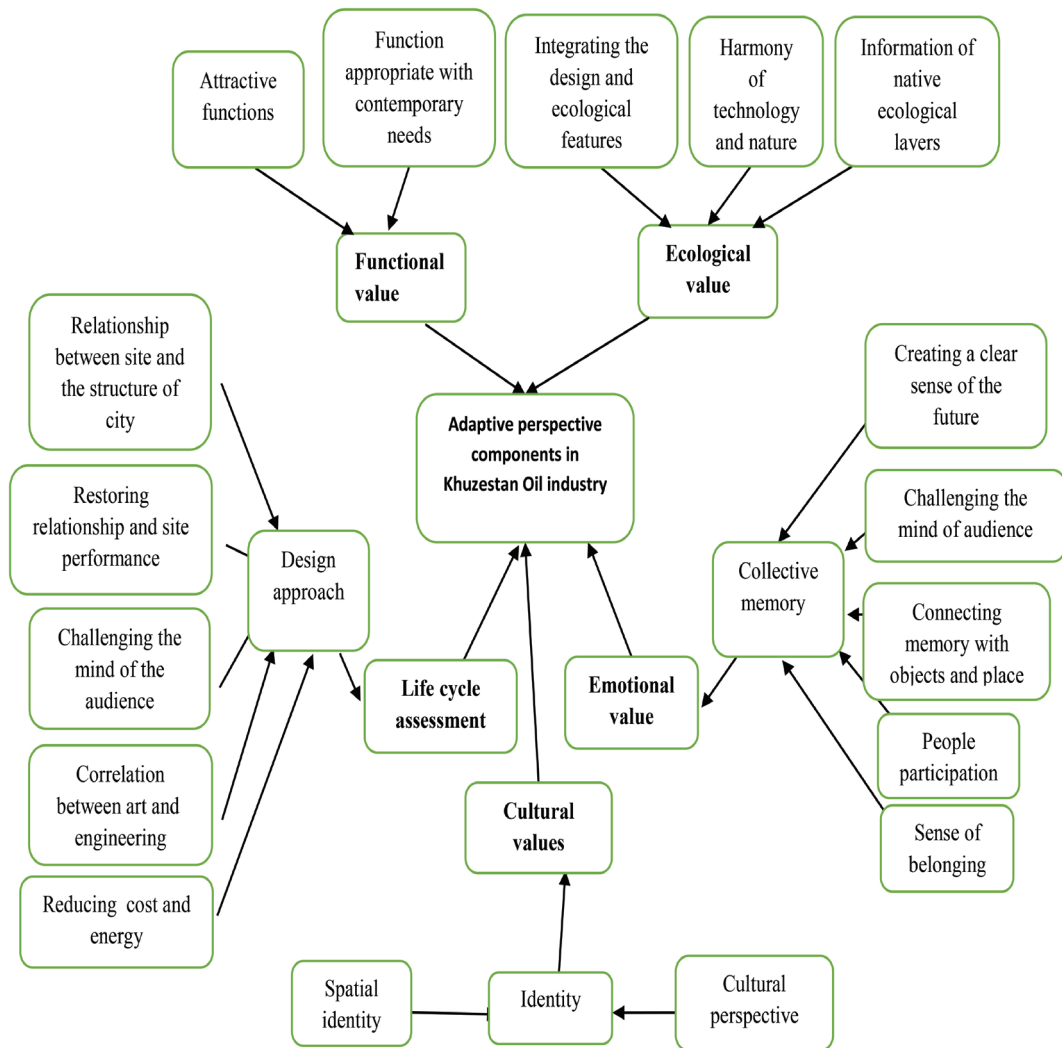
+	+	-	Restoring relationships and site performance	Design approach	Evaluating life cycle
+	+	+	Relationship between site and the structure of city		
+	+	-	Challenging the mind of the audience		
+	+	-	Reducing cost and energy		
+	+	-	Correlation between art and engineering		
+	+	-	function appropriate with contemporary needs	function value	
+	+	-	Attractive functions		
+	+	-	Information of native ecological layers	Ecological values	
+	+	-	Harmony of technology and nature		
+	+	-	Integrating the design and ecological features		

In our studies, we have found that paying attention to the landscape and Khuzestan's industrial heritage together could lead to the renovation of the urban public spaces and also by creating a diverse new application in conformity to contemporary needs causes a link between the cultural, economic and social bed. On the other hand, industrial heritage of Khuzestan has many potential for becoming a post-industrial urban landscape, as well as employment as well as new uses for the promotion of collective identity and memories. Therefore, the landscape and industrial heritage of Khuzestan together not only can be considered as a prototype and producer for a post-industrial urban landscape, but also by changing all-round repurposing as well as a holistic view of the landscape and industrial heritage can be considered as the adaptive landscape of the missing link between landscape and industrial heritage in Iran.

## 6. Discussion and Conclusion

Today, the post-industrial landscape is regarded as an accepted principle in the development of cities. Life-giving projects in industrial areas should pursue the principles of design that follow sustainability, reduction of the negative impact of living and economic benefits, social monopolies, and better quality of life.

Adaptability and compatibility are considered as a way of environmental stability and the revival of the industrial heritage, so the viewing of the landscape and the industrial heritage with each other is very important in the repurposing and underlining of the adaptability. repurposing should be considered more thoroughly and comprehensively as changes are made. In such a situation, industrial heritage can be considered as a producer for a post-industrial urban landscape in compatible with contemporary needs and linker the cultural, economic, and social context, and can include the adaptive reuse landscape components such as cultural values, identities, collective memories, and etc. Therefore, by making changes in repurposing and a holistic and comprehensive look at the subject, one can take a step in the direction of adaptive landscape in link with the industrial heritage and create a jump platform for renovating the urban public spaces.



**Diagram 2:** final model for relationships between adaptive perspective components in oil industry of Khuzestan

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## Requirements for comprehensive management of industrial heritage sites and landscapes

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### Abstract

Industrial heritage has become a very matter of debate among experts as the most significant reminder of the industrial era, it also is of great examples of 20th-century heritage. Nowadays, industrial heritage sites are suffering from intense physical conditions and are being intruded by massive economic projects since they are located in favorable places of towns and possess vast spaces. Conservation methods have mostly been limited to the surroundings of industrial heritage sites and have not considered the extended areas connected to the site. The resolutions should be sought throughout these questions: How do outstanding values of an industrial heritage site affect its buffer zone mapping? Or what should a buffer zone map encompass to protect specific values of an industrial heritage site?

During this research ample of evidence is seen which firstly depicts the appreciation of industrial heritage and the tendency to conserve them among the host countries. The main result concluded is a guideline based on the similarities and differences between various types of industrial heritage and their impacts on determining boundaries and zones. In case of increasing the number of case studies, the results of this paper can aid in charge organizations to take more effective measure in developing plans to determine boundaries and zones for different types of industrial heritage sites. The data gathered for this paper was collected through library resources about industrial heritage and basically from academic and universal management manuals of buffer zones. The information chiefly is adopted from registration files received by the world heritage committee of UNESCO. The method of this research is case study research and the method for analysis is descriptive-analytical.

**Keywords:** Industrial Heritage, Boundary, Protected zone, Buffer zone, World Heritage list

## 1. Introduction

Industrial heritage as a relatively recent phenomenon is the production of the 20<sup>th</sup> century. The industrial heritage represents the culture, historical situation, processes, technologies and outstanding achievements of each region. Industrial heritage buildings are an important part of developing countries' communities and provide a valuable glimpse of their industrial identity. To move toward a more sustainable society, demolition of these culturally and historically significant buildings is hard to be justified (Rosado Correia and Walliman, 2014, Samadzadehyazdi et al., 2018). Despite this heritage is a selective reflection of what history has chosen to remain stable over time and all the cultural aspects of past societies cannot be understood based on that, it is still the best way to interpret the past situation of the societies (Graham et al., 2000, Fan and Xu, 2013). Accorded to the value of contemporary architecture, it is necessary to protect them. Thorough protection of heritage properties should begin from outside of the surroundings. For the proper conservation of a cultural or natural property nominated, an adequate "buffer zone" around a property should be foreseen and should be afforded the necessary protection, according to The Operational Guidelines for the Implementation of the World Heritage Convention (1980). Until the last decade or so, the definition of the boundaries of industrial heritage properties was a rather cursory exercise. In some cases, State Parties drew boundaries fairly tightly, wishing only to include features which could be argued to support or carry outstanding universal values (OUV) directly. In some cases, the boundaries were drawn more loosely, often in relation to the former historic extent of the place (in recognition of latent heritage values). In other cases, boundaries were chosen to correspond precisely to the zones of the jurisdiction of responsible authorities. Buffer zones – where defined – were often established in an even more cursory or arbitrary fashion.

On the other hand, in this post-industrial era that population and the number of constructions are very crucial, determining boundaries and zones for industrial heritage plays a vital role in the protection of these sites. This issue was regarded as one of the predominant conservation indicators in the field of cultural heritage management in the 20th century. Despite this importance, accurate determining boundaries and zones for worthwhile sites of industrial heritage have not attracted adequate attention from conservationists.

Determining boundaries and zones for industrial heritage sites, in fact, is a guarantee of comprehensive protection for these sites. In order to reach an effective solution for dealing with the issues outside the property and protect the site from their harms, the matter should be seen from different perspectives such as visual, functional, economic, social and etc. Concerning the minute works in this category, there is still a long way to be paved to reach "guidelines for determining boundaries and zones for industrial heritage sites". Fortunately, there are notable examples of zoning for industrial heritage sites registered on the world heritage list. Most of them are from European countries and the exercises are various enough to be categorized in different types of industrial heritage for instance mining, transportation facilities, factories and etc.

## 2. Methodology

The main research method used in this paper is a mixture of the descriptive-analytical method, Content analysis, and case study method. To carry out these methods the interdisciplinary knowledge of architecture, heritage studies, and restoration is used. Many cases were studied to understand the hidden pattern for determining boundaries for each group. They are accurately analyzed



by using content analysis method and in order to have a comprehensive understanding of boundaries and the way they are determined, a descriptive-analytical method is used. This research is categorized as both evaluation research and applied research.

### 3. Literature Review

#### 3.1. Cultural heritage:

According to the world heritage convention, cultural heritage is constituted of the following different factors:

- **Monuments:** Architectural artworks, paintings, statues, constructions with archaeological natures, inscriptions, cave houses, and a combination of mentioned cases with a universal value in historical, artistic, or scientific viewpoints.
- **Group of Buildings:** A group of connected or separated buildings with a universal value in historical, artistic, or scientific viewpoints due to their architectures, integrations, or positions.
- **Sites:** Artefacts or a combination of human's artworks, environment, and archaeological areas that have a significant universal value in historical, artistic, ethnological, and anthropological viewpoints
- **Cultural Landscape:** Cultural landscape includes cultural heritages that are of "A Combination of Human's Artworks and Environment", in accordance with the convention art1. These landscapes indicate the evolution of human society and their habitation during the passing of time; also, they are influenced by constraints, physical and natural opportunities, and sequential domestic or foreign social, economic, and cultural powers based on the Convention of UNESCO Concerning the Protection of the World Cultural and Natural Heritage (1972).

Nowadays, comprehensive environmental restoration and conservation are considered new discussions in the field of historic conservation. Considering the field of environmental protection, monuments are evaluated in a broader scope of "cultural position", while ancient monuments, ruins, and antiquities are considered parts of environmental components in the scope of the cultural landscape. According to this new discussion, historical components are conserved and preserved alongside the region's environmental and ecological factors. Therefore, detecting and clarifying the region's natural characteristics including height features, agricultural lands, rivers, springs, aqueducts, streams, vegetation, other natural factors, traces of human activities including patterns and approaches of architectural constructions, and accessing paths provide suitable approaches of determining the boundary of cultural landscapes and therefore, presents accurate criteria and principles of environmental conservation.

#### 3.2. Cultural heritage boundaries:

**Property (Core zone):** The property or the core zone is a historic site, which is determined by the custodian in order to ensure its durability and includes special criteria to protect the artwork. Core Zone tends to be inhibitive; and on the other hand, it is considered an exhortative. It is inhibitive because it saves the artwork's integration and existence, and clarifies its combination with other existences; however, it is exhortative since it becomes meaningful when it combines with things existed in the environment (see Fig 1.)

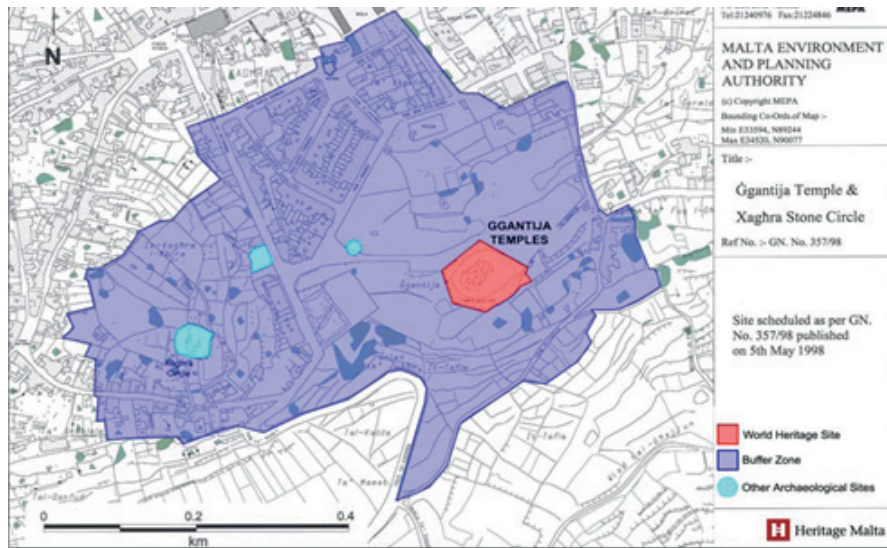


Figure 1. The property of Megalithic Temples of Malta, Malta; (Megalithic Temples of Malta 2015)

**Buffer Zone:** To protect the suggested site, the buffer zone is defined in the form of an area around the site in which functions and developments are based on legal (or traditional) supplemental factors in order to create an additional protective layer (see Fig 2.). This boundary should contain an inseparable environment of the suggested site, important views, other bounds, and characteristics that are very important in order to carry out the process of preservation. The buffer bound must be determined in every case based on suitable mechanisms. While offering the site, its characteristics, detailed dimensions, permitted applications, and the plan in which its bounds and buffer bounds are accurately determined should be presented based on the Convention of UNESCO Concerning the Protection of the World Cultural and Natural Heritage (1972).

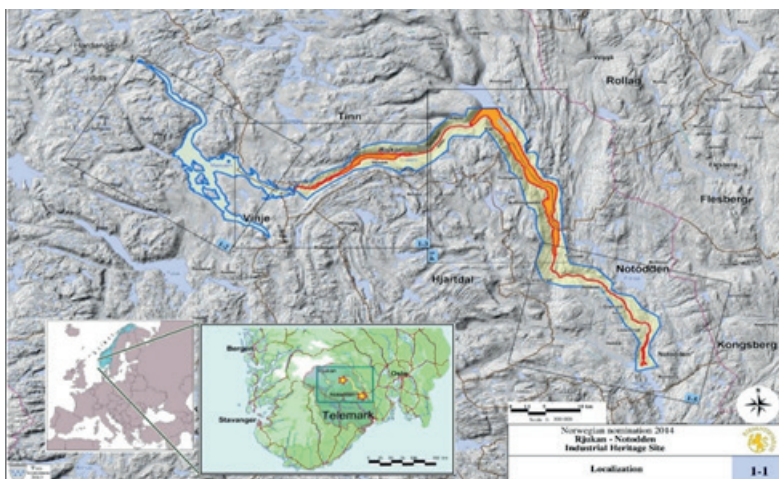


Figure 2. The plan of determination of the property and the buffer zone of Rjukan-Notodden Industrial Heritage Site, Norway; (Rjukan-Notodden Industrial Heritage Site 2015)

**Extended Boundaries (optional):** Determination of these boundaries in some cases is considered for better protection.

**The Appearance of site Boundaries:** The appearance of the site is bound or boundaries that are accurately defined and determined in the plan. Number and extension of the boundaries depend on the site's characteristics and the environment; however, they are determined after the following investigations:

1. site's status regarding aesthetical, historic, and technical characteristics;
2. site's buffer zone and the form of its development considering archaeological, historic, architectural, technical, and economic characteristics;
3. Evaluation of a wider boundary regarding urban infrastructures, livelihood, and site's position in the life of its region;
4. The existence of a reciprocity visual connection between the site and the environment;
5. Historic paths and the type of land distribution existed around it;
6. Assessment of the site's practical and potential losses, and its connection with artificial and natural environments after performing mentioned assessments. Boundaries included criteria for conservation the historic site are determined. In the next step, boundaries with identical criteria are distinguished and depicted on the map.

#### 4. Classification of industrial heritage

Industrial buildings are one of the important building typologies which demonstrate the technological development of the country through their architecture. The Nizhny Tagil Charter (2003) for The Industrial Heritage defines them as remains of industrial culture which are of historical, technological, social, architectural, or scientific value. These remains consist of buildings and machinery; workshops, mills, and factories; mines and sites for processing and refining warehouses and stores; places where energy is generated, transmitted, and used; transport and all its infrastructure; as well as places used for social activities related to industry such as housing, religious worship, or education. Industrial sites are often brownfields. A brownfield is an abandoned or under-used industrial facility where redevelopment is complicated by environmental contamination. Reusing brownfield sites in preference to green ones has been the central focus of urban development in Britain since the 1990s (Yanbin, 2014). International conventions represent the principles of the conservation of industrial heritage (Table 1).

**Table 1.** International conventions of industrial heritage (Samadzadehyazdi et al., 2018)

time	The event		place
	Convention name	Main content	
1931	Athens charter (Published by CIAM)	The protection of historical buildings	Athens
1964	Venice charter (Published by ICOM)	The qualitative aspect of historical buildings, including definitions, protection, restoration, historical sites, excavation, and publication	Venice
1950 - 1960s	The beginning of the transformation of dilapidated industrial heritage		The United States

1960-1970s	Moving from industrial age to the post-industrial age; The traditional industry declined, the scale of transformation expanded and the means of transformation became more flexible	---
1976	Nairobi recommendation (Published by UNESCO)	The protection of sites, towns, and villages Nairobi
1977	Machu Picchu charter (Published by CIAM)	The protection of historical monuments and traditional cultures Lima
1987	Washington charter (Published by ICOMOS)	The protection of historical towns and traditional residential areas Washington
1996	The Barcelona international building association	The protection, management, and regeneration of city-abandoned areas Barcelona
2003	Nizhny Tagil charter (Published by TICCIH)	The definition of value, as well as the identification and conservation measures of the industrial heritage N i z h n y Tagil
2011	Dublin principles (Published by ICOMOS)	The importance of both tangible and non-material heritages Paris
2012	Taipei declaration (Published by TICCIH)	Focusing on Asian industrial heritage Taipei

One of the prerequisites of the protection of industrial heritage is recognizing their value and their position. Proper protection of industrial heritage needs to study and deep understanding it in a large-scale and recognition of the value of the heritage for conservation process, in a regional scale (Mahdavinejad et al., 2016). In order to have a better understanding of Industrial Heritage, there is a classification system developed by the Historic American Engineering Record (HAER) which is very useful. This system will be used for this analysis. The Industrial Structures Classification System shows 10 sub-categories (Falser, 2001):

1. Extractive Industries (e.g. Ore- or Gold-mining)
2. Bulk Products Industries (e.g. Primary Metal Industries)
3. Manufacturing Industries (e.g. Machine Manufacture)
4. Utilities (e.g. Water Supply, Electricity)
5. Power Sources and Prime Movers (e.g. Water wheels, Steam turbines)
6. Transportation (e.g. Railroads, Canals, Harbour)
7. Communication (e.g. Radio, Telephone)
8. Bridges, Trestles, Aqueducts
9. Building Technology ( Roof systems, Fenestration)
10. Specialized Structures / Objects (e.g. Dams, Tunnels, Hydraulic works) (Bowie, 1985, Yanbin, 2014)

## 5. Industrial heritage boundaries analysis

In this part, each category is analyzed as if there is a World Heritage nomination in it. In this situation, property and buffer zone are analyzed to find out the principles which based on them these boundaries are determined. On the other hand, we propose some principals for other categories which don't have any world heritage site in them.

### 5.1. Extractive industries:

The function of this kind of industrial heritage at the present time (if they are functional) is crucial in the property and also buffer zone mapping of extractive industries. Also, an additional part is determined in addition to the area of mine (or oil well or oil facilities) location, machinery, and required structures in order to have a better situation associated with tourism and a better introduction of heritage. Controller instructions are deterrent in the property and are distracting in the buffer zone for new constructions, excavations, and explorations.

In the determination of property, the key point is to consider the access path and construction or machinery elements that were directly related to the property. According to the extractive resources, underground circumstances and their usages have been investigated carefully. Also, within the process of codifying instructions for the property and the buffer zone, irrelevant new constructions have been controlled in addition to protecting the communication paths which exist between elements of the extractive industry. The main focus is on activities that have a vital impact on the industrial life in the buffer zone, however, these activities have been controlled. Criteria are mostly recommendatory but strict and imperative for in-danger cases including; high-rise building. At these sites excavation in the case of the functionality of the site at the present time is inevitable and the instructions only control it not to harm the heritage.

### 5.2. Bulk products industries:

The location of this category is seemed to be the predominant item in the formation of the property and buffer zone. Indeed, after basic investigations, it is crystal clear that the property in this category is equal to the area mentioned in their documents. Consequently, for the cases which include a series of outspread buildings, the property encompasses buildings and connective paths between them.

According to the high potential of bulk products industries for the revitalization of the neighborhood, the controller instructions not only are deterrent to any change but also helpful for better adaptive re-use. The property where the factory buildings are located in is of great importance and this encompasses a larger area for the factories with scattered buildings. Type and the scale of function and the way materials import in these factories is the key point to form of the property and also the buffer zone. For instance, in a textile factory which is included spread buildings, apart from constructions the communication paths are a part of the property as well. In the determination of the buffer zone for this category an area where the factory has a direct impact on is very important and consequently, constructions which are in harmony with characteristics of existing site are acceptable.

### 5.3. Manufacturing industries:

This category is very close to the bulk products industry in term of the way that the property and the buffer zone are determined. In fact, since manufacturing industries sites, mostly have a large scale and their buildings are scattered in their sites, the whole area is considered the property. Similarly, due to the wide impact of this category on the neighborhood, the buffer zone is determined largely. The access roads to transform the production or import the material in some cases are on the property and in other cases are in the buffer zone. This difference rooted in the characteristic of the road and the fact that how strong these access roads are linked to the property. In case of the functionality of these sites at the present time, new constructions in property are

very limited and restoration and reconstruction are recommended instead. Also In the buffer zone instructions are very convenient and open to the controlled new constructions.

#### 5.4. Utilities:

The current operations of utilities are highly considered in determining their property. Property lines contain the buildings, linking paths, elevators, transportation machinery, and related elements. Instructions of the property prevent constructions and permit activities if the heritage is still in progress. Buffer zone boundaries of utilities contain their campuses and access paths. Instructions aim to control construction and prevent high-rise buildings. It is possible to carry out economic activities in the buffer zone with controlled content. Lines of the landscape zone include a broad part of utility environment, these lines, also, can include waterfronts (if they are near the utilities), roads, terminals, and urban areas. Instructions of the landscape zone control high-rise building, establishing factories and performing pollutant activities.

#### 5.5. Power Sources and Prime Movers:

Since most of the cases are not functional in this category boundary of the property can be determined by the remains of the structures. In spread cases, the functional spaces (such as campuses) between buildings should also be included in the property. Instructions aim to prevent excavations and heavy industrial operations inside the property but related functions are welcome through adaptive reuse schemes.

Buffer zone boundaries include related quarters, accessing paths and waterfronts (in related cases) in order to preserve the functional history of the site. Instructions are codified to maintain the industrial connections between the sources and the society hence preventing high-rise building and controlling new constructions are appreciated. Landscape zone visually preserves the site's perspective and guarantees the main role of the site in shaping the quarters, thus it includes all the related quarters and natural elements and its instructions prevent visual obstacles, heavy industrial operations and polluting activities.

#### 5.6. Transportation industry:

**Railway and roads:** Considering the determination of property and boundaries of transportation industries, the property encompasses the whole path determined by railways and roads, shoulders are also included in the determination of boundaries. Tunnels, stations, and bridges located on the lines or even near the boundaries are of inseparable part of the transportation system. Executive criteria of the railway's property carry out accurate control in order to prevent irrelevant constructions. According to this industry's function, the required measures like restorations are highly appreciated. A suitable border is considered on both sides of the rail or road for the buffer zone, however, minute construction, shallow excavation, and planting trees are not prohibited in this border. Within the process of determination for tunnels and constructions related to transportation systems, the buffer zone contains parts of the buildings and their area in which constructions are highly monitored, developments on the buildings are also prohibited. It is attempted in a landscape zone to protect railways' landscapes including valleys, rivers, heights, etc. In order to prevent environmental damages or harmful activities.

**Harbors:** The main point in determining core zones and boundaries of harbors and waterfronts seemed to be the recognition of valuable sections of the heritage in harbors, waterfronts, and off-

shore installations. The property contains the buildings and parts of their context (according to its location). Also, executive instructions of the property try to be deterrent through the prohibition of new constructions, excavations, or locating visual obstacles. However, new constructions can be appreciated by holding special meetings if there is no solution considering economic activities. Buffer zone boundary determines sea borders, banks and significant parts of the historical harbor, and shows that the element's direct relationship connects the city and the sea. Instructions are based on the prohibition of constructions and excavations and preserve connective paths of the elements. According to economic activities, new constructions by holding special meetings is allowed if there was not a solution. The landscape zone contains significant parts of the sea, urban areas, and the coastline in order to be able to control the landscape and the view. Also, instructions attempt to control the height, components, and the type of buildings' functions in order to provide better conditions for the industrial landscape.

### **5.7. Communication infrastructures:**

According to the diversity of buildings in this category, it is hard to generalize the determination process of the property and buffer zone for communication infrastructures. But in general, in most cases, the property includes the infrastructure and in a few cases, landscape and surroundings are also in the zone. It is notable that the controller instructions in the property (in functional sites) would not prohibit new constructions as long as they are in harmony with the existing buildings. The property contains buildings, access paths, some of the adjacent plots (if they are related to the station) and also the possible resources are applied in these infrastructures. Just like most of the industrial heritage, deep excavations and heavy constructions are prohibited in general. Also, the instructions in the buffer zone limit excavations and constructions and try to control these processes. The principal item which has been taken into account is the fact that, since these sites are technology-oriented, new construction is inevitable. This is why the instruction for this category is a bit convenient and even might lead to the construction of some high-rise buildings.

### **5.8. Bridges, Trestles, and Aqueducts:**

The property should include all pieces of the bridges, trestles, aqueducts, and lands located on the outset and end parts of this type of heritage. It is noted that prohibition of construction and mounting heavy installations are of great necessity. Also, their boundaries include streets or pathways that lead to bridges, trestles, and aqueducts. Buildings located adjacent to the avenues; however, and essentially the river are observed in the buffer zone.

Instructions of the buffer zone are codified by using a proper vision include the prohibition of construction on the coastlines and limiting river-related activities. The bridge's view (from and to the bridge, trestle, and aqueduct) is investigated carefully in order to keep the industrial landscape in the determination of the landscape zone. Instructions essentially prevent high-rise buildings and prohibit activities that lead to the pollution of rivers and piers.

### 5.9. Building Technology:

Concerning the variety of functions and cases, building technologies are redefined through case studies. Building technologies used in industrial heritage are chiefly modern technologies such as framed structures, mass structures and even details in which the technology played a significant role. Considering the conditions of the structures, zones for building technologies should be determined based on the category of industrial heritage. Since these technologies are mostly visible from detailed perspectives, property zones should protect elevations and technological details of the building thoroughly. For the importance of the building technologies, the instructions should prevent any kind of developments in property zones and revitalizations and adaptive reuse operations should be highly monitored.

Buffer zones and landscape zones are determined based on the category. For the importance of the structural views of the heritage, all the constructions in the zones should be checked by the experts

### 5.10. Specialized Structures:

**Dams and hydraulic structures:** According to the necessity of technical and industrial activities associated with specialized structures like dams and hydraulic structures the property includes all the buildings and some parts of the bed; also, in some cases, it includes special boundaries of the coast and maritime boundary. The instruction of the property prevent constructional activities but allows technical activities. The key factor in instructions of these sites is the fact that functionality is pretty vital and that is why instructions are convenient.

The buffer zone also contains a very large area which is influenced by this industrial site and due to its size, execution of the restrictive instruction is next to impossible. To avoid these conflicts, instructions are convenient in this area. In case of environmental issues, recreational activities, including aquatic sports and fishing, are acceptable in the property as long as they are not hazardous for the ecosystem. The river flow is also very important before and after its importation to the dam and some features of the river are preserved include coastline.

**Workers houses:** in determining the property of workers houses their expansion and diversity of applications have been taken into account. All of the buildings located in the town associated with internal accesses (in addition to service, recreational, and athletic buildings) is considered the part of the property. The important point about residential towns is the permission of restoration in the property and limited and controlled new constructions. However, these new constructions should be in harmony with the architecture pattern of existing buildings. The main problem about the property is preventing different dangers and pollutions for the residential town and its residents. However, it has been recommended that residential town's access is considered a part of the property in order to prevent its ignorance. In spite, the lack of special instruction for buffer zones for all cases, the prevention of pollutant industries and activities has been noted. However, construction any construction which may lead to visual obstacles is prohibited in the buffer zone.

### 6. Conclusion

Although there has been an inclination towards clarification of the terms related to buffer zones and property zone of cultural heritage in general among experts, it is not adequate due to the number of in danger sites. In case of formal legal terms, there is the need to distinguish the inscribed



World Heritage Property, which is the area that contains the outstanding universal value (OUV) as defined in the Operational Guidelines, and the World Heritage buffer zone.

However, due to the short history of industrial heritage in term of world heritage list, these boundaries did not follow any specific rule. In this situation considering the wide range of sites which known as industrial heritage, classification is pretty necessary for a proper understanding and comprehensive protection as well. Renowned classification is used and for each category based on case study analysis, the focal points of the process of determination of property zone and buffer zone are extracted. A consistent set of terminology used within the World Heritage system for industrial heritage is required for use by State Parties, the World Heritage Centre, the Advisory Bodies, and others involved in World Heritage activities. In term of determination the property for each category of industrial heritage, it should be analyzed accurately because the condition for each category is quite different and that is why the instruction for determining the property zone and the buffer zone are categorized into 10 categories (based on the classification of industrial heritage).

Nevertheless, the property zone always encompasses the main evidence and the machinery and building which have outstanding universal values. Also, Observation and analysis indicated that the buffer zone is a useful tool to address external threats and opportunities for industrial sites due to the fact that some of them are functional at the present time. Furthermore, in general, determination process of property zone and also buffer zone for cultural heritage, the buffer zone will not address every threat or respond to every opportunity or issue as some of these will come from beyond the buffer zone, but this is a focal point in the determination of buffer zones for industrial sites undoubtedly. Apart from that, landscape zones may be useful for certain sites that might not have clear limits and boundaries of the area of Influence, but where anything in the area that impacts the World Heritage property would need to be considered. Considering all of these facts, this proposal for determining property zone and also a buffer zone for each category of industrial heritage is very crucial and it could be included in the UNESCO Operational Guidelines.

Table 2. Conclusion of case study analysis

No.	category	Case studies	property	Buffer zone	General form	Level of changes allowed
1	Extractive industries	Wallonia mines in Belgium Slovakia Banska Stiavnica Brazil Historic Town of Ouro Preto	Mines, wells, first-class access paths, machinery elements	Relevant environment	Central	Mid-range
2	Bulk products industries	Van Nellefabriek Factory Neartherland Germany Volklingen Ironworks Sweden Engelsberg Ironworks	functional building and their accesses	All related neighborhood and transportation paths nearby	Geometrical central	Mid-range
3	Manufacturing industries	Fagus Factory Germany Italy Ivrea, the industrial city of the 20th century	functional building and their accesses	All related neighborhood and transportation paths nearby	Geometrical	High
4	utilities	Netherlands Noordoostpolder (pump stations)	complex of buildings	Protecting the connection between the site and the context architecture	Geometrical	High
5	Power Sources and Prime Movers	Syria Noréas de Hama	Machinery, infrastructures, buildings	Related buildings and houses	Central	High
6	transportation	Bordeaux in France Liverpool in England Austria Semmering Railway Rhaetian railways	Paths-railways-stations and direct-related buildings	Guarantees the functionality of the site	linear	Low
7	communication	Varberg Radio Station in Sweden	Buildings and infrastructures	Guarantees the functionality of the site	Central	Mid-range
8	Bridges, Trestles, Aqueducts	Vizcaya Bridge in Spain UK Ironbridge Gorge Forth Bridge in Scotland	Structure buildings Urban characteristics	Urban focal points near the structure	Linear geometrical	Low
9	Building Technology		The whole structure	Relevant buildings	varied	Low
10	Specialized Structures	Belgium The Four Lifts on the Canal du Centre Netherlands D.F.Woudagemaal	Machinery, infrastructures, buildings	Guarantees the functionality of the site	Geometrical	High

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## The Impact of German Werkbund on Modernization in Iran

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### Abstract

Industrial transformation in Germany pointed Werkbund, which was formed in 1907 by the group of artists, industrialists, politics and architects in Munich, caused Bauhaus to come into existence resulting Germany to be one of the most influential countries to export the modernization to the whole world. The main aim of this paper is studying how German Werkbund as one of the biggest penetrations rooted on the evolvement of specialized schools and modernization of architecture that have accrued at the beginning of the 20th century in Iran. In this regard, this paper begins with reading and analyzing international documents and theories related to the Werkbund. Based on the research, the qualitative research methodology is chosen and with applying logical reasoning strategy as well as “content analysis” and “logical inference”. Moreover, reading and evidential observation based on books, papers and authentic documents are used as research tools. Regarding to methodology, the transition to new manufacturing processes had started in Europe and the US since 1760. However, in the mid-19th the Arts and Crafts movement emanated from the attempt to reform design. Near to the end of the Qajar dynasty, not only was Iran’s relationship with Europe greatly expanded, but also with the rise of Iran’s constitutional parliament, in 1906 and the fall of Qajar in 1925, as well as commencement of Reza Shah Pahlavi’s reign, modern structures began to replace. This paper seeks to explore and develop the Werkbund’s formation in Germany and its footprints on the occurrence of specialized schools and modern architecture in Iran.

**Keywords.** Bauhaus, Education, Germany, Iran, Modernization, Werkbund

## 1. Introduction

Formation of Werkbund in 1907 caused the establishment of many technical schools in Germany. This vast and rapid industrialization and modernization posed an enormous threat to the national culture of the country (Campbell, 1978). The effect of Werkbund didn't only remain in Germany and Europe and in this article, we investigate how it had an impact on Iran during Iran's destination to modernization. This is fundamental research and uses descriptive-analytical and comparative method to explain the subject and benefits from library resources and documents to gather data and information. In this research, an effort has been made to create ties between the werkbund foundation and its effects on the formation of industrial schools in Iran. Henceforth, it requires first to work on some basic historical information of Werkbund and to give its perspective some background, the transition from handicrafts to new manufacturing. The main question and aim of this research are presented in the form of research design as below. [Figure 1]

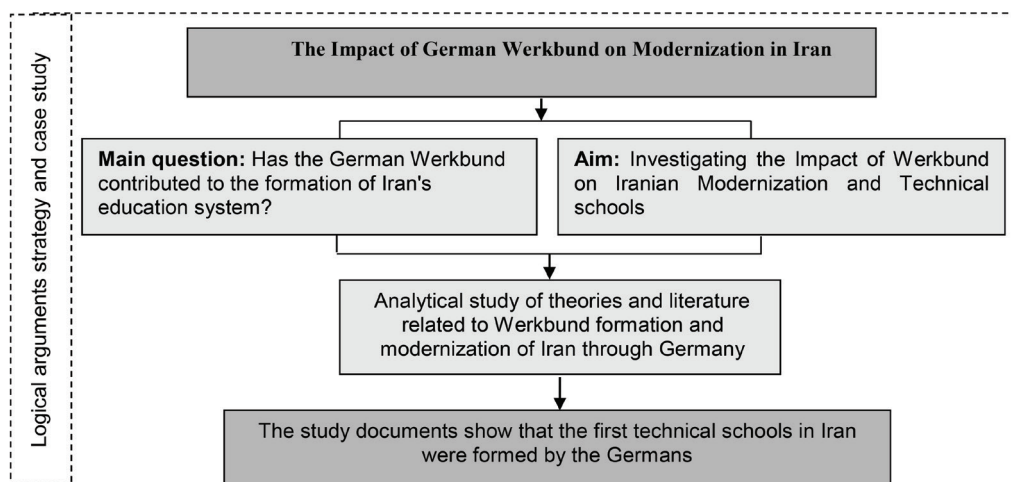


Figure1. The research design introduces the main stage of the study, its contents, the relationship and hierarchy of the subject (Reference: Authors)

## 2. Literature Review

The first Industrial Revolution occurred in the 18th century in Britain and the rest of Europe, also, in the US. It is an important milestone in history, which can be shown in almost every aspect of everyday life. However, in mid-nineteenth century design reformers merged. William Morris the main protagonist of Arts and Crafts during the industrial revolution era tried to create a space that craftsman could mechanize their product to improve the quality of industrialization which had been naïve (Whitford, 1984; Banham, 1980). The senesce of architect's responsibility to the society in which he finds himself, an idea of largely English extraction, from Pugin, Ruskin, and Morris, was summed up in an organization founded in 1907, the Deutscher Werkbund. Also, the Rationalist, or structural approach to architecture, again of English extraction, from Willis, but elaborated in France by Viollet- Le – Duc, and codified in August Choisy's magisterial Historian at the very end of the century, though parallel tradition in Germany has no major exponent after Gottfried Semper; and next, the tradition of academic instruction, worldwide in distribution, but owing most of its energy and authority to the Ecole des Beaux – Art in Paris, from which they

emerged (Banham,1980; Pevsner, 2005 ).

### **2. 1. Industrial Revolution:**

The Industrial Revolution, which happened during the 18th to 19th centuries, was the period of industrialization and urbanization of agrarian, rural societies in Europe and America. The first Industrial Revolution, which took place in Britain in the late 1700s, caused a shift from manufacturing being done at home to factories and subsequently, mass production. Although industrialization and mass production brought a variety of manufactured goods, the quality of production was not considered much. On the other hand, the Industrial Revolution improved the standard of living, especially for middle and poor classes.

### **2.2. Arts and Crafts, William Morris:**

The Arts and Crafts movement emanated from all efforts to reform design and decoration, resulting in mass production caused by the Industrial Revolution in the mid-nineteenth century in Britain. The development of new technologies that changed the world. It was a reaction against a significant decrease of quality in standards that the reformers associated with machinery and factory production. They criticized sharply the production shown in the Great Exhibition of 1851. According to their opinion, the products were without quality, ornate and artificial.

William Morris (1834–1896) was the towering figure in late 19th century designs and the main influence on the Arts and Crafts movement. He shared Ruskin’s critique of industrial society and at one time or another with his designs attacked the modern factories, the use of machinery, and the division of labor, capitalism and the loss of traditional craft methods. The work of Morris and those associated with him who reassert; end the social responsibility of the artist. Rejecting the Victorians’ mistaken belief in the importance of decoration in architecture and design, and Ruskin’s rejection of the machine, the proponents of the modern, in particular, Gropius, succeeded in 1914 to create a new style at once utilitarian and beautiful (Pevsner, 2005).

### **2. 3. Werkbund Formation:**

Hermann Muthesius brought the arts and crafts movement to Germany after seven years of studying the British improvement of housing and urban planning. He published “Das Englische house” in three volumes. The main topic of the book is about the “house”, not as typology, but as the house where it is the place of many objects that are gathered. From the elements of a house consists such as (roofs, doors, windows, floors, etc.). There are also objects for using inside the house (carpet, lamps, furniture, etc.). All of them were elements made by the arts and crafts movement in Britain in the last decades of the nineteenth century (Biraghi, 2008). The production system of these objects was considerable, but they were poor from the aesthetic point of the view. Muthesius called for standardization as a key to development (Campbell, 1978). On the other hand, since the beginning of the 20th century, an aesthetic movement had encompassed philosophy, educational theory and innumerable varieties of Lebensreform movements in support of a better lifestyle (Haus,2006). The same time Jugendstil and Art Nouveau by Van de Velde laid the basis for all branches of modernism (Campbell, 1978). Henceforth, in 1907 The Deutscher Werkbund was formed by a group of artists, industrialist, politics, and architect in Munich. The founder group contained Hermann Muthesius, Peter Behrens, Heinrich Tessenow, Friz Schumacher and Theodor Fischer. The main aim of the formation of Werkbund was to improve the quality of

German industrial design and production, through creating a dialogue between industry and the artists themselves. With this new philosophy, being applied throughout German industrialization (Banham, 1980; Haus,2006).

Moreover, the Russian Revolution which occurred in 1917 was one of the most eruptive political events of the twentieth century. Everywhere, the idea of the Russian October Revolution kindled visions of the “old” and the creation of the “new” now seemed possible, and there were many who felt that they were called to be leaders in the construction of a better future. The intellectual basis for these reflections on the future had in fact been in the making for decades, along with the social – democratic and trade union movements (Lodder, 1983; Haus,2006). Expressionism- which before the First World War had been more about the Bohemian movement underwent a spiritual change of heart and become an expression of the self-awareness of the war and postwar generation. In 1918 the Arbeistat fur Kuns (Working Council for Art) was set up under the impact of the November Revolution and following the example of the worker’s and soldier’s councils. Gropius, who was the member of the Werkbund, was one of its leaders and published an appeal in the German Revolutionary Almanach for 1919 about the architecture in all people’s state. He wrote about art and society (Grinev, 2017, Haus,2006). “The new state must first serve it in order to acquire the lofty epithet ‘free’”. Gropius now no longer called for style and form, but for the “spiritual community which was necessary to create the natural rhythm of the whole. All-embracing art presupposes the spiritual unity of its age, it requires the closest connection with the environment, with living human beings. The present generation must make a completely fresh start, must rejuvenate itself and first create a new humanity, a new form of life for the people. Then art will come, and then the people will once again take part in the building of the great artworks of their age. The arts will find their way back from their lonely isolation into the blossom of all-embracing architecture. This was the intellectual atmosphere in which the Bauhaus came into existence. The Grand Ducal School of Arts and Crafts in Weimar was closed down in 1915, the first year of the war, following the resignation of its director Henry Van de Velde. Since then Gropius, who had been recommended by Van de Velde as his successor, campaigned in a number of ways for the reform of art education in Weimar. When he was finally appointed to the Hochschule fur Blidende Kunst in Weimar at the beginning of 1919, this constituted a de facto acknowledgment of a new kind of school, in which, as also occurred later in Berlin, the educational institution for fine arts and applied arts were combined. The name for the new school, proposed by Gropius in 1919 was programmatic one: Staatliches Bauhaus in Weimar. (State Bauhaus in Weimar, combining the former Grand Ducal School of Fine Art and the former Grand Ducal School of Arts and Crafts), Where, the Werkbund had continued, in the spirit of the German guild tradition, to emphasize the “work”. The guiding idea behind the Bauhaus was a thoroughgoing Romantic yearning for unity and harmony in the autonomous shared work dedicated solely to art and faith. Thus the early Bauhaus, in comparison with the predominant intellectual movements in Germany at the time, embarked on a particular course of its own. Postwar economic privation strengthened the political and ideological position of lower-middle-class crafts, which in earlier days had faced a massive threat from industry. This was the concrete political background to Gropius’s first Bauhaus appeal. At first, the situation in 1919 made it seem perfectly possible for an artist to become a creative force within the people. This aspect linked the aspirations of the early Bauhaus with other avant-garde movements as well, the most extreme positions being taken by the De Stijl movement in Holland and the Russian Constructivism. Both De Stijl and Constructivism accepted modern engineering technology to the fullest possible extent as the basis of artistic creation: De



Stijl preferred –for predominantly aesthetic reasons- the elementary geometric rationality and regularity of machine-produced parts, whereas the Russian Constructivist looked, with Futuristic rhetoric, to the intensified dynamic experience provided by technology of large-scale industrial manufacture. This atmosphere that unequivocally almost composed of exuberant artistic creativity and extraneous political instability, but for a short time there was the most active cultural center in Europe” (Haus, 2006:17-21). [Figure 2]



Figure 2. The evolution of Bauhaus formation

### 3. Modernization of Iran through Germany

“Before the fall of the First World War, Germany’s political influence in Iran had been crowned with success. It is only fair to assume that the revival of economic intercourse with Persia could only have been encouraged officially by German leaders in the Weimar Government.

Among the least studied chapters of twentieth-century, Iranian history is the decade between the constitutional regime in 1910 and the end of the century’s foreign occupation in 1921. Also produced Iran’s modern nationalist ideology and a project of authoritarian nation -building, launched by the new Pahlavi Dynasty during the 1920s. In mainstream historiography, the constitutional Revolution ends with the 1911 Russian invasion of northern Iran, followed by the country’s total loss of independence under joint Russo-British occupation during World War I. According to this familiar narrative, when foreign occupation finally ended in 1921, constitutionalism to pragmatically embrace authoritarian modernization. In fact, no clear project of nation-building or nationalist ideology yet existed when the constitutional regime was restored in 1910. The country’s first modern political organization was the Democrat party. Acting as the parliamentary representative of a network of underground social democratic groups that had extended from Baku to a few northern Iranian cities since 1905. The party’s program demanded universal suffrage, equal citizenship rights regardless of gender and religion, separation of political and religious powers, universal conscription, income tax, land reform, labor protection laws, compulsory public educa

tion, press and association, and the nationalization of East, pastures, and mines. To the East, the twentieth century is what the seventeenth century was to Western countries, meaning it is an era of modernity, where Asia is the bulk of humanity.

By the second half of the nineteenth century, European theories of Indo-European linguistic affinities gradually acquired racial overtones. Thus German tried an ancient “Aryan” race, originating somewhere in the Orient, linked to “Iran” a term made synonymous with “the land of Aryans” (Asgari, 1969:43-78).

In 1915, Germany made huge efforts into Persia by influencing the influx of information by caused the formation of “Persian Committee” in Berlin. Sayyed Hassan Taqizadeh (1878–1970) waste main protagonist of this committee working closely with the German government. “in developing a policy program for Persia,” opposing an Anglo-Russian intervention in Persia. The purpose of this committee was to “steer the information flow into Persia and to influence the political organizations of Iranian nationalists abroad.” Kaveh is the journal in the Persian language as a symbol of German’s effort in creating an eligible reputation in Iran by newspapers and organization that promoted the role of Germany toward Iran as a loyal friend. This is meant to supplement existing scholarship that looks at Germany’s campaigning to support Islamists within the Ottoman Empire and Persia. Germany became the center of the renaissance for Iranian culture after the First World War. The consequences of German Kulturarbeit went far beyond to become Iran’s third most important trading partner throughout the Weimar Republic. Iranshahr’s ideological innovation was firmly rooted in Weimar Germany’s milieu. As mentioned above, Imperial Germany’s legacies of authoritarian politics, militarism, and cultural chauvinism survived under the Weimar Republic. In the field of educational reform, the German government, in addition to providing student assistance to the country in 1925, founded the first Iranian industrial school in Tehran and later founded the first Iranian school of mineralogy, taught by German professors (Rafi, 2015; Asgari,1969). The first modern technical school in Persia was an agricultural school (Madrasa-ye falaḥat-e moẓaffari) founded in Tehran in 1901 by the Ministry of Public Services (Wezarat-e fawaed-e amma; see Faculty of Agriculture), but the technical school that had the greatest influence and important role over the longest period was the Persian German Technical School founded in 1907 with the effort of Mirza Mahmud Khan Ehtesham-al-Santana with 250 students per year (Qomasi,1987). The school closed during World War I and reopened in 1921 under a new director, Dr.Strunk.At that period there were other schools such as school studio of art founded by Kamal-al –Molk and two additional agricultural schools in Rasht 1916 and in Tehran 1917. The German school with new program continued until 1940. The program included carpentry, welding, electricians, construction, and mechanics (Kazempour, 1997) it was the only school that continued after Reza Shah’s program of reforms. A number of graduates went to Germany by the Persian state railway for further study (Menashri, 1995). After Hitler’s seizure of power in 1933, the political and ideological efforts moved to the foreground. What might have been viewed as prosaic efforts to serve Germany’s own interest resulted in a consistently favorable reputation in the eyes of Iranians? Even though the German instructors forced to leave the country that was occupied by the Allies, the school continued its collaboration to construct many important buildings and infrastructures such as the railroad, the national bank, the police ... (Arasteh, 1969). Moreover, after Hitler possession in Germany and the massive expulsion of Jews, Iranian authorities made a great effort to enter them to Iran. Subsequently, the new wave of German specialists came to Iran.

#### 4. Conclusion

The result of this paper shows the impact of Germany on Modernization in Iran. The foundation of Werkbund in Germany as an association of artists, architects and industrialists also, Russian October as socialist revolution which emerged Russian constructivism, the same time the city of Weimar, where first constitutional assembly took place, became a place for many Russian artists moved there as a cultural hub and soon after Bauhaus was formed. Between 1918-1933 Weimar Republic had a great impact on Iran because of politic shifting and became not only as the main trading partner but also as an important cultural intersection that absorbed many Iranian and subsequently many specialists came to Iran for training and working in different fields. Henceforth, Iran was connected to the modernization process that was happening. Although after Hitler's seizure and falling of Weimar and Werkbund many artists and architects immigrated from Germany and many Jewish specialists refuged to Iran.

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## Development of Industrial Heritage of Transportation Centres, A Review of Three Major Transportation Systems of Tehran

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### Abstract

The legacy of industrial architecture is a new phenomenon and the result of technological changes and the introduction of new functions in the field of architecture and building. Transportation systems are perhaps the most spectacular industrial building for the people, and in addition to showing the history of technological change in the country. Therefore, the study of this building, which is the pioneer in the construction of such buildings and the busiest of such buildings, is the subject of this paper.

First, a study has been made about the entry of technology into traditional societies, and the industrial heritage has been introduced as the cause of the industrial revolution. In the category of different types of industrial heritage, transportation along the construction industry is raised, and in line with the development of transportation in Iran, the buildings related to them are also built. The study of the history of this building, which is the main transportation center of the country in the capital (bus terminal, railway station, airport), in addition to clarifying the foundations of thinking, creating these buildings due to the huge amount of demand demanded the rise of industry and architecture. It has been special in the country.

Unfortunately, despite the decades of building of each of these buildings, and the increase in the population and consequently the number of passengers using these buildings, no special development has taken place in this building and a program to protect these buildings has not been taken. And this explains the need for study and practical action on the protection and development of the industrial heritage of the capital's transportation systems. This research, using a descriptive-qualitative approach and referring to library studies, documents and illustrations, addresses the issue and proposes questions for achieving a model for preserving this group of heritage in accordance with various social, political, and social conditions. , Culture has come.

**Keywords:** Industrial Heritage, Transportation System, Bus Terminal, Railway Station, Airport.

## 1. Introduction

Heritage is what remains of the past, and is the key to studying human history. Keep it what legacy is called, the past needs to tell the hidden story makes clear. The world is full of heritage. Every town and village is safe, a building or a place of history, a total of the construction of the traditions or customs that keep them local residents due to links with the past fluctuation (Farahbakhsh & Hahnachi, 2016, p. 34). The legacy, your memories in richer, more willing to maintain it and when this legacy is not an individual aspect that holds up collective, regional, and national memories, the importance of the subject matter is tenuous.

Travel is rooted in movement and displacement and is part of human life, but travel begins a new form of tourism with the Industrial Revolution. In this period, fundamental changes in the economic and social situation of societies arise, and the dramatic changes in transportation by the construction of cars, trains, ships and aircraft it is emerging, and as a result, there are buildings in connection with these transportation systems. This building is also a treasure of the memories of the people who have traveled from it, as well as become one of the country's architectural and industrial heritage.

## 2. Research Necessity

Transportation systems are perhaps the most spectacular industrial building for the public, in addition to showing the history of technological change in the country. Therefore, the study of this building in the capital, which is the pioneer in the construction of such buildings, and the busiest of such buildings, is the subject of this article. In this regard, after the introduction of this transportation hubs, emphasis on the need to maintain and develop the buildings appropriate to the circumstances and needs of the day, it is essential that this opportunity will be dealt with.

## 3. Research Questions

In this article, the industrial heritage in the field of transportation is introduced and the following questions are answered.

1. What are the examples of industrial heritage in the field of transportation in the country?
2. Are the above buildings have been developed to fit the needs of the community and increase the number of users?

## 4. Technology Entry into Traditional Societies

For many years, it has been believed that its technology brings many cultural and civilization features, and many of the growing countries of avoiding it have led to a recession and, due to general weakness, continue to obey Industrial countries are at their lowest level. Today, with global communications in the fields of science, economics, and general policies of nations, the exploitation of science is like a tied chain, the avoidance of which simply means keeping the country or nation desirous of growth and universal independence through the use of all commonly used technologies.

“The question of technology” one of the most important and most famous articles that Heidegger's later period of his philosophical transformation mapping. Heidegger was one of the first philosophers who took the technology seriously and turned it into an existential and subject matter for philosophical research (Heidegger, 20131).

In this article, Heidegger attempts to reveal the nature of technology as a way in which the truth has revealed. Contrary to what may seem, Heidegger is not against technology, and he does not believe we should now rebel against it. "Technology is not dangerous and evil, machines and devices do not have a potentially fatal threat to technology. The threat of technology comes to fame. The risk is that based on the nature of man himself is unable to respond to the challenge of technology and instead seeking to become technological and if it becomes technological discipline. "Heidegger tries to reflect more deeply on the nature and linkage technology it to the Greek concept of "Techne" (Technology) and "Poiesis" (The activity in which a person brings something into being that did not exist before), alter the relationship between humans and technology and the emergence of a more authentic way of being open (Ibid).

It is in keeping with the inevitable technology of the life of today's societies. Although it cannot be denied the challenges facing traditional societies in dealing with technology, stopping should also be avoided.

If the rich heritage society has a historical moment that it interpreted the industrial revolution, focusing on cultural heritage and natural heritage, etc., but the shield of this historic landmark, the technologies of the industrial heritage Also, it has opened up its place among the credits of a country.

## 5. The Industrial Legacy of the Industrial Revolution

Industrial heritage represents a part of the history of architecture and urbanism that highlights the industrialization aspects of today's world (Xie, 2015, p142). With revolution Industrial, remarkable changes in the life of the human being and "industrial revolution of the series or of the change of technical, Industrial, Economic and social, which for a century (1850-1750 AD) was significant phenomena in the United Kingdom and in the other Receiving country (Hobsbawm, 1996), has created new debates in the field of human heritage, the consequences of which have led to the revival of modern concepts of modern and industrial heritage in the world. "The legacy of industrial architecture, according to the statements of the international organizations, is that which has remained from the past and can be used in some way in the future and transferred to the future. A glance at the literature on industrialization in Iran shows that the beginning of industrial development with the development of machine industry, the process of empirical developments associated with industry and industrial development can be found in three main stages of the beginning of the 13th century to the end of the Qajar dynasty, the beginning of the dynasty Pahlavi divided the Islamic Revolution and Islamic Revolution from 1357 to the present (Sharifzadegan and Nouraei, 2016, p. 39).

Among the mentioned period, what this article as industrial heritage (especially in transportation centers) it is known, belongs to the second period. The beginning of the Pahlavi era in Iran is coinciding with the beginning of modernization in this land. Necessary to this period which includes the period before the changes were slow and bituminous not be separated. In fact, in this period, there have been widespread developments in various social, economic, and political spheres, and have affected various aspects of development, including industrial development, put on. During this period, six development programs were developed, the sixth program was not implemented due to the Islamic Revolution. During the third program, land reform began, which led to the huge migration of villagers to cities and increased access to cheap labor for industries (ibid).

The heritage of industrial architecture except that the names of the industry are imported into the country in terms of their architecture Revealing the architectural features of this period, especially how Iranian architecture and architecture interact with imported methods (Hanachi, 2015, p. 7). As it is evident in the second period of industrial development in Iran in particular, with the advent of technology and the development of technology on the one hand, and the emergence of new areas of architecture, buildings with previously unexplored uses, and a new style They come to the fore, which is definitely an indispensable category of those buildings related to the field of transportation.

## 6. Transportation Systems, Industrial Age Legacy

The study of the history and the course of technology in the world has completely paved the way for the emergence of new possibilities, accompanied by many new ideas, and technical communication with thought cannot be abstract, and the proper linkage The prosperity is in many affairs of the country or civilization, where the architecture, the road, the bridge, and so on are in this category (Guedes, 1979, p. 21).

Architectural heritage of the industry, including the remains of industrial culture it has practical, architectural, social or historical values Is. As mentioned, the industry's entry into Iran in the contemporary period and the emergence of industrialization A country that had begun from the Qajar period with military industries, in the era Pahlavi form of architecture reached its peak and enter your mobile The country did not have a history before (Hanachi, 2015, p. 7).

Considering the values of heritage architecture in the industry as an of heritage for present and vote for representatives, may be noted that The psychological value of these very important role in the creation of Concern for the protection of this category of Ibn theory in the work of the people of the Fa May (Mahdavinezhad, 2015, pp. 53-43). On the other hand, relationship with one of those cases of e. Industry and led to the creation of local communities belonging to protecting them. Obviously, belonging is the source of the social identity of citizens of a city. Memory is the cause of cultural continuity and the relationship between generations and the only factor in their relationship (Aghabozorg, 2014, p. 50).

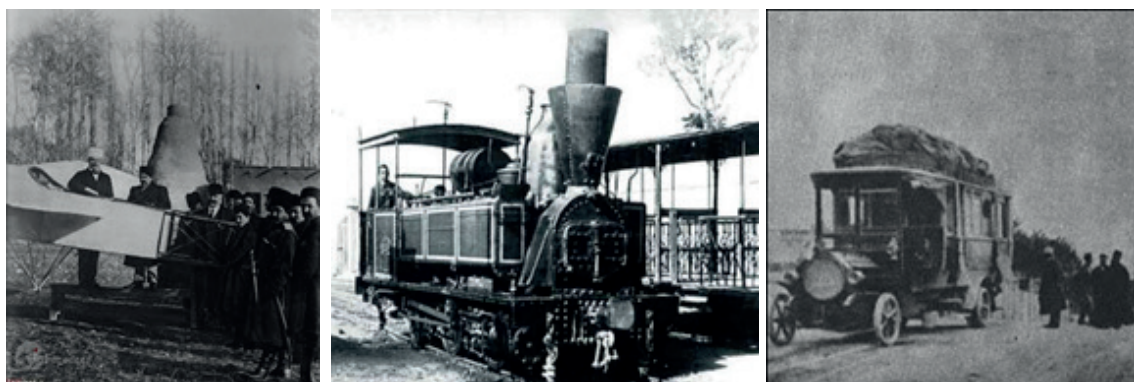
In the category of different species of industrial heritage, which Yanbin presented as the reintroduction of industrial heritage in 2014 (Yanbin, 2014, p8), transportation along with the construction industry is on the list, two of which have the psychological values mentioned, and created memorable spaces for the people. Therefore, the importance of preserving this category of industrial heritage is becoming more and more important.

In the not too long time since the arrival of transportation systems in the world, in the years prior to 1300, technology related to this field was introduced to Iran, which in the development of each of the transportation systems, railways and air, buildings that fit each one into the architectural world. In Table 1, a brief overview of the history of each of these three technologies has been presented to the country.



**Table 1.** A brief overview of the history of each transportation in Iran

System	A glimpse over the logistics system	Industrial heritage remains
<b>Terminal</b>	In 1900, Mozaffar al-din Shah, who was on a visit of foreign countries, had various wonders, followed by the Iranian Foreign Minister in Belgium to order a car for him to Iran. But the arrival time of the first bus dates back to the Constitutional Revolution, which was brought to Rasht by a Belgian businessman. After the collapse of the constitutional time, he brought his bus to Tehran (Tejarat-e-farda, 2016).	Thinking of the establishment of terminals in Iran in the style of modern terminals was first introduced in 1900, but the implementation of the first plan of terminals in the country lasted for many years. Though in May 1973 the city of Tehran proposed the construction of a large bus station, the construction of the first passenger terminal was postponed till the year 1975, until finally completed in the year 1979 and officially started in 1980 in Iran. (Rostami, 2009, p. 92).
<b>Railroad Transportation</b>	The idea of railroad construction in Iran came about from the second half of the nineteenth century under the Qajar era, as a result of the development of political and cultural relations between Europe and Iran” (Mokameli, 2000, p. 84). The first railway construction experience reaches the Qajar period that the lines of Anzali-Rasht and Mahmoudabad-Amol were constructed. Then the lines of Tehran-Shahabdul Azim and Bushehr-Borazjan were created by the British for military purposes. The lines of Tabriz-Jolfa in 1916 and Zahedan-Mir-jave in 1920 were the first lines in Iran. The idea of creating a national rail link based on domestic capital was reached in the year 1925 by the approval of the law authorizing the construction of railways and in 1941 the first national route, called the North-South, was completed. (Farahbakhsh & Hanachi, 2016, p. 38).	One of the oldest and most valuable buildings in this area is the Tehran railway, which was constructed in the year of 1927 solar construction in the current location of the Tehran railway station. The construction of the Central Railway Station, inspired by the architecture of ancient Persia, was built in the style of idealistic expressionism. The station is equipped with eight lines of arrival and departure of the train and has four waiting rooms on the main entrance side, in two floors. (Rahimi, 2012, p. 100) This work was registered on March 20, 2000 with the registration number 3639 as one of the national works of Iran.
<b>Aviation</b>	Just a few years before the first oil well in the Masjid Solomon, the early 19th century, a flat piece of land was enough to make the first flight in the Middle East and a plane landed at the Masjid Solomon landed at London’s airport. At that time, there was not really an airport, but a planetary ground plane, which was forgotten and shut down by the end of the work of the oil company and the British in the mosque of Solomon (URL.1).	In the year 1917 for the first time, people in Tehran Airlines flight over the city observed. This time near the end of World War II. Following this and following the increase in aircraft use during the Second World War, the airline industry has grown dramatically all over the world. In February, 1925, the first airline was established in Iran. 22 years after this adventure, in 1938, Mehrabad International Airport was established (URL.2). Mehrabad Airport is the largest and most important airport in the country, with around 13 million people annually moving. The terminal of this airport was registered in Bahman 2017 to register the national monuments of Iran.



C

B

A

Figure 1: A: Iran's first bus in Rasht - B: The first Iranian train - C: Historical document of the first planes in Iran



C

B

A

Figure 2: A: Southern Terminal Building of Tehran - B: Tehran Railway Station - A: Terminal of Mehrabad Airport

## 7. Conclusion

Reviewing the history of major transportation centers in the capital (Bus Terminal, Railway Station, Airport), in addition to clarifying the underlying thinking of creating these buildings due to the huge amount of demand required, has led to the emergence of its own industry and architecture in the country. It's been effortless. These buildings are one of the first projects of this kind in the country, which is unique in terms of its history, history and architectural values and documents. Therefore, this building can be regarded as the industrial heritage of the country.

Unfortunately, despite the decades of building each of these buildings, and the increase in the population and, consequently, the number of passengers using these buildings, no special development has taken place in this building and a program to protect these buildings has not been adopted.

One of the important steps in order to achieve a model for preserving this group of the country's heritage, adaptation to various social, political, cultural, etc. conditions is the stage of cognition and choice, because by doing this, it is possible that the process of preservation And develop with success. At this stage, by conducting research and research and using expert studies, first of all, it is necessary to answer the following questions: what kind of building, for how many trips and how many daily passengers have been designed and implemented? What is the average number of passengers and daily trips in each of these buildings in the current situation? Does the current

building have the capacity of this increase? Does this increase in demand, without increasing capacity, inflict damage on the building? And finally, what measures can be used to develop these buildings to provide optimal services while maintaining authenticity?

By accepting the above-mentioned buildings as the rich industrial heritage of the country, it should be acknowledged that “industrial spaces normally have to undergo changes to meet the new industrial needs, or because of the lack of response to these needs abandoned and in the conditions Getting worse (Yang, 2013) “. Therefore, it is necessary to work on the protection and development of this building.

According to the studies presented on the industrial heritage of transportation systems, many examples in this area can be recognized and expertly reviewed, which each season represents the history of the Iranian architecture and transportation industry, which is in this article. Focus has been on the leading examples of this trend. Existing examples of terminals, railroad stations and airports are indicative of the capabilities of the industry’s history of the land.

Among the industries that are known in the literature and in the studies of experts as the industrial and world heritage, the equipment, facilities and buildings of the transportation sector, which, by examining this important in Iran, the interaction between user and space building.

The buildings in question are historically merged with the history of this land and have a national and national value, which, despite the combination of aesthetic, scientific and architectural values along with the techniques and techniques of construction, must be integrated in the dominant material and spiritual heritage. Be protected. In this context, it is necessary to consider the development of this group of buildings with the development of demand, with the adoption of protective strategies and safeguards, to safeguard the intrinsic values of the country’s rich state heritage in the field of industry.

It is also proposed to create specialized museums tailored to the use of each of these systems (The Museum of Road Transport, The Iranian Railways Museum, and The Iranian Airline Museum) and the definition of each building as the origin of the tourism axis in order to maintain, Introduce and develop these buildings.

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## Biography

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## Value Analysis for Adaptive Reuse of Industrial Heritage Sites in Zonguldak

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### Abstract

Zonguldak, the primary coal production and processing centre of Turkey, is on the edge of an urban transformation after the decline in local coal industry due to technical, political and financial reasons. For the city had flourished through the discovery of coal in the early 19th century, the urban and social fabric of Zonguldak is based on mining, processing and transportation of coal. Increasing mining costs together with liberal policies beginning with 2000s force the city to transform its economic and social focus, utilizing the rich industrial heritage, including mining tunnels, coal preparation plants, massive underground silos, and a transportation network of railroads, harbours and conveyor bands. Urban image of this coastal city in north-western Anatolia is composed of mediocre contemporary buildings, republican and western modernism, industrial facilities, harsh climate and steep topography, all merged into each other. This study, based on the studio research carried in Bilgi University, intends to discuss and compare the adaptive reuse potential of three industrial heritage sites with diverse scale, spatial character, context, and conservation level: The central coal handling and preparation plant, Central workshop campus of electrical equipment for mining, Üzülmüş coal washing and handling workshops. Initially abstract urban scenarios transforming the focal economic and social motives to new perspectives such as culture tourism, education and new generation fabrication technologies, will be proposed. On the grounds of urban scenarios and documentation of the sites, this study aims to put forward a systematic value analysis in terms of conservation and architectural design for distinct each site.

**Keywords:** Adaptive reuse, industrial heritage, value analysis, Zonguldak, coal heritage, conservation

## 1. Zonguldak

Zonguldak, located on the north-western coast of Anatolia, demonstrates a steep topography and a harsh climate with rain in all seasons, making the area difficult for urban development. For the city had flourished around the coal industry in the 19th century, urban and social fabric of Zonguldak is shaped through industrial facilities and culture as well as the modern and nationalist politics of the young Republic, bringing about a unique urban image among the cities of Turkey.

### 1.1. Brief Industrial and Urban History:

Coal production in the area had started in 1840s, initially for military purposes and increased in the second half of the century through foreign investment capital, particularly following the concessions for coal production in 1849 (Quataert, 2006). Coal production contributed to the industrial development throughout the Ottoman Empire, as well as triggering dramatic urban and social transformations in the coal-field of Zonguldak, once a small military post (Erkin, 1977).

Initially coal mines were operated and developed by various companies and agencies, mostly owned by foreign capital. These coal mines and loading docks were built on the diverse locations for strategic purposes and worker accommodations began to rise around these facilities, forming the early modern settlements of Zonguldak area. The earliest, minor scale coaling facilities were simpler structures that were disposed of quickly, whereas the late 19<sup>th</sup> and early 20<sup>th</sup> century facilities were technologically improved and designed for permanence (Quataert, 2006). Such new facilities increasing the production capacity exponentially, required an organized workforce, which sometimes compensated even with mandatory work. By the end of 19<sup>th</sup> century, the area turned out to be an industrial centre with new Harbour and railway network, as well as considerable rises in the worker population. The immigrant workers, who mostly worked seasonally, lived in temporary worker shelters around mining areas (Akçadoğan, 2014). One of the first acts of the modern Republic was to annihilate the law for mandatory mining, leading many of the mining companies to design settlements for its workers in order to keep them organized and close to work. The coal-fields were completely nationalised gradually until 1940 and the area had been planned as a national energy source of the modernization and industrialization project. Thereafter the surrounding areas of Zonguldak started developing as coal-dependent industrial facilities such as Karabük iron & steel plant in 1934, Ereğli Harbour in 1945, Çatalağzı thermal power plant in 1946 and Ereğli iron & steel plant in 1965 (Akçadoğan, 2014).

The basic urban infrastructure of the settlements was built in this period, in parallel with the seasonal workers started to settle permanently around mining areas. State owned agencies started building workers' settlements, designed by some of the country's renowned architects, including Seyfi Arkan (Akbulut, 2011). The workers' settlements were designed to provide shelter for different types of mining workers, consisting of lodgings, pensions and villas for permanent workers and engineers, and dormitories for the seasonal workers. The settlements also had service and social buildings for the workers and their families, such as baths, laundries, dining halls, cinemas, radio stations, libraries, tennis courts, parks and schools (Akçadoğan, 2014). This mining and lodging correlation had a major role in shaping the urban context in Zonguldak. In parallel with this large industrial area, a worker's class had been formed in Zonguldak and organized through the companies and such workers' settlements (Erkin, 1977).

Around 1970s, for further holistic regional planning Zonguldak Metropolitan Area had been announced, including Kozlu, Kilimli and Çatalağzı coal-fields and settlements, supplying the entire coal production of Turkey as ca. 5 million tons annually (Figure 1). Though in the following years coal production decreased gradually due to a variety of reasons, such as; industrial shift to alternative energy sources, increasing cost and technological difficulties of coal production in the area and liberal policies prioritizing import after 1983 (Tuncer, 1986). Today the coal mining activities were reduced by 70% in Zonguldak, leaving many of the coal-related facilities idle, and the city without its primary source of economic and social dynamism. Nowadays, there's a constant drop in the population of the city, and a large stock of abandoned industrial facilities, workers' lodgings and social service areas.



Figure 1. Zonguldak Metropolitan Area coalfields (Quataert, 2006).

## 1.2. Contemporary Situation and Critical Approach:

Zonguldak is still an industrial area composed of energy plants utilizing mostly imported coal and other industrial production and transportation facilities. However, their economic and social contributions to their surroundings and the city are minimized in general. This fact can be exemplified by examining the poor conditions of the settlements around the huge plants in Çatalağzı area. Mining, besides being the primary economic revenue for the city, provided vast contributions to the formation of social and cultural infrastructure of Zonguldak, nourished with the modernisation and independence ideals of the Turkish Republic. Currently there is nothing recognizable to fulfil the large gaps in the social and urban structures, caused by the retreat of mining.

Local government and governmental agencies collaborate on a transformation project consisting of a group of urban design and renovation projects based on tourism and cultural functions (Zonguldak İl Özel İdaresi, 2018). However, designed separately with various intentions, particularly about the context, buildings and urban designs will not be sufficient to transform and re-operate the economic, cultural and social dynamics of the city. A strategic redevelopment plan considering such parameters as well as proposing a holistic redefinition of the urban image and character is required. Architectural designs and other components can only be successful when each operating as a component nourished by this framework and demonstrates a consistent ap-

proach for structuring strong connections with its context.

Tourism can be one of the primary parameters of such a transformation, however the climate, transportation and accessibility factors should also be considered. Reorganization of local agriculture strategies and redevelopment of agricultural production facilities can be proposed as another branch of the future paths. A strategic regeneration proposal for Zonguldak, based on the transformation of industrial facilities and areas in contemporary technological production and research facilities, has been studied in the Graduate School of Architecture in Bilgi University in the 2018 Fall semester.<sup>1</sup>

Any redevelopment strategy in Zonguldak should not only conceive, but also structure its vision on the industrial heritage and cultural heritage qualities of the city. Although by means of demolition of some industrial buildings and sale of the machinery, urban image of the city has been altered in the previous decade, the city is still one of the primary industrial heritage sites in Turkey (The Dublin Principles, ICOMOS & TICCIH, 2011). Representing not only a whole system of industrial network, but also unique examples reflecting the social, economic and cultural policies and life of all periods of the history of Republic, any strategy has to be based on the scientific conservation and public utilization of heritage sites as components of national cultural and republican heritage (Özgönül, 2007). Conservation of the unique urban image and character of the city is primary (Washington Charter, ICOMOS, 1987).

## **2. Studio Work on Selected Industrial Heritage Sites**

### **2.1. Definition of the Design Problem and the Process:**

This study, based on the studio research carried in Bilgi University<sup>2</sup>, intends to discuss and compare the adaptive reuse potential of three industrial heritage sites with diverse scale, spatial character, context and conservation level; The central silo and washing plant, Central workshops campus, Üzülmez washing plant and workshops (Figure 2).

On the following parts, each site is briefly introduced, followed by the definition of principal factors to define the values of the site as a heritage. These values, mostly architectural yet varying in scale from detail to urban levels, are compiled from research, discussions and preliminary design phases of the studio work and aims to structure a ground for the discussions of conservation and adaptive reuse in relation to each site. In some cases, proposed values extend beyond architecture, however included in the inevitable multi-disciplinary character of conservation and transformation studies.





Figure 2. The industrial heritage sites studied in the architectural studio and their locations in the Zonguldak Metropolitan Area. The central harbour coast was additionally studied by some students on a masterplan scale.

## 2.2. Central Coal Washing Plant and Underground Silo:

### 2.2.1. Site introduction

In parallel with the Republic's holistic planning policies in the first half of the 20<sup>th</sup> century, instead of distributed small washeries around the mines, it had been decided to transfer the coal from the whole coalfield to a central washing plant next to the harbour. In 1953 new harbour and loading facilities and in 1957 new central coal washing plant were opened to service. The facility is located at the entrance of the city centre of Zonguldak, next to the city harbour and the connected freight train station. The facility consisted of an underground silo to grade the mined coal, a coal preparation building with three coal washing towers, connected by conveyor belts to the silo, harbour and the railways, and additional warehouse and service buildings. While active, the facility with a capacity of 1000 tonnes/hour after its final upgrade, was an important processing and organization node of a network connected to Üzülmez and Kozlu mining sites on one hand and a variety of commercial and industrial destinations on the other (Ateşok et al., 2005).



Figure 3. Central coal washing plant before and after the demolitions

As the technology became outdated and overpriced, production decreased in 1990s and the facilities on this site were left idle accordingly. In 2006, while steel buildings of the facility were being demolished, it was registered<sup>4</sup> as an example of industrial heritage to be conserved due to the request of the Chamber of Architects. However steel buildings were demolished and at present, only the underground silo and the 3 concrete towers of the washing plant are standing on 40.000 m<sup>2</sup> space at the centre of the city.

### 2.2.2. Value analysis

Below lines from the registration document summarize the primary values of the site:

“... that the above mentioned coal washing plant was one of the first industrial facilities of the Republic Era, that it had a documentation value for the culture of a certain period, and that it was necessary to be preserved with new functions and designs in order to carry the values of the past to future generations. However, since the facility was mostly demolished, the remaining structures were listed as immovable cultural heritage; i.e. the section of “underground horizontal silo”, the three concrete coal washing towers, and the entrance structure of the underground silo, located on its western end.”<sup>5</sup>

The location of the site is literally central, representing the dominance of the coal industry on the urban image, surrounded by residential and commercial urban fabric with a large bazaar on the south, a steep reef reaching to 30 m. height on the west, a primary road and the harbour on the north and commercial and cultural focus of the city on the east. The location of the site makes it impossible to be handled without considering its contextual values such as, silhouette, visual context, contrasting urban fabric and its potential as part of a current and heritage transportation network. Existing concrete towers, not only reflect a monumental scale and a singularity in a dramatic post-industrial atmosphere, but also possess a symbolic and landmark value for the common urban image. The road and the reef form stiff physical and visual borders on both sides of the site.

Demolished steel buildings between the towers and the underground silo, are very important for completing the wholeness and comprehending the scale and circulation of this heritage site. The site offers two existing structures with contrasting and currently unconnected qualities; three concrete towers with their dominant vertical and circular form above the ground and the huge

underground silo offering a horizontal space in compartments with spatial underground qualities. This duality as well as variety of levels both above and under the ground spaces can be utilized as a design input.

### 2.3. Central Electrical Workshop Campus:

#### 2.3.1. Site introduction

Central electrical workshops first started its activity as a small maintenance facility in 1910s. Around 1940s, the workshops became a fully functional production campus supplying a large variety of products from machinery to spare parts for the mining facilities in Zonguldak and surrounding areas (TTK Maden Makinaları Fabrika İşletme Müdürlüğü, 2015). Today the facility still operates, however with a continuous reduction in capacity and investment, thus it may become desolate in the near future (Figure 4).

The site is a triangular shaped campus on the primary connection road between Zonguldak city centre and Üzülmöz valley. Currently it is surrounded by the residential and commercial areas, on one of the potential development axes of the city. The main campus area is composed of 17 buildings in a variety of architectural styles and structural features. The studio work on this site mainly focused on two different styled buildings on campus; the large concrete production block with a saw tooth roof structure, and the concrete electrical workshop building with an unusual, vaulted roof structure, as well as the wholeness of the campus (Figure 4).



Figure 4. Central Electrical Workshop Campus and its characteristic buildings.

#### 2.3.2. Value analysis:

The southern side of the triangle lies in parallel with the road and the river behind, forming a large linear band characterized by a series of trees on the outside. The primary entrance is from the south direction and the buildings in the campus stands close to the northern sides as if generating a space in relation to the spatial qualities on the south.

A residential fabric in a contrasting scale and language lies outside the northern sides of the triangle form. When one is on the campus, it is difficult to perceive the context for the building density and the landscape design, which contributes humanizing and consolidating the production buildings. Instead of the context, values in relation to architectural elements and their organization, such as colour, texture, surface qualities, and gestalt principles such as repetition, rhythm, continuity and symmetry are evident.

The saw-tooth form of the primary production atelier and the arched spatiality of the electricity atelier are two original formal qualities in the campus. Both buildings, demonstrating other examples of original architectural details such as hexagon saw-tooth windows are extremely valuable

and has to be conserved within their original character. Furthermore, the outer space decorated by the variety of atelier elevations of varying architectural style and the landscape establishes a spatial continuity and wholeness throughout the campus. This open space quality is enriched with the light effects, variety of material, texture and geometry and generates a variety of original perspective views.

## 2.4. Üzülmez Washery and Workshops:

### 2.4.1. Site introduction

Üzülmez coal wash plant started operating in the beginning of 20<sup>th</sup> century as several wooden structures of coal preparation in Üzülmez coal valley. The first washery building on the site was erected in 1910 and initially surrounded by different facility buildings that were later demolished (T.C. Batı Karadeniz Kalkınma Ajansı, 2017).

For the mechanical needs of the mines in the area an electrical workshop was built around 1937 and stayed functional until the year 2000 (Tokel, 2017). The washery and workshop buildings, and a tunnel that connects the facility to the coal mines on the other side of the valley are the only structures left on the site today. The washery is a masonry building with a gabled roof, while the workshop building has a concrete structure with a saw tooth roof (Figure 5).



Figure 5. Üzülmez Mines, originally Rombaki Mines, on its first years and today.

### 2.4.2. Value analysis

Üzülmez site displays the most intense relation with the natural landscape where it is difficult to define the borders of the wild landscape and the builtscape, making up the context. Revealing the context in Üzülmez site, the nature, topography and physical spaces as well as their interconnections and even access paths on the slopes, is primarily for developing an approach for conserving and transforming the site. In parallel, a variety of silhouette views define the general visual framework, as well as the desolate building elements.

The buildings, traces of the lost structures, the underground tunnel and the entrance of the mine, all stand on a flat portion of the land on a steep valley covered with local plantation. There are usually distributed settlements in the valley, and some access paths are revealed to the simple residential units installed on the topography. The organization of the site generates a multiplicity of levels of buildings, open-spaces, underground spaces and the landscape. Moreover, since most of these built entities are the result of varying periods, cultures and construction systems, resulting in a variety of architectural language and materials. It is possible to approach the whole site as a conceptual amphitheatre with the spaces acting on the scene, landscape and the context as the

audience. Transition of spaces in relation each other is an important potential value on the site layout plan and the sections.

Probably contrasting with this quality of the sections, building elevations demonstrate rhythm and repetition of simple design orders and structural elements, where the monotonously is broken with the lost parts and elements of the buildings contributing to the perspectives as a positive value. Üzülmez site proposes spatial dualities and inter relations of the contrasting elements at the same time, such as horizontality and verticality or light and shadow qualities. The 2 primary desolate buildings on the site together with the large underground tunnel suggest a sublime aesthetics, enriched with their conventional building values as well as lost architectural elements and nature beginning to sneak into the building, converting it from a building to a new form of semi-open spatial existence, half artificial, half natural.

### 3. Conclusion

As an industrial area of coal-based economy, Zonguldak lost most of its industrial significance along with its main source of income and a considerable part of its population. Although local authorities work on alternative transformation projects focusing on revolving their economy as a more tourist-oriented destination, the planned projects in the area are not adequate from a conservation perspective. The city has its unique topography, industrial network system, and significant examples representing the different life periods of the country's history, therefore requires a preservationist approach to carry its specific components well into future generations. The city of Zonguldak and its rich cultural and industrial heritage deserve a more strategic, sophisticated and widely multidisciplinary approach that focuses more than design, and takes conservation into greater consideration.

### End Notes

<sup>1</sup>The graduate architectural design studio in Istanbul Bilgi University Dept. of Architecture, 'Energy 4.0' led by Ömer Selçuk Baz in 2017-18 Fall Semester, focused on the production of energy, its sustainability and its spatial requirements. The studio examined the energy production facilities and their relation to its geographical surroundings. Students proposed a masterplan for Zonguldak Metropolitan Area, then proceeded to scale down to Çatalağzı region in order to study the potential correlations between energy, architecture, urban and rural.

<sup>2</sup>The undergraduate architectural design studio V in Istanbul Bilgi University Dept. of Architecture, focused on the adaptive reuse projects for three separate industrial campus in Zonguldak Metropolitan Area. The studio examined the industrial production facilities that mostly focused on coal production, proposed a function and design for the campus they worked in. The projects scaled down to material details in order to determine the level of intervention, and the physical relation of the existing building materials and the new. Zonguldak studios were led by Asst. Prof. Fulya Akipek, architect Alper Derinboğaz, Dr. Kutay Karabağ, architect Cem Yücel, Res. Asst. Gizem Şenel and studio assistant Deni Çakaridis.

<sup>3</sup>The underground silos are referred to as 'silo-altı' around Zonguldak area.

<sup>4</sup>Karabük Local Council for the Conservation of Cultural and Natural Properties (KLCCNP) decision no. 335 on 08.12.2006

<sup>5</sup>Translated by the authors from the decision by KLCCNP with decision no. 335 on 08.12.2006.+

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## Biography

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## Reasons and Necessities for Listing the Architectural Heritage of Industrial Factories in Iran as UNESCO World Heritage Sites

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### Abstract

As the Industrial Revolution reached Iran, large numbers of industrial factories were established across the country. But as industry declined and cities expanded placing industrial units at the heart of urban areas, these had to be transferred to the suburbs in due course. Many efforts were made by the supporters of national heritage sites for the conservation of industrial buildings to regenerate them into cultural public spaces. Some of the most prominent industrial landmarks of Iran were registered as national heritages; but the creation of endless obstructions prevented their efforts from bearing the intended fruits and outstanding samples of Iran's industrial architecture - in other words a special, distinctive, and valuable chapter in the history of its contemporary architecture and urbanism - was annihilated. By displaying the industrial changes of a set period in time, the lifestyle and activities of prominent figures in the country's industrial history, a turning point for the hand and machine made crafts, the use of new technologies and much more, this heritage also became a major part of Iran's cultural heritage – a heritage encompassing its industrial culture. By considering other registration criteria, these can be listed as UNESCO World Heritage Sites as a big step towards their conservation and introduction to the world community. The present research has endeavoured to introduce the potentials of this style of contemporary architecture in Iran with a qualitative content analysis approach (descriptive-analytical and historical). The results of this research will identify and document structures of national importance in this area, introduce them scientifically, and culminate in their registration where possible.

**Keywords:** Industrial Architectural Heritage, Industrial Factories, Industrial Heritage of Iran, World Heritage



## 1. Introduction

The turn of the twentieth century brought about transformations that took root in the West and gradually spread over large parts of the world. The windfalls of the Industrial Revolution set the scene for the rise of modern civil societies and brought about major lifestyle changes in the twentieth century. Iran also benefited from this - albeit with some delay as compared to countries in the cradle of industry - and the initial signs of a “New Era” began to emerge in the capital Tehran, such as factories, banks, city council, and law enforcement. It was not before long that the concept of “Universal Civilisation” found its way in other large urban areas of Iran. Although such a development in the country was inevitable, it took shape against a backdrop of new factories in cities prone to industrial development, thus overtaking the capital in this respect.

The foundations of industry were originally laid down in Iran during the Qajar period, but it did not bear fruits due to domestic and foreign sabotage. Its sustainable form as a new institution was postponed until Pahlavi I ascended to the throne. Factories posing as an emerging trend where one of the manifestations of the New Era that modified the urban landscape and other aspects of certain Iranian cities known as “Industrial Cities”.

Purpose-built structures aiming to create a modern image had to be situated in urban spaces in such a manner as to feel part of city life and be seen as new metaphors alongside historic domes and minarets. Therefore, from a state propaganda perspective, it was vital to find important locations for them in the public eye. These factories were not only functional, but they had also turned into large industrial parks.

Although these industrial parks were initially located in the suburbs and outside the cities, they gradually became part of the urban fabric as cities spread out. These spaces and their novel architecture were accepted as part of the city life and new landscape. These are buildings with a myriad of features and lessons to be learned in contemporary Iranian architecture and urbanism as a new chapter in the industrial heritage of Iran. And yet, they are not used in the kaleidoscope of urban development as they should be. To the contrary, their demolition together with the city fabric means their teachings will also be forgotten.

The industrial heritage of Iran has a different philosophy from its counterparts in the world and is built on its own background in the arts and crafts. It testifies to the confidence of the country in itself in the midst of the Industrial Revolution, giving it a twofold importance for the documentation and registration of its landmarks on the World Heritage List.

Nevertheless, industrial heritage, accepting it as part of a national heritage, its evaluation criteria, and many more such instances are still very new to Iran and there are still no specific studies on this subject.

Another issue is the lack of documentation and even primary studies on the industrial heritage of Iran. This very lack of knowledge has led to the quiet elimination of this heritage. It is very difficult for researchers to access any information on this subject due to the passage of time, the passing away of many of its founding fathers, the loss of many personal and public documents in the course of the 1979 Islamic Revolution, lack of cooperation by the heirs of this industrial heritage, and the likes. A lack of research means most of the documents available are the theses of students of various fields who have gathered this information with their own endeavours and interests, or the introduction of samples of this architecture in expert architectural and urban design magazines. Some small, scattered studies are also available.

Two major criticisms are leveled against existing studies:

1. The lack of a comprehensive outlook on this heritage in these studies which place more emphasis on its tangible aspects, while its intangible aspects such as economic, social, political, and cultural developments are numerous. Attention must be paid to both the tangible and intangible aspects of this heritage.
2. The lack of an independent outlook on par with the special characteristics of this heritage which is placed as a subset of other architectural fields, such as modern architecture, while it is industrial architecture with resulting developments which have shaped modern architecture.

These two points put together with a lack of guidelines in the documentation and focus on particular areas of industrial heritage makes for a lack of comprehensive introduction.

Research set aside, policy-makers have also been rather passive. Article 1 of the industrial heritage conservation act passed in 1930 states that all the industrial buildings erected by the end of the Zandieh Dynasty in Iran are listed by the government. The addition of buildings from the Qajar era in 1944 and more recent buildings in 1973 of this act was one of the first legal steps in their preservation.

Attention paid to this sector includes the 3rd Congress of Architecture and Urban History of Iran – Bam (15-18 April 2006) which underlines the necessity for the conservation of industrial heritage in its Article 4 of 13 articles, new legislation on conservation by the Supreme Council for Urbanisation (factories, bridges, railway stations...) in March 2014, and legislation by the Supreme Council for Architecture and Urbanisation in August 2015 on collaboration between the Ministry of Industry, Mine and Trade and the Cultural Heritage, Handicrafts and Tourism Organization of Iran to identify all industrial heritage buildings across the country, maintain them, and send reports and guidelines to the Article 5 Commission. So far, little has been done in this area. Only a limited number of buildings have been renovated based mostly on personal preferences and functional requirements rather than on available guidelines.

Compensating for these shortfalls in research and policy-making and paying more attention to this sector and its tangible and intangible aspects in a comprehensive plan can confirm many historical aspects of Iran's industry and its continuity in today's industries, and reveal the distinctions of Iranian industrial heritage with many other countries, nowadays referred to as industrial countries.

To this end, a comprehensive research at the industrial research centre of Iran was planned and many significant buildings were documented using the qualitative content analysis approach (descriptive-analytical and historical) as a step towards their conservation and registration as a World Heritage Site based on its ten criteria. What follows are the results of this research in line with these criteria.

## **2.Global Values of Iran's Industrial Heritage**

Criteria 2 and 4 (which follow) are usually used for the global registration of industrial heritage. It is widely believed that criteria 4 have been especially established for industrial heritages.

The present study aims to introduce Iran's heritage to the world at the same time as attracting the attention of authorities to its significant status. Thus, the first six criteria (of ten) for the registration of industrial heritage are covered here to introduce Iran's legacy.

## 2.1 Criteria

### 2.1.1 Masterpieces of creative human genius:

The architecture of industrial factories in Iran can be considered as creative human genius from four aspects:

- i. The buildings are the first examples of industrial architecture on this scale and standards as workplaces in Iran.(figure 1)
- ii. They are architectural masterpieces for their creative use of building materials or, in other words, a proper approach to the use of new materials to counter possible shortcomings, such as the use of solid rails instead of iron beams which were not readily available in Iran at the time, or the use of traditional materials in the vernacular architecture of every region.
- iii. Masterpieces of human creative genius due to their unobtrusive display of structural and functional elements in terms of shape, building materials, local aesthetics, and architectural versatility; in other words, creativity and innovation in the use of various elements in industrial factories, such as chimneys, refinery towers modelled on existing minarets and wind catchers in keeping with the city landscape, and other factors that express the ingeniousness of Iranian architects and artisans in designing an industrial building adapted to the needs of the user in harmony with the regional climate and materials.
- iv. An outstanding example of human creative genius in traditional techniques used in ancient arts and crafts, such as the sustained tradition of drying cocoons in northern Iran dating back to ancient times which was transformed into a modern technology following the establishment of the new Chalus Silk Weaving Factory, sustained spinning and weaving traditions across Iran in modern factories relevant to this industry, modern oil processing plants which have been influenced by oil presses, power plants which have been influenced by windmills, and many more such examples that bear witness to this claim.



Figure1:Isfahan Risbaf Factory – A large complex housing different industrial, administrative, services, hygiene, and educational functions (Author).

### **2.1.2 Exhibit of an important interchange of human values over a span of time or in a cultural area of the world, on developments in architecture or technology, monumental arts, town planning, or landscape design:**

- i. A witness to fundamental cultural changes in Iran in the thirteenth century, namely the birth of an industrial society reflecting the image of a complete philosophical trend throughout Europe in the age of enlightenment and the glad tidings of the formation of industrial architecture.
- ii. The emergence of new buildings encompassing new technologies related to various industrial activities.
- iii. A witness to the interaction between European and traditional architects in line with localising the initial imported designs of the factories which would be executable by traditional local architects.

It is noteworthy that following the arrival of the Industrial Revolution in Iran and the creation of industrial factories with new structures and building materials, their initial designs were borrowed from their birthplace in European countries, especially Germany, due to a lack of similar examples in Iran. Subsequently, these were erected with new or local building materials in each region or the combination of both. Thus, it can be said that these buildings were influenced by the industrial architecture of their birthplace in terms of their general morphology with the use of ornaments by Iranian masters of the art. This was a very successful fusion of Western and Iranian architectures. At times, the transaction from the industrial design of the spaces to traditional cladding and ornaments by local artisans has taken place so smoothly that it is difficult to define the boundary between the two Western and Iranian architectures.

- iv. A witness to the formation of magnificent industrial buildings with the impressive use of concepts of the modern design movement in architecture, representing the ideas of European industrial architecture.
- v. Achieving optimal industrial performance while keeping the beauty and desirability of the architecture, an aesthetics befitting the surrounding landscape (environment, architecture, and technique) and an impressive combination of the industrial background and potentially existing prospects.
- vi. A display of know-how, skill, technology, and investment by a versatile society, a platform for cultural interaction and absorbing and implementing a variety of ideas.

It must be noted that many factories in Iran in the Pahlavi I era were constructed with popular participation and local organizations. Prior to the establishment of every industrial unit, public companies were first set up followed by popular participation and the buying of shares. Even the ladies in every city overtook one another in purchasing them.

- vii. A witness to impacting human and cultural values in societies where in the new industries were founded or, in other words, the shaping of a new industrial culture at the heart and forefront of any industrial civilisation impacting the overall culture of its society through job creation for women outside the home for the very first time, the opening of the first nurseries for their children, setting up adult education centres affiliated to the factories, special hospitals for the workers, etc.(figure 2)



Figure 2. Women workers of Isfahan Vatan Factory with their children at the factory nursery (Author).

### 2.1.3. Distinguished sites that are unique or at least exceptional testimony to a cultural tradition or to a civilization that is living or which has disappeared:

Based on existing evidence in various historiographies, industries in Iran enjoy a rich historic background. Although it disintegrated due to circumstances governing society under the Qajar Dynasty, its regeneration under the Pahlavi I rule bears witness to certain enduring traditional arts and crafts, such as spinning and weaving, and the industrial culture associated with it in a modern context. Some examples of this are as follows:

- i. The use of available natural resources and producing wealth and regional identity as a result of deep interactions between focused human activities.
- ii. The shaping of customs and creative terms and expressions, together with a display of technical entrepreneurship in the wider community formed in factories and affiliated industrial parks.(figure 3)
- iii. The expansion of traditional knowledge (influenced by cultural relations and social innovations in which women were also involved) and the use of technical and entrepreneurial techniques of other nations.
- iv. Exceptional evidence of industrial architecture as the representation of urban development in Europe in the modern industrial era.



Figure 3. Group photo of the large community of workers and employees in Isfahan's Vatan Factory in 1931 (Author).

#### **2.1.4. An outstanding example of a type of building or architectural or technological ensemble or landscape which illustrates a significant stage in human history:**

Due to the sudden import of factories in large numbers and a lack of familiarity by traditional engineers and architects with modern technologies, and most importantly the need for speed in construction and exploitation, it was natural for traditional architects to lack a productive role in designing functional plans. But in terms of form and morphology, once this was entrusted to traditional or local architects, they successfully performed their task of adapting and balancing between the present and the past.

Although the new materials such as steel and cement were a new experience for Iranian artisans and master builders, they were still able to use their know-how and skills in creating these spaces. They used elaborately detailed brickworks for the façades and gave the buildings a magnificent grandeur.

The special features of these buildings included the use of steel structures, the wide use of glass to allow for the penetration of natural light, and the use of brick as an ornament for the exteriors and its elimination as a main building material in traditional architecture. Some examples of these are as follows:

- i. The creation of a new category in building design called industrial architecture with a mix of design concepts and industrial aesthetics.
- ii. Examples of human interaction with existing economic resources for wealth creation and the transformation of the rural landscape into an industrial landscape by using local building materials, installations, and technologies.
- iii. The formation of urban architecture as well as its periodic costs, influenced by the industrial and economic aspects of peripheral industries.
- iv. Outstanding examples of industrial sites reflecting the industrialisation of Iran based on local creativity and adaptation to Western technology.

- v. The formation of the first modern industrial housing estates in rural landscapes.
- vi. The formation of cities based on the use of industries (linking economic history and natural landscapes) and its effects on all aspects of life, urban architecture, etc.
- vii. A clear picture of the valuable connection with the environment and the flourishing bond between man and nature.
- viii. The close connection between the symbolic form of its buildings with forms related to the faith and religious beliefs of Iranians - this means that by placing the new unprecedented monuments with their particular architectural elements, such as chimneys and refinery towers, alongside the landmarks of every city, like historic domes and minarets, these became the new metaphors aiming to create the image of a modern city and transforming its landscape little by little. Another connection between the architecture of these industrial buildings and the beliefs of the people is the respect for the location and vegetation of the site and thus the conversion of former locations, ranging from gardens and non-gardens, to large industrial parks; parks that were gradually accepted as part of a modern urban landscape alongside other urban elements. (figure 4)



Figure 4. Consistency among the industrial elements of the buildings such as chimneys and refinery towers with the main symbols of the city such as historic domes and minarets can be seen at the Khosravi Leather Factory of Tabriz (Author).

**2.1.5 An outstanding example of a traditional human settlement, land use, or sea use, which is representative of a culture (s), or human interaction with the environment especially when it has become vulnerable under the impact of irreversible change:**

Many of the industries founded in different parts of Iran have been directly related to the land use of the site. Tea factories established in northern Iran, ginning factories set up in cotton plantations, and so on, all show the continued use of land in a traditional manner, but in a modern setting. Some examples of these are as follows:

- i. The remaining landscape (such as farms, industrial sectors, transport routes, and lateral facilities), encompassing living areas associated with the production of various products (cotton, tea, etc.) bear witness to historical uses of land with significant global values.
- ii. A complex reflecting the tradition of years of cultivating or processing different products (i.e. tea) and the amalgamation of traditional and modern architecture in its buildings (figure 5).
- iii. An outstanding example of traditional accommodation, land use, creation of a coherent unit, and a unique cultural landscape and the workings of an industrial city as a complex



Figure 5. The women of Bandar Gaz in Golestan Province working at the Livani Ginning Factory dating back to the Qajar Era which is still operating in the traditional way (Author).

**2.1.6. Tangible link to events, traditions, beliefs, artistic, and literary activities that have global implications and values (From the Committee’s perspective, in exceptional cases and in relation to other criteria, this is a benchmark for registration on the World Heritage List):**

Some industries in Iran, especially in its industrial cities, are tangibly linked to events, culture, and universal values, such as the industrial city of Isfahan which came to be known as the Manchester of Iran. Some examples of these are as follows:



- i. Integration with the ideas, beliefs, and technologies of significant global significance.
- ii. The impact of this industry on all the aspects of the city and the transformation of the industry into a global brand representing the city (in some industries). (figure 6).
- iii. Connecting the landscape of Iranian industrial cities with cultural symbols beyond its borders and its impact on literary works, films, music, dance, the arts, etc.



Figure 6. Industrial activities are displayed in the murals of Isfahan's Risfab Factory at a ceremony where factory products are being awarded as prizes.

## 2.2. Authenticity and Integration:

In terms of authenticity and integration, most of this remaining heritage has been conserved within its boundaries. No buildings have been added or demolished. Every space is used for the purpose it was built and they are in an acceptable condition. Renovations have been carried out where necessary to strengthen the buildings. Except in a few cases – due to lack of research and policy-making - to be remedied urgently, compatible building materials have been used as far as possible by a skilled workforce who has endeavoured to follow the initial design and preserve their architectural values.

## 3. Conclusions

Although industrial heritage sites bring negative memories to mind today, they are still a very rich source of history that play an important part in the cultural identity of each city. Hundreds of people worked with them at some point, making history and creating a culture which

can be revived under the right circumstances to present this historical memory and all its constituent values. It can invigorate human creativity and sensory communications and make it possible for them to re-experience these spaces as their predecessors did.

In this cultural imagination to flourish, there is a need for the creative presence of these works in the environment together with an awareness and active minds in society. The industrial heritage of Iran encompasses all of the above features. This heritage, especially industrial factories, was built on the assumption of Iran being industrialised and not for its industrialisation. They hold priceless tangible and intangible values. They must not be thought of as simply urban lands to meet urban needs. They deserve a look on par with their past legacy and as a rich investment for future generations who can look back on its lost stance as Iran's industrialisation era and revive it. The regeneration of this industrial heritage is achievable with a comprehensive plan. Considering these factors and in the wake of a society conscious of its legacy, the best results can be achieved in terms of an integrated regeneration and conservation of this heritage.

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## Biography

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## Review of the Industrial Revolution achievements of Iranian Historical Factories and how they can be regenerated (Case Study: Kahrizak Sugar Factory)

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### Abstract

The transitions from tradition to modernity has occurred when the Industrial Revolution imposed fundamental changes in different aspects of our civilizations. From this historic period, a valuable heritage has survived, such as first factory buildings that contain valuable information for today's studies. These factories, which are now largely ruined and abandoned, have high potential and much strength that make it necessary to protect even if the restoration and regeneration are beyond commercial senses. This research, which is a historical-theoretical research, investigates a number of regeneration projects of historical factories outside and inside Iran through a literature review. Historical factories of Iran are categorized according to the ideology, style and purpose of construction of the three Qajars, Pahlavi I, Pahlavi II and after the Islamic Revolution. Finally, by analyzing and reviewing scientific literature, reports on subjective meetings related to industrial heritage, and the experts' opinion in this field, the requirements' definitions and preservation methods and regeneration of Iranian historical factories comes to light. Since the purpose of this research is the factories of Iran, the Kahrizak Sugar Factory, has been selected firstly for a more in-depth review. After review of the spatial structure and the potential of the plant's construction, this article introduces proposals for targeting, re-assignment and functional systems.

**Keywords:** industrial revolution, industrial heritage of Iran, regeneration, reuse, Kahrizak sugar factory

## 1. Introduction

From the industrial revolution age, there are industrial buildings such as factories, barracks, prisons, railway stations, etc. are remained in Iran. Amongst them, factories due to the large size of the building and the land, are generally deserted and vulnerable to damage. This has caused, large part of the metropole and the industrial region to suffer from social, cultural and economic damage, and at the macro level, it affects the city life and makes them vastly unsafe and black spots in the detailed design (= prioritized destruction). One of these abandoned valuable monuments and factories is the Kahrizak sugar factory from the Qajar era. It is located in the suburbs of Tehran and in the Kahrizak section of district of Rey with an area of about 6 hectares around the sugar beet plants. This is the first sugar factory and the first purpose built factory in Iran built with engineering bricks in Iran, which later became operational at the time of Pahlavi I and II, and has remained abandoned ever since.

Although it has been registered in the national register, it has unfortunately failed to benefit from the government protection and has suffered serious damages. The lack of use and purpose as a heritage of the industrial revolution in Iran and also the area being rundown and loosing its function makes these monuments vulnerable to destructions and deserve special attention in regenerations. The main subject of this study is to answer the following questions:

How the historic factories of Iran should be categorized in terms of their historical remits? How are Iranian historic factories and their protection assessed? Why the regeneration of these buildings is important and how it should be achieved?

The purpose of this study is to express the values and potentials of these buildings and diversify them, as well as prevent further destruction, to express the principles of the protection of industrial areas and to achieve re-establishment of historical factories.

## 2. Theoretical Foundations

### 2.1. Industrial heritage:

Industry and industrialization are an activity and a sense of history that continues and is ongoing, and, like other human achievements, in addition to the concrete dimensions, includes intangible dimensions, including skills, memories, social life of workers and society, and Since in the last two centuries the process of industrialization has become an important part of history, it can be considered an important legacy for the modern world. One of the best definitions in expressing the values in the industrial heritage is the definition of Dr. Hojjat in expressing the values of the cultural heritage: "Scientific values with Shiite, historical values with old age, and emotional values are comparable to human messages." (Ghazi Moghadam, Alireza and Madahi: 2014)

In the Persian language, Industrial Heritage, that is, what survives the industry of the predecessors, in the words of the International Committee for the Protection of Industrial Heritage and the Charter of the Nischni Tagil, the definition of this term is: "The industrial heritage is the remnants of industrial culture that has historical, technical, Social, architectural and scientific. These remnants include buildings and equipment, workshops, conversion sites and energy consumption, transportation and all its infrastructure, as well as places used for community-related activities such as housing, worship and education".

## 2.2. Industrial heritage in Iran:

Many examples of industrial heritage in Iran have evidence that Iran was industrial before the industrial revolution and was the most important source of wealth in the country, industry and commerce. According to the Nischni Tagil (in Russian: Нижний Тагил) and TICCIH (The International Committee for Conservation of the Industrial Heritage) charter and the limitation of the time frame of the industrial heritage, the industrial case Being in Iran comes back to the late Qajar kingdom. Here are some examples of historical factories.

1. Socks factory )Electricity( Tehran : the early part of the Pahlavi period, the plant was commissioned by a German and in 1301 by an Iranian architect who was built for the purpose of industrial exploitation as the first sourcing factory and then the second Tehran power plant, and now it is a part of the industrial works of Tehran architecture It is located in the list of works and national buildings in 1999 on a land with an area of 7693 square meters and an area of 2,683 square meters. This beautiful building was opened in 1997 as the Museum of Natural and Wildlife Works in Seven Chenar of Tehran and is a beautiful example of the first Iranian industrial buildings.) Office of the fifteenth series of thematic meetings of Iranian Civil and Urban Improvement Company )- picture 1
2. Iqbal Yazd Factory: The factory with an area of 39,000 and an area of 16,000 square meters is located in the Yazd neighborhood. The first manifestation of the new spinning and weaving industry is in Yazd, an Iqbal factory that was launched in the year 1934. The factory fell off after the revolution, and since then it has remained abandoned until the early eighties. About 2001, Iqbal Factory was listed on the national monuments list and after changing the risk of destruction and becoming a commercial complex, Yazd Science and Technology Park. Picture 2



Figure 1. Tehran Stocking(Electricity) Company,area13

Figure 2. Iqbal Yazd Factory (spinnig)

3. Rezaie Sugar Factory (Urmia): This factory was the first factory to be established in Iran after September 1941. It is one of the oldest sugar factories in Iran, which started in 1327 on km 20 of Urmia-Salmas road by the experts of the former Cheshwalaki province. After 2 years in 1950, it was built on an area of 28 hectares and has had a significant impact on increasing development. The region's agriculture and the dramatic employment of manpower and employment are indispensable in the transportation, trade and business of the region. Picture 3
4. Ghazvin Sugar Factory: Qazvin Sugar Factory was founded in 1964/1965, and one year later

its exploitation began. Two years later, the capacity of the plant increased from one thousand 1. to two thousand tons of beets a day. The factory was purchased from Germany and was installed 30 kilometers from Qazvin. (Information newspaper, 28/4/1346: 12334).



Figure 3: view of Rezaie sugar factory

Given the examples mentioned and the historical range and thought of industrialization, historical factories are divided into three categories, which are described in the following Table 1:

Case	Description	Architecture	Make thought	Goal	historical period	Category
Sock Knitting Factory - Kahrizak Sugar Factory	A showcase of science and culture and industry	In accordance with Iranian architecture and beautiful decorations	Being industrial and industrial	Expansion and development of the industry	Late Qajar-Pahlavi first	one
Iqbal Yazd Factory - Khosrowi Leather Factory in Tabriz	Evidence of the efforts and beliefs of the architects of that era for globalization and the growth of great developments	Integration of Iranian and European architecture	Industrialization and modernization	Keep up with the modern and industrial world	Late Pahlavi first - Pahlavi II	two
Qazvin Sugar Factory	The weakness in the industry and the economy due to war and revolution, the need for renewed power	Construction of modern niches	The need for renewed vigor and industrialization	Increase production, meet needs and improve the situation	Late Pahlavi II - After the Revolution	three

According to the explanations given in the field of industrial heritage and some of historical examples in Iran, we can identify the indicators of industrial heritage valuation as well as its potential: (table 2)

**Table2.** Protection features,problem and injuries of industrial heritage

Potential of enclosures and industrial buildings	Indices of Industrial Heritage Valuation
<ol style="list-style-type: none"> <li>1. Historical background: Contains extensive information and concepts</li> <li>2. Expansive: Ground for creative and functional design</li> <li>3. Providing per capita and long-term exploitation and improving social, economic and employment statu</li> </ol>	<ol style="list-style-type: none"> <li>1. Historical, cultural, physical and aesthetic values</li> <li>2. The field of memories and nostalgia of these buildings</li> <li>3. Knowledge and technologies that spell these arenas</li> </ol>

Based on the literature on the protection of historical monuments and cultural heritage, as well as the series of thematic meetings and studies in this area, the protection features, problems and causes of damage to industrial heritage can be identified as follows: (table 3)

**Table 3.** Protection feature,problems and injuries of industrial Heritage

How to protect the industrial heritage	Dilemmas and causes of damage to industrial heritage	Historic Preservation Features
<ol style="list-style-type: none"> <li>1.Procurement and legal and administrative support</li> <li>2.Explaining national planning policies and establishing a legal framework for industrial heritage</li> <li>3.Using modern science and technology</li> <li>4.Recreating and giving appropriate use</li> </ol>	<ol style="list-style-type: none"> <li>1. Non-governmental and legal support and possession status</li> <li>2. Inefficiency and proper operation</li> <li>3. High prices for industrial fields</li> <li>4. The lack of national systems and urban planning and the lack of legal reference</li> <li>5. The absence of specialized institutions in the private sector</li> <li>6. Lack of proper legal mechanisms for participation in exploitation</li> <li>7. Physical injuries and excessive damage that damage the body</li> </ol>	<ol style="list-style-type: none"> <li>1. Universality</li> <li>2. Authenticity</li> <li>3. Integrity</li> <li>4. Sense of nostalgia</li> </ol> (Yukilhuto,Yukka: Architectural History)

### 3. Definition and concepts of regeneration

Regarding the concept of regeneration, there are different theories from the point of view of the experts: Dr. Habibi, in the Urban Restoration, considers recreation as an intervention, considering the existing conditions and the type of dominant view and culture of the city, it subdivides into four main group:

A) Innovative intervention is based on the thoughts of nineteenth-century urbanists such as Oeon, Fourier, Richardson, Cabbe and Proudhon, whose aim is to promote health and



well-being, increase efficiency and enhance the beauty of the city, which expresses these goals through science and technology.

B) Cultural intervention is influenced by the ideas of urbanists such as Ruskin and Maurice, Sit and Raymond Anon, whose goal is to revive previous cultural thoughts and to develop urban development by relying on ancient forms as well as paying attention to emphasizing astatic values of the ancient cities and minimizing the impact on valuable historical urban fabrics and values can be created through the values and attractiveness of the city. This approach proposing to revive the historical values and use them as a to intervene and regenerate.

C) The ultra-modernist intervention is the next approach, that avoids exaggeration and pure attention to objectives of each of the previous two interventions. The main objective of this intervention is to keep the merit of the urban design while the urban structure is regenerated.

D) Urbanist intervention based on the ideas and participatory theories of the late twentieth century, aimed at increasing the participation of the people in the changes in the spatial organization of the city.

Dr. Izadi, in the article on protection and development; both side of the coin, believes that today attention has been paid to the values of the environment and the historical perspective and social sustainability as well as economic vitality, which has led to a change in the policies and approaches of protection. As a result, its achievements and developments are: A) Development of the scope of activity related to protecting monuments to integrity. (B) Attention to the cultural, spiritual and natural heritage. (C) An evolution of the approach to reuse of buildings and historical monuments. (D) Approaching to functional renewal and more economic use of historical monuments. (E) Attention to tourism as an opportunity for the development and economic growth of the inhabitants or adjacent historical regions, which are the most important of these developments, while giving new use and re-utilization of valuable buildings as one of the most recent policies in the focus of conservation is to aim at protecting and upgrading valuable works that reuse historical buildings as a key policy in urban regeneration programs, in other words the attention to conservation and development, the provision of urban regeneration.

The scale will be wider in this building approach Historical decree has a key resource in development and rehabilitation programs and plays an important role in these programs. Mr. Beheshti, at “The rebirth meeting of the Risbaf Factory in Isfahan, is a step forward in revising the thought of urbanism in Iran, reinterpreting and intervening”, describes the intervention as a false and inalienable term that should not be used. He believes that historical and cultural monuments are too valuable to use then word interventions for their regenerations. He considered the conservation solution to be the use of guidelines and experiences and rules, which, of course, is protected from the point of view of the body, or the corpse of the building, but the spirit and soul also needs to be protected. In order to protect its soul, it should be returned to its function, but not with the view that this building will be responsible for the shortcomings and needs of its surroundings, but it means that it should affect its surroundings. Therefore, it is necessary to choose the proper

function to give it a due spirit and the soul. He maintains that the development does not co-habit with protection, and it is better to be kept separated. Dr. Felamaki also spoke about the concept of architectural revival in his book; "On the revival of buildings and historical cities". In his view, there is a relationship between the time when the building is constructed and when the intervention takes place, which is measured and accurately assessed, because it is a cultural link between the production of architecture and the redevelopment of architecture, which links and criteria in the knowledge of anthropology, cultural, sociology, aesthetics, historiography, and the recognition of the literature of the tribes. Local cultural wealth is an indicator that can only be achieved through the reestablishment of the architecture that has been cultivated and as a key point and constructive intellectual tool. On this basis, it can be said that instead of the term cultural heritage, the term cultural wealth should be used which has more power in defining the subject, and also adds that, within the limits of these cultural wealth, there is a place where the discussion of values and the continuous values in the space are made, with all their importance in identifying and enabling the environment. Therefore, what we can learn from the words, knowledge and experiences of these magnanimous and prominent scholars are these high lights; intergenerational and peoples' intervention, the protection and improvement of valuable works, along with the reuse of historical buildings, the simultaneous attention to protection and development, the protection of the spirit and soul of the valuable monument, with its function and functional choices, eventually recognized cultural riches and attention to their continuous values, which must recognize the historical and cultural boundaries in the reconstruction of the values of each building and place them in the direction of development and growth, its environment and surrounding context. The environment that affects it release and by choosing the right user, the right function, and by creating economic activity, it reveals the hidden values, and by improving the values of the people through the employment created in these buildings, the investor and the investor improved. With the increase of public awareness, economic growth, tourism and social activities, a cultural economy will also be created that will promote quality of life and urban development. With these descriptions, the phenomena of regeneration are:

1. Understanding the values of each building and its historical and cultural boundaries;
2. Using existing values for the development and growth of the environment and texture;
3. The building and the arena will have proper use and function,
4. It brings about economic activity and returns its latent value.
5. With the participation of the people and the creation of jobs, they improve the process of the investor and the operator.

Understanding the concept and how to recreate, as well as examining some successful examples in the world, such as the Canadian industrial distillery complex in Canada and the Silatraga power plant in Turkey, and other examples that are not described in this article, can be characterized by planning in operation and recognizing industrial regeneration as follows:

- A) Functional diversity, since these fields have several functions and are not merely a museum or university.
- B) Adaptability, that is, construction and any change of transformation by observing and preserving authenticity and features of value and legacy of the building has taken place.
- C) Creativity, with the notion of creative design, from environmental arts to creating a new and new environment. Event-oriented, that is, they have been able to hold important urban,

historic and affective events.

D) Flexibility - flexible spaces that can be accommodated various events and programs.

#### 4. Reuse

The loss of industrial use in the city and its social failure makes these collections quickly demolished. Transforming the spirit of work and activity and the style of architecture that belongs to global experience exacerbates the need to preserve and study these works. This is where the importance of knowing how to protect buildings that are no longer able to provide their future is important. Failure to provide the future is due to the diminishing need for these buildings and the result of this is the creation of a desolate and insecure environment that promotes the emergence and development of unhealthy societies. The adaptation of the existing and historical construction and the addition of a new structure to it create momentum, vitality and visual diversity, while the character of the collection is preserved. The huge scale of the factory, its rhythmic repetition, its infinite length, and even the tragic colors of the building, is a key issue when searching for a genuine designer to reuse it. (Hanachi, Pirooz and Sarah Timurthas: 1396).

#### 5. Kahrizak sugar factory

The Kahrizak sugar factory is located in the south of Tehran, in the plain of Rey, in the village of Kahrizak and in the east of Behshat Zahra. The lands of this region are agricultural and favorable, one of the reasons for choosing it for the construction of the factory. The purpose of the factory was to construct and was used for this purpose until the closing date. The main feature of this is that the first niches constructed in Iran were built for this purpose and the first trusses were executed precisely and counted on a wide mouth. In this building is executed. (Quoted from the report of the Kahrizak sugar factory number 4635).

The report reads: "On the day of the day of the holy shrine of 1312, the building began, and in late 1313 the factory building and installation of machinery ceased. The plant's capacity was 80 to 100 tons of beets per day and its machinery it was made by England and from the Wilcox factory. "Three factories operated from this factory and closed in 1317 AH (1275 AD) due to bankruptcy of the company. In the year 1308, it was bought and installed by the German company "Woolf" as a fraction of its machinery, and its first re-utilization after 36 years of shutting down, in 1310 AD. The government purchased all its shares and took over the factory. The plant was stopped due to the burning down of machinery in 1342. After the revolution, it was conquered by the foundation until it was recently returned to its owner, the "construction company of Plague" And the company decided to destroy it and build a flat that has never been successful. The development of this building was once in the time of Reza Shah and once at the time of Pahlavi II, which included the construction of buildings for the factory and residential buildings, and during these two decades, parts of the buildings on the street of Qom by the Kahrizak municipality Destroyed. (Picked up from the report of the Kahrizak Sugar Factory number 4635).

The Kahrizak Sugar Factory has been constructed in a rectangular, north-southwest direction with a dimension of  $362 \times 145$  meters. The plant's land area is about 52,000 square meters. The existing arena has two distinct sections. The northern section, with an area of 23,000 square meters, is a square-shaped array that has no physical location. The southern part of the rectangular struc

ture has an area of approximately 29,000 square meters and is the main realm of the historical factories. The physical units of this section are as follows: 1. five low height single level wooden structure industrial building with wooden truss on the western part each with an approximate area of 400 square meters. 2. Four high two level steel structure industrial building with metal truss in the western part of each area Approximately 400 square meters 3. Administrative building with wooden truss in the northwest section with an approximate area of 520 square meters. 4. South-west site of the site (demolished) with an approximate area of 1200 square meters. 5. Three 3 level height buildings (the tallest building on site) in section East with an approximate area of 500 square meters. 6. Three single level low height wooden structure industrial building with wood trusses each with an approximate area of 300 square meters. 7. Management building (one floor)



in the southern part of the site, with Mesa The approximately 410 square meters. (Picture 4&5)  
Figure 4: Aerial photograph of factory position and separation of buildings



Figure 5 : Full view of Kahrizak sugar factory

The surveys show that 16 historic buildings, including building niches, administrative and administrative departments, with an approximate total occupancy of the building, are about 7130 square meters. The architecture of the space is very simple and based on the architecture of the hollow. One-story structure with bricks covered with wooden trusses. The salon has dimensions of about 12 × 35 meters and an area of about 420 square meters. These halls lack central structures, rooms and other similar components. Larger halls of which four are numbered although they have the same dimensions as small halls but the height and truss differ from five smaller halls. The presence of metal beams, which are extruded and cut from brick walls, suggests the possibility that these halls are two-story and for some reason, their second floor is destroyed and its beams have been cut. These halls are covered with metal trusses. The historic Administrative building of the collection, located in the northwest section of the site, is the only elemental body of the complex that has gone through the expansion of the streets and the loss of a part of the collection area outside the factory's present fence. It has a central corridor and rooms and administrative units located around the middle corridor. Also, the presence of decorative arrays on this building emphasizes the different structure of this section as the administrative department of the collection. The porch in the north, the windows protruding, the brickwork outside the porch, and ... are among these decorative elements. The building has underground space, which is in good conditions, unlike the second mezzanine, which faces major damage to its truss structure. In the southwest of the site, there is another building, allegedly destroyed in the late 1380s. Evidence suggests the existence of a vault fountain structure in this section. The researcher's survey of how it is degraded indicates that this destruction is deliberate. In the northeastern part of the site, the tallest building is located. This building is a three-slope building, built using brick walls and metal trusses. Existing structures in the middle of the hall indicate the establishment of sections in which there are not many such signs today. The last building in the complex is a simple and simple building that has been located at the end of the southern section of the site. Like other existing buildings, this building has a brick structure and wooden truss. The presence of rooms with nesting access in the middle corridors reflects its administrative performance. The Kahrizak Sugar Factory is a strip foundation and barrier walls. The roofs are wooden and metal truss ceilings covered with galvanized sheets. And other buildings have wooden and slabs, except the damaged southwestern side, which has been run by arches and curtains. Surface water discharges through galvanized columns are visible in all the buildings. )Taken by the company of Sunrise group).

## **6. Challenges, Opportunities, Objectives and Necessities in Recapturing the Collection and Formulating a Functional System**

Creating a successful and successful cultural and tourism center in a historic and cultural industrial area should have comparative advantages in different areas of location, investment, and ultimately utilization and use. By having the conditions, the various opportunities and opportunities and, of course, using them appropriately and reasonably and preventing the loss of opportunities, it can be created by using successful experiences and proper and appropriate patterns. In this regard, one of the most important and pivotal grounds for the growth and development of the complex is its location and its physical and physical boundaries. Some situations are suitable and the placement of the set causes them to grow and dynamism, and some of the situation, despite their suitability, they grow and develop with the definition of a set and center, such as cultural and industrial arenas such as old factories. The combination and synergy of these two will make the development and the development of the activities of the collection in ideal conditions. With this

general description, it should be acknowledged that the various characteristics of the Kahrizak sugar factory have many advantages in terms of developing and developing opportunities. It also has a leading role. Also alongside the twin opportunities, possibilities and potential of creating and developing a tourism complex, challenges and threats and limitations, many influences the growth and development of this complex. Therefore, proper knowledge and analysis can be done by believing and taking advantage of opportunity and limiting and controlling the challenges, paths and development possibilities in different strategies. The set of goals in design has a hierarchy. Initially, the development and the introduction of the goals and then the intermediate goals and goals that provide the conditions for entry into the areas of planning and design, design patterns, and design suggestions in the physical and the physical field determine the intervention strategies. In each design and intervention, Necessities, are the prerequisites for intervention in the subject. (Table 4)

**Table4.** opportunities,challenges,goals and necessities in regeneration.

Necessities	Goals	General Challenges	Opportunities
<ol style="list-style-type: none"> <li>1. Requires the creation of a tourism pole</li> <li>2. Legal and administrative imperatives</li> <li>3. The necessity of attracting capital</li> <li>4. The necessity of attracting the audience</li> <li>5. Environmental Needs</li> <li>6. Social and cultural necessities</li> <li>7. Security and safety imperatives</li> <li>8. Necessity of Engineering in Construction</li> </ol>	<ol style="list-style-type: none"> <li>1. Huge Objectives: Identify and achieve a unique national and effective national design in a variety of areas as well as tourism that is based on the protection of industrial heritage and economic achievements and sustainable development.</li> <li>2. Middle goals: Economic and social development of the region, preservation and restoration of the environment, employment and exploitation of existing potentials and preservation of historical wealth.</li> <li>1. Huge Objectives: Identify and achieve a unique national and effective national design in a variety of areas as well as tourism that is based on the protection of industrial heritage and economic achievements and sustainable development.</li> <li>2. Intermediate goals: Economic and social development of the region, preservation and restoration of the environment, employment and exploitation of existing potentials and preservation of historical wealth.</li> </ol>	<ol style="list-style-type: none"> <li>1. Local and Regional Social and Cultural Issues</li> <li>2. The manner and amount of investment and expectations ahead</li> <li>3. The diversity and diversity of relevant and competent centers and groups in the application of opinion.</li> </ol>	<ol style="list-style-type: none"> <li>1.The size of this site is to create a diverse and specialist collection of specialized centers</li> <li>2. Excellent location in the immediate neighborhood of Tehran and the Tehran-Qom highway and all the facilities and facilities of this route like the imam Khomeini International Airport, the metro station and the closeness to religious sites such as the shrine of Abdulazim and Imamzadeh Ismail, Behesht Zahra and other places Religious and other culture.</li> <li>3. Variety and definitions of possible activities for inclusion in the collection in attracting the audience</li> <li>4. Properties of climate and climate (due to its adjacent plains and mountains) and away from traffic and congestion in the city</li> <li>5. Close to mineral springs and historical and cultural monuments.</li> <li>6. This space can provide both domestic and foreign investment opportunities.</li> <li>7. Design and recreation of this collection can increase the employment and welfare of the people with the participation of the people and institutions.</li> </ol>

Given the explanations given and the issues raised, or having a proper system of functionality for usability, we can revive this site and its surroundings and restore the spirits of life and vitality and continuous activity of the people to this collection. We can say that the best performance system proposed for this set is as follows:

1. Education department
2. Accommodation area
3. Cultural and artistic sector.
4. Leisure sector
5. Greenhouse products sector and useful animals for treatment and health.
6. Sports and health department
7. Health sector
8. Commercial sector
9. Administrative department.

In fact, each of the sections mentioned has office space

### **8. Idea plan for reuse of Kahrizak sugar factory**

The most beneficial idea that can be thought of and proposed for this site and site is the Green Village Plan, which seems to be an effective and acceptable plan not only for this collection, which is high for most historic industrial sites, Coverage of the challenges faced by the user. On the other hand, the term “industry” returns to this building, with the difference that this user can be more useful and useful than before, and can well make this building more durable and practical, and also with this idea and use, the history of work and the use of hideous and old land and land in this region is restored. Green industries contribute to the development of sustainability that can meet the needs of the present without compromising the capabilities of the next generation in meeting their needs, and this development involves development on the three main axes: economic, social, and environmental, and causing creating a framework to improve welfare and social justice by reducing environmental risks and environmental degradation.

### **9. Conclusion**

In the field of addressing the industrial heritage, the three factors of conservation, restoration and revitalization are factors that, through their comprehensive review, can be a successful project and a clear vision for the protection and care of Iran’s industrial heritage. Each of these factors alone will not only lead to growth and resuscitation, but may also cause damage, damage or loss of their values. From the first steps, clear and clear the concept of industrial heritage and the reason for the need to protect them from the audience and people interested in the cultural heritage of our country because the most important factor in keeping these arenas and buildings intact are the participation and involvement of people and institutions that by blowing the spirit of their presence in these offerings, they bring back life to them. In general, the proper rehabilitation involves physical, functional, social and cultural regeneration, which leads to economic regeneration, and this itself defines an economic activity that ultimately can be the missing values and the distant perspectives of these buildings and fields it has revived and added an economic value. With the protection of these buildings, protecting the body and its main structure, in accordance with the principles and laws in this field, which can be followed up in the next steps. With the generation of multifunctional and user-centered cultural-entertainment-artistic applications (involving all types

of people from the public and economically feasible) that are reinforced with economic activity, a revitalizing program Creating and recreating these buildings in such a way that the collection is economically independent and reliant on its income, and the sustainable economy is formed and, by holding different events (event-centered), led to the vitality of these collections and buildings, and The principle of adaptability in creativity has been applied to them together in order to add to the attractiveness and popular participation. Kahrizak Sugar Factory is an example of our industrial heritage, considering that it is located outside of Tehran and on a travel route, by fully examining its situation and observing the history of its use and the reasons for its construction, as well as taking into account The presence and activity of the people as well as the economic justification can, after the protection and restoration plan of its structure and its structure, provide for the revival and regeneration plan in accordance with the observance of the points and factors mentioned and the choice of the best option for use.



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## Biography

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## Creative Tourism in Modern Heritage Regeneration; The Case of Rasht Municipality Square

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### Abstract

In recent decades, modern architecture, as an example of cultural heritage, has attracted the attention of cultural and creative tourists and has led to economic prosperity and cultural development. Accordingly, ample consideration of heritage-based regeneration is needed in urban planning policies. Based on the empirical study and a qualitative method, this paper attempts to examine the main impacts of creative tourism on the regeneration process of modern heritages in the city core of Rasht, regarding the expansion of cultural and creative industries' discourse. The investigation includes several interviews and a questionnaire with visitors and marketers of Rasht Municipality Square's district. This paper evaluates the impacts of tourism on culture and vice versa in three aspects: physical/environmental impacts, economic impacts, and socio-cultural impacts. Despite the negative consequences of the tourism industry, the results of the research indicated that regenerating cultural heritage sites, due to creative tourism needs, can increase economic affluence, cultural employment, and social vitality. This will lead to an increase in the residents' health and quality-of-life. As regard to the newness of debates in the field of cultural and creative industries in Iran, this research is among the few papers concerning creative tourism and heritages, specifically modern heritages in a creative city context.

**Keywords:** creative tourism, cultural tourism, creative experience, modern heritage, cultural regeneration

## 1. Introduction

Many developing countries have focused on tourism to promote economic growth and to enhance socio-cultural welfare of their people (Timothy and Nyaupane, 2009). Most heritage towns are now reporting an increase in the number of visitors staying the night (Smith and Robinson, 2006). In fact, cultural heritage-based tourism has grown much faster than the other forms of tourism and is thus viewed as a key potential tool for poverty alleviation and community economic development. This niche of tourism relies on cultural tangible and intangible elements as a tourism resource (Timothy and Nyaupane, 2009). Modern heritage as a cultural heritage improves the quality of the tourism destination and enriches the remarkable experience of tourists since historical artifacts have always been one of the tourism industry's most saleable products (Sigala and Leslie, 2005). In return, tourism can provide heritages with the funding necessary for preservation and conservation (Raj, Griffin and Morpeth, 2013).

Culture and trade have obviously become intertwined in the perspective of the cultural and creative industries (CCIs). By means of CCIs and creative experience of tourists, there has been a shift from cultural tourism to creative tourism. This has led to the growing importance of creative activities and visitors' participation as sources of revenue and catalysts for socio-economic regeneration of urban areas (Smith, 2003). Creative-friendly urban environments offer the best conditions for dynamism and innovativeness in their economies (Florida, 2012). In consequence, creative cities are using cultural events and branding to attract investment and to enhance their image through a creative economy. A booming creative economy, with an appeal to residents and visitors, can often advance the socio-economic status of a city and contribute positively to indigenous community life and creative tourism (Smith, 2003).

While tourism may contribute to functional regeneration of heritage, it may also produce noteworthy imbalances in socio-cultural and environmental assets (Raj, Griffin and Morpeth, 2013). To evaluate these difficulties, this research highlights the current heritage-led regeneration turn, affecting historic urban center in the city of Rasht. The paper also takes into account the emergence of creative tourism and the positive and negative impacts it may bring on the regeneration of cultural heritage with a focus on modern heritage. First, the concept of creative tourism in urban areas, where cultural heritages may exist is discussed. Second, the modern heritages of the Rasht city, which is adopting a positive approach towards cultural regeneration and tourism development, will be deliberated. This section examines the impact of creative tourism on the regeneration of Rasht Municipality Square's Complex (RMSC) and vice versa based on several in-depth interviews with visitors and a questionnaire from marketers of Rasht Great Bazaar (RGB) since there's a close connection between the square and the market. Finally, the conclusions are drawn.

## 2. Creative tourism in cultural heritage regeneration

Primary communication between tourism and creativity was carried out through the assessment of creative activities such as participation in creative performances, cultural events and or local crafts (Chang, Backman and Huang, 2014). There has been a growing emphasis on the importance of CCIs to the global economy. In this context, it could be argued that the frontiers between cultural industries (e.g. arts, heritage, and artifacts) and commerce are being gradually demolished (Smith, 2003). Creative tourism has become an umbrella term for a wide range of related activities, including cultural tourism, heritage tourism, ethnic tourism, arts tourism, and others

(Smith, 2003). They all share mutual arrays of capitals, management concerns, and anticipated outcomes (Mckercher and du Cros, 2002). In fact, the creative tourism sector is more based on the customer experience. This involves the active interaction between tourism's suppliers and consumers in the development of their own experiences during cultural product design, production and consumption (Raj, Griffin and Morpeth, 2013).

Currently, people actively seek out experiences and consume goods and services more for the experience they provide than any tangible element. As a result, experience has moved to the very core of tourism (Smith and Robinson, 2006; Richards and Munsters, 2010). This new orientation not only provides a dynamic for the city but also has a symbolic value by showing the historical potential of these places as a new and bright future; linking the modern heritage of cities with creative city planning allows people to connect their identity to the city (Lazrak et al., 2011).

Many historic cities have become cultural destinations and centers of tourism commerce. In most cases, they are composed of indigenous architecture and organic morphology with a mix of contemporary influences of the time (Timothy and Nyaupane, 2009). A review of classifications of cultural heritage and tourism reveals that it encompasses people who are culturally motivated to gather new information and experiences from heritage places, wanting to satisfy their cultural needs (Sigala and Leslie, 2005; Raj, Griffin and Morpeth, 2013). The cultural heritage includes many tangible assets such as historical places and *modern heritage* as well as natural and cultural environments in cities (ICOMOS, 1999), which are suitable for living folk museums, popular among foreign tourists for their demanded *authentic* representations of daily life. Cultural heritage is seen in many places as an economic savior upon which tourism should always be based. The socio-cultural realm involves intangible heritages such as cultural traditions, indigenous communities, gastronomy, knowledge, and education (Smith, 2003), but it also comprises cultural artifacts, modern cultures and economic systems. Creative tourism affects all these environmental segments in both positive and negative ways (Timothy and Nyaupane, 2009).

Tourism has often been used to encourage economic regeneration in cities because it is recognized as a growing industry and, consequently, can provoke job creation and economic growth. In many cases, creative tourism has been seen as a potential for the regeneration urban spaces due to the presence of spaces and opportunities for the provision of new cultural resources such as creative attractions and modern heritage (Nourian and Fallahzade, 2015). There are several steps to creative tourism in a heritage context: (1) identifying the creative heritage product; (2) equipping the heritage by regeneration process; and (3) advancing the creative experience through interpretation and collaboration. A lively cultural event of local dance, music and even food, all encourage a visitor to stay longer and expand their depth of understanding about traditional local culture. Moreover, to develop tourism as a sustainable means for economic growth and cultural preservation, heritage planners have to consider the following issues (Timothy and Nyaupane, 2009):

- Information for culturally motivated tourists;
- Quality and authenticity of tourism goods;
- Cooperation of the tourism industry and conservation and management of heritage districts;
- Funds from revenues of the tourism industry;
- Indigenous planning and management and profit by the local community.

In this context, cultural heritage regeneration and creative tourism tend to blend by referring

to the enhancement of heritage sections of the city through a cycle of economic revitalization, the improvement of the quality-of-life of the local population and the attraction of culturally curious tourists. Among these are CCIs which presents a catalog of cultural/historical quarters development models based on different urban policy schemes (Scott, 2000) and attracts creative tourism experiences based on interactive workshops and events. Participating in creative historic activities let visitors experience a variety of regeneration opportunities, and often encourage the preservation of cultural and historical traditions, contributing to the protection of cultural heritage and local arts and culture (Raj, Griffin and Morpeth, 2013). The common characteristic of both of the tourism development and regeneration process is that they seek to transform old spaces while re-creating new ones. Many destinations are now exploring innovative and creative ways of expressing or representing regional or local cultures, all of which serve as unique reminders of their individualism and identity (Smith, 2003).

With competition between cities getting more intense every day, these cultural industries are now seen as a valuable asset for cities which seek a distinctive cultural identity (Jansen-Verbeke, Priestley and Russo, 2008). Therefore, local authorities are using culture as a marketing tool and regenerating historical cores to provide an authentic experience for cultural travelers (Raj, Griffin and Morpeth, 2013). Accordingly, the case study in this research presents a cultural regeneration program through a creative city context, especially in the historical city center where several valuable modern heritages exist.

### 3. Methodology

Since the paradigm of the present study is of mixed type, the research method is a correlation strategy as a combination of qualitative and quantitative approaches in order to investigate the interaction between creative tourism and heritage regeneration. Quantitative research is mainly based on the collection of data on a number of respondents or observations; however, qualitative research aims to obtain in-depth insight into the social reality which is referred to as data enhancer (Richards and Munsters, 2010).

In this research, rational cognitive strategy deals with the logic of explaining and interpreting related theories and documents. Moreover, the interpretive-historical strategy has adopted through multiple scrutiny methods which include a questionnaire, in-depth interviews, several visits, photos, documentary, and descriptive observation. This research is based on an empirical study of RMSC and its modern heritages. This complex has recently been renovated under the culture-based regeneration project and the creative city branding. The reason for selecting this case study is to examine the positive and negative impacts of this project on cultural and creative tourism in the city center and provide solutions for tourism conflicts due to the Rasht city registration on UNESCO Creative City Network (UCCN) list.

Rasht, also famous as Rain City, is the capital city of Gilan province in northern Iran, located in the south of the Caspian Sea. In history, Rasht was a great transport and trade center which linked Iran to Russia and Europe, and as a result, was known as the "Gate of Europe". The history of the city goes back to the 13th century but its recent modern history dates back to the Safavid era (1501-1722) during which Rasht was a significant silk trade center with plentiful textile workshops (Masoumi Eshkevari, 1996). Rasht is growingly turning into an industrialized town like most of the Iranian large cities and province capitals. Rasht is known for its famous Municipality building and other modern heritages, located in a square called the Municipality Square (Figure 1). RGB is an old market located next to Municipality Square and the center of all business activi

ties in Gilan province. Thousands of residents of the adjacent cities and villages are daily entering the bazaar which attracts many tourists every day (Municipality of Rasht, 2016).

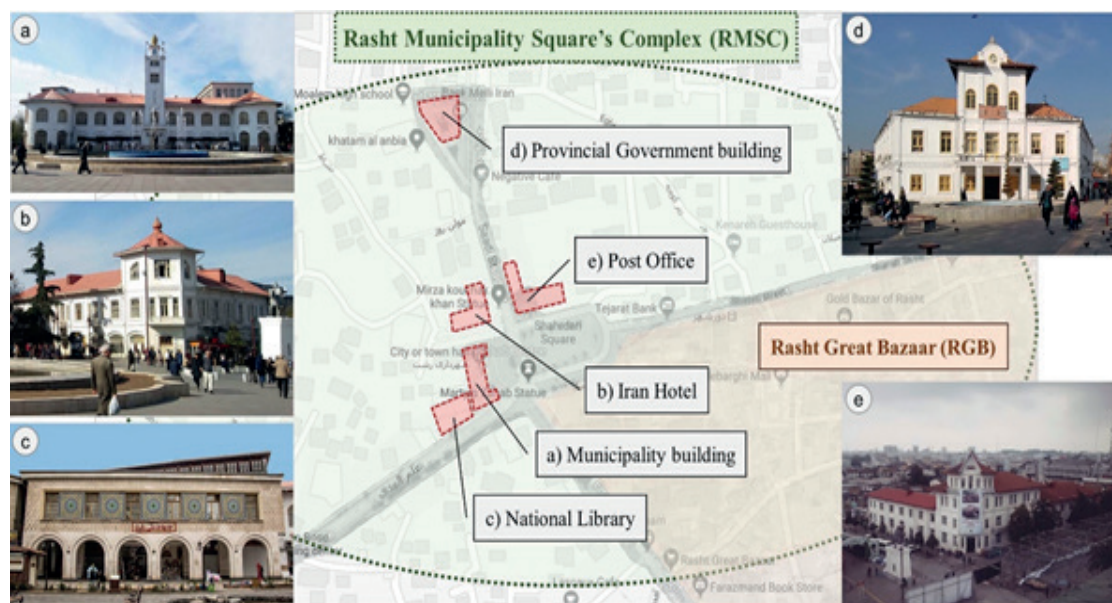


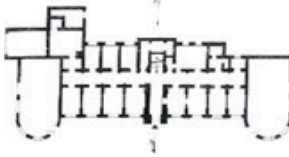



Figure 1. The range of RMSC and modern heritages in Rasht, source: authors.

Since there's a cultural and socio-economic connection between RGB and RMSC, a questionnaire and several in-depth interviews have been taken from marketers, street vendors, and visitors (domestic and foreign) in these districts to evaluate the impacts of RMSC's regeneration on cultural/creative tourism and vice versa, which are divided into three aspects: (1) *physical/environmental impacts*; (2) *socio-cultural impacts*; and (3) *economic impacts*. First, the impacts are organized into two categories of positive and negative impacts, and then some reasonable cultural strategies will be suggested to overcome tourism conflicts in the discussion and conclusion section.

### 3.1. Modern heritages in RMSC

In urban architecture, the influence of cultural and social factors within the urban community and the impact of architecture and art outside the city can be observed. In the architecture of Gilan cities, in addition to the influence of the specific culture of northern Iran, the architecture of the neighboring territories, such as Turkey, the Caucasus and somehow the European architecture, also affected the local construction. In this context, the squares of Gilan cities can also be mentioned (Eslah Arabani, 1989). The RMSC has several modern heritages: Municipality building, Post office, Iran Hotel, Provincial Government building, and National Library; which date back to first Pahlavi era (1926-1935). The aspects of these modern heritages are represented in Table 1. In 1977, RMSC was registered as one of the national heritages in Iran. All of these cultural heritages have two/three floors, which are connected from the middle of the mansion with a broad staircase, and the courtyard is located in behind; except for the Provincial Government building which has a central courtyard. The municipality building has a well-known clock tower, which has its own spiral staircase inside. Their exterior facades are also decorated with small porches, white cement and red clay tiles on the ceiling (Eslah Arabani, 1989).

**Table 1.** Characteristics of modern heritages in the RMSC, source: authors

	Construction period	Primary function	Suggested activity	Architectural plan
Municipality building	First Pahlavi (1926)	Office of Rasht Municipality	Post office and telegraph house	
Post Office	First Pahlavi (1933)	Post office and telegraph house	Post office	
Iran Hotel	First Pahlavi (1935)	Hotel	Museum of Contemporary Art	
Provincial Government building	First Pahlavi (1929)	Hospital of Municipality	Cultural-Art organization of Municipality	
National Library	First Pahlavi (1934)	Library	Library	

#### 4. Impact of RMSC regeneration on creative tourism

The interviews and questionnaires are set in twenty-four questions through a quantitative method, three of which are descriptive and the remaining twenty-one questions are optional. As described in the methodology section, the age of respondents was from twenty-two to sixty-seven, the majority of whom were men. Their education varies from sub-diploma to master's degree and their approximate monthly income is from less than one million to more than three million Iranian toman. The interviews and questionnaire are also designed in three components, each of which is evaluated and analyzed. Results are structured through a qualitative method in three categories: (1) physical/environmental, (2) socio-cultural, and (3) economic; and structured in two positive and negative impacts.

##### 4.1. Positive impacts:

Some advantages of the tourism industry on cultural heritages have been declared by the informants:

- *Physical/environmental impacts:* an increase in tourism has led to the renovation and adaptive-reuse of modern heritages in RMSC as a museum or gallery. This has turned the square into a great pedestrian mobility area, particularly for nightlife and shopping and thus has increased the quality-of-life. Several tourism facilities have been constructed such as restaurants, cafes, restrooms, public transportation and parking lots which can also be used by inhabitants.
- *Socio-cultural impacts:* the presentation of cultural assets has facilitated the awareness of residents and visitors of the need for conservation and preservation of cultural heritage. Traditional cultures /celebrations have been reinvigorated through the regeneration of cultural intangible heritages promoting cultural pride. Cultural exchange with tourists has led to greater tolerance of cultural differences. By means of tourism demands for more in-depth creative activities, several educative interpretation programs and innovative entrepreneurial start-ups have been initiated to teach guests and hosts about cultural heritage and traditions such as local gastronomy. Furthermore, social security has been increased.
- *Economic impact:* tourism opportunities have developed local economies to be more culturally creative and entrepreneurial. Revenue from visitors of cultural heritages has directed to cultural infrastructure improvement. Also, this revenue has been reinvested in documentation, planning, and management of modern heritages in RMSC, which is important for the sustainability of cultural assets. Tourism activities in the square have generated the cultural economy's opportunities through employment and private businesses since tourism is the key source of foreign currency.

##### 4.2. Negative impacts:

Despite positive impacts, numerous negative aspects of the correlation between tourism and cultural heritage have been stated:

- *Physical/environmental impacts:* overuse by tourists has displaced local residents, causing gentrification, overcrowding, garbage in sidewalks and noise problems in RMSC. This overburdened mutual resources, such as water and gas. Moreover, the use of historic artifacts or monuments by careless visitors, such as touching, climbing on and leaving marks, has caused serious damage. Due to unmanaged tourism infrastructure development, alteration of visual



appeals and amenities has led to undesirable visitor experiences. Air pollution caused by traffic has contributed to the dilapidation of materials in RMSC's heritage areas.

- *Socio-cultural impacts:* Some tourists are not aware of, or ignore local customs and religion; they desecrate mosques and take drugs, not perceiving visitor etiquette at attractions. Cultural property (motifs in crafts and arts or music) may get carried away since there is no copyright or protective legislation. Local events and festivals, exhibited in the square, are changed for tourists and are at risk of losing their meaning and importance for inhabitants. Moreover, modernization and globalization as cultural change have affected the behavior of locals, especially the younger generation, as they abandoned traditional customs.
- *Economic impact:* tourism has caused local communities to become economically dependent on tourism industries, leading to cultural commodification and damages to cultural authenticity, financial independence, and traditional activities. Income flowed to limited sectors of the community. This will provoke divisiveness and dissatisfaction inside the society. Local residents often lack the expertise and investment needed to establish tourism-related industries and like street vendors, end up with low-paying jobs.

## 5. Conclusion

This article examined the impacts of cultural and creative tourism in the central square of Rasht and its relationship with the regeneration of modern heritage. Many destinations have promoted their cultural products into forms of tourism such as heritage tourism, cultural tourism, and creative tourism, and are pursuing cultural visitors with a greater level of sophistication. Creative tourism often appears to be an economically desirable prospect for policy-makers, since it encourages the local population to conserve and preserve their cultural heritage and traditions as well as crafts and arts. It seems that creative tourism via adaptive-reuse of modern heritage can bring many benefits, including job creation, regional economic prosperity, improving local indigenous creative industries, and social security along with cultural vitality and the interchange of diverse cultures.

This paper divided the diverse impacts of tourism on culture and vice versa in three aspects: physical/environmental impacts, economic impacts, and socio-cultural impacts. It could be argued that the first two groups of impacts are easier to measure and manage than the third one, which is often intangible. The most noticeable problems of RMSC's tourism included garbage, congestion, cultural vulnerability, and cultural commodification, leading to the damage of the cultural authenticity of local cultural resources. These could be enhanced by developing the public/private budget, heritage's revenue, and workforces which are used in the regeneration of modern heritages in the square. Moreover, cultural festivals, craft-based production markets, cultural museum/galleries, creative activities, and experiences can advance authenticity and cultural awareness of local inhabitants, which will encourage community-based tourism.

In summary, the results showed that despite all the problems and shortcomings, as well as the opposition of residents to any regeneration projects which are not in the control of locals, the reuse of modern monuments to strengthen native and international creative tourism will increase the connection between local residents and visitors through cultural exchanges, making them more flexible to cultural change. Although, it is assumed that the prospect of tourism will be mostly reliant on the implementation of policies in conjunction with community empowerment, participatory development planning and the significance of indigenous knowledge.

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## Biography

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## A Conceptual Framework for Understanding the Railway Heritage Values, Case Study: Trans-Iranian Railway

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### Abstract

During the years, the concept of value had been directly related to changes in biological and social structures. The concept of cultural heritage values has evolved through understanding the modern era and the conflict between the industrial revolution values and historical values and also society development. The construction of railways, is one of the symbols of technology and modernity in various societies and known as a tool for expanding and transferring the goods, man and their ideas which has reminded of a wide range of legacies for future generations. Recognizing and analyzing the values of the railway heritage requires a precise examination in evolution of the concept of values, which is explained by an integrated and comprehensive understanding of its cultural dignity. Due to the variety of works and concepts in railway heritage field, the concept of this type of heritage for a better understanding of the boundaries of cultural dignity is a little difficult. According to previous studies in the field of world heritage, industrial heritage and railways, this paper tries to recognize and explain the conceptual framework for railway heritage and present a practical and comprehensive guide for expressing the different aspects of railway values. Trans-Iranian Railway which is registered as the UNESCO World Heritage's tentative list, contains outstanding universal values not only as a communication path, but also as a significant part from memory of a committed engineering and a masterpiece of construction. Trans-Iranian Railway is the name of the first modern Iranian railway of Iran which connects northern part of the country to the south. This railway was operated in 1937. Therefore, this paper examines the concept of the Railway World Heritage and its related concepts through trans-Iranian railway as a case study.

**Keywords:** industrial heritage, railway heritage, Tran-Iranian Railway, heritage values.

## 1. Introduction

Developments known as the Industrial Revolution, which occurred between 1760 and 1830, not only had industrial but also social and intellectual consequences (Ashton, 1384:5). This period was accompanied by a bold and innovative spirit with speed as its main characteristic. According to Ashton: “one of the main characteristics of the Industrial Revolution was its new interpretation of the concept of time” (Benevolo, 1384:46). In fact, speed came to influence all theoretical structures and consequently relations, transactions and transfer of goods and human beings. The speed of exploiting natural resources, executing constructions and transportation with economic motives resulted in a huge progress in commercial, engineering and medical fields. Afterwards, usage of communicational means for the delivery of goods and movement of human beings via water canals, railways, telegraph, etc. was improved. Construction of railroads in the world in general and in Iran in particular can be considered as a symbol of the Industrialization Age. Of course the industrialization of Iran occurred with a delay compared to European countries. Here the role of railway was of utmost importance as a strategic factor for development at a national and international level. As a cultural asset, the Iranian railway enjoys unique values in comparison with its foreign counterparts.

One of the newly-discussed concepts is studying the values of railway heritage in the world despite its undergoing an evolutionary process. Case studies conducted by relevant organizations such as ICOMOS or TICCIH about industrial heritage, railways and other related issues, constitute a multilateral endeavor for explaining the value of the railway heritage within the universal background. Due to the existing variety and expanse of concepts and monuments, defining the concept of value in the railway heritage for gaining a better understanding about the limits of the cultural significance of the monument is slightly difficult. An exact definition of the concept requires multifaceted cognitional components. For this reason, the present study intends to elucidate the cultural significance of the monument by providing cognitional components and by adapting their function to the specific case study of the Trans-Iranian Railway heritage.

Present research is of a qualitative type based on historical-interpretative approaches as well as logical reasoning. It has tried to aggregate existing discussions for elucidating the conceptual framework of the railway heritage by considering relevant conventions, international charters, researches conducted by ICOMOS, UNESCO, TICCIH as well as the theoreticians of the field of the industrial heritage. The sphere under study owes its importance to two facts: firstly, because of its prioritized position concerning its historical aspects and its political role unlike other branches of Iranian railway network and secondly, because of its inclusion in the tentative list of UNESCO World Heritage as a monument having universal values. Chronology of the monument under study spans from 1848 to 1978 (1227 until 1357 SAH). Zones under study are situated on the Tehran-to-North segment at Firuz-abad Station as far as Qaem-shahr and on the Tehran-to-South segment of Andimeshk Station as far as Bisheh. Finally, based on global issues, the extracted framework was superimposed on the route of the Trans-Iranian Railway aimed at understanding, elaborating and elucidating the concept of value in the railway heritage of Iran using universal indices.

## 2. Establishment of Railway

Since the distant past, rails made of metal, stone or wood were used at short distances in order to deliver cargo to ships and later for mining purposes. Gradually, railroads were used in more complicated routes, wagons became bigger, animals were utilized, and iron replaced other sub

stances in the modern era. “Emergence of railway was one of the foremost and most principal indications of the Industrial Revolution which not only introduced a new lifestyle to people but also widened the horizon of their thoughts. For this reason, railway infrastructures can have great historical significance despite being inferior architectural instances of their time. Main memorials of the Industrial Revolution such as the original railway bodies are important at a universal scale” (Cossons, 1997).

Dr. Michael J.T. Louise, who was one of the first and most prominent railway researchers describes it as: “a prepared track which so guides the wheels of the vehicles running on it that they cannot leave the track” This definition has the merit of technical simplicity and thus embraces many kinds of transport systems apart from those conventionally known as railways; wheels need not be a feature. But for our purposes, the real advantage of the definition is that in referring to a prepared track it draws attention to the fact that railways are built with a specific purpose in mind. That purpose may vary from system to system, but the principle remains the same – a railway is a linear transport feature, the rest is detail (Coulls, 1999:1). Many historians believe that the inauguration of the Liverpool-to-Manchester railway in 1830 in northwestern England amounts to the first specimen of modern railway consisting of: an exclusive path, public traffic area, convenient transfer of passengers and slight control of the society (Coulls, 1999).

### **3. Establishment of Railway in Iran**

During the difficult political-economic circumstances of the second half of the nineteenth century, the first rail lines of Iran were built under the Qajar rule but the transition of power to the Pahlavi dynasty as well as the policy of powerful countries of the time resulted in some complications. From the year 1850 until 1925 (1228 -1303 SAH), a total of 31 proposals for railway concession were submitted to the government of Iran without any concrete results. Initially, railway was established for exploitative purposes of foreign states resulting in a few small-scale and temporary projects but at the beginning of the Pahlavi period, the idea of constructing and expanding rail lines based on national investments finally materialized and the first national railroad linked the Caspian Sea to the Persian Gulf (Sharifi, Teymurtash & Hanachi, 2018).

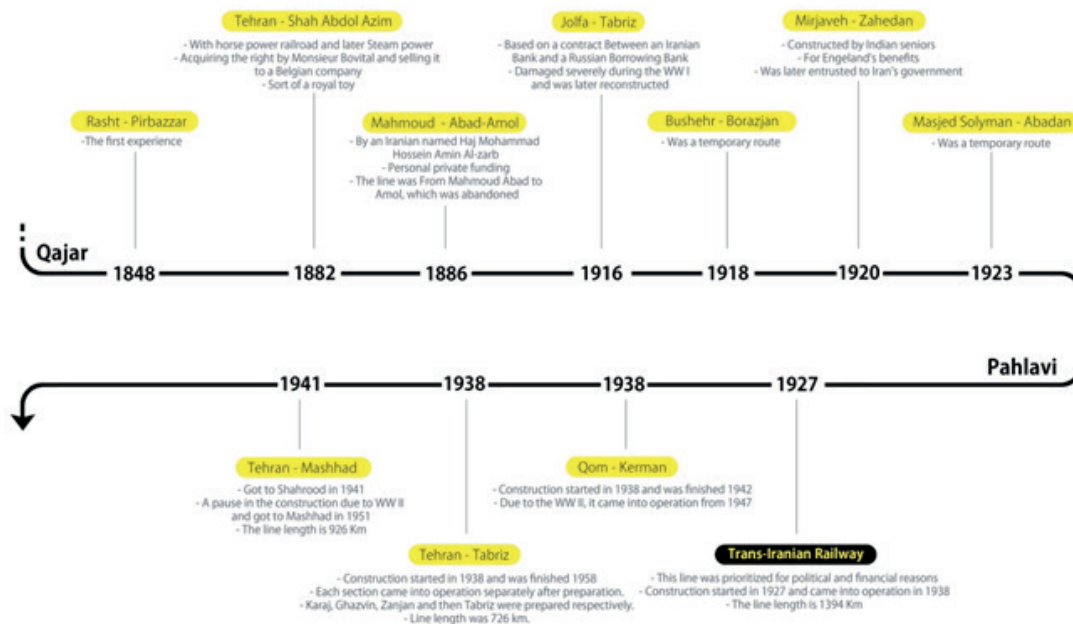


Figure 1: historical timeline of railway establishment in Iran, Source: the authors

The first Iranian state document in which railway has been mentioned was the letter sent by Napoleon the third to Naser al-Din Shah of Qajar (Mahbubi Ardakani, 1997:321). The preliminary plan of the Trans-Iranian Railway was drawn by Sane al-dowleh, the first head of the National Consultative Assembly of Iran using the geographical map Henry Keyport had published in Berlin on a scale of 1:1000,000 (Malakouti, 1948). As the technical advisor and representative of the Roads Ministry, a Danish company by the name of Kampsax managed to sign a contract with the government of Iran. As a matter of fact, Kampsax had previously built the railway network of neighboring Turkey.

#### 4.Introduction and Description of the Trans-Iranian Railway

The Trans-Iranian passes through eight provinces, namely: Golestan, Mazandaran, Semnan, Tehran, Qom, Markazi, Lorestan and Khuzestan. Eight different climates are felt in the pristine areas on the route: warm and humid, temperate and humid, temperate and arid, hot and arid, mountainous, mild and dry, hot and humid, hot (Mokammeli, 2000). The cross country route from north to south of Iran covers 103 train stations and has a length of 1394 kilometers. The highest point on the route is 2112 meters above sea level and the longest tunnel is 2880 meters long. There are more than 4200 small and large bridges, 245 tunnels and accessory (industrial/utilities) installations on the Trans-Iranian each enjoying its specific technological, architectural, cultural and social characteristics.

<sup>1</sup>A variety of bridges have been built on the route using different techniques, each a showpiece of the interaction between human and nature. There exist plenty of outstanding elements on the route consisted of the remains of factories, storerooms (depots), machineries as well as technological structures like tunnels and bridges which will be mentioned later. Effects of constructing the Trans-Iranian on the architecture and urban planning also depend on the climate of each area

as well as the variety of indigenous cultures mixed with local know-how and technology. Various cultures of ethnic groups have been chained together by the Trans-Iranian creating a landscape of huge proportions with a great heritage importance. Indeed, the role of the Trans-Iranian in the transfer of technology as well as rural and urban development is undeniable.



Figure 2: Position of the Trans-Iranian Railway, Source: the authors

## 5. Conservation of Railway Heritage

The issue of conservation is brought up as a reaction to the industrialization of societies. In accordance with various theories, the concept of cultural heritage and values has been transformed greatly during the 18<sup>th</sup> and 19<sup>th</sup> centuries. Out of the confrontation of theoreticians and the industrial society came a gradual support for progress and technology exemplified in impressionist works. The low-profile conferences held in the pre-WWI Hague convention (1899 & 1907) until the response to the widespread destructions of WWII led to the creation of specialist, international



committees in support of historical monuments.



Figure 3: transformation path of values of the Industrial Revolution until the industrial heritage conservation, Source: the authors

It was initially in 1973 that the International Committee of Industrial Heritage Conservation acknowledged that remnants of landscapes, sites and structures dating from the Industrial Revolution could be considered as having cultural status and significance. “Industrial heritage is a new and challenging debut in the heritage field” (Cossons, 1997:15). Since the formation of TICCIH Committee, the identification of the concept and values of the industrial heritage, has developed into the recognition of its various species and later to the effect of geography on distinguishing existing differences. “industrial heritage is a unique cultural domain which brings up challenges unprecedented in other sections of heritage and requires new answers to problems not much known in the past” (Cossons, 1997:15). The TICCIH Committee has divided the subject of industrial heritage into 21 categories namely: railways, bridges, canals, communications and so on. Due to their challenging nature in the cultural, natural and combinational (hybrid) category, there are not many industrial heritage monuments on the UNESCO World Heritage List but thanks to increasing worldwide studies, the number of registered monuments is on the rise. “Indeed, railway has a profound and significant status which has been ignored in many cultures” (Cossons, 1997).

Railway heritage encompasses the fields of cultural, natural and industrial heritage. Routes, bridges, tunnels, canals, natural riverbeds, train stations, architecture and urban planning, industrial residues, storerooms (depots) and locomotives, all constitute the ingredients of this rich heritage. The value of each one of these ingredients has been mixed with different historical, architectural, technological, natural and other aspects. As a consequence of such variety, elucidation of railway heritage values appears to be a hard challenge. For this reason, ICOMOS with cooperation of TICCIH Committee embarked on a multifaceted study about industrial specimen including canals, railways, routes, etc. The study was published in 1999 entitled:” Railways as World Heritage Sites” dealing with the issue of elaborating the concept of railway heritage as an industrial heritage of the world and the outstanding features of these monuments. Moreover, the study not only tries to compile these features, but also pays attention to the case studies of several countries. The ICOMOS and TICCIH study suggest the following four indices for identification of railway heritage values (for more explanations, see Coulls, 1999):

1. A creative work indicative of genius
2. The influence of, and on, innovative technology
3. Outstanding or typical example
4. Illustrative of economic or social developments

As a result of surveys conducted, a conceptual framework has been devised for elucidating the values of the railway heritage. In the first phase, precise identification of railway-dependent constituents and elements is required, but in the second phase, justifying the railway heritage based on the above-mentioned four indices becomes necessary.

Profound recognition and comprehension of monument values makes possible reaching an appropriate approach for examining its integrity and authenticity in addition to providing courses of action for its conservation and management plan.

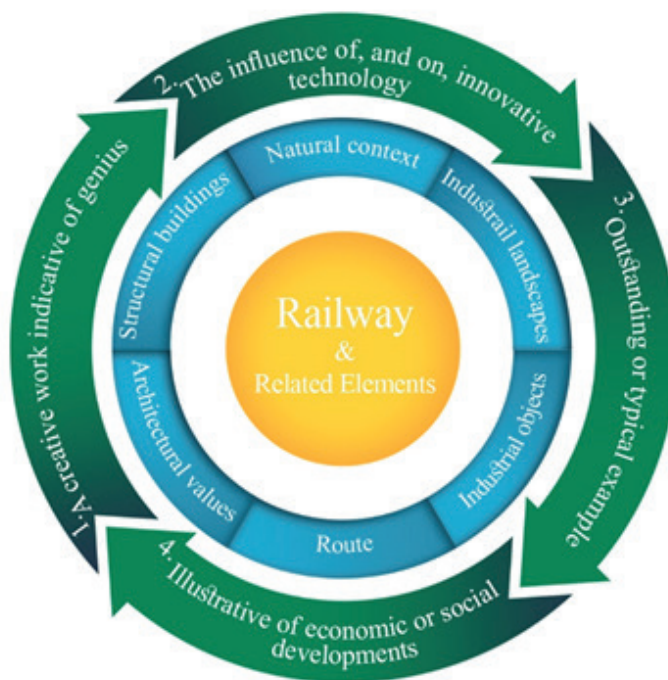


Figure 4: conceptual framework for explaining the railway heritage values, Source: the authors based on the proposal made by TICCIH and ICOMOS (Coulls, 1999)

## 6. Explaining of the Trans-Iranian Railway heritage values

Function of a suggested conceptual framework is presented according to the studies conducted.

### 6.1. A creative work indicative of genius:

The north-to-south cross country railway of Iran is a unique technical system created by talented and informed engineers who managed to provide innovative solutions for overcoming natural obstacles. Construction of bridges, tunnels, walls and other dependent elements despite the shortage of equipment at inaccessible routes are certainly worthy of admiration. Among the most noteworthy bridges on the Trans-Iranian are: Veresk Bridge with a 66-meter long span and a height of 110 meters which was built without using any metal materials and armature; Urim Bridge built with a span along the bend of the route set behind a massive solid arch having a 64-meter-long span and a radius measuring 16.8 meters on either side of the arch and two crescents each with a radius of 247.1 meters. Cross sectional dimensions of the arc are: the center of the arc with a width of 4

meters and a diameter of 1.60 meters; pillars with a width of 8.90 meters and a diameter of 2.80 meters; the 1000-meter-long Karun Bridge as the highest bridge on the route as well as Do Ab, Shurab and Shirgah bridges located between Firuz-kooch and Qaem-shahr on the North segment and many other examples.

The Trans-Iranian Railway is actually an engineering feat on a global scale, but parts of it particularly in highlands have been executed with the help of foreign countries. As a matter of fact, the executive intricacies needed for bad weathers and harsh terrains has led to the advancement of the technical knowledge for this industry which has also been applied in other countries for the construction of bridges, tunnels, waterways, shield walls, equipment delivery as well as mapping and road-building. One of these complicated works is the Se khat-e tala on the northern branch just before Veresk Bridge. This section of the Trans-Iranian with the shape of three steps and a length of 10 kilometers has ascended 600 meters uphill in order to make possible the passage of trains through a very steep slope by decreasing its gradient. The Trans-Iranian boasts a high variety in architecture and technology of constructing train stations, structures as well as novel and innovative samples of architecture and engineering unprecedented in the early twentieth century. Therefore, conservation of the Trans-Iranian as a successful and vital specimen of the industrialization of Iran and the transfer of this legacy to our descendants can be quite important for humanity.



Figure 5: passage of Se khat-e Tala lines across mountain slopes (right); Veresk Bridge, 2016 (left), Source: Base archives of Islamic republic of Iran railways (right); authors (left)

## 6.2. The influence of, and on, innovative technology:

Transfer of technology and various industries in the form of using new materials (concrete and steel) in the Trans-Iranian had a deep impact on local industries and heralded the industrialization of Iran. Construction of factories, depots and accessory buildings along the route and finding a new usage for indigenous materials made possible the contact with rural and urban knowledge and eventually led to the substantial development of urbanization and architecture in each region such as the Qaem-shahr railroad fabrication factory which has created an expansive industrial landscape. Due to the usage of new materials and modern engineering, former limitations were put aside and construction works in cities experienced a huge transformation. Indeed, transportation of construction materials became easier and technological structures inspired more simple

alternatives for building activities. Trans-Iranian

Railway represents an excellent example of innovative transportation system utilizing technical and engineering knowledge for the development of deprived regions like those situated in the mountains. Technological development has a direct link with economic welfare of the countryside; seriously affects highland habitats, provides access to the wealth of oil-rich regions of southern Iran, makes possible exchange of human and cultural values and greatly lowers travel time compared with the past. These factors have contributed to its stability and sustainability until present time.



Figure 6: Urim Bridge (right); Doab Bridge (left); 2016, Source: the authors

### 6.3. Outstanding or typical example

The north-to-south cross country railway network of Iran can be deemed as an exceptional instance of human coexistence with nature especially because it has kept its visual, structural and functional integrity in the course of time. There exist landscapes such as national parks, wildlife shelters, natural and national monuments as well as protected areas along the route assimilating with the linear landscape of railway. Furthermore, technical structures such as bridges, tunnels, canals, etc. have not altered the route integrity instead they have created a landscape in a more readable and more beautiful interaction with nature. These structures are perfect examples of nature control and human interaction with it. Among successful examples are: Veresk canal dug beneath Veresk Bridge for water direction and flood control, the 2880-meter-long Gaduk Tunnel as the longest tunnel of the Trans-Iranian on the northern branch as well as the formerly-mentioned Se Khat-e Tala.

Despite the advance of technology, expansion of urbanization and exploitation of natural resources, the integrity of the route has remained largely intact with only minor alterations via necessary technical interventions. The Trans-Iranian has been continuously in use since its construction and has been under constant repair or maintenance when required so that it has still kept its vitality and authenticity. This North-to-South cross country rail line has resulted in an increased human habitation in the vicinity of cities and along the railway route guaranteeing the dynamism of the monument. The design of train stations and residential quarters dependent on railway has followed a special architectural style inspired by local climate, construction technology and indigenous architecture. Location of train stations, their dependent architectural structures and their modern design has been under the influence of western architectural approach but mingled with traditional and local architecture which together have paved the way for future expansions as well as specific architectural and urban planning developments along the route. Among the most noteworthy examples are: Russian church and cinema at Shur Ab on the northern branch, the ensemble consisted of Tehran train station and Rah-Ahan Square as well as usage of sloped roofs and

cement materials in northern stations contrary to flat roofs and brick facades of southern stations.



Figure 7: a drawing of the remains of a cinema or a church built by Russians (right); a drawing of Se khat-tala (left); 2016, Source: Meraj Sharifi

#### 6.4. Illustrative of economic or social developments

Although the original purpose of constructing railway has been an improvement in transportation, it has inevitably had also huge effects on social, economic, political and cultural developments of urban spaces across the entire country. Furthermore, the role of the Trans-Iranian is undeniable concerning the World War II in which Veresk Bridge was nicknamed as the Victory Bridge, to this we can add the start of political relations with other countries, the beginning of industrialization and arrival of modernity into Iran. Moreover, the Trans-Iranian has played a major role in the social and economic progress of a multicultural region. Relations established between Torkaman, Mazani, Lor, Kord, Khuzi and Arab ethnic groups via the rail line proves the correctness of the claim that a multicultural landscape has been created thanks to the existence of the railway. As a matter of fact, along the route we can witness that not only authenticity has been preserved but also cultural, ethnical and lingual variety has been maintained. Moreover, the Trans-Iranian represents a major period of cultural interaction and technology transfer. Additionally, considering its political impact during the second world war, it has resulted in the creation of population centers along its route; among them are the newly-established villages of Veresk or expansion of cities like Qaem-shahr. Among instances of newly-accessed routes are: passing through the town of Garmsar, branching off and reaching the holy city of Mashad, connecting towns situated in the margins of the Kavir desert to Tehran, linking Zagros highlands to Ahwaz plains and southern farms.

Growth of the railway industry in desert and mountainous regions of Iran has greatly helped their dynamism and development. Passing through virgin lands, the Trans-Iranian has made possible the transformation of these newly-accessed areas because human settlements and holiday resorts were established in them and an integrated and dynamic linear landscape has been generated. The Trans-Iranian has paved the way for cultural, economic and commercial progress of vast areas that were previously hardly-accessed or were so remote that no access was possible to them.

#### 7. Conclusions

From the confrontation of the Industrial Revolution with historical values until social adaptation and orientation for comprehension of the proportions of the modern era, the cultural heritage has traversed a long evolutionary trail. Values of railway heritage not only encompass tangible

works like bridges and tunnels but also cover more expansive dimensions from the effects of the Industrial Revolution and the arrival of modernity to social, political and economic roles causing significant changes in public lifestyle. Identification of railway heritage values requires.

knowledge about a wide variety of expertise in the fields of culture, industries, engineering, rural development, etc.; existence of such variety necessitates the adoption of an integrated approach both for identification and for conservation of values. An exact knowledge about various railway values gets richer gradually following the study of different samples with different specifications from other parts of the world.

The heritage of the cross country railway network of Iran is a set of tangible and intangible values going its own way after encountering challenges of construction and conservation. The ongoing vitality, function and network expansion proves the successful construction and conservation of this monument. The Trans-Iranian is an excellent example of civil engineering and taming of nature. It has occasionally produced vast cultural landscapes but also enjoys a perfect merge with nature and presents a case of human coexistence with its natural surroundings. Furthermore, it has preserved some potentials from the remains of industrial landscapes in order to make possible the reviving and thriving of undeveloped regions. The historical and political role of the Trans-Iranian during the Second World War tied it to the destiny of other countries. Additionally, the importance of the railway phenomenon is undeniable for expansion and distribution of science and technology across Iran.

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<sup>1</sup>According to the reports and documents of the Railway Company of the Islamic Republic of Iran.

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## Biography

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## **Interpretation and Revitalization of Modern Heritage's Identity: Examples of the Barcelona Pavilion and the Museum of History of Bosnia and Herzegovina**

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### **Abstract**

The paper's objective is to reassess the concepts of integrity and authenticity in regard to process of modern heritage interpretation and revitalization. The paper discusses the subject of construction and reconstruction of modern heritage by putting in correlation two modern buildings: the Barcelona Pavilion (the German Pavilion) and the Museum of History of Bosnia and Herzegovina (former Museum of the Revolution of Bosnia and Herzegovina). With a comparative analysis of architectural (envisioned), poetic (interpretative) and real (built) identities of these two similar but different buildings the paper aims to discuss the subject of originality of architectural work in temporal and spatial terms. The first objective of putting in a same context these two architectural works belonging to the different periods and social and cultural contexts is to perceive the ambiguity of connotations given to heritage in the process of its critical interpretation. Initially, the paper intends notice on how the valorisation of architectural work aesthetic, spatial and visual features is subject to visual presentations, critical interpretations and cultural understandings of architectural work in determining time and place. Secondly, the paper intends to critically reassess the concepts of heritage's architectural singularity and cultural significance, having in mind the idea of social denotation of architectural work in terms of centrality and peripherally. Lastly, the final objective of the paper is to critically approach the subject of modern heritage revitalization. The theoretical assessment of the Barcelona Pavilion reconstruction in 1986 is carried out with an aim to practically approach the challenges ahead of currently undertaken rehabilitation of the Museum of History of Bosnia and Herzegovina. By putting in correlation these two diverse but similar processes, the paper intends to stimulate the discussion on the modalities of dealing with concrete: material, constructive, social and cultural difficulties and problems which heritage preservation and rehabilitation professionals confront in the process of 20th century heritage protection and revitalization.

**Keywords:** 20<sup>th</sup> century heritage, modern heritage, identity, authenticity, interpretation, revitalization



## 1. Introduction

The 20<sup>th</sup> century heritage preservation is a very perplexing and complex task posed before heritage protection professionals. The endeavour to objectively assess the value of a building opus whose life span juxtapositions with our own in a very beginning is quite compromised since the tools we are using in the assessment process are culturally learned and subjectively dyed.

When assessing 20<sup>th</sup> century heritage we must have in mind that our theoretical and practical knowledge as well as subjective architectural understandings, cultural belongings and personal reminiscences are applied in the process of heritage assessment. In other words, when assessing aesthetical, spatial and social features of the architectural work one should have in mind that his/her personal visual sensitivities and critical perceptions consciously or unconsciously condition the assessment of modern heritage's character. Likewise, personal cultural and political understandings of social context in which architectural work was originated similarly might influence on heritage character perception. Hence, the heritage professionals must be aware that in the process of the 20<sup>th</sup> century heritage assessment they are not only evaluating the architectural significance, constructive contributions and aesthetic value of the work, but are participating in the construction of cultural and social narrative on time and place in which the work was brought forth.

The paper intends to observe how this narrative is constructed and what are its repercussions on perceptions of architectural work character and identity. This is carried out by putting in correlation two buildings which share same visual and spatial architectural language and in a very similar way promote not only a modern way of building and inhabiting but what's more a modern ideology of being, living in a brother, transcendental terms: The Barcelona Pavilion (the German Pavilion) and the Museum of History of Bosnia and Herzegovina (former Museum of the Revolution of Bosnia and Herzegovina). Although built at different times and within different social contexts and although these two buildings might not have a same architectural relevance in the global terms, they are both a profound source for study of if and how development of modernism in different cultural and social contexts might have or not led to alteration of form, syntax and meaning of modern architectural discourse.

This study of artistic, cultural and social denotations of 20<sup>th</sup> century architectural works tends to follow the progress of architect's thought, its growth into the notion and then finally its realization as a project. That is realised through comparative analysis of architectural (envisioned), poetic (interpretative) and real (built) identities of here selected two modernist gems. By observing in which ways the identities of these buildings were constructed we will search for the answer to the question how the meaning of concepts of originality and authenticity in regard of 20th century heritage did change. Furthermore, by studying the process and outcome of the reconstruction of the Barcelona Pavilion and by discussing the possible dilemmas that might appear in the process of rehabilitation of the Museum of History of Bosnia and Herzegovina, we will notice how challenging is to define and then reinterpret both tangible and intangible identity of modern heritage.

## 2. The Barcelona (German) Pavilion

Hundreds of tourists, enchanted with the view on Museu Nacional d'Art de Catalunya and/or seduced by the idea to see the very popular Magic Fountain dyeing the notes into the colours, each day walk from the Plaza España towards the Hill of Montjuic. In this fifteen minutes' long walk only few of the passer-by's turn from the main pathway to pay a visit to a small building hiding on the way.

They walk around the space each of them with different building in their heads. Some of these visitors are visiting the German Pavilion designed by Ludwig Mies van der Röhe and Lilly Reich and built in occasion of the 1929 Barcelona International Exhibition. Others are visiting the building that at the MoMA 1392 exhibition was crowned as “one of the finest buildings of the [modern] decade” (Carrer, 1932). Some are passing around the walls, they know from black and white, sepiia photographs. Others are browsing through Hitchcock’s, Berhens’, Banham’s, Benevolo’s and Johnson’s words. All quite impressed with Oriol Bohigas, Ignasi de Solà-Morales, Cristian Cirici and Fernando Ramos distorted veracity.

None of these Pavilions cannot be identified as the “real one”. And still all of them are “real one Pavilions”. They exist and coexist together forming the singular architectural narrative in which all three Pavilion’s “states of being”: the real (built), the poetic (interpretative) and the architectural (envisioned) are of singular importance in the process of building’s identity creation. In the case of the Pavilion there are two real (built) realities of the building: First is the one of the German Pavilion, an ephemeral, experimental, representative structure built in 1929 and second is its 1983 - 1986 simulacrum: The Barcelona Pavilion. If the first space is considered for authentic, original one, then the second space should be considered as its material counterpart. But if the first space is considered as original or in the sense of the being first, existing from the beginning, or in the sense of genuine character of the idea, we can question the concept of originality in terms of idea’s materialization.



Figure 1: The official photography from the Fundació Mies van der Rohe Official of the Barcelona Pavilion (The Fundació Mies van der Rohe, 2019)

If one of the principal objectives of the Pavilion was promotion of materials’ purity and endorsement of new construction techniques, then the 1929 Pavilion real (built) body was an example of the difficulties which architects and constructors faced at the time of bringing to reality given objectives.

As Dodds observes (Dodds, 2005) the tangible Pavilion was not in a perfect accordance with intangible idea of Pavilion: the foundation and podium base were not from concrete as assumed

but were constructed with traditional Catalan masonry construction technique, the flat roof was covered with tin plates and the exterior walls were crudely covered with rough painted stucco. This indicates the difficulties of physical materialization of the Pavilion's elusive artistic nature.

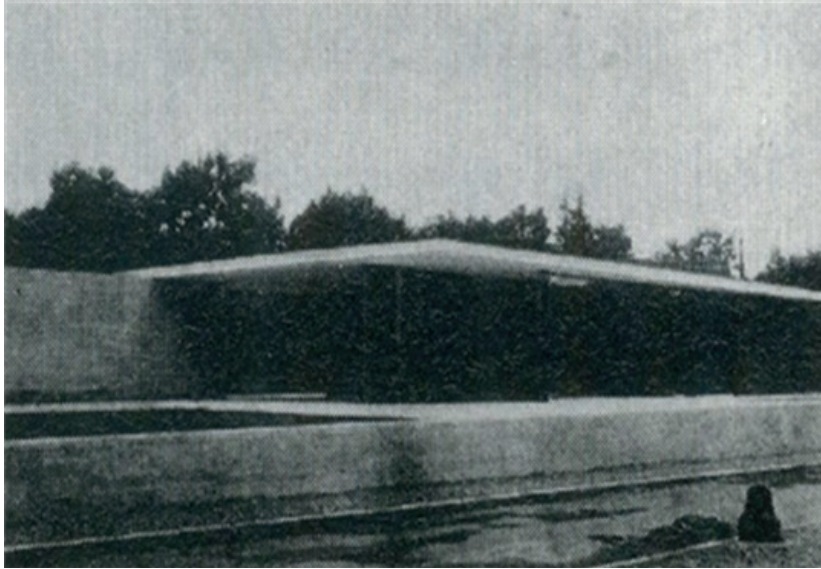


Figure 2: 1929 photo of the German Pavilion (Baeschlin, 1929)

Here we come to third nature of appearance of the Pavilion: the interpreted (poetic) one. The realest of all Pavilions, or in other words, the best known is the Pavilion constructed through photographs, primarily the Berliner Bild-Bericht 1929 prints, and theoretical and critical writings, from which in terms of narrative creation single out the initial ones of Philips Johnson, Henry-Russell Hitchcock and Lewis Mumford.

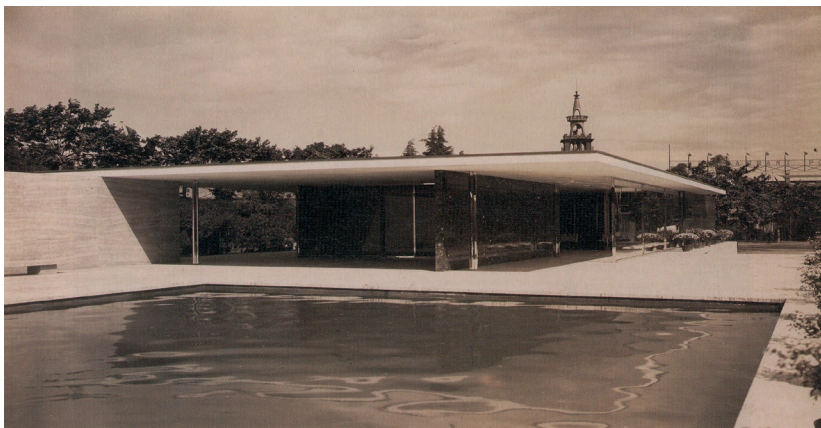


Figure 3: The 1929 Berliner Bild-Bericht German Pavilion prints (Dodds, 2005)

The photographs, as elaborated by Dodds, are more than mere illustration of the 1929 Pavilion. They are an artistic interpretation of the material Pavilion and an abstract embodiment of its poetic nature. On the other hand, the writings on the Pavilion, as Bonta (1975) studies, they are the mediums for cultural and social signification of the project and the architect<sup>1</sup>.

In 1983 the fourth form was added to these three forms of appearance of the Pavilion: The Pavilion model. Oriol Bohigas', Ignasi Solà –Morales', Cristian Cirici's and Fernando Ramos' Pavilion is an accomplished materialization of the mythical Pavilion. "The real Pavilion" is an image of the image, a transcript of the transcript presented in a material form.

### 3. The Museum of History of Bosnia and Herzegovina (the Museum of the Revolution of Bosnia and Herzegovina)

The (hi)story of the Museum of History of Bosnia and Herzegovina is not as complex and ambiguous as the Pavilion's (hi)story. The museum, time and again referred to as a manifest of Mies van der Rohe's 'pure architecture' (Roš, 2004) was built in 1963 upon first award winning competition project of a group of Croatian architects: Boris Magaš, Edo Šmidihen and Radovan Horvat (1958) (*Načječaj: Muzej narodne revolucije u Sarajevu*, 1959).

Architecturally, the building, elevated on white marble paved pedestal with a small grass pond next to the entrance, is composed of a white cube floating above a long translucent passage. In constructive terms, the main trump of the project is leaning 26,58 x 26,58 x 5,5 m large cube on nine slim steel columns placed in outline 6,0 x 6,0 m what enables potent cube's projection on all sides. Spatially, the Museum's main quality is openness and versatility of the interior. The building consists of the entrance foyer, placed below the featured cube from which spreads longitudinal glazed pavilion with rooms of different purpose placed along. The glassed pavilion on the side opposite to the cube ends with a smaller, cantilevered exhibition space and transversally placed office and library edifice. The group of spaces encloses an interior garden, a flexible outdoor exhibition space originally intended for exhibition of military vehicles and weaponry.



Figure 4: A front-page photo of the Museum of Revolution of Bosnia and Herzegovina booklet, issued on occasion of the permanent exhibition opening in 1966 (*Muzej revolucije Bosne i Hercegovine Sarajevo*, 1966)

The original architects' idea of creating disappearing floating space was challenged with investor's financial capacities and building potentials Yugoslav construction industry at the given moment. As a consequence, several ideas envisioned by architects were or executed in a wholly different way or impartially constructively adjusted. The most extreme variation was a change in the project itself with architects' rejection of an idea to dress the cube with metal or titanium plates and enclose the pavilion with a crystal glass wall<sup>2</sup>. Other changes that might not be of such a major character, but which still they are of importance when discussing the process of building rehabilitation are the use of wooden window frames instead of steel ones in the pavilion's glass-façade and use of grass instead of water in the entrance pond<sup>3</sup>. Finally, as this group of authors did not participated in the interior design of the building and as the interior finishing in is not quite best of in terms of materials selection and quality, it makes it difficult to assess to what extent architecture of the real (constructed) the building differs from the envisioned one.



Figure 5: 1966 photograph of the Museum of the Revolution of Bosnia and Herzegovina building (*Nagrada "Viktor Kovačić"*, 1966)

Besides considering questions regarding building's constructive and physical features, the question of the interpretative narrative also might have an influence on the process of Museum's rehabilitation. The architecture built in between 1945 and 1990 on the territories which formed a state named the Socialist Federative Republic of Yugoslavia every now and then is referred to as "socialist architecture", "architecture of socialism", "socialist modernist architecture", "socialist modernism", or even "Eastern Block architecture". This distinction assumes that modern architecture of non-occidental countries, in this case in countries which socially, politically and economically were organized on the basis of the socialist system, somehow differs from the occidental modern architecture. This, supposedly suggests some other construction technique, some important variation in formal or materialization terms or even derogation from modern architectural thought, objectives and postulates.



Figure 6: The Museum's state of condition in 2016<sup>4</sup>

If we take in consideration that the state had exclusive powers in terms of definition of legislative framework considering spatial organization and building and that in the given moment the state was both a main landowner and main financial resource for architectural construction, we can conclude that the socialism influenced on architecture in terms of definition of social(ist) programme of public competitions, development of socialist spatial plans or endorsement of socialist building agendas. Nonetheless, the fact that modern architecture was produced in a society organized upon socialist principles does not lead to a conclusion that the modern architecture built in SFRY in the period 1945 – 1990 differ from the modern architecture built in the Western or any other societies in terms of architectural thinking, conceptual deliberation, design development, spatial organization, functional features, constructive techniques, structural systems, materials specifications, building practices and procedures, etc.

These considerations lead to the conclusion that Museum's architectural identity is nothing but modernist, while its cultural character might be defined as socialist. In practical terms this means that the change in Museum's function should be taken in consideration in the rehabilitation process when acting upon interior space, while in terms of rehabilitation of the building's architectural character one should be guided with intention of revitalization of its modernist identity.

#### 4. Conclusion

Architecture is a complex discipline in which diverse skills are applied in the process of architectural work design and construction. However, as the paper reviews, the architectural work is not always just a product of design and construction. As the examples of the Barcelona Pavilion and the Museum of the History of Bosnia and Hercegovina demonstrate, technological limitations can have quite an impact on the final appearance of the architectural work. As both of the examples show, this real, constructed presence of the building is not always in accordance with the look and feel of the building envisioned by the architect. This may become an issue in a moment of definition which state of being of the modern architectural heritage we intent to revitalize. As seen

in the example of the Barcelona Pavilion, the improvement of building's structural and material characteristics can be one of the rehabilitation's objectives. However, the intent to recover "original" author's idea on how the building should have been constructed might completely alternate building's identity. This would be the case if in the process of rehabilitation of the Museum of History of Bosnia and Herzegovina the decision is made to replace white marble with reflecting titanium plates.

The preservation of original construction techniques means writing the history on their development. Knowing that Mies van der Röhe and Reich built the Pavilion upon masonry built podium means that the progress in construction industry development is being followed. It also helps understanding difficulties which not only modern pioneers, but architects altogether face in the process of architectural design and construction. In this context it should be very considerate in weighting out to which extent structural and constructive features of the Museum of History of Bosnia and Herzegovina should be improved, having in mind that originality of project also lies in the ability of architects and constructors to find inventive solutions for constructive dilemmas posed before them.

Finally, we must be aware that in the process of interpretation and reinterpretation of the modern heritage's character and identity we are not just describing and interpreting the modern architectural work/building we refer to, but we are participating in the creation of the identity of a whole architectural discourse. By describing the context in which the modern architecture was created and by placing in that context a particular moment of singular building erection, we are creating social and cultural discourse. This discourse is full of designations, signs and symbols which have the power to construe and govern the reality. Hence, we, theorists, critics, architects and art historians have to be very prudent when facing a hard task of interpretation of constructed reality knowing that by interpreting the existing reality we have a power to construct a new reality.

## End Notes

<sup>1</sup>Bonta quotes Ludwig Mies van der Röhe as the only author of the Pavilion, omitting Lilly Reich.

<sup>2</sup>Boris Magaš, one of the project authors, revealed the existence of such an intention in the interview with the author on 21 November 2012. Still, this information should be considered with restraint having on mind architect's latter reflection on the project which he might wanted revised.

<sup>3</sup>Edo Šmidihen, interview with the author, 22 November 2012.

<sup>4</sup>Author's personal archive.

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## Biography

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## Revitalization of urban garrisons, concerning their tangible and intangible valuable layers (Case study: evolutions of Mashq Square during the 20th century in Tehran)

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### Abstract

Militarism had great influences on architecture, urbanism and social life in the 20th century. Major changes occurred in the structure of bureaucratic system in Iran, following thoughts of the rulers to create the concept of state-nation. Changes happened both in physical and intangible aspects of buildings in this period. This analytical article tries to evaluate the tangible and intangible valuable layers of the 20th century garrisons through historical-descriptive method, applying document analysis and observation tools. It should be mentioned that military buildings have had great influences on urban spaces due to their multiplicity and their specific nature and function. Garrisons are among such buildings that were created in the suburbs at first place and then -with development of the historic cores of cities- became parts of them and then began their digestion process within new developed cities. Following the same trend, today we witness large terrains within cities belonging to garrisons and military centers. Reviving such valuable places have great importance, especially now that cities are in vital need for appropriate terrains to locate different functions. As successful experiences in transforming historical garrisons into parts of lively urban spaces are those that simultaneously meet contemporary needs and reflect preserving historical values and mental memories, the article focuses on tangible and intangible valuable layers of the historical garrisons, through the 20th century evolution of Mashq Square in Tehran, with the hope that revitalization of such places could be an effective step to create different environmental perception and specific sense of place.

**Keywords:** Military heritage, Historical garrisons, tangible and intangible values, Mashq Square.

## 1. Introduction

The culture of the twentieth century modernism has been shaped in relation to contemporary changes in social, political, philosophical and also artistic fields that revolutionized lifestyles (Elmas 2005). The discussion about the preservation of the 20th century architecture should start with a debate on the philosophy of the architecture of Modernism and of the corresponding architectural forms. In 20th century architectural conservation the preservation of the original concept is more important than the perpetuation of the original structure.

Military heritage places are also part of the cultural heritage. The spirit of the military heritage places is associated with the intangible values. Military heritage calls out large emotions very often and it is connected with national, regional and local tradition protected as the intangible heritage, which is transmitted from generation to generation, is constantly recreated by communities and groups in response to their environment, their history, and provides them with a sense of identity and continuity. thus, promoting respect for cultural diversity and human creativity (Klupsz 2008).

After 1921 Persian coup d'état<sup>1</sup> and the establishment of a military state, an appropriate context for a new military organization was created, and it seems that militarism can be elaborated as the most significant characteristic of *Reza Shah*<sup>2</sup> era. This militarism of the beginning of the 20<sup>th</sup> century turned the concept of "State-Nation" into reality. The military attitude of new dynasty, led to construction of building complexes that are categorized as first Pahlavi architecture in Iran. The greatest example of these military structures were the garrisons that were created to meet the new military ends. By further development of historical cores of the cities, intown garrisons became parts of new cities in the upcoming years and began to adapt themselves with their new urban lives; following the same trend and with the expansion of cities through decades, some of these 20<sup>th</sup> Century garrisons are even located in the heart of contemporary cities of Iran. Refunctioning military garrisons with the aim of improving urban functions and environmental quality of the cities and giving them a leading role in the social-economical activities is one of the issues that has been considered worldwide for many years; in Iran this has become a subject of increasing interest in recent years as well; thus, many completed or ongoing legal and executive projects have been defined in this field.

In 2009 "The law of the sale and transfer of urban garrisons and other military places outside the city and its suburbs" was passed by the Islamic Consultative Assembly to reuse these lands and allocate them to appropriate urban functions that the developing cities of Iran face their lack. Successful urban revitalization experiences recreate spaces that while meeting the needs of today, have the capacity to preserve tangible and intangible values, as well as historical memories; historical military complexes are not an exception. Therefore, defining such a pattern leads to preservation of the spirit or "genius loci" of the military heritage places that calls out nostalgia.

### 2.20<sup>th</sup> Century garrisons in Iran

By 1939, the use of the term "Paadegan"<sup>3</sup> was not common in the Persian language. At the time of *Fath Ali Shah Qajar*, in which the first organized armed forces were born, military places were places in which the troops were located. But it turns out that this term has a long history in the Persian language dated back to Sassanid era. "Paad" in Persian means protection and the word "Paadegan" is the invention of the Iranian Academy of Culture in 1939. But the first recorded garrison of Tehran dates back to Fath Ali Shah era.

Hamid Nasserī<sup>5</sup>, a researcher in Tehran history, says there was not a single army during Qajar dynasty in Iran. The forces did not have a special order. They were called *Ghoshoon*<sup>6</sup> and they were located in military bases. In Qajar period, the huge building of *Qurkhaneh* (figure 1) on *Jalilabad Avenue* in Tehran (which is now called *Khayyam street*) was a place for the construction of weapons and ammunition.

Qurkhaneh was at the time of *Nasir al-Din Shah*<sup>7</sup>, next to the royal citadel and the northern part of the *Darolkhelafeh*<sup>8</sup>; At this time, there was not much weapons made in this place, and it was after the *Constitutional Revolution*<sup>9</sup> that Qurkhaneh became evidently active. Nasserī adds that there was a close connection between the building of Qurkhaneh and *Mashq Square* since the beginning of its construction: “Mashq Square was built at the time of Fath Ali Shah and was a place for military practices and exercises in the heart of the city”.



Figure 1: Left, Nasir al-Din Shah’s visit of Qurkhaneh

(Source: <https://upload.wikimedia.org/wikipedia/commons/thumb.jpg>)

Right, Qurkhaneh Gate which is today the entrance of a metro station in Tehran (Source: Authors)

In fact, Mashq Square is the first garrison of Tehran. This square later lost its name due to the establishment of the National Garden and the construction of city park and the creation of administrative buildings such as Ministry of Foreign Affairs, the department of Justice and the National Museum, but it still remains and refers to interval between Imam Khomeini and 30Tir streets (The evolutions of Mashq square will be lately described in the article).

### 3. Valuable layers of Garrisons

The increasing dependency of society and politics to the form of the state-nation has made the social analysis of political-military developments more important, as well as its consequences in various aspects of cultural identity of a society; in fact, political and social evolutions are dependent variables of the interaction between the society and the government in a country. The aforementioned coup d’état in Iran is one of the examples that can reveal the role of each internal and external factors and their effectiveness on social-political events.

The modernized Iranian army was formed after this of militarism in the new dynasty (Pahlavi). In the organization of this new army the hierarchy was the most influential component and the “supervisory” characteristic of buildings in this era stems from these changes. The buildings of this

period were “unique” and different from the others and the construction projects were “rapid” due to their multiplicity. The military characteristic that achieving a goal must be done in the shortest and the most clarified way, transformed construction processes into military disciplines; therefore, different buildings were rapidly constructed. Roads, tunnels, railway, numerous bridges, various state buildings and urban complexes such as Mashq square and the preliminary buildings of University of Tehran were built based on these new concepts. Apart from these new architectural and urban evolutions in Iran their “spiritual influences” were also evident in different forms in the architecture of this era. As an instance, the hierarchy of the new modernized Iranian army was reflected in the similar and unique elements of the buildings like windows, columns, etc. that were a symbol of uniform outfits of the soldiers.

The new concept of militarism, was also the origin of many evolutions in other aspects of cultural-social life in Iran that some of them are going to be discussed in the following paragraphs:

- Politically speaking, Iranian “nationalism”, as a state ideology, was born in first Pahlavi era in order to create a modern government based on it. Therefore, this government sought to establish a national identity which stemmed from nationalistic ideas. The policy of “Iranization” of the Pahlavi regime was considered a prerequisite for the creation of a modern state-nation. The usage of “Iran” instead of “Persia” was also another consequence of this nationalism.
- Culturally speaking, this military and nationalistic look to governing the country had deep influences in Iranian literature and language as well. Many new words were created based on army orders. The Iranian language Academy and Persian Language and Literature Association were established to realize the concept of “Iranism”. The names of cities, towns and months were replaced by ancient Iranian ones. The anthem of Iranian flag was made in 1933 and was performed in military ceremonies.

Today, it is very difficult to introduce a historical urban space including all the comprehensive features; because these spaces have lost their noble function throughout time and have undergone fundamental changes which of course, is inevitable. Mashq square is a unique example of such a historical place and the article tries to present its ideas by going through its 20th century evolutions as the first garrison complex in Tehran.

#### **4. Mashq square: evolution and events**

##### **4.1 Physical evolutions**

Mashq Square is located in the heart of the 200-year-old capital of Iran and is a complex that has witnessed many major political, social and cultural events throughout its history. It is a still alive space that, on the one hand, presents historical experience and on the other hand, an experience of contemporary everyday life. This place has such a great significance in the history of Tehran that one can hardly find a book about this city without a trace of Mashq square in it. It is significant due to its different architectural evolutions, social and historical events, political activities and its high cultural and artistic position.

Mashq Square, which was built for the purpose of military practice and training during the time of Fath Ali Shah, went through physical changes over time and different building and mansions have been located in it from Qajar period till now. The first evolution was the brick barrel walls

built around it in 1861 by the order of *Mirza Mohammad Khan Qajar Sepahsalar*<sup>10</sup>. After the expansion of Tehran during the time of Nasir al-Din Shah, the Shah dedicated its upper part to the American Christian missionaries who built the Evangelicalism Church there. The map of *Abdulghafar- Najm-Al-Molk*<sup>11</sup> shows Mashq square in 1930 (figure 2). After the formation of the Cossack Brigade<sup>12</sup>, they were located in Mashq Square due to its proximity to Arg<sup>13</sup> (Citadel) and Toopkhaneh square<sup>14</sup> and KazakhKhaneh building (figure 2) was built there.

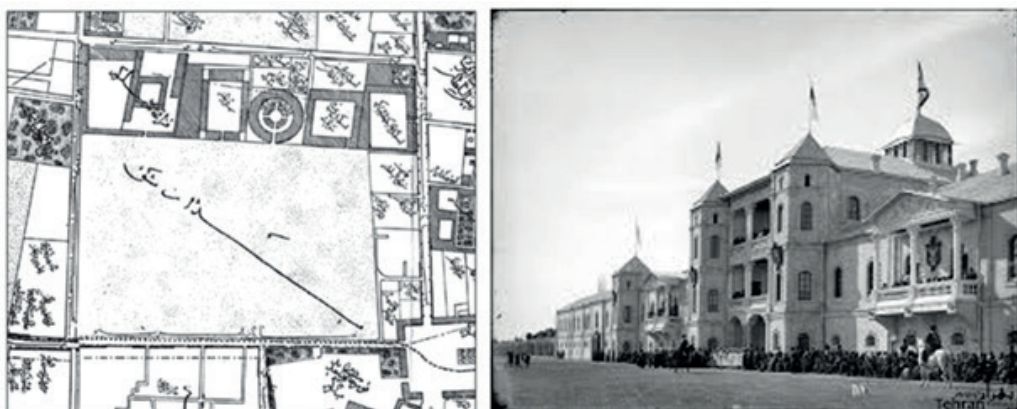


Figure 2: Left, Abdulghafar- Najm-Al-Molk map of Mashq square in 1930 (Source: Shiraziyan, 2012) Right, Kazakh Khaneh Building (Source: [https://encrypted-tbn0.gstatic.com/images?q=tbn:ANd9GcTvU0YRheCk68p\\_lhyggMzSWvaqVMish-nQ-bvv\\_sj89Wt5HMU7rw](https://encrypted-tbn0.gstatic.com/images?q=tbn:ANd9GcTvU0YRheCk68p_lhyggMzSWvaqVMish-nQ-bvv_sj89Wt5HMU7rw))

The 1921 Persian coup d'état began by the Persian Cossack Brigade headed by Khan and with this coup *Zia'eddin Tabatabaee* took over power and became the Prime Minister. With the beginning of Pahlavi dynasty, the expansion of the city occurred according to western urban development patterns and new spatial and physical forms were born. During these years, for the first time since the Constitutional Revolution, the government consolidated its power and, with the establishment of governmental and new socio-economic institutions, the transformation of the feudal structure or pre-capitalist society of Iran began (Shabanzadeh 2002).

In the middle of Reza Shah period, the order of streets was changed and long wide streets connected different parts of city together and numerous squares were formed in their intersections. The previous discipline of neighborhoods was destroyed and straight crossed streets imposed themselves into the organic structure of the city and dispersed different quarters.

Changing the royal headquarter from Golestan Palace to the Marble palace practically reduced the importance of Arg. Consequently, some changes were made in Mashq square. The king transferred the garrisons like Eshratatabad, Heshmatiya, Saltanatabad out of Tehran and decided to build administrative buildings there (Tehran book, 1997).

During the Time that Reza Khan was the War Minister (1922), at the entrance of Mashq Square, a gate was built with the common style of that time (figure 3). However, the gate had a contempo

rary ambiance due to the decorative images of machine guns, weapons and Cossack uniforms on it, but the concept of soldiers defending the gate of the city was absolutely traditional (Adl,1996)



Figure 3: Left, The new gate of Mashq Square in 1922  
Right, mashq square in the same year (Source: Rangchian, 2014)

After a while in 1928, In the mid-west of Mashq Square, a green garden was founded called the National Garden, that was in fact a public park, and the new gate was called the National Garden Gate since then; this gate is still known by that name despite the fact that the garden was ruined. In the same year, a building named Iranian and British Oil Company, was built on the Western part of the National Garden gate which serves today as one of the buildings of foreign ministry. The construction of the Post Office building (figure 4) started at the same time on the eastern part of the gate and it was officially opened in 1934.

The National Office of Real Estate and Registration was built in a corner of Mashq square between 1934 and 1935. Women School of fine arts was opened in 1935 and was located next to Iranian and British Oil Company.

The construction of Museum of Ancient Iran<sup>16</sup> and the national library started in 1933 and finished in 1937. The Nazmiyeh or Shahr bani Palace (figure 4) was built during 1932 and 1937. The construction of the palace of foreign ministry<sup>17</sup> started in 1933 and finished in 1939. The other constructions of this complex were finished at the same year.

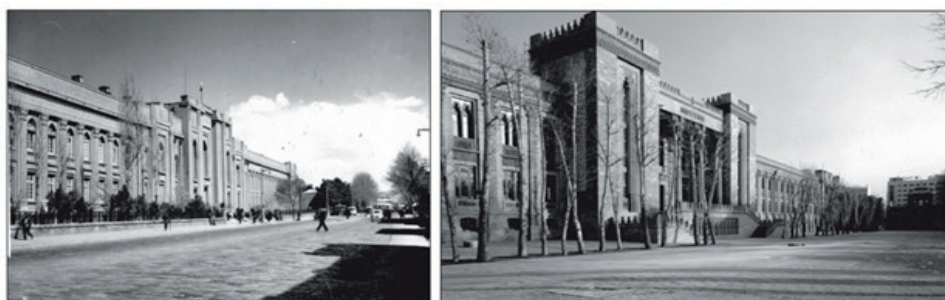


Figure 4: Left, Post Office building in around 1936  
Right, Shahr bani Palace in 1935 (Source: Rangchian, 2014)

In second Pahlavi time, the construction of the National Anthropology Museum started in 1953 and lasted nearly 40 years and is served as the museum of Islamic period at the moment. Sepah bank, Cultural Heritage Research center and Cultural Heritage Office and some of the buildings of foreign ministry, were also constructed in this time.

## 2 Historical events

Former Mashq square or national garden is one of the historical squares of Tehran with a prosperous background of political, social, military, cultural and artistic events, and has always been mentioned in travel literatures. According to the *Doctor Feuvrier*<sup>18</sup> special physician of Naser-al-Din Shah, every morning and evening a joyful music was played from the gate and dancers and singers in special outfits used to announce the sunrise and sunset to the citizens in this way.

*Ernest Orsolle*<sup>19</sup>, describes daily activity in Mashq Square in his travel record as: “there is a military practice field near Toopkhaneh Square where the infantry practice European military methods in regular ques, listening to military marches that are adapted from the common European operas...” (Najmi, 1989).

*Jackson*<sup>20</sup> mentions Mashq square in his travel book as: “we exit the rectangular square from its northwest corner which is the entrance of a street leading to a large and enclosed vaulted area. This area is one of the biggest squares of Tehran which is a military practice field and has a proximate length of 400 meters and the same width. This area is the biggest enclosed area in the world allocated to military practices in which the army men of king are trained according to European military methods...” (Jackson, 1975). One of the most important historical events in Mashq square, was the execution of Mirza Reza Kermani, in 1896, who was the assassinate of Naser al-Din Shah.

Around the end of 1913, one day the people of Tehran for the first time saw an airplane flying over the city. The residents were taken to the streets to have a closer look at the strange bird. The airplane landed at a ground, then known as Mashq square, the army exercise field in the city center. Upon landing, it collided with a parked canon in the field, knocked its barrel, and was badly damaged. The airplane had been built in France, and was named Bleriot XI, but a Russian pilot had flown the aircraft from Russia to Tehran. Iranian technicians repaired the aircraft in the army repair shop, and the plane was later flown back to Russia (Iranica, 2011); Thus, this landing is the first one and the square can be considered as the first airport in Iran.

One of the other events in Mashq square was the religious ceremony held there and the group of mourners commencing their walk from Kazakh khaneh building and Mashq square; even Reza Khan used to attend this religious ceremony before becoming the king of Iran. For a period of time, there was a cannon in Mashq square which announced the time of Suhur and Iftar during Ramadan fast<sup>21</sup>

As it was mentioned before, the national garden was built in this place. Many magicians, jugglers, snake charmers etc. used to perform for the crowd in this square and it was also the bastion of royal clowns. Apart from activities like training soldiers, cycling, sending balloons to the air, flying planes, horse racing and so on, Mashq square had another unique characteristic: it became like a piece of paper for one of the most famous calligraphs of that time who used to perform his

masterpieces on this field when it was white covered by snow. Actually, he used to practice calligraphy on the snow by a shuffle, so he emphasized by this act on the identity of Mashq square (as the word “Mashq” means practicing in Persian language).

This square witnessed several ceremonies and fireworks during the second Pahlavi era as well. It still continues its life within the historical heart of Iranian capital city with a lot of potential tangible and intangible values.



Figure 5: Left, The gate of National Garden today  
Right, Kazakh Khaneh building today. One of its buildings has become The Art University of Tehran  
(Source: Authors)

## 5. Conclusion

Planning for reuse of opportunities and potentials inside the cities is an effective strategy in sustainable development of the cities. The abandoned lands and industrial centers, garrisons and military complexes, cemeteries, penitentiaries and many other lands with heterogeneous functions are great opportunities to be reused. In Tehran and other megacities of Iran, military lands possess a considerable amount of these capacities. Planning for redevelopment of these areas will be possible by evaluating the urban needs and defects to refunction them; on the other hand, considering the prosperous heritage of such complexes that are an important part of our national wealth, has a great significance.

Urban spaces as one of the most important social places, are the intersection of cultural relations and interactions. The hidden valuable layers of each urban space, if introduced and exposed, can turn into unique attractions in the heart of contemporary cities. Revitalization of military complexes and urban garrisons deserve an even more scrupulous consideration due to the evolutionary role of militarism and the changes it made in different aspects of urban life that were mentioned throughout the article; as well as layers of tangible and intangible values attached to these places that were described through the evolution of Mashq square in this article.

A city without its historical memories is a dead corps, thus to recreate live urban spaces and to return historical garrisons to urban life, a holistic plan concerning multiple capacity of these spaces is needed which in addition to representing and introducing their architectural aspects, pictures important political, social and cultural events based on documents and historical evidences.



## End Notes

<sup>1</sup>1921 Persian coup d'état, known in Iran as 3 Esfand coup d'état, refers to several major events in Persia in 1921, which eventually led to the establishment of the Pahlavi dynasty as the ruling house of the country in 1925.

<sup>2</sup>Reza Shah Pahlavi (15 March 1878 – 26 July 1944), commonly known as Reza Shah, was the founder of Pahlavi dynasty and the king of Iran from 15 December 1925 until he was forced to abdicate by the Anglo-Soviet invasion of Iran on 16 September 1941.

<sup>3</sup>The Persian equivalent for “Garrison”

<sup>4</sup>Fath-Ali Shah Qajar (25 September 1772 – 23 October 1834) was the second Qajar emperor's king of Iran

<sup>5</sup>Hamid Nasserli is a researcher and an expert in the studies of Tehran who has already written 150 articles on the history of Tehran as well as the one-hundred-year history of Tehran municipality

<sup>6</sup>The Persian ancient word for “Military forces”

<sup>7</sup>Naser al-Din Shah Qajar (16 July 1831 – 1 May 1896) was the King of Iran from 5 September 1848 to 1 May 1896 when he was assassinated.

<sup>8</sup>The word that indicates the location of a king

<sup>9</sup>The Persian Constitutional Revolution also known as the Constitutional Revolution of Iran, took place between 1905 and 1911. The revolution led to the establishment of a parliament in Iran during the Qajar dynasty.

<sup>10</sup>Mirza Mohammad Khan Qajar was the minister of war and the prime minister of Nasir al-Din Shah Qajar.

<sup>11</sup>Abdulghafar- Najm-Al-Molk was one of the most successful astronomers and engineers of his time and a math professor at Dar Al Fonoon.

<sup>12</sup>The Cossack Brigade or Iranian Cossack Brigade was a Cossack-style cavalry unit formed in 1879 in modern Iran

<sup>13</sup>The residence of the king

<sup>14</sup>ToopKhaneh (which literally means “Artillery Barracks”), is a major town square and a neighborhood in the south of the central district of the city of Tehran, Iran. It was built in 1867 by an order of Amir Kabir and Commissioned in 1867. After the Iranian Revolution, it was renamed Imam Khomeini Square.

<sup>15</sup>The residence of Cossack Brigade

<sup>16</sup>The architect of this building was Andre Godard and Maxime Siroux and Nikolai Markov co-operated with him in his design.

<sup>17</sup>The building was designed by Gabriel Guevrekian who was the head of Tehran's municipality architects of that time

<sup>18</sup>He was a French military physician who served as the special physician of Naser-al-Din Shah from August 1889 till October 1892.

<sup>19</sup>Ernest Orsolle, born in 1858, was a Belgian traveler who traveled to Iran and Asia.

<sup>20</sup>Abraham Valentine Williams Jackson (February 9, 1862 – August 8, 1937) was an American specialist on Indo-European languages.

<sup>21</sup>Ramadan is the ninth month of the Islamic calendar, and the month in which the Quran was revealed to the Islamic prophet Muhammad. Suhur is an Islamic term referring to the meal consumed early in the morning by Muslims before fasting and Iftar is the evening meal with which Muslims end their daily Ramadan fast at sunset.

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## Biography

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*Faramarz Parsi*, After Cooperation with ARSEH and BAVAND consulting engineers, he has led several design, restoration, revitalization and rehabilitation project as the managing director of EMARAT-E-KHORHID consulting engineers since 1997. He has also been teaching in several universities as visiting professor.

*Nima Keynejad*, started his career as architectural and urban planner and designer in 2004. He has recently started his cooperation with EMARAT-E-KHORHID consulting engineers.

## Conservation of industrial architectural heritage based on value led approach, Case study: Cement Factory of Shahr-e-Rey

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### Abstract

As cultural heritage, industrial buildings are prone to various changes and transformations to the extent that they are practically susceptible to complete destruction. Accordingly, such spaces which should be considered lively places have unfortunately turned into the symbols of urban disorder. also, an industrial heritage covers social, economic, and cultural values. Therefore, dealing with them has its specific significance which makes it necessary to take a particular approach for dealing with each of them regarding their specific condition and values. As the first cement factory in Iran, Shahr-e Rey cement factory is not only a valuable construction in terms of its architecture and antiquity, but it is also a symbol of valuable transformation emerging in Pahlavi I architecture. Besides, considering it as an industrial building adds even more significant value to this structure. This paper employed qualitative research methods as a basis for data collection and analysis, which primarily involved the use of content analysis along with field observations and interviews with stakeholders and indigenous residents. By reviewing and analyzing international conventions and documents, and expert opinions, the present study, therefore, strived to find out how to conserve the value of the Industrial Heritage. The necessity of transmitting working and activity morale as well as the industrial style belonging to the cement factory of shahr-e-Rey increases the importance of maintaining the building. Thus, injecting dynamism, liveliness and vigor into the mentioned construction and preserving its character simultaneously is possible through an emphasis on conservation of particular values and adaptive reuse of the cement factory.

**Keywords:** industrial heritage, preservation, base value, industrial heritage preservation, Iran industrial architecture, Shahr-e Rey cemetery factory.

## 1. Introduction

Conservation is the process of change management and modern conservation with a history of more than one century has passed a process from merely physical and formal measures to new approaches monitoring the efficient use of historical works and looking at these works as “cultural wealth” for modern life while respecting its values.

Industrial buildings are among the most important building types during the last two centuries, indicating the social and cultural values while displaying the technology development of the country through the form of architecture. This process has had a growing interest in conservation the industrial buildings as part of different types of buildings for the most accurate representation of the past.

The cement factory of Ray is a typical example of industrial architecture being officially opened by Reza Shah in 1933. Due to the special location of this building and its physical magnitude in the city center and the extensive traffic in the region and since the use of cement production is inconsistent with environmental principles, the need to transfer its current activity outside the city is strongly felt. On the other hand, this building is the manifestation of the contemporary industrial architecture and injecting a second life to this complex and returning it to life is essential. The present study began by revising and reviewing international documents and conventions and the theories related to the concepts of value in the conservation of the industrial heritage. Then, the value in the industrial heritage was determined based on the Nizhny Tagil charter (2003) and finally recognized it at the cement factory of Ray.

## 2. Research methodology

Due to the nature and objective, this study was of applied type and the type of approach was qualitative. Qualitative analysis involves grounded, ethnography, and interpretivism theories. Grounded theories were selected for this study because in the grounded areas, the researcher aims to explain the data and then develop the theory despite the ideas or beliefs.

The strategies used in this study were historical- interpretive and survey strategies as well as logical reasoning. Historical interpretive methods were used in investigating the library resources and documents to understand the past of the cement plant in Ray. Survey method was used to identify the current status of the cement plant through interview and observation. The method used in the data analysis was logical reasoning strategy. Data collection method in this study was library and field surveys. Due to the study, following questions will be answered.

1. What are the values of the industrial heritage for conservation and how can these values be classified?
2. What are the values of the cement factory in Ray?

## 3. Literature review

The modern concept of cultural heritage is due to the process related to the development of contemporary society, its values, and its logical consequences (Philden, Yukilto, 2003). Since the late nineteenth century and early decades of the twentieth century, the thoughts and approaches related to conservation the cultural heritage and conservation historical structures entered a new field of thinking, policy-making, and acting. This movement known as the “Modern conservation movement “ was guided by two thinkers, John Ruskin (1900-1819) and William Morris (1863-1834). Within this movement, new ideas were replaced by common approaches and policies of the mid-century especially the idea of conservation, preserving, and maintaining single buildings

and memorial buildings. Many philosophers and theorists discussed the concept of value and their ideas led to a deep transformation in the attitude of conservation to historical building and conservation movement.

Alois Riegl was the first thinker providing a clear analysis of traditional and modern approaches to value. He distinguished between a monument which was designed for conveying a message and a historical monument which was later considered as historical and was related to certain values (Yukilto, 2008: 321). Riegl classified values into two main classes of 1) Memorial values including archaic, historical, and memorial, and 2) Modern values including applied, artistic, and modern. Then, the studies related to value were highly regarded by scholars and an attempt was made to present an accurate classification and recognition of values in all aspects. Rypkema classified values into six groups of social value, cultural value, aesthetic value, urban texture value, architectural value, and sense of place (Khani, 2016: 32).

Limited studies were conducted on the value of cultural heritage such as the study by Steven Tysdell who divided values into seven groups of aesthetic value, architectural diversity value, environmental value, functional diversity value, resources value, memory continuity value, and socioeconomic value.

A new dimension has begun in the area of conservation since the 1970s. Modern conservation movement included new thoughts and ideas in its scope and attracted the attention of international societies. Different institutions were founded in the process of regarding cultural heritage to explain preservation and maintenance strategies and published many regional international documents. Reviewing these documents indicated that these concepts were based on the conservation of the physical skeleton of the building in the classic world. In addition to the principles of conservation the physical skeleton of historical buildings, newer concepts can be mentioned which were based on intangible dimensions and included the life of historical works. The concept of value conservation has undergone a change in the modern and classic world and a different interpretation of conservation was raised in single-building scale to macro scale. With the initial publication of Burra 's (1984) state, the attention to valuable debates on the conservation of historical monuments has been considered by international assemblies since the 1980s. The Venice Charter was introduced in 1964 to protect the monuments and reveal the aesthetic and historical values of the work based on the respect for valid materials and documents. The Kyoto Charter of Ecuador regarded the infrastructure measures in 1967 based on historical and artistic values and the New Zealand Charter in 1993 considered the social values. The statement of St. Antonio in 1996 considered originality in relation to social values and emphasized the conservation of social values of the place.

Value and its evolutionary trend in the conservation of cultural heritage moves behind with the supports and the increase of the world heritage list and the cultural heritage referral for nomination during the late 20th century. The modern buildings constructed during the 20th century were gradually listed and removed. Thus, modern structures were placed in the European heritage landscape leading to the appearance of creative solutions for the creative use of cultural heritage regulations particularly the industrial heritage. As a result, these studies have become significantly prevalent over the last two decades of the 20th century. For example, the artificial environments being constructed in the Netherlands during 1850 -1940 in the industrial age were document

ed. Similarly, the reviews were often based on the subject in the United Kingdom and then in the United States while the approach to identify this heritage in the above-mentioned countries was significantly transformed. Various housing projects with re-construction and semi-industrial building experiences with the representation of the great architect Duthac in Milersham of Holland and the famous Van Neel factory in 1925 and 1931 were selected with the design of Brinkman and Vandersot in Notre Dame. In this regard, the factory turned into one of the critical protection experiences for original industrial buildings. The reuse plan, the significance of the architect, and the survival of the appropriate design of building were critical. Van Neel proved that the protecting the modern architecture in Europe has faced less resistant by experts and the public compared to other areas in the world (Prodon, 2008).

The fundamental issues which have regarded highly in the last two centuries emanate from the distance of scholars from observing a work as a monument and regarding the interaction between urban space and historical effect. The result of this dialogue and interaction was the transformation of conservation policies and approaches in the twentieth century attracting the attention of international societies in protecting late and modern heritage. Due to the changes in attitudinal changes and modern conservation activities, a new atmosphere was provided for the conservation and activities of the industrial heritage.

The Nizhny Tagil Charter was approved in Russia in 2003 for defining the general concepts and developing the major strategies of the study, protection, and restoration of the industrial heritage. The charter focuses on the conservation of work integrity and integrated management by increasing the public awareness and social understanding, historical value, social and identity values, rarity value, aesthetic value, technical and scientific value, and intangible values while protecting the industrial sites, structures and infrastructures, machinery and equipment with the significance of protecting its values. Another draft called "The general principles of ecumenical committee on industrial heritage committee for protecting the landscapes, structures, areas and landscapes of industrial heritage" under the title "Dublin Secondary Principles" at the 17th general meeting of the ecumenical assembly in Paris in 2011. Dublin principles emphasize the role of documents and values in recognizing the structures, sites, areas and landscapes of industrial heritage. Taipei's announcement was found for the first time in Asia in 2012 for increasing the attention of the industrial heritage committee to the Asian heritage and its values beginning appropriate strategies for protecting the industrial heritage. Group participation, legal protection, and economic qualification were the strategies of this charter. A memorandum of understanding between ICOMOS and the International Committee for the conservation of Industrial Heritage was adopted in 2014 based on a special framework for protecting the industrial heritage recognizing the role and significance of protecting the industrial heritage regarding the values of the industrial heritage with an emphasis on its continuity. Barnes emphasized the inherent potential of this heritage to consider the conservation of industrial effects in protecting its values (Barnes, 2010). Such structures which have been abandoned by the transformations in production, distribution, and urban development include a heritage which cannot connect modern societies to past societies and mirrors. The poet and novelist of the Pulitzer Prize, Robert Penn Warren, stated: "History cannot provide us with a plan for the future but it can provide us with a more complete understanding of ourselves, our common humanity, in such a way that we can better encounter the future" (Ibid).

## 4. Theoretical Framework

### 4.1. The classification of values in the industrial heritage conservation

The content analysis of the texts related to the subject indicated that based on the classifications made in different documents and theories, as well as the related charters and conventions, citing the classification of values and the proposed strategy to protect the current heritage values by the Nizhny Tagil Charter, can be appropriate for implementation at the executive level for evaluating the case studies.

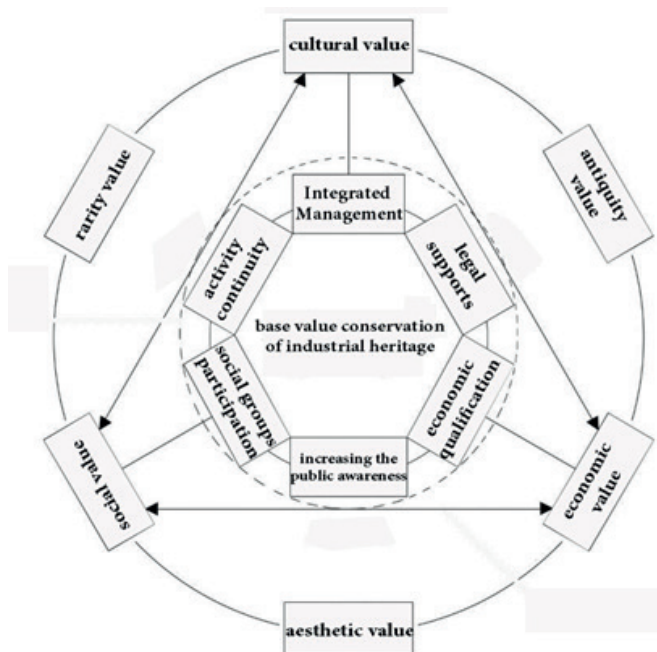


Figure 1. The conceptual framework of value in the industrial heritage conservation

Considering that the structure of the industrial heritage is often a significant architectural, historical, value, technological, and social architecture corresponding to visual historical signs, calling the ideas of experts and documents in this area, especially the Nizhny Tagil charter indicated that maintaining the sense of belonging and its identity in line with popular participation is of great significance in industrial heritage values. The heritage significance of an industrial site can be due to historical, aesthetic, social, technical and its tangible and intangible effects. Industrial buildings show their past history and become meaningful to people over time. Thus, protecting the industrial structures is of great importance because they have a profound link with the relationship between people and history (Krejczisz, 2012). In fact, industrial heritage includes the works which left deep historical achievements by the creation and continuity of their activities. The movement which has been created to protect the industrial heritage depends more on the global value of the work rather than being on the basis of case studies. Thus, protecting these works will not be possible except by protecting the values inherent in the valuable industrial heritage.

### 4.2. Ray cement factory; Iran first cement factory

Ray cement factory is the first Iranian cement factory and one of the oldest industries in the con

temporary era. This factory was constructed at the time of the first Pahlavi simultaneously with industrial construction in Iran. In addition, this factory was officially opened in 1933/12/28 by Reza Shah.

Geographically, Iran is located in an area surrounded by limestone mountains. Thus, raw materials for cement production are abundant in Iran. As a result, the government decided to construct a cement plant in Iran. Some studies were carried out in 1928 to build the first cement factory and estimate the raw material reserves required for this project while a contract was signed between the government of Iran and Swedish company in 1931/9/13. The contract for buying the cement factory was signed with Danish company F.L.Smidth, and three production lines were made in three periods when some buildings were added to this collection in each period. The first cement production line was launched in shahrivar 1332 by the German company Tens when the subsidiaries were built by the Ministry of Roads and officially opened by Reza Shah in 1933/12/28 (Chehregani, 2001).



Figure 2: The eastern view of the factory in 1933 Source: Ray cement factory

#### 4.3. The explanation of the concept of value in conservation the Ray cement factory

Ray cement factory, as the first Iranian cement factory and a symbol of the Pahlavi industrial heritage, can be regarded as a subset of the rationalist architecture. The building, composed of concrete, is brutalist without any facade. The magnitude of this set is due to the irregularity and the presence of the elements of industry in macro scales and does not owe to symmetry and proportions like the neoclassical structures (Pahlavan Zadeh, 2011). The prominent volumes affecting the architecture of the collection can be classified into two groups of 1) Form and 2) Implementation technique.

In terms of the form, water resources, silos and semi-suspended cubic rooms on them, cooling towers and furnace chimneys can be mentioned while, in terms of technique, clinker halls, gypsum and soil storage depots, cooling tower, and furnace can be raised (Pahlavan Zadeh, 2011) The foreign form of the cement plant looks like an oil refinery and its facilities. Huge concrete volumes with pure geometric forms such as cylinders and rectangular cubes have a contradictory







combination and created a metaphysical atmosphere. The concrete structure of the building is highly praised for its quality and performance. There is no coherence in the complex and the factory is a collection of structures and buildings being placed in a regular manner without any formal arrangement. In this factory, aesthetics is a kind of dramatic expression via exaggerated loyalty to functionalism (Naderi, 2004).


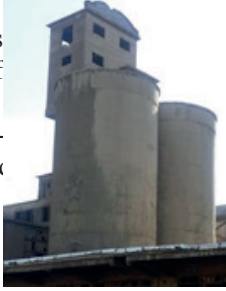



Figure 3: A row of simple and uniform windows in the diesel generator building

### 5.The conceptual framework of values of Rey cement factory

	Values	The explanation of the concept of value in conservation the Ray cement factory	Images
The values of Rey cement factory	Aesthetic value	Aesthetics has a broader meaning in the architectural design the important meaning of which is achieving the overall aesthetics of the buildings or designing an attractive volume which includes the external architecture of the building (Hanachi, 2013). Ray cement factory has a solid structure and a delicacy indicating the era in which form determining the location not the performance. There is a kind of instinctive identity in natural materials (Tisdale, Ak, Heys, 2000) and its technical and scientific value is due to its structural features, engineering, and production history. Furthermore, it has an aesthetic value due to the quality of planning, design and architecture (Nizhny Tagil Charter, 2003).	 <p>Figure 3: A row of simple and uniform windows in the diesel generator building. Source:By the author</p>

The values of Rey cement factory	Values	The explanation of the concept of value in conservation the Ray cement factory	Images
	Rarity value	<p>The works which have been among the few survivors of historical periods have rarity value and are important (Stratton,2000). Since the cement factory is one of the first and the smallest remained buildings of the first Pahlavi period, it would be impossible to ignore the rarity value of the cement plant. This building has given a double value, to specific industrial processes and site or landscape typology being very important to recognize</p>	 <p>Figure 4: Factory equipment. Source: author</p>
	Social value	<p>A relationship is found between the social value of each heritage source with traditional and conventional social activities and their current adaptive application. This relationship guarantees the contemporary social interaction in society and plays a role in stabilizing its social and cultural identity. (Cho, M., &amp; Shin, S,2014).</p>	 <p>Figure 5: The view of the factory. Source: author</p>
	Cultural value	<p>Cultural values in relation with heritage resources and their relationship with observers and present visitors are mental. Such a value-creation determines the amount of public attention to the object and its place, the interpretation of its intrinsic and nature, and the development of restoration policies. (Florentina-Cristinaa,2014)</p>	 <p>Figure 6: Electric building Source: author</p>

The values of Rey cement factory	Values	The explanation of the concept of value in conservation the Ray cement factory	Images
	<b>Antiquity value</b>	<p>Being antique is considered to be a value to buildings. In fact, it creates a kind of mental belonging between the society and the work. The historicity of the work, regardless of everything, inspires the general respect and attracts the attention and curiosity of the viewer (Hanachi, 2013). Industrial heritage involves the works which have created deep historical achievements by their continuity. Their antiquity depends on the global value of these works, rather than case sites (Nizhny Tagil Charter, 2003). Due to the age and date of the cement factory, this work has the antiquity value.</p>	<div style="display: flex; justify-content: space-around;">  </div> <p>Figure 7: The prominent volumes of this collection affecting the work in terms of implementation technique and architectural form, Source: Author</p> 
	<b>Economic value</b>	<p>Rarity is typically present inside the industrial buildings, but it can provide some opportunities for direct economic profits like tourism activities. There are few buildings which take advantage of direct profit. Rarity can result in economic value added to the same amount like the industrial buildings which have become residential housing (Tisdale, Ak, Heys, 2000). Considering the location of the cement factory in Ray, it can be considered in line with the tourism activity whether during its activities or at the present time.</p>	 <p>Figure 8: Factory equipment. Source: author</p>

## 6. Conclusion

Value is an effective component having a special place in the heritage conservation process especially the industrial heritage. The necessity of recognizing this process and explaining the factors for its assessment were emphasized in international documents and international theories. This study aimed to scrutinize the values of the industrial heritage of conservation. This concept was analyzed based on the international documents and conventions and the analysis of experts as well as a case study and evaluation of its values. Evaluating the evolution of value from one building to collections and finally the modern heritage and industrial heritage reveals that an approach was developed based on the attempt to reconcile the old physical spaces with modern life or the “reconciliation” of historical and urban contexts with an appropriate function. A new

development in the field of conservation has provided the foundation for the conservation of industrial heritage. On the one hand, the industrial heritage involves the culture of the industry, a culture having scientific, architectural, social, technical, and historical values. On the other hand, it indicates a deep relationship between culture and the natural environment. Industrial processes, whether ancient or modern, depend on natural resources for supplying the raw materials and depend on energy and the transportation network for the production and distribution of products in broader markets. This includes both parts of heritage, i.e. tangible, movable and immovable heritage such as technical knowledge, the organization of workers and the work as well as its cultural and social heritage forming the lives of societies and the significant organizational changes which are brought to the world in all societies (Dublin Principles, 2011). A comprehensive classification can be presented for the values of industrial heritage if the continuity of these spaces is provided and the participation of social groups, integrated management, and increased public awareness are carried out in line with the legal conservation of industrial heritage. Explaining the values at Ray cement factory helped the explanation of the conceptual framework of value in the industrial heritage being the product of the present study. The findings of the present study can be used as a basis for further studies on value parameters in the industrial heritage and the recognition of value in other industrial heritage examples of Iran to reveal the other dimensions of the industrial heritage value and deal with the management solution the conservation approach compared to the values accepted in the industrial heritage in Iran.

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## Evaluation Criteria for Adaptive Reuse of Modern Architecture, (Case study: Qasr Museum-Garden)

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### Abstract

As one of the strategies of refurbishment, adaption provides compromise between the old physical environment and current needs. Nowadays, the importance of preserving history, cultural identity and the evolution of societies and its transfer to future generations, as well as environmental issues, adaptive reuse of existing buildings has got a special place.

The qualitative nature of this approach and its dependence on several factors has made it complicated and difficult to achieve a specific framework for evaluating the experiences. Due to the lack of a precise method, the evaluation of executed plans is usually not carried out; therefore, errors are repeated frequently and lead to irreparable damages. Hence, the purpose of this paper is to introduce effective criteria to assess the reuse of modern heritage and provide a detailed framework for it. This research is a qualitative research, conducted by descriptive-analytic strategy and based on library and field studies, studying literature and previous experiences. An adaptive reuse project, follows three aims of cultural and historical heritage conservation, the success of new performance and the development of local communities and a successful project appropriately balances these three goals. In this regard, the measures taken to change the function of the Qasr Prison, one of the most valuable buildings in Iran's modern & contemporary architecture, which has now been used as the Museum Garden, have been studied based on the criteria and framework presented, to reveal the positive and negative aspects and its success rate and can be used in future plans.

**Keywords:** Adaptive reuse, Modern heritage, Qasr museum, Conservation.

## 1.Introduction

Nowdays, Adaptive reuse is considered to be one of the main strategies for the preservation of architectural heritage. Adaptive reuse is a process that changes a disused or ineffective item into a new one that can be used for a different purpose. Where a building can no longer function with its original use, a new use through adaptation may be the only way to preserve its heritage significance. Adaptive reuse is the process that changes a disused, obsolete or ineffective building into a new one that can be used for a different purpose (Burton,2014). Adaptive reuse is argued to be a challenging process. It is not only enough to preserve the building to perform a new function but also analysis of the existing fabric in contact with the heritage building is needed in order to make sure its originality is preserved. By doing this, the adaptive reuse process respects the historic value of the building, its existing context and avoids destroying its character (Misirlisoy 7 Gunce,2016,95). It can transform heritage buildings into accessible and useable places as well as provide the added benefit of regenerating an area in a sustainable manner. Moreover, giving historic buildings new function is seen as an effective method towards a self-financing conservation (Yung & Chan, 2012:354), which contributes to the economic pillar of sustainable development (Othoman & Elsaay,2018:10) Buildings are usually built with specific uses in mind. Over time, however, they often outlive their original purpose. Adaptive reuse is the act of modifying a building to accommodate uses that are different from those originally intended. These modifications are often accompanied by significant physical changes to the building (Conejos & others, 2011). Adaptive reuse is a spectrum of changes from maintaining a building due to its values, to changing the whole function of a building for other uses/purposes (Yazdani mehr & Others, 2017).

In light of the problems of previous projects, the importance of assessing adaptive reuse projects is evident. There is a need to learn from previous experiences, either mistakes or successes. Post-adaptation evaluation of preserved heritage buildings is necessary as it allows to investigate the degrees to which the requirements and goals of adaptive reuse were met and understand the reasons of problems (Aydin 7 Yildiz,2010,15). Such a process of assessment is essential to inform legislation and policy making and to guide future adaptation projects (Shehata & others, 2014). The assessment of adaptive reuse projects needs to be systematic to permit the comparative analysis of projects and better inform future ones. However, to date, in the absence of tools that can allow such comprehensive and systematic assessment, the evaluation of adaptive reuse projects has generally relied on a theoretical and isolated case studies (Plecotes & Van Cleempoel,2012:5). Many studies on adaptive reuse of historic buildings and monuments and its evaluation criteria, effects and advantages have been done by International conservators (mainly Australian theorists) such as Bullen & Love in 2009 &2012, Misirlisoy and Gunce in 2016 and Yildirim in 2012 and etc. Since there, one of the authors, studied about the effective criteria on adaptive reuse process in 2018 and defined them. Besides, there have published many international recommendations and charters (Table 1) in order to provide and recommending about evaluating criterion on adaptive reuse and rehabilitation of historic buildings. Alongside this theoretical background, a study has been done by Nasr Malek and Others in 2015 based on the role of the adaptive reuse of Qasr Garden- Museum Complex on the development of its urban context and have been held a meeting by conservation and restoration students of Tehran University regarded to this project in 2017. The framework presented here was generated from an analysis of the relevant literature studies and several cases in different countries like Tate Modern in U.K, Jaegersborg Water Tower in



Denmark, Viaduct arches in Switzerland, the Lorton Correctional Complex in U.S.A, The Jefferson County Jail in U.S.A, Zollverein Coal Mine in Germany, Tabriz Art University, etc. although the proposed framework was generated to focus on the particular modern heritage in Iran, the literature used includes research and experiences from other parts of the world.

**Table 1.** International charters and documents concerning on adaptive reuse criteria, source: Tootoonchi,2019

Year	International Documents	Recommendations
1931	Athens Charter	<ul style="list-style-type: none"> <li>Recommended on taking possession and livability in buildings to guarantee their conservation</li> </ul>
1964	Venice Charter	<ul style="list-style-type: none"> <li>Conservation of historic buildings with reuse of them for profitable uses</li> <li>Unchanged patterns, details of buildings and sustaining the scale of the body and color in interventions</li> </ul>
1972	Budapest Recommendation	<ul style="list-style-type: none"> <li>Recommended to reuse of historic buildings with new functions, or stabilize the structure and characteristics of building</li> </ul>
1975	Council of Europe	<ul style="list-style-type: none"> <li>Achievement to integrated conservation with exact restorations and correct selections of uses</li> </ul>
1983	Appleton Charter, Canada	<ul style="list-style-type: none"> <li>Maintenance of initial use of building, otherwise, election of new adaptive use with minimum alterations and respect to original and traditional patterns</li> <li>Reflection of contemporary ideas in case of use of new materials in order to safeguarding new uses with respect to the buildings spirit</li> <li>Recognizable new works with trained eye and sustaining integrity and coherence of building</li> <li>Use from revocable processes Maintenance of structural integrity of the building</li> </ul>
1985	The Granada Protocol	<ul style="list-style-type: none"> <li>Sustaining of conservation principals alongside with contemporary uses and equipment of historic buildings for accepting new function</li> </ul>
1987	Washington Charter	<ul style="list-style-type: none"> <li>Adaption and compatibility of new uses and actions with characteristics of historic cities and areas</li> <li>Compatibility and adaption of historic areas with contemporary life with providing new utilities with improvement of public utilities</li> </ul>
1987	Recommendation of the Central Committee of Celestial Art of Italy	<ul style="list-style-type: none"> <li>Guarantee of maintenance and durability of building with granting a useful aim</li> </ul>
1992	New Zealand Charter	<ul style="list-style-type: none"> <li>Facilitating the conservation of cultural heritage with social, cultural and economic utilities of them with useful aim</li> <li>Adaption if continue use of the building is necessary</li> </ul>
1992	The International Charter for the Conservation of Historic Towns and Urban Areas	<ul style="list-style-type: none"> <li>Adaption and adjustment of functions and uses of new functions with attributes and indicators of the historic place</li> </ul>
1999	General Report of 12 <sup>th</sup> Assembly of ICOMOS in Mexico	<ul style="list-style-type: none"> <li>Reuse of vernacular structures with respect to the integrity, characteristics and appearance of building</li> <li>Safeguarding of acceptable standards of life in order to reuse of buildings</li> </ul>

2000	The Charter of Krakow	<ul style="list-style-type: none"> <li>The aim of historic buildings and monuments is safeguarding of authenticity and integrity</li> <li>For the achievement of conservation, in many cases a suitable and adaptation of function with space and existing concepts is necessary</li> </ul>
2002	Recommendation of Conservation of Historic Buildings Organization (SPAB)	<ul style="list-style-type: none"> <li>Changing use of historic buildings in order to maintenance of structural constitution and repairmen and conservation of them</li> <li>Provide a check list in order or give better alternatives in changes of uses for owners and advisers</li> </ul>
2003	Zimbabwe Charter	<ul style="list-style-type: none"> <li>Maintenance of building's safety in order to change of function and its use</li> </ul>
2008	UNESCO Principals for implementing World Heritage Convention	<ul style="list-style-type: none"> <li>Protection of the characteristics and indicators of world heritage with various and continuous sustainable use</li> <li>Lack of Providing the negative affect on universal significance, integrity and authenticity of historic monuments with new uses</li> </ul>
2010	The New Zealand Charter	<ul style="list-style-type: none"> <li>Facilitating conservation of historical buildings with using of them</li> <li>As far as possible to conserve the new initial use of the building and in case of change, lack of contradiction with new uses with historical and cultural significance of the building</li> <li>Minimum of interventions and recoverable</li> <li>In new uses of building any changes or interventions with original form and adaptive with design of place in order to avoiding of unsuitable form, scale, body, material or color</li> </ul>
2011	The Declaration of Paris	<ul style="list-style-type: none"> <li>Adjustment of new use to historic buildings and provide the modern life standards</li> </ul>
2013	The Burra Charter	<ul style="list-style-type: none"> <li>Reuse of historic buildings as a type of conservation</li> <li>If the use of a building has a cultural significance, it should be retained</li> <li>Sustaining the context of the building and hindrance of construction, destruction or any changes which effects the building</li> <li>Recoverable changes</li> <li>Adjustment with minimum change and sustaining the physical significance and cultural identity of place</li> <li>Recognizable interventions</li> <li>Respect to the coherence significance of people and place</li> </ul>
2017	UNESCO Principals for implementing World Heritage Convention	<ul style="list-style-type: none"> <li>Protection of different and continuous uses which helps to quality of life</li> <li>Sustainable use of any changes in outstanding significance, integrity or authenticity</li> <li>Sustainable use of world heritage in case of environmental and cultural</li> </ul>

## 2.Methodology

Firstly, the data has been collected through literature survey, studying relevant researches and successful examples of reused heritage buildings to identify the most important criteria of evaluation the adaptive reuse of heritage buildings projects. 10 re-functioned heritage buildings from different countries are selected as the field studies. Secondly, content analysis and evaluation of the case has been done based on these criteria by asking experts and answering the questionnaires and lastly the success rate of the project will be determining accordingly. The proposed questionnaire's questions focus on each triple criterion on Building conservation and preservation, Success of the new function and its effects on Local Community's development and in a direct and indirect way, have been qualified the answers to the chosen criteria. The given answer's value is from 5 to 1 as well as it hierarchy comes from "Very Well" to "Very Low".

In current study, almost 30 persons from conservation students and conservation specialists have associated to fill given questionnaire. At the end of the process, participants' comments have been collected and reviewed as well as sum up them to get an answer for analyzing the adaptive reuse of Qasr Complex as a Garden- Museum. Although the qualitative method in achievement of a precise evaluation of an adaptive reuse process of a Qasr complex does not mean a complete and detailed answer in its success, but it will provide a general overall of its situation as a Garden-Museum complex beside its evaluating conditions on conservation of significance.

### 3.Introducing evaluation criteria

Adaptive reuse of heritage buildings is one of the most challenging processes. The most successful adaptive reuse projects are the ones that appropriately balance these three goals or pillars according to the specifics of the project without ignoring or jeopardizing any of them: building preservation, success of new use, and local community development (Shehata & others,2014).

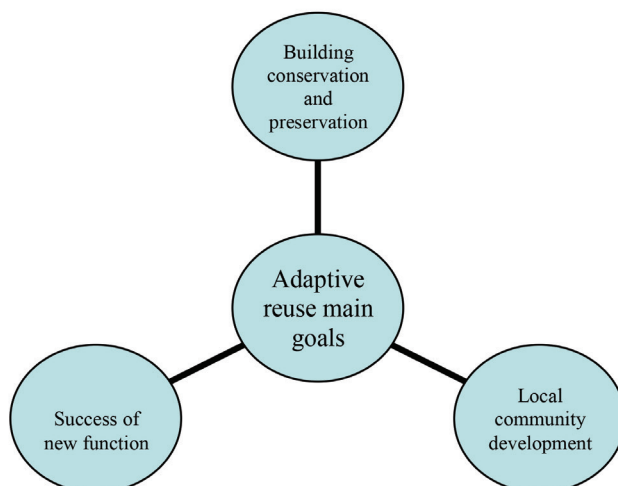


Figure1. Adaptive reuse main goals, source: authores based on Shehata & others (2014)

According to international documents and experts' opinions, conservation of heritage buildings and their values and preserving them for future generations is the main goal of adaptive reuse projects. These buildings should be given a proper function that not only increases their useful life, but also meets the needs of the people and has a good economic return that can make this new function successful and leads to create a valuable architectural space. The change of functionally obsolete heritage buildings into contemporary functions in heritage districts has an important role in urban rehabilitation and upgrading because the resultant functional building is involved in the living context it lies within that not only attract tourists, but act as a catalyst for the development of the community (Rodwell, 2007).

### 4.Modern architecture in Iran

The beginning of contemporary Iranian architecture can be imagined from about 1920 onwards.

This is when social and economic conditions, changed because of the political and social transformations. Pahlavi I period is the start of these transformations and a widespread modernization throughout Iran. In the sixteen years of this period, the cities changed and the necessary buildings for new life such as offices, factories, banks, railway stations, universities, etc., as well as new residential complexes were created in the cities. This modernization and construction boom came to an abrupt stop because of the occupation of the country by allied forces at the beginning of the second world war. The architectural styles in this period can be categorized as: Traditional Architecture & Traditionalism in Architecture, Eclectic Architecture, Neo-Classical Architecture, National Architecture Style and High Modern Architecture (Fayazi, 2015). Qasr former prison constructed in first style with modern plan and traditional elements like arch and domes, and materials like brick and wood.

Contrary to pre-modern monuments that were designed and built by traditional architects, these buildings were gradually designed by educated architects. These were initially non-Iranian architects, and then a few architects who had studied in architecture schools outside Iran, followed by the foundation of the first Iranian architecture school around the 1940s, were also added to Iranian educated architects. Qasr prison is one of these buildings that was designed by Nikolai Markov, Iranian architect of Russian descent, constructing this building in historic Qajar garden.

In 1941, Pahlavi II commenced and construction activity began either, mainly because of an increase in oil revenues and relative political stability. The architectural styles in this period categorized as: Traditional Architecture & Traditionalism in Architecture, High & Late Modern Architecture, Organic Architecture, Iranian Novelty Architecture and Hi-Tech Architecture (Ibid). Prison Number One, constructed in High & Late Modern Architecture with flat stucco surface, metal doors and windows, utilization of modern materials and techniques and flat roof.

## 5. Case study

Qajar Garden Palace was a summer house between the city and the mountain, constructed in 1790 by the order of Fathali Shah Qajar, but it was rarely used afterwards. The garden was destroyed due to heavy rain and flood in 1905. In the reign of Reza Shah Pahlavi (the first Pahlavi, 1921-1941), it was destroyed and the center for wireless telegraphy was established in there. Qasr prison (Shahrbani prison) was designed and built by Nikolai Markov who combined urban industrial design with traditional Iranian features to in the southern lands of the palace and Reza Shah officially inaugurated that. Other changes include widening the road of Shemiran, establishment of the first radio station (1940), establishment of military facilities and changing the usage from garden to jail and military base. During the reign of Mohamad Reza Pahlavi, most of the political prisoners in Iran were gathered in a centralized location in Tehran. Due to the high volume of prisoners, in 1950 the regim constructed Prison Number One (Qasr political prison) in northern part of the former prison. The last bricks were destroyed by the people for use in the buildings and only the pavilion and an old building from the Qajari palace remain until 1953, and the northern ground of the palace was also at the disposal of the law enforcement and judicial authorities. During the Islamic revolution of 1979, the movement managed to releases all political prisoners. In 2003, because of being old, also located in the middle of the city after many years of development, the jail was closed. In 2007, according to the resolution of Tehran's Islamic city council transformed into a cultural center with a focus on History of Tehran and Islamic revolution. This place is used now as a garden-museum (Ibid). "Persian Garden" is one of the sections of this complex, which has been created using a variety of heritage of a pleasant urban space and an open-air muse-

um. One of the main sections is the Museum of Islamic Revolution History of Iran. This museum is a picture of the struggles of the people during the Pahlavi era and the other part of the “Museum of Prisons”, which is the objective reconstruction of the prison environment from the events that took place during the Pahlavi regime and also for the filming of cinematic collections. Other parts of the museum’s garden include the mosque, Zurkhaneh Qasr, the Library of the Research Center, various galleries, cultural and exhibition spaces, traditional cafeterias, cultural centers, arts and crafts market and it was named the most creative museum in Iran in 2013.

The most important restoration operations are as follows:

- Earthquake reinforcement.
- Cleaning the area, observing the principles of Iranian garden in design, and remodeling the garden and green space based on that and landscaping.
- Operating Necessary restoration actions.
- Replacing the ceiling.
- Removing disproportionate extensions.
- Installing new windows similar to original pattern.
- Creating insulation and ductwork.
- Giving new functions to different parts of the buildings and changing it from prison to cultural center.



Figure2: (Left); The Prison which had been designed by Markof in first Phalavi’s king time period, source; authores,2019.

Figure3: (Right); The political prison in second king of Pahlavi’s Time period, source: authores,2019.

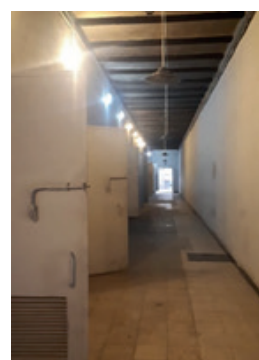


Figure4:(Left); The interior of the Markof’s designed prison which belongs to first Pahlavi’s prisoners,

source: authors, 2019

Figure5:(Middle); The interior space of second Pahlavi’s prison which belonged to political prisoners, source: authors,2019.

Figure6:(Right); The interior space of second Pahlavi’s prison which belonged to political prisoners, source: authors,2019.

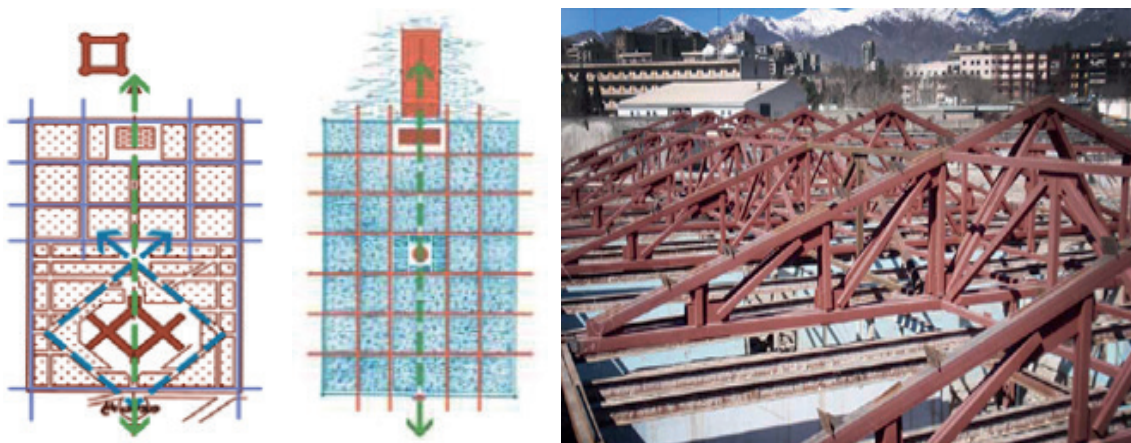


Figure 7. (Left). The Plan of the Garden after the construction of the Prisons, source: the report of the Qasr museum,2017.

Figure 8. (Middle). The Plan of the Garden before the construction of the Prisons, source: the report of the Qasr museum,2017.

Figure 9. (Right). Use of the Steel structure as the roof of the prison, source: the report of the Qasr museum,2017.

## 6. Review of participants answers to the questionnaire

The participant’s answers to the questionnaire explains that, almost half of them have visited the new adaptive reused complex as a museum and their opinions are based on their perception and knowledge which have gained by infield surveys, participating in meetings and related conferences, literature surveys and cooperation with conservation practices related to the project. The detailed answers of participants to the given questionnaire have imported in Table III:

**Table 2:** The answers of participants to questionnaire (the shapes’ size shows its acceptances by participants), source: authors,2019.

Num	Questions	Participants’ Answers				
		Very Low	Low	Enough	Well	Very Well
1	Do you have ever visited the Garden- Museum Complex?	Yes:81.8%		No: 18.2%		
2	How much do you know about complex’s background and its adaptive reuse project?					
3	In which way do you gain your knowledge of building and its adaptive reuse as Garden-Museum?	Visiting	Scientific Resources	Discussions	Participating	Meetings
4	What do you think about the Conservation of Authenticity (tangible and intangible) in adaptive reuse process of the studied case?	Very Low	Low	Enough	Well	Very Well

5	How much do you think that the complex was successful in reminding the original function of it as a “Prison”?	Very Low	Low	Enough	Well	Very Well
			■	■		
6	How much do you evaluate the interior furniture and its utilities adjusts with your desired ones according the buildings given functions?	1	2	3	4	5
		■	■	■		
7	How much do you evaluate the interior furniture and its utilities adjusts with buildings characteristics according the buildings given functions?	Very Low	Low	Enough	Well	Very Well
			■	■	■	
8	As a specialist in conservation, how would you evaluate the consideration of structural safety, Sustainability have been reconsidered in adaptive reuse project of Qasr Complex?	Very Low	Low	Enough	Well	Very Well
				■	■	■
9	How do you evaluate the advertisement and acknowledgment of reopening the Qasr complex as Garden- Museum?	Very Low	Low	Enough	Well	Very Well
			■		■	
10	How do you find the services and utilities in the adaptive reused building as a museum complex?	Very Low	Low	Enough	Well	Very Well
				■	■	■
11	How do you evaluate the redesigned circulation for the museum complex?	1	2	3	4	5
				■	■	■
12	How do you find the cleanness and healthfulness in the complex environment?	1	2	3	4	5
				■	■	■
13	As a overall, How do you find the management and maintenance of the museum complex?	1	2	3	4	5
			■	■	■	
14	As a specialist in conservation, how would you evaluate the methods and materials that have been used in adaptive reuse project of Qasr Complex?	The Answer is Comparative				
15	How do you evaluate the accordance of contemporary used materials in adaptive reuse project of Qasr prison building with its original physical characteristics?	Very Low	Low	Enough	Well	Very Well
				■	■	
16	How do you think the adaptive reuse of Qasr Prison Complex as a Garden- Museum have affected on general perception of local residents in the region?	Very Low	Low	Enough	Well	Very Well
			■	■	■	
17	How do you think the adaptive reuse of Qasr complex have affected on contemporary cultural-social needs of people on the region?	Very Low	Low	Enough	Well	Very Well
			■	■	■	
18	How do you evaluate the advantages of adaptive reuse of Qasr complex economic effects on local residents?	The Answer is Comparative				
19	How much does the adaptive reuse project accommodate with the cultural-social environment of the neighborhood?	Very Low	Low	Enough	Well	Very Well
			■	■		
20	How much does the adaptive reuse project affect the natural/ local environment of the neighborhood?	Very Low	Low	Enough	Well	Very Well
			■	■	■	
21	How do you find the adaptive reuse of Qasr complex as a cultural function in region, effects on perception enhancement and refurbishment of resident’s knowledge?	Very Low	Low	Enough	Well	Very Well
		■		■	■	
22	Generally, How do you evaluate the success of the adaptive reuse project of Qasr complex as a Garden-Museum?	Very Low	Low	Enough	Well	Very Well
				■	■	■

## 7.Survey Findings

### 7.1.Assessment of Conservation and Preservation of buildings

Adaptive reuse of a historic complex with a new function, is a type of conservation interventions

which not only hurts the integrity of a building nor it enhances the perception of cultural significance of a historic place and rise it to its supreme (Bullen & Love,2010,12). Since, as well as it sustaining the integrity and authenticity of a historic place is an initial criterion in the adaptive reuse process. In fact, »conserving the authenticity in a heritage, is the final goal of a conservation and rehabilitation practice. In this manner, since discovering the threat come to the authenticity, recognizing and determining the concept of it by evaluating in various types of heritage is essential« (Araoz,2008,36 cited in Fadaei Nezhad & Others,2015:79). Therefore, regard to buildings structure, explicitly and recoverability of the changes, balanced management of the building and etc., are from issues that is effective in sustaining the integrity and authenticity and consequently its cultural significance for historic buildings that have been rehabilitated by new adopted function with contemporary occasion.

Participants answers to the questions represents that the adaptive reuse of prison to museum with respect to their authenticity has enough good quality in physical characterizations. It means the buildings authenticity in used materials, techniques, methods of construction and structure have been fully respected, and therefore its physical coherence is enacted. Yet, according to conservation theorists' opinions and international charters and documents, from beginning of the modern conservation concept until today, the authenticity emphasis on its both tangible and intangible aspects.

The complementary answers in the case of study, shows that in spite of the sustaining the integrity and Physical- Structural authenticity in Qasr museum-garden complex, the intangible aspects in visitors receiving feedbacks have been neglected to exhibited sense of place of a prison and its difficulties for prisoners.

### *7.2. Assessment of the Success of the New Function*

The evaluation of participant replies to the "success of new applied function" criteria in Qasr Museum represents that the Good redesign process of building's circulations for visitors, creation of simple and creative utilities, accessibility of buildings in its site beside good offices for health keep and safety of museum's environment with mobilizing the buildings since to exhibition of its initial function as a "Prison" with adjective interior furniture, are complementary reasons which explains the success of adaptive reuse of Qasr prison complex in participators opinions.

During the implement of the adaptive reuse plan of project, the site designer has focused on the Modern and new necessities of complex buildings and affected society with new given use to the site, to invest in buildings with solutions that not only keeps the main accessibility of complex but also it creates new access ways for heritage site to describe its function as a museum. Therefore, the precise refurbishment costs of political prison and former prison building in urban context of the complex have come expansive than desired. This have happened since the architect of the complex was eager to not bounded on financial costs in order to sustain the cultural significance of buildings by keeping its original details as well as its presence.

### *7.3. Effectiveness of Local Community's Development*

The answers to the "local community's development" criteria to be fulfill in this study, should be more pragmatic and long lasting surveys with long time monitoring processes. Ispo fact, the given answers to the related questions in this section, almost defines the effects of the new function on the Complex's buildings reused as museum in accordance with economic, social and cultural



conditions of the complex and its surrounding site shows not a remarkable change in it. But its least part of the advantages of the interventions in Qasr complex neighborhood reacted on the improvement of local residents' perception and knowledge from sufficient actions on functional enhancement of initial buildings. The adaptive reuse case of a prison to a cultural center for Saiad Shirazi residential fabric of Tehran with regard to the cities master plan and the society's contemporary needs is the most appropriate use for this selected heritage site. The given answers show the proportional satisfaction of consumers and specialists from the adaptive reuse interventions on behalf on the complex in order to provide new cultural use as a museum for two mentioned buildings.

## 8. Conclusion

Adaptive reuse of Qasr complex as a museum have done in relation with its history and various functions that it had through the time have been designed and implemented. The current function of the complex based on its physical and functional deterioration and contemporary necessities of the society would certify sites existence and links its past uses to future. This study, based on evaluations done by conservation students and specialists, represents the rehabilitation of Qasr prisons complex as a garden- museum, may not affected considerably on the economic situation of its residential surroundings, but with its socio-cultural and recreational adopted function, has influenced Tehran residences and its tourists. The socio-cultural influence of the project led to empowerment of local people's knowledge and presences in its surroundings and by there, have linked two separated neighborhoods. As an overall, participants have positive discretion toward it and simply announced it as a successful case in Iran and Tehran.

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## The Influences of Adaptive Reuse of Industrial Heritage on Urban Space's Vitality; Case Study: Khosravi Leather Factory in Tabriz

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### Abstract

The industrial heritage is a significant kind, as it importantly represents and documents a stage of countries' architectural histories and developments. As cities expand, these heritages, which were outside, come inside and take sizeable expanses in the heart of urban fabrics. These abandoned fields in the city provide insecure spaces for citizens and cause a decline in social, economic and physical statuses in urban districts. One practical strategy to protect these buildings is to endow them with an adaptive reuse. These industrial complexes provide good opportunities for responding urban functional needs and can be used for developing animated urban spaces which leads to urban vitality. This study aims to evaluate the effects of Khosravi leather factory's adaptive reuse on its surrounding urban spaces in Tabriz. The building was established outside the city in the middle of Reza Khani era. As the city expanded, it included the building inside, finally municipal state decided to endow it to the Art University of Tabriz for adaptive reuse. This research is based on the qualitative study and descriptive research method. The gathering information was based on study of documents and historical books, field research and interviewing. The results demonstrate that although the changed operation in the factory had lots of desired influences on the urban life in its environment and gained the urban vitality of most of the residents, while the willingness level was descended day by day by the mismanagements.

**Keywords:** Adaptive reuse, Industrial heritage, vitality, Khosravi leather factory

## 1. Introduction

Industrial heritage is a part of common man's historic background. Also, it creates an essential conception of the identity and has a social value. Production, engineering and construction have technical and scientific value in the history. Also, it may has impressive aesthetic values related to architectural quality, designing and planning (The Nizhny Tagil, 2003, Moscow).

Today, many industrial structures are left abandoned and non-functional in urban spaces. This not only makes an unwilling scenery and unfamiliar environment for the residents, but also overshadows all aspects of the social life in the city (Yang, 2013:138). In Iran, lots of industrial factories are located in the urban area. It is so important to pay attention to the conditions of these heritage, regarding the physical and historical values and additionally its effects on its environment. Protecting these constructions and rehabilitating their environments surrounded by is just achievable by influential operational changes. The industrial regions have to be considered as an integral part, a structure that never separates from its infrastructure (Kurul, 2007). The adaptive reuse and rehabilitating and renovating these living spaces doesn't merely consider old buildings physically, but also, nowadays, considers urban spaces' and old buildings' vitality and researchers have paid special attention to it in recent years (Shamaiy & Pour Ahmad, 1384). Providing urban vitality is one of the main problems of municipal management systems, especially in developing countries. It is vital because it enhances place attachments and also raises citizens' social health ratio to the favorable level (Latifi, 1393:28).

Based on the deep influence of urban constructions as the place in which the interactions of the people are informed and the culture is defined in its infrastructure, the vitality level evaluation in these places and the influence of the other factors on vitality like, adaptive reuse of an old building, can lead us to ascend the vitality as an example of spatial quality. On the other hand, evaluation of adaptive reuse influences can be utilized to analyze the current situation and future decisions to amend the quality of urban spaces and avoid the irritations of shortcomings in the reuse of buildings. The purpose of this study is to evaluate the influence of the leather factory's adaptive reuse on the vitality of its surrounding environment, by confirming the research hypotheses and by depicting the necessity of urban vitality as the main influential factor in quality of urban spatial. The main hypothesis of this research was that the reuse of the leather factory as the Art University increased the vitality level of its environment.

## 2.Theoretical framework

### 2.1 Industrial heritage:

The industrial revolution was the rise of a historical phenomenon that has influenced most of the society and even other living creatures on the earth, and it has been going the same so far (The Nizhny Tagil, 2003). Based on the The Nizhny Tagil, industrial heritage consists of the remnants of the cultural industry, which has a historical, technical, social, architectural and scientific value. Industrial buildings are the most important ones in recent centuries. In the way that they not only depict the social and cultural values of their era, but also illustrate the developments of their countries through their architecture. This process has led to a growing interest in restoring industrial buildings (Echnaider, 2005). In fact, a place is a part of a culture that willingly or unwillingly, over the time, has given meaning to that space. Therefore, the conservation of industrial works creates a deep link between history, place and people and increases the community's renovating

ability and sense of place (Mumford,2016).

As Brownfields were originally located on the edge of the city and after urban developments, they gradually were located in urban areas, urban environmental pollution has since emerged significantly. This was the main reason for factory suspensions in developing countries (Teimur-tash, 1392:15). Iran was included in such countries. Due to the excessive expansion of cities in Iran and the urban sprawl phenomenon, especially in the 60s, industrial barriers were found to be heterogeneous with urban use in cities.



Figure 1: Khosravi leather factory after adaptive reuse, source: author

## 2.2 Adaptive reuse:

In the past, by moving the factories to the outside of the towns, the industrial buildings were forced to be destroyed. But today, with regard to the environmental awareness of the destruction of industrial buildings, it cannot be justified. Protecting these buildings and improving the quality of the sites around them is only achieved through reuse. The reuse of industrial buildings is possible due to the flexibility, compatibility and multi-functionality of these buildings, as well as economic affordability. Industrial complexes nowadays have the opportunity to exploit urban area applications that can be used and re-planned to create lively urban spaces (Douet, 2012). Adaptive reuse is the conversion of a building, site or part of it, from one use to another. Where a reuse site has a heritage value, the new user has to maintain the current concepts and heritage understanding while it is retaining new functions (Klark and lardner, 2013). In fact, adaptive reuse is a solution to revive the effects that uses the set of continuing processes and plans for a management, reuse of abandoned property, taking advantage from existing facilities and enhancing future efficiencies (Vilson, 2010).

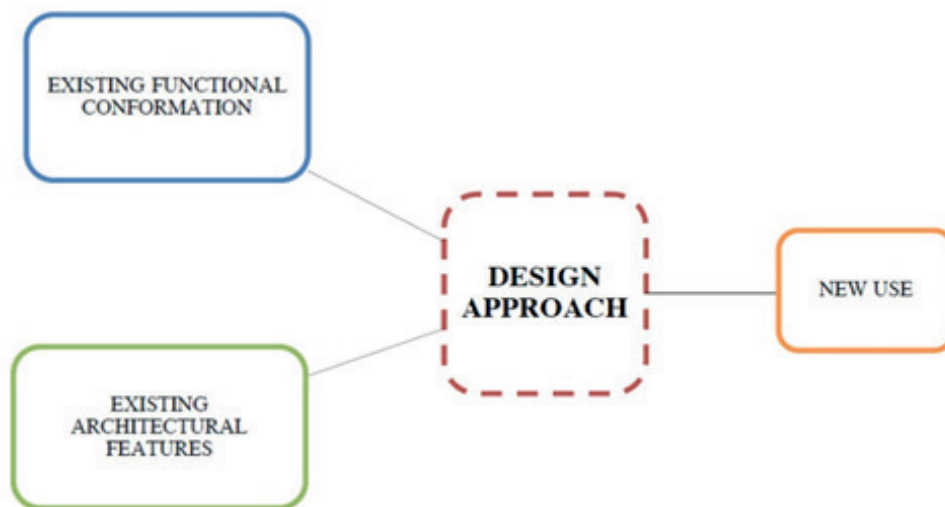


Figure2. Schematic description of key factors that characterize the concept of adaptive reuse,  
Source: Bianchi & Turturiello

### 2.3. Vitality:

Vitality is one of the main components for a quality designed urban space. Lively urban environments are the basis for social interaction between different people to provide and increase social capital (Golkar, 1386). Vitality can be considered as a context to provide a variety of activities and users with a variety of economic, social and cultural backgrounds with the aim of diversifying experiences and social interactions in the way that provides security, equity and convenience to all users (Dadpour, 1390:47). A “vital urban space” is an urban space in which the presence of a significant number of individuals and their diversity over the day, with their activities mainly appearing selectively or socially, can be seen (Khosto and Rezvani 1389:4). Vitality is an urban concept and can be defined at two levels: micro and macro. The vitality in micro level considers diversity of activities in public spaces and its compatibility with city spaces, and the macro one contains the concepts of equity, efficiency, adaptability, flexibility and quality of the environment. First of all, elements and factors for absorbing people has to be existed to provide the basis for attracting people to the space and keeping them in the space, and also, people shouldn't have problem to remain in the space and they should be at a high level of eagerness (Mikaiyly & Azar 1396). Attractiveness and willingness can be considered as the first two factors in the principles of vitality in a city space. The urban spaces can be revived and rejuvenated by identifying and strengthening these factors that affect the vitality (Khesto & Rezvani 1389:2).

**Table1.** Bringing together vitality criteria from the perspective of prominent urban planners, Source: Authors

Theorists	The vitality criteria from the viewpoint of theorists	Key criteria
Kevin Lynch	Vitality means to what extent the shape of a city supports vital functions, biological needs and human abilities, and most importantly, how it allows the survival of all beings. Health, proper biological function, adaptability, access, control and monitoring, efficiency, justice	Control and monitoring
	Long presence of people in the environment, regional and national rituals in the environment, readability, social security, sense of attachment to the environment	Long presence of people in the environment, social security
Jane Jacobs	Attention to activities, mixed functions in terms of functional diversity, attention to street, permeability and accessibility, social mixtures and flexibility of spaces.	Social mixing and flexibility of spaces.
Rob Krier	Activities such as, conversation, work and social communication, emphasis on pedestrian movement, hierarchy of distribution, all day long operations	Activities such as, conversation, work and social communication
David Chapman	Variety of attractions, accessibility and connectivity, calmness (security, identity)	calmness (security, identity)
Cy Paumier	Accepting a large number of people, absorbing and producing pedestrian activity, creating business activities, designing appropriate space elements with space capacity	Accepting a large number of people
Charles Landry	Diversity, access, safety and security, identity and differentiation, innovation and initiative, coordination and coherence, usefulness of individuals	safety and security
Goodey	Permeability, Flexibility, Development and Adaptation Advancement, Aggravation with More Existing, Diversity, Human Scale, Personalization, Readability	Development and Adaptation Advancement
Gehl	Safety and security, Charm, Diversity, Human scale, paying attention to walkers, Sitting ability, regional comfort	Safety and security
Kourosh Golkar	Readability, visual personality, sensory richness, specific color belonging, penetrability and movement, blend of operations and form, inclusiveness, quality of the public arena, regional calmness, safety and security, flexibility, harmony with nature, energy efficiency and environmental cleanliness.	inclusiveness, safety and security



Jahanshah Pakzad	Variations along the path, pedestrian safety permeability against the rider, pedestrian safety in the environment, flexibility in the body, flexibility in performance	pedestrian safety in the environment, flexibility in performance
Mohamadreza Barzkar	Readability, diversity of attractions, quality of access, efficiency and efficiency of services, environmental cleanliness and air pollution, comfort, participation	participation

After reviewing and summarizing the vitality criteria from the viewpoint of the theorists of this field, the criteria for functional flexibility and participation of people in these functions, long-term presence of people in the environment and their satisfaction from space, high safety and security index, and accruals, had the highest Repetition and emphasis. These sub-criteria are in the category of economic, social and cultural criteria.

### 3. Case Study: Khosravi Leather Factory in Tabriz

Tabriz city is considered as the second industrial city in Iran due to the existence of many large industrial factories in this city. One of these factories is Khosravi leather collection, which is a beautiful example of the historical architecture of Tabriz. This building which is built based on the German architectural style, was established at the beginning of the first Pahlavi era on the southern side of the Iraqi military arena. The leather factory, Melli Shoe Factory (1979-87), Cultural center (1994-98) and Tabriz Islamic Art University are some of the various functions of this building during its 87 years history.



Figure 3. Khosravi leather factory after adaptive reuse, Source: Manouchehr Shokrgozar

The restoration of the campus complex began in 1998 and eroded buildings were restored and their functions were changed. Also, turbines and generators that remained in the leather factory plant were restored and used in industrial museums. The complex consists of 8 buildings, 4 of them have 3 floors, and the rest just have one floor, and totally, the combination of double story

the other hand, during the years following the suspension of the leather factory not only there has been no progress in sight of the economy, but also economic growth has decreased. According to residents' claims, the reason for this is that the residential buildings around the university were bought by authorities to implement a plan at the University of Art with a price below the real value of the land. This is the most important factor for the descending rate of the land value and the drop in the economic index.

It seems that, the low rate of the land price in comparison with the other parts of the city and also declined rate of willingness, made the space a lack of social interactions and decreased its vitality. It can be considered that the development plan of the university could be positive that might depict a successful developing plan with its correct implementation, but nowadays, it seems that planning mismanagement made a lot of problems for the residents in the way that this has become one of the most vital problems for the residents and might disturb the positive results of the adaptive reuse.

### 5.2 Social and cultural:










Social composition variables include neighbors' correlations, residents' affiliation with neighborhood affairs, and social status of neighborhood, neighborhood security, life satisfaction in neighborhood, participation in neighborhood activities, future hopes in neighborhood, social status and class, is in comparison with other neighborhoods (Mikaiyli & Azar 1395:11). Intimacy and social relations in the smaller neighborhoods are far greater and the neighbor coordination makes the high level of trust and as a result, the interactions are increased. By assigning the university functionality to the factory, the youth is inserted in the area, and the communication of native people with highly desirable youth, happiness and vitality has grown significantly. Also, with the endowing academic functionality of the complex, this space has become the cultural and educational center of the city and has been featured as a focal point in the public views. At the University, programs such as establishing various exhibitions, conducting religious activities, conducting free study classes for further communication with community members were greeted by the residents.





### 5.3 Security:

One of the main factors in the vitality of the public spaces of the city is to increase the physical and psychological security of space since the lack of security in the city's public spaces helps to increase abusive behaviors. Thus, it reduces the presence of citizens in urban spaces over the night and reduces the vitality of space. The importance of the issue of security in human life is so much high that American famous theorist John Lang, puts this problem along with other human physiological needs such as food, shelter and health (Golkar 2007:52).

Granting the cultural-educational functionality to a factory that has long been devoid of functionality and most of its places had become a place for the addicted, has been the most important and effective measure to enhance neighborhood security. In the analysis of interviews with local residents, there was a clear sense of the positive effect of increasing the security of their place of residence. Arranging pedestrian passages and facilitating access, the correct definition of the site's inputs and proper lighting of the passageways were done parallel with the restoration and granting the functionality in the city near the area. The things which were done along the security caused the better went over, especially during the nights and people are happy due to the calmness of the neighborhood.

**Table 2.** Research's selected criteria for evaluation of adaptation's impact on vitality, Source: Authors

Criteria	Impact's on Vitality	Figure
<b>Economic</b>	The residential buildings around the university were bought with a price below the real value of the land.	
	descending rate of the land value	
	planning mismanagement	
<b>Social and Cultural</b>	the youth is inserted in the area	
	the communication of native people with youth are increased	
	happiness and vitality growth	
	the cultural and educational center of the city	
	The factory has been featured as a focal point in the public views	
	programs such as establishing various exhibitions, conducting religious activities, free study classes for further communication with community members were greeted by the residents.	

<b>Security</b>	Arranging pedestrian passages and facilitating access	
	the correct definition of the site's inputs	
	proper lighting of the passageways and better went over, especially during the nights	
	calmness of the neighborhood	

## 6. Conclusion

As it has been said, industrial buildings that are located in urban areas are attached to people's memories. Giving a new functionality to a historical monument that is located in an urban context and in people's minds, it has a very positive impact on the social vitality since physical restoration, and later, giving the needed functionality to the building, can make hope for a better and a more organized future for the people. Of course, the attention to the place where the building is located, and then the introduction of a new one, can provide better results. In this case study, the adaptive reuse initially played a very high role in the vitality of the area. But over time, due to the lack of proper management of the plan for the development of the university, the satisfaction of the economic index has been reduced due to a decline in land prices and the no growth for the functionality. On the other hand, due to the gradual purchase of houses by the University for implementing the development plan, the indigenous population of the neighborhood is decreasing and the residential area is also being lost. This creates a feeling of insecurity among residents. So if security is not addressed, the security index will also be threatened. However, field surveys show that the predominant percentage of people are satisfied with this adaptive reuse and they take it a factor for a more vitality in neighborhood, but the University of Art on the urban and national scale seems to have been more influential than the local scale. As well as all the positive effects that can be seen, there can also be understood how the wrong management decision affects the level of satisfaction of people. According to the results of this study, the following strategies are suggested for a successful adaptive reuse:

- Paying attention to the context and improving of the physical and environmental conditions in the surrounding area
- Needs assessment and attracting people's participation in determining the new functionality usage, and in decision-making related to the building after the functionality change
- Establishing a suitable new way to raise the economic growth of the area and also create jobs

- for indigenous people
- Preserving its values and designation and making new designations to strengthen the historical cultural identity of the region
- Considering community spaces to increase social and cultural participation of residents

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## Biography

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## **Identity Reloaded Modern Architecture and the Sense of Place in Post-oil Kuwait**

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### **Abstract**

Architecture has been a major agent of modernization in the Gulf. On the one hand, the governments embraced modern buildings as the perfect representation of the impatient advancement of society. On the other hand, the rapid urban transformation was blamed for the (supposedly) a critical injection of foreign narratives that have blurred the contours of the local identity and dispersed what was left with the sense of place. Among the Gulf countries, Kuwait was the first to undergo rapid urban development, together with Iran and Iraq. From the early 1960s to the early 1980s, Kuwait catalysed the attention of major international designers working with local firms and local authorities, and leaving on the ground important examples of late modern architecture. Today the lack of precise preservation guidelines and the land speculation driven by commercial forces are encouraging the demolition of the by-now consolidated city of the 1960s to build new towers of aluminium and glass. Stemming from a 5-year fieldwork in Kuwait, and from a visual and archival survey that systematically identified and monitored modern heritage in Kuwait, the present paper reflects on the impact of modern architecture in identity formation of post-oil Kuwait, on some current melancholic representation of the 1960s built environment, and on the rise of new interests for preservation rediscovering place-identity. Within this framework, the text also explores alternatives to common narratives that read modern architecture in the non-West as a one-directional process more than an objective exchange.

**Keywords:** Kuwait; Modern Architecture; Identity formation; Place identity; Place-making

## 1. Introduction

Kuwait was among the first GCC countries to launch a large program for rapid urban transformation. From the 1950s to the late 1980s, this vision attracted major international designers to work synergically with local firms and authorities and to interpret and materialise the ambitions of the newly founded state. As the country gained independence and autonomy, the necessity of a new landscape to represent the country, its people and its government grew high. At the same time, champions of the modern architecture saw here the possibility to expand their professional horizons, to experiment with local conditions and to shape an entire city almost from scratches. The contextual presence of high profile international and Arab designers, operating almost in the same period on the same urban fabric was rather uncommon in recent architectural history, but also paved the way for a vital cultural and technical exchange. At the same time, like all the transformations that happened too fast, it boosted the criticism of superimposing a different culture (and taste) over the local traditions. The current literature has often depicted this urban transformation as a deliberate act of the *westernisation* of the built environment, not fully considering the decisional role of the local authorities and the citizens' embrace of modernist dream. In the 1960s, Kuwaitis were mostly in favour of a complete erasure of the old town, welcoming the idea instead to override a modern narrative over the own *local* tradition. Besides, as Todd Reisz argues (2018, p. 559), the notion of *locality* has a complicated relationship with the Gulf, being a region shaped for centuries by merchant trades and cultural exchanges; by cosmopolitanism and international aspirations in the second half of the 20<sup>th</sup> century; by the globalised culture in the contemporary. Considering the specific case of Kuwait, the present paper will attempt to rebalance this often-un-even narrative and to reframe the urban transformation process as an exchange dynamic, which was frequently based on mutual interests and reciprocal expectations.



Figure 1. Building on Fahad al Salem Street, circa 1960 (Photo N. Garrido, 2016)



## 2. Tradition, Transformation, Transition

Saba George Shiber's *the Kuwait Urbanization* is still a reference point to understand the transformation in process (Shiber, 1964). This text represents a meticulous and ample reflection about the Kuwaiti built environment during the period in which the author was involved as a consultant in the municipal Planning Board and participated in the international debate as one of the major critics of the Arab city's transformation (Nasr, 2005). On the one hand, this collection of texts is a tool to advocate support for Shiber's thesis on city planning and the role he played against the loose approach previously in place in Kuwait. It describes the author's struggle to research solutions to the *original sin*: the demolition of the old traditional city. It also narrates his effort to suggest and implement a more organic approach to the city growth, a less extravagant vision and the desire for a more social use of public space. On the other hand, it gives us a very clear picture of a capital city in the making, twelve years after Minoprio, Spencely and MacFarlane's First Master Plan, which was adopted by Sheikh Abdullah al-Salem al-Sabah, Amir of Kuwait, in 1951 (Fabbri, Saragoça, Camacho, 2016, p.12).

Shiber's studies and proposals were only partially implemented, and in the following years, after his departure from Kuwait, the planning process took different directions. While the infrastructure, the road network and the new neighbourhood units were mechanically executed, the large-scale projects from the old centre of Kuwait City were never completely successful (Al-Mosully, 1992, p. 43). The city centre depopulation process was induced by the 1951 Master Plan's vision to relocate all the residential area in the outer neighbourhoods and by the subsequent Land Acquisition policy, which provided financial incentives to the citizens. The latter progressively abandoned the old town, which was transformed into an administrative and commercial district, and it now stands as a testimony of a non-completed vision.

The demolition of the old Arab *medina*, the attempt to replace it with the mirage of the *ville moderne* and, above all, the speed and the very limited period in which the transformation happened, confused the local cultural identity and dispersed the sense of place of Kuwait City. The many urban planners invited to visit Kuwait in the Sixties lamented the same issue: "[...] in Kuwait the paramount problem has been to build quickly" (Barron, 1967, p. 10).

Not only the incessant pace often resulted into rushed planning, and low quality of execution, but also, and more importantly, nor the city neither the citizens had sufficient time to adapt to the new standards smoothly. For the lack of time, the traditional courtyard house, a site-specific tile in the Islamic urban mosaic, could not evolve into a new dwelling typology and was simply replaced by a free-standing, box-type concrete villa, whose internal spatial relations were completely different from the original archetype.

The abrupt act of demolition of the physical past resulted in total loss of the sense of places which not only affected the population who witnessed it and ushered it in. Fvrie decades later, Kuwait is a country that struggles to come to terms with the notions of past, tradition and sense of belonging.



Figure 2. A. Irving, G. Brown, Gulf Bank building, Kuwait City 1963. Detail of the façade (photo R. Fabbri, 2015)

### 3. A Crossroad

Kuwait always was and still is, a crossroads between East and West. This strategic position resulted in the multicultural society that has developed over the last 60 years and the complex network of professionals often involved in the city's transformation.

British designers Alison and Peter Smithson were called to Kuwait in 1968, to investigate the old city urban form together with three other international consulting teams. The Advisory Board to the Amir of Kuwait, formed by Leslie Martin, Omar Azzam and Franco Albini commissioned four Urban Form Studies to alleviate the lack of cohesiveness of Kuwait City. The Board also invited BBPR from Italy, Georgis Candilis from France and Raimi and Railli Pietilä from Finland. At stake, there was the opportunity to suture the wounds inflicted to the old city fabric by the 1960s demolition plan. On this occasion, the Smithsons preached for projects that could help to define a national identity. They called for buildings that, in their words, could carry that "quality" to differentiate Kuwait from other Arab cities, such as Cairo or Beirut. In the proposal, they en-

visioned buildings within the frame of the Arab urban tradition and adapted to contemporaneity, without variations referring to models in America, in Europe or the Europeanised North Africa (Vidotto, 1997, p.138).

The Smithsons were not the only international consultants invited to Kuwait. A long list of designers such as Alfred Roth, Pier Luigi Nervi, Basil Spence, Otto Frei, Luigi Moretti, BBPR, Michel Ecochard, Arne Jacobsen, Jørn Utzon, Balkrishna Doshi, George Candilis, Reima and Raili Pietilä, Kenzo Tange, Felix Candela, and TAC were called to adapt and mediate their architectural practice with the local context. This list grows longer when we add the Arab designers from neighbouring countries involved in the city's transformation in the same years, including Sayyed Karim, Mahmoud Riad, Dar al-Handasah, Hassan Fathy, Mohammed Makiya, Sabah Abi-Hanna and Rifat Chadirji, to name a few. Moreover, a new generation of young local architects emerged working side by side with these major consultants, which consequently impacted the work they were later able to accomplish independently on their home ground.



Figure 3. View of Mubarak al-Kabeer Street with SOM's Souq al-Kuwait, 1973-76, in the forefront (photo R. Fabbri, 2014)

#### 4. What Identity, Anyway?

In a recent conference and the resulting publication in the past, the present and the future of the Arab city, American architectural historian Gwendolyn Wright (2016, pp. 74-75) reflected on the role of architects during the mundialization era. In her text "Architects as Migrants," Wright describes Western architects' *modus operandi* while working in *other* environments. She ponders the pros and cons of a foreign point of view and the potential danger of failing to identify fundamental aspects of the local context. Especially during the colonial time, she argues, local stances and needs were not kept in consideration, and in many cases, decisions were simply enforced

on people and layered over the existing urban fabric. On top of this foreign practices' insertion, a number of local designers educated abroad completed the scheme by mimicking consolidated Western patterns. Wright concludes bringing, as an example, the design guidelines issued for internal purposes by the American corporate firm SOM, in the 1970s. The document seems to suggest architectural typologies arbitrarily adaptable to the entire Islamic world, from North Africa to Central Asia.

On the one hand, it is undeniable that many colonial and post-colonial cities suffered irreparable damage from such planning practices, and by the excess of faith in modern planning. On the other hand, the present text wants to build upon this prompt within the Kuwaiti context, and reflect on the wider implications of the role of the architects and the variables of this architectural *migration*. The key question that the present article aims to address is: in respect to local identity, how should architecture be practised in the absence of historical heritage, major local references, strong morphological elements, or a strong urban footprint, and occasionally in the absence of adequate planning tools or their correct implementation? The answer has multiple folds.

First of all, in other Middle Eastern cities like Beirut, Baghdad or Cairo the modern architects had to negotiate spaces and create meanings in relation to an existing urban fabric, while in Kuwait, as already mentioned above, the traditional city was demolished leaving the designer with very few hints to situate the project. Second, the built environment cannot be considered a direct emanation of the designer alone. The role of local patrons should be considered equally important in defining goals and ambitions during the decision-making process. Third, several designers active in the Gulf had a constant relationship with the region or lived there, developing a deeper understanding of the context through time. This relationship inevitably made their design more aware of the residents' practical and cultural necessities. Fourth, too many times the architecture produced in Europe and the States has been labelled under the generic brand of "Western." This definition is inaccurate and does not take into consideration the complex coexistence of very diverse visions, schools, traditions, practice and national trajectories within the West that gave to the modern architecture multiple interpretations. Some firm operating in the region were interested in the productive and commercial aspects of it; others focused on practical, technical and functional themes; others again on the context and relationship with the past. Some others, like Łukasz Stanek argues (2016, p. 299), were not even part of the West, being members of the socialist world or the non-aligned states. Last, the major transformations in Kuwait and the GCC occurred when the leading principles of the so-called modern movement went under a process of re-foundation. The 1959 CIAM33 meeting in Otterlo, the Netherlands, evidenced a fracture between the pure rationalist-functionalist approach to urban design, and an emerging group of younger architects, initially called Team X, who steered and their design practice towards *Structuralism*. This new direction was meant to distance itself from the formalism and the *mechanical* functionalism of (some) modern architecture and to bring back the people at the centre of the design process, with their social relationships, environment, culture and identity. Within this vision, principles like *cultural relativism* found a more effective role of informing and orienting the projects.

In this framework, the Gulf once again proves an interesting case study to understand the evolution of the idea of modernity and postmodernity. Many architects gravitating around Team X's themes had the opportunity to work in the area. The Alison and Peter Smithson's Mat-Building for Kuwait City; the BBPR's plan for the rehabilitation of the old Souk Mubarakiya, the Candi-

lis' housing complex in Sharq, the Kenzo Tange's airport, are all examples of mediating global practice with local circumstances. Unfortunately, several projects were not fully implemented, also because the patrons often expected a signature building from a renowned international architect, more than a reflexive critique on history, traditions and modernisation. Let us consider, for example, Thorsten Botz's analysis of Pietilä's approach to critical regionalism in the conception of the Ministry of Foreign Affairs (2017, p.76). The project was an attempt not to mimic native vernacular architecture but to discreetly interweave local narratives and visual patterns within other global cultural themes to create a pluralistic aesthetics. At the time of the project, the 1980s, foreigners represented 70% of the resident population in the country. Therefore MoFA meant to signify the institutions of the cosmopolitan nation. Unfortunately, the attempt at cultural hybridisation and social integration did not succeed in representing the national identity in the eyes of the clients. The visual message was too subtle, so the building was later encased with marble, and the apertures were *orientalized* enough to respond to a more acceptable idea of governmental building. After all these deep alterations, the initial concept is barely traceable.

In addition to this, and on the other side of the spectrum, SOM's corporate system which reduced the complexity of the context to an operative manual, offering standardised solutions, proved to be more successful, at least as a business model. Given the huge number of projects built in the region, the pragmatism, the efficiency and the turnkey offer of the American firm reassured the clients more than the theoretical speculation and experimentation of the Team X.

Nevertheless, both demonstrated different tentative approaches in an extremely difficult design circumstance. In reality, architects were given the task to recalibrate the relations between a deliberately forgotten tradition and an indefinite way to modernity, and somehow to recalculate the dynamics between Eastern and Western cultures. Some of them relied on technology and environmental necessities, others on metaphors to represent the national or the client's meanings, others again engaging with fluid concepts like 'authenticity' and 'cultural specificity'. As Amale Andraos puts it (2016, p. 9), this condition of encounter gave the architect an unexpected diplomatic role to waive past and future into a mash-up of signifiers for both.



Figure 4. TAC and PACE, Souq Al-Safat, Kuwait City 1973-75. Detail of the arcades (photo R. Fabbri, 2014)

### 5. Identity Reloaded and the Attempt of Making Sense of Places Again

Mid-20<sup>th</sup>-century architects were called to materialise the aspiration for progress of the Gulf countries. But *modernity* in architectural terms is a problematic definition and still an open subject. It is a widely misused expression and seldom confused with *contemporaneity* for the semantic ambiguity. If one dismisses any interpretation related to the notion of style, being too reductive, it is still difficult to attempt a convincing categorisation of the architecture produced in the central decades of 1900, in particular when new horizons arose out of the usual strongholds, like Europe, North and Latin America. We can read these new geographies as *variations on the theme* which generated a coeval and different type of architectural modernity, locally adapted, less orthodox, more experimental, and sometimes not completely resolved. As per Watenpaugh's linguistic metaphor (2014, p. 4), modernity in post-colonial contexts is a language that maintained transnational intelligibility – to preserve legitimacy – but it was often conjugated in local dialects. At times these dialects lost coherence and lexical uniformity, contradicting the paradigms of the root idiom.

In the same way, modernization in Kuwait resulted in a sort of architectural *Esperanto* which did not achieve what the Smithsons hoped in their text (Vidotto, 1997, p.138). In the 20<sup>th</sup> century, Kuwait produced an urban environment made of architectural fragments, isolated from each other,

and contradicting any idea of proximity, which was the common denominator in the traditional city. These buildings were designed not only as physically isolated objects but also uncorrelated in terms of visual language, leading now to a difficult representation of *locality*. The loss of identity rapidly leads to loss of sense of belonging and to a dismissal of these buildings as foreign intruders.

Being no longer perceived as representative of the governmental vision nor of people's imagination of modern life, the 20th-century Kuwaiti architecture was marginalised and put in constant threat of demolition under the pressure of the real estate market speculation. Nevertheless, in recent times, while many valuable examples have been torn down, a new recent vibrant interest arose. Modernism started being the subject of many theses and academic projects at architectural schools, at local and international scale. These studies do not stem out of nostalgia, which is one of the ingredients nonetheless. They predominantly rise by the fact that the new generation associates the urban environment produced in the modernization period with meaningful moments of the nation's past. As an example, a book like *Modern Architecture Kuwait*, which was the result of one of the first systematic investigations of the kind in the region, is now in use in several architectural courses at Kuwait University, to invite students to reflect on the notion of tradition, identity representation and heritage. Moreover, some of the buildings became the backdrop a series of initiatives of place-making and artistic re-appropriation of public realm underpinning the need to reengage citizens with the modern city.

These cultural initiative are not only limited to Kuwait but expands to all the GCC cities, which went through a similar development model, and this seems to indicate how modernist architecture could be reconsidered as a concurrent component of a shared *Khaleeji* identity.

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## Biography

*Roberto Fabbri* is an Italian architect, researcher and current professor at the University of Monterrey. From 2010 to 2016 he was a United Nations Development Programme consultant for the rehabilitation of the Kuwait National Museum and the re-installation of the Dar al-Athar al-Islamiyyah exhibition galleries. In parallel, he completed the repurposing project of the American Missionary Hospital, which resulted in the 2012 nomination for the Aga Kahn Award for Architecture. He contributed to conferences worldwide and published extensively on academic journals as *Domus*, *Faces-Journal d'Architecture* and *IJIA*. He co-authored the double volume "Modern Architecture Kuwait 1949-89" (Niggli 2016, 2017).



## The Evaluation of the Society's Modern Heritage Knowledge and the Role of it in Adaptability and Reuse of Modern Heritage in Tehran

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### Abstract

Today one of our problems is inattention to modern heritage. Many people does not know modern buildings as modern heritage. Since, the level of people's knowledge is important to conservation and reuse of heritage, the result of this inattention is damages to the modern heritage. In last recent years, many valuable modern buildings have damaged because of the officials and people's inattention. If this inattention last longs there will be no modern heritage left for our next generation. For these important reasons doing this research becomes necessary. The first step is studying on people's knowledge and awareness about modern heritage. At the Second step we can study the effects of people's knowledge on adaptability and reuse of modern heritage. Authors edited a quantitative questionnaire for this purpose and spread it between one 150 people of Tehran. The result of the questionnaires shows that the level of people's education, their majors and jobs are effective on their interests and awareness about modern heritage.

**Keywords:** knowledge, cultural heritage, modern heritage, adaptability, reuse, Tehran

## 1. Introduction

As UNESCO World Heritage Center defined, cultural heritage is legacy of physical artefacts and intangible attributes of a group or society that are inherited from past generations, maintained in the present and bestowed for the benefit of future generations (wange et al, 2018). Heritage no longer needs to originate from the past; it can also include objects or phenomena from the present, which have properties inherent to cultural heritage, or which may potentially acquire them. One has become reconciled to the fact that heritage lacks temporal or meaningful (thematic) boundaries (Kurmo Konsa, 2013). Therefore, the meaning of heritage ranges accordingly because it is not an artifact or site, but it is a process that uses objects and sites as a tool to transfer the ideas. It is also a vehicle of communication of ideas, values and knowledge that could be the tangible, the intangible and the virtual. It is also shaped according the needs of present, it can even be said it is assumed imaginary past and future (Ashworth 2007: 2). Therefore, the heritage and its interpretation are an intensively subjective aspect, which can be used to define groups, communities and nations; hence it can be argued that it is a very political subject (Aplin, 2002).

One of the basic reasons for damage of heritages owes to lack of awareness to the community in general and noninvolvement of people in the process of conservation (Shankar & Swamy, 2013). Now it is the responsibility of society to transmit, preserve his own heritage in the form of culture (Srivastava, 2015).

Every community defines its own unique heritage. Heritage is part of the daily organization of life, and there is no need to deal with it separately (Kurmo Konsa, 2013). As Kevin Lynch states, "Every citizen has had long associations with some part of his city, and his image is soaked in memories and meanings." (Lynch, 1960). Therefore, people have the need to attach memories and meaning of perceiving the city (Dogan, 2018).

Tehran is capital of Iran since 1796 and most of its heritage works are for twentieth century. An important part of memories of Tehran for its citizens contains its modern architecture. Local society is the primary key for conservation of national heritage, so the awareness of people in Tehran about its heritage is crucial and causes activeness. A new movement in reusing of modern heritage is starting in Tehran nowadays. Heritage buildings are crucial since they symbolize and give glimpses from related past periods of time. Instead of destroying, they should be sustained since they are evidence of the people's lifestyle and culture living in or around it. Conserving heritage buildings and giving new functions according to their location, size, and potential can help to future generations to understand where they are coming from (Gunc, 2016).

The necessity of this investigation in Iran about the awareness of people of modern heritage is essential; for is has not been any studies about this topic. The local society has an important role in heritage conservation, so information of people's knowledge about heritage is significant. After valuation of society's knowledge about modern heritage, the effect of this awareness on reusing of modern heritage is studied. The results of this research will be used in plans for increasing people's knowledge in this field and so the modern heritage would got more attention and be used better. In this section we will have an overall glance on studies which is done in several countries about society emphasis on national heritage. Researches which is done in Europe, Australia, Turkey, Kuala Lumpur, China and Saudi Arabia.

## 2. Literature review

In England a wide range of research has been conducted for English Heritage, often in partnership with other government and heritage bodies. Research by MORI between 2000 and 2003 explored public attitudes to heritage and ways in which the sector can broaden access to heritage and the historic environment. This included investigating how people interact with their local area. Since 2005 *Taking Part: the National Survey of Culture, Leisure and Sport* has been conducted. This survey and other studies commissioned on different themes feed into 'Heritage Counts', an annual survey of the state of England's historic environment.

In Ireland, between 1999 and 2006 market research was commissioned by the Heritage Council on public attitudes to heritage, encompassing both historic and natural heritage. The research monitors changes in awareness and understanding of heritage and the strength of attitudes and perceptions of national heritage. The 2006 survey also examined the extent to which the public is willing to pay, in the form of a proposed notional taxation, for extra heritage protection or provision. In 2005 Scottish Natural Heritage commissioned research to clarify the key natural heritage messages it should be promoted and potential communication approaches. It also sought to establish baseline information for public awareness of natural heritage and key ideas of biodiversity, landscapes, marine, protected sites and sustainability. Also an investment which is done in 2014 by the heritage council of Victoria in Australia shows that the first people's image of heritage is old and historical buildings and then sometime intangible like culture and tradition.

In research for the BBC television series *Restoration*, the public were interested what buildings looked like in their 'hey day', its role in history and who used to live there. They were less interested in facts and figures on how it was built and its architectural or artistic importance. Another research, done by Veysel Apaydin, in Çatalhöyük, the communities of Çatalhöyük are mostly conservative and also nationalist (see Candan 2007: 96). The social structures of the villages are shaped by Islamic traditions. The heritage perception of the communities is also shaped by the strong effect of religion as they only considers the places as a heritage as long as they have a connection with Islam. Therefore, most of the communities do not consider Çatalhöyük as a heritage site (see Apaydin 2015) although it is listed as a World Heritage by UNSECO1.

Other research in Kuala Lumpur is done by Aidatul Fadzlin Bakri in 2014 that considers participants attitude about importance of historical buildings and results show that most of them emphasize on the significance of heritage. They were proud of their historical buildings and considered them distinct and believed that heritage would be profitable for society in several ways. For example heritage effects on education, its important role in social identity, helping to finance also increasing of jobs.

In other research, done by Wei-bin You 2014, in China the outlook of local people about one of world heritages was investigated and revealed that local people have little knowledge about heritage and have a slight interest of their conservation. Also, another research in Saudi Arabia, Tarek Sayed Abdelazim Ahmed 2017, evaluate student's awareness of heritage and showed that more than one fifth of participants have no concern about national heritage. In that research in addition to the role of the educational system on increasing student's interest of heritage, the role of family was pointed out.

As mentioned before, by investigations which was done on researches about the society's mod

ern heritage knowledge the last research on this topic was done in Saudi Arabia in 2017 and the results say that its people have no interest to national heritage. Investigations which were done by the authors showed that there is no other article about modern heritage so authors decided to do this research. Due to the researches Which was done in Malaysia, China and Saudi Arabia we can find a relation between the importance of tourism and the place of heritage in people`s mind. Iran like Malaysia is improving its tourism and today we can observe increasing in people`s interest to heritage. For example The Green Palace of Saadabad which previously used as personal house of Shah, nowadays is known as museum. Places like Museum of the Qasr Prison and Niavaran Palace are used by society after their change in usage. Due to the successful experience of reuse of historical buildings like Negarestan Garden, Golestan Palace, Museum of the Qasr Prison, Masoudieh Palace, which was investigated in this research, people`s interest in visiting these building and increasing their knowledge about them is strengthened.

### 3. The Method of Research

This research has been done in 3 months, which include investigating research background, making and filling the questionnaire and analyzing it. The aim of questions regards the background knowledge of participants about cultural heritage and in the following the concept of modern heritage. We choose our statistical population from Tehran and with introducing deferent buildings whether modern or historical studied this issue. 150 people of Tehran was chosen without considering their education, age and vocation to investigating these parameters and their influences on people`s knowledge about modern heritage.

As we said before, Tehran is the capital of Iran since 1796 and most of its heritage works are for the twentieth century. Many years after industrial revolution, at the beginning of the first Pahlavi, the modern architecture comes to Iran. At first, this architecture appeared in industry and factories, then it was applied on other performances in the city. Modern architecture in Iran began through the arrival of European architects and the return of Iranian architects educated abroad. This occurred during the Qajar period, which marked the beginning of a wave of new developments in Iran (URL1). DOCOMOMO International`s challenge is to find ways to deal with this modern legacy in relation to the continuously changing context of the current times, including physical, economic and functional changes, as well as fast-moving socio-cultural, political and scientific contextual values (URL2). The establishment of a chapter of Docomomo in Iran is with respect to the existence of these valuable works and the necessity for the basic steps to be taken to preserve Iran`s modern architecture and to provide a suitable foundation for professionals and enthusiasts in this area to gain access to relevant knowledge (URL1). For this research authors have prepared 7 questionnaires. 150 citizens of Tehran have participated in this research which 71% of them were female and 29% of them were male.

Title	era	Construction Date	Architect	Current Type	Former Type
Azadi Tower	Second Pahlavi	1971	Hossein Amanat	Museum	Museum
Post and Communications Museum	First Pahlavi	1934	Nikolai Markov	Museum	Post Office
Museum of the Qasr Prison	First Pahlavi	1929	Nikolai Markov	Museum	Prison
National Museum of Iran	First Pahlavi	1934	Andre Godard	Museum	Museum
City Theater of Tehran	Second Pahlavi	1960	Ali Sardar Afkhami	Theater	Theater
Green Palace	First Pahlavi	1928	Hossein Lorzadeh	Museum	Palace
Tehran Museum of Contemporary Art	Second Pahlavi	1977	Kamran Diba	Museum	Museum
Abgineh Museum of Tehran	Qajar	1921	European architect	House	Museum

Figure1. Introduction of Questionnaire Buildings, Source: authors, 2019

#### 4. Result and Discussion

The first question was about putting modern architecture buildings in cultural heritage topics. Among 150 participants, 95/1% of them agreed with putting modern heritage in National registered monuments. 32 of the participants have a job which is related to cultural heritage and one of them did not agreed with the above matter. Among the 13 participants with PhD degree only one of them did not agree with putting modern buildings in National registered monuments. Almost half of participants have MS degree that 4 of them did not agree with putting modern buildings among National registered monuments that none of them have a job that is related to cultural heritage. Among 54 participants with BS degree only one person did not agree with that idea. Just 7 of participants have diploma and none of them was disagreed.

In second question we have mentioned several contemporary buildings and ask from participants if they have gave the last question Yes answer now they choose from that buildings which of them could be put in modern heritage. The buildings which was chosen by authors is from first and second Pahlavi, and we tried to mention the buildings which was famous for most people. Among 16 works, 6 buildings are for first Pahlavi and 10 buildings are for second Pahlavi. The most percent is for Tehran University and the least for Imam Sadiq University.

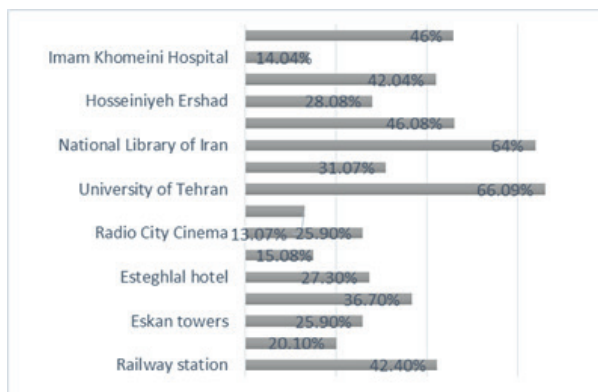


Figure2. The Evaluation of the society's modern heritage knowledge

In the third question the amount of people's interest to visiting the modern heritage was questioned. 90% of participants are interested in visiting the modern heritage and 10% of them are uninterested which 2 of them had diploma degree, 7 of them BS, 3 of them MS and one of them PhD degree. All of them had jobs which were not related to cultural heritage. In the fourth question the participant's opinion about putting the modern heritage under conservation of cultural heritage organization was asked. 93% of them agreed about that and 3% of them did not agree and none of them had a job related to cultural heritage.

In the next question the focus point was on the people's awareness of the international organization which is responsible about conservation of modern heritage. Among 150 participants only 16 people answered to this question. Seven of them said UNESCO, one of them ICCROM, one person cultural heritage, one person ICOMOS, six of them Docomomo and all of this 16 participants have a job which is related to cultural heritage. In the sixth question eight pictures were considered, four of them for the first Pahlavi and four of them for the second Pahlavi. They were asked to mark buildings which had visited before and they could mark more than one building. Amount of visits from the most to the least is as follows: 124 people City Theater in Tehran, 107 people Green Palace of Saadabad Historical Complex, 103 people Azadi Tower, 86 people Tehran Museum of Contemporary Art, 69 people National Museum of Iran, 55 people Abgineh Museum of Tehran, 46 people Museum of the Qasr Prison, 44 people Post and Communications Museum. Among the 4 buildings which had the most visitors, 3 of them are for the second Pahlavi.

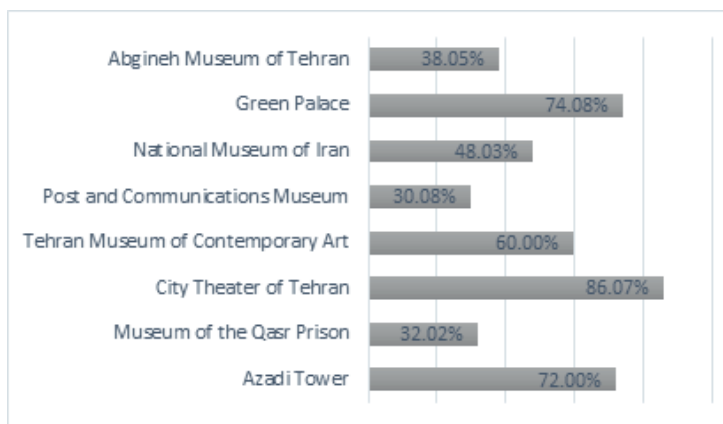


Figure 3. The Evaluation of the most visited modern heritage in Tehran

In the last question several buildings for Qajar, first Pahlavi, second Pahlavi and Islamic Republic were named for participants and ask them whether they were interested in visiting these buildings. They could mention more than one building. The aim of this question was the interest rate of people to buildings of different periods. The interest rate of participants was as follows: 82 people Golestan Palace, 75 Masoudieh Palace, 73 Niavaran Complex, 68 Tehran Museum of Contemporary Art, 65 Negarestan Garden, 63 Tehran Grand Bazar, 55 National Museum of Iran, 52 City Theater of Tehran, 51 Baghe Ferdows Garden, 50 Azadi Tower, 47 Tabiat Bridge, 32 Milad Tower, 25 Tehran University Complex, 14 Pardis Mellat, 12 Shafagh Cultural Center. We can conclude the most rate of interest for people is visiting of Qajar buildings.

Due to the visits of mentioned buildings we can conclude that for The City Theater, The Green Palace of Saadabad (Shahvand Palace) and Azadi Tower except revitalization there is other reasons like the outstanding architecture, the prominent city element and important role in contemporary history of Iran that makes them the most visited buildings. The City Theater, which is at the intersection of two important streets in Tehran, Enghelab Street (Shahreza) and Valiasr Street (Pahlavi), has an important situation in Tehran. The building of The City Theater is cylindrical with 34 m diameter and 15 m heights that its outer facing is covered with turquoise tiles and a porch is all around it. The design of the building is a composing of modern shapes and Iranian roof, outward appearance and motif (Bani, 2013).



Figure 4. City Theater of Tehran, Source: authors, 2018

The Green Palace of Saadabad (Shahvand Palace) was quarters of Reza Shah Pahlavi (the founder of Pahlavi dynasty) and nowadays is one of the most visited buildings of Saadabad Palace.



Figure 5. The Green Palace of Saadabad, Source: authors, 2019

The Azadi Tower was built by Hossein Amanat in Mohammad Reza Pahlavi time. In its design deferent era architecture methods of Iran's history like Achaemenid, Sasanian, Safavi and others had been mixed whit modern prospect. For example the upper arch is in Islamic method and the lower arch is like Taq Kasra. The geometry of plan is based on the geometry and form of paintings under the dome of Sheikh Lotfollah Mosque (Bani, 2013).



Figure 6. The Azadi Tower, Source: authors, 2018



## 5. Conclusion

We can conclude that there is a relation between education and understanding of heritage importance. Among people who their job is related to cultural heritage all the participants agree with putting modern buildings in cultural heritage field. However, among people who had job which was not related to cultural heritage 4 of them did not agree and 12 of them did not have an interest in visiting modern heritage. So we can conclude that job and related education is influential on this issue. What we are sure about it and can conclude from this research is that the concept of modern heritage is accepted by people and this acceptance helps to conservation of modern heritage.

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## Reviving Industrial Heritages for Tourist Attraction and Sustainable Development Growth (Case Study: Wind Turbines in Iran)

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### Abstract

Industrial heritage and its affiliations in any society indicate its achievements, history, growth and progress in the field of industry and forms part of a society's national identity. Therefore, effort to identify, revive and preserve them is really important. It creates a strong and effective connection between past values and contemporary world. Considering the historical background of Iran in the field of using wind energy in the form of windmills, in this paper, which is an applied and qualitative study and is based on documentary research and descriptive method, we focus on the value and importance of contemporary wind farms, one of Iran's industrial heritages in windy regions, the two cities of Manjil and Binalud and the roles they can play in the growth of sustainable development and attracting tourists and also economic development. In addition to the important economic topic and the importance of generating clean and renewable energy from wind turbines, when winds cause turbine blades to spin, has the capacity to attract tourists as it creates a beautiful and pleasant landscape, drawing the eyes of viewers. What follows in this paper is the idea to build towns next to these wind farms which, in addition to the existing training workshops about the importance of using natural energy sources and sustainable development and the possibility to visit these farms, all houses in this town are also equipped with wind turbines and supply their consumed electricity this way. Experiencing a tour in such a town will definitely be one of the most memorable experiences in the field of tourism industry and also Iran will be introduced as one of the countries that can produce wind energy. Investing in this sector in addition to the importance of safety and environmental protection can be regarded as an important step towards the society's economic, cultural and identity growth and development.

**Keywords:** Industrial heritage, wind turbine, tourism, sustainable development

## 1. Introduction and Statement of Problem

Tourism industry and attracting tourists and paying attention to the concepts of sustainable development with regards to their principles are some of the most important challenges and concerns for every country in today's world which can leave useful and pivotal effects on the growth and development of that country. Considering the broad aspects of the tourism industry, it brings about countless interests in a country such as job creation, earning income, regional development, optimization of infrastructure and services, grow and raise public awareness, reviving the cultural heritages and various other interests. One of the other aspects that we face today in particular in the tourism industry is the topic of natural environment and environmental protection. Raising awareness and spreading the culture of protecting environmental issues is often taught during the tours. Since one of the most important subjects in the topic of sustainable development is the environmental issue we can create a close and strong relation between these two topics. The subject of natural energy and the importance of using renewable energy as an alternative to fossil fuels are not hidden from anyone and are considered as one of the most important solutions for realizing sustainable development. Iran is one of the countries that has a long history in using natural energies such as wind energies. In this paper, with an emphasis on the historical background of Iran in using wind energy which has been used for wind mills since ancient times, we focus on the importance of using this energy in the form of industrial heritage in the contemporary world in two cities of Iran: Manjil and Binalud. What follows along this research is the idea of benefiting from this industrial heritage in attracting tourists and tourism industry development with regards to using clean energies as one of the most important principles in achieving sustainable development. Around these regions with wind turbines which have very beautiful perspectives and sights, we can design towns to attract audiences which can also be used as a site for tourists to visit this industrial heritage and simultaneously provide an unparalleled experience from residency in this site which will be explained thoroughly along the paper.

## 2. Literature Review and Research Method

This research is a basic research and uses descriptive-analytical and comparative method to explain the subject and benefits from library resources and documents to gather data and information. In this research, effort has been made to create ties between the three practical concepts of preservation and revival of industrial heritages, sustainable development and tourism industry flourishing and attracting tourists. In this regard, one of the contemporary industrial heritages of Iran, which is wind farms and using wind power to generate electricity, is selected as key topic, which is considered one the most important contemporary steps of Iran in the topic of generating clean energy and preservation of natural environment and is an important factor in achieving sustainable development. At the same time, due to the abilities and the special potential these beautiful regions such as the city of Manji and Binalud have, these wind farms have the ability to become tourist towns, so that aside from enjoying the beautiful nature of these regions, tourists can learn the operation principles and understand how electricity generation in these wind farms works. Researches and papers on the topics of sustainable development and using clean energies are plenty. Also, specifically in the technical and specialized case of these wind power plans numerous papers have been written, but this paper focuses particularly on designing tourist towns around these sites in order to attract tourists with emphasis on raising public awareness and help preserve and develop these industrial heritages which has never been pointed out in any other

work and this paper is considered original in this regard.

### **3.Reviewing the Concepts of Tourism Industry and Industrial Heritage**

Tourism industry in today's world is pursued with different aims and purposes of exchanging information and culture, increasing knowledge and raising awareness about previous societies and spending free time and is promoting its place in the economic, social and international structures. (Varesi and Mokhtari Malek Abadi 2006) In addition to the economic aspects of tourism, we can also point out to the cultural, social and political aspects which can bring nations closer together. In fact, Iran which possesses various cultural and historical attractions, can play a major role economically and also in the sense of introducing and identifying its cultural, civil, ancient and dynamic historical background. (Noori 2005)

Industrial heritage is a concept first appeared in 1950. Despite being new, this concept was quickly accepted in urban projects. Industrial heritage has long been viewed as Les Lieux de Mémoire, or sites of memory (Nora, 2010) In leading countries, the matter of preservation of industrial heritages is considered as a model for development and part of a city's sights. (Ghanbari 2018) Industrial heritage increasingly becomes a domain of planning practices to construct new social identities and establish creative industries. Industrial heritage sites, as a testimony to the past, are composed of multilayered spatiality that denotes a continuous cycle of redevelopment. (Xie, 2015) Preservation of industrial heritages, is the preservation of a part of every land's contemporary history which in addition to cultural aspects and residents' engagements, causes the revival and reestablishment of that industry and lays the groundwork for the growth and development of that land. Turning such sites into tourist attractions can help promote the value of the industrial past and may enhance the identities of the residents who shaped the character of former industrial cities (Xie, 2015) The architectural heritage of twentieth-century (including all of its components) is a physical record of its time, place and use. Its cultural significance may rest in its tangible attributes, including physical location, design (for example, colour schemes), construction systems and technical equipment, fabric, aesthetic quality and use, and/or in its intangible values, including historical, social, scientific or spiritual associations, or creative genius. (ICOMOS 2011) Close ties between industrial heritages and local societies create engagement in preserving them. It's evident that engagement is the origin of social identity of citizens. These types of engagements are the causes of cultural persistence, establishing ties between generations and the only means of connection between them. Industrialization is a significant historical period and occurrence which causes cultural and economic development. This period and its effect on the form of today's cities are historically, culturally and economically valuable. The geometry of the cities, urban spaces and even the concepts are influenced by this process. Such as every other historical period in any country, this period also represents the art and architecture based on the particular conditions of that period. (Ghanbari 2018) Industrial heritage tourism is being neglected, even though it could simultaneously record the industrial history and culture as well as build a sense of place for local residents (Xie, 2015).

### **4.What is Sustainable Development?**

The Brundtland Report, published in 1987 by the UNWCED (United Nations World Commission on Environment and Development), coined the term "sustainable development" and defined it as "development that meets the needs of the present without compromising the ability of future generations to meet their own needs." (cook & van 1994) Then after the Rio de Janeiro Earth Summit

in 1992, principles of sustainable development were codified. Discussion stemmed from sustainable development with emphasis on environmental approaches, but this term was quickly adapted in various fields and became one of the most fundamental topics in every major. In the Brundtland Report (1987), this idea was opened up as the main point of environmental discussions which eventually with the Rio Declaration in 1992, environment and development were considered both as an integrated system and the details and guidelines were codified and established in Agenda 21. Sustainable development is discussed in three fields of economy, society and environment. Reaching sustainable development will only be attainable when these three concepts grow together. Sustainable development is a smart and rational way to develop qualitative life, where three goals should be considered simultaneously: upgrading social life, improving environment and economic development. Since cities are the most important consumers of natural resources and produce the most pollution, play a significant role in the economic development in a society and are also a container for realizing and achieving social justice, they are considered one of the key places in realizing sustainable development and ratify the importance of paying attention to the subject of sustainable development in urban environment. One of the most important subsets in sustainable development in environmental issues is the topic of energy and using clean and renewable energies such as wind and solar which will be discussed in this paper.

## **5.Sustainable Development and Natural Energies**

In order to reach sustainable development, sustainability must be achieved in the three fields of environment, social space and economic area. As we mentioned before, in the section of environment, one of the most important topics to focus on is paying more attention to the use of clean and renewable energies and eliminating fossil energy. In this regard, focusing on local situations and studying the feasibility of utilizing natural energies in every region such as solar and wind energy is considered one of the most important steps towards achieving sustainable development. Iran has had a long history utilizing natural energies and even now, important steps have been taken towards the growth of this field.

### **5.1.History of Wind Mills and Utilizing Natural Wind Energy in Iran**

Utilizing wind energy has been investigated by humans for centuries and the history of windmills has been guessed to date back to approximately 7th century. (Alam Rajabi and minaeian and sedaghat 2012) In the eastern regions of Iran, which fall in the monsoon direction and lack enough surface runoff, residents have long been utilizing wind energy to trigger windmill motion. The earliest windmills had vertical sails and were based on reports close to the 7th century in Sistan of Iran and also built in ancient city of Nashtifan (Khorasan Razavi province) and were used to mill edible nuts and rinse. (Shahbazi 2017)

National Geographic estimates that the age of these mills dates back 1,000 years. (Fig. 1 and Fig. 2) So unlike the common belief that Netherlands holds the oldest windmills, Nashtifan's windmills date back earlier. (Howard 2017) Currently, traces and remains of windmills can still be found in several villages and regions in Iran which are several centuries old. In Khaf, there are 22 windmills which have been built in two rows of 11. There are also 3 abandoned windmills in Sistan. All windmills are gathered in a region between Iran and Afghanistan because there's a windy tunnel which crosses this region from North to South with a width of 100 kilometers. In summer, a 120-day-long wind blows from the North of Turkmenistan to the South of Sistan. (Rahimi 2007).



Figure 1 and Figure 2. Nashtifan's windmills, Source: Hossein Zadeh 2016

Currently, Iran holds the earliest windmills in the world but unfortunately they have been forgotten and instead, windmills in countries such as the Netherlands, all of which have been built after Iran's and most importantly, based on Iran's windmills, attract millions of tourists every year.

## 5.2 .Wind Turbines in Iran (City of Binalud)

Utilizing wind energy has been investigated by man for centuries. After the energy crisis occurred in 1970s, utilizing wind energy proved to be more important than before and this cause the The Sistan region (Zabol Station) as the best region in Iran to construct wind farms. After Sistan, he mentions that Iran's Southern shores and islands are the best for the said purpose. He also considers some small regions such as Manjil Valley to be fit for utilizing wind energy. (Alam Rajabi and minaeian and sedaghat 2012)

Binalud's wind farms (in Khorasan Razavi province near the city of Neishabour on Road 44, constructed in 2002), is one of Iran's wind farms and one of wind farms with the capacity to generate 28.2Mw which includes 43 660kw turbines. (Fig. 3) The area of this wind farm is approximately 7 kilometers. The project to construct this wind farm was started in 2002 and in 2007, the number of turbines reached 43. Construction of this wind farm was carried out by the Renewable Energy Organization of Iran (SANA).



Figure 3. Binalud's windmills, Source: Bargh News 2018

### 5.3. Wind Turbines in Iran (City of Manjil)

Another Iran's wind farm is located in the beautiful province of Gilan. Manjil is known as the "City of Wind Turbines." (Fig. 4) This wind farm has been generating electricity from the kinetic energy of wind since the early 70s. Wind blows 87% of the year in this site which helps generate 2.4 million kW per hour for a turbine. The height of tower of every turbine is 30 meters and the length of each sail reach 17 meters. Until the end of 1391, 27 turbines (300-kW) with 8100-kW capacity, 2 turbines (500-kW) with the capacity to generate 1000-kW, 18 turbines (550-kW) with 9900-kW capacity, 1 turbine (600-kW) with 600-kW capacity, 70 turbines (46,200-kW) with capacity to generate 600 kW, 9 turbines (660-kW) with the capacity to generate 5,940 kW were running in this region. (Ministry of Renewable Energy 2018) Manjil winds often blow with more force in the Spring and Summer and with less force in Autumn and Winter. This wind has been known as "Seven Winds of Manjil" and the force is so strong that it often bends the luxuriant and beautiful olive trees which form the most important face of this city and are a source of income of most residents of Manjil.



Figure 4. Manjil's windmills, Source: Negahmedia 2014

The beautiful nature of Manjil together with the alluring spinning of turbines' sails creates a fantastic sight and perspective that attracts the eye of every viewer. The amazing nature blessed by God together with one of the most industrial antiquities made by human hands, has created a different and pleasing combination which in addition to the topic of generating clean energy and its economic and health values, has the potential to be utilized as a means to attract tourists. It helps prosper the tourism industry and also helps with the preservation, growth and development of this industrial heritage and lays the groundwork for raising public awareness.

### 5.4. Home Wind Turbines

Small wind turbines have sails with the diameter of 1.5 to 3.5 meters and can generate electricity with the power of 1 to 10 kW. Some of these turbines are designed extremely light that they weigh only 16 kilograms. This allows them to spin with winds of any force. Since in urban regions



winds blow with less force due to urban and buildings' structure, most of the existing turbines are designed horizontal, although the vertical axis type is also beginning to spread. Practical usage of small wind turbines requires winds with annual average speed of 4.5 meters per second minimum. (Gipe 2009) The arrangement and installation of wind turbines requires precise calculations due to the limitation of lands and regional morphology in order to optimize the wind direction collision and maximize the electricity generation and also prevent noise pollution in the region. Wind turbines, according to the morphology of the region with specified distances close to each other and symmetrical and fit (corresponding with the nature), are installed in the direction of the region's wind and absorb the maximum amount of energy from the wind and wouldn't need repeated spinning of the nose of the turbine. (Jamil and Abbaspour Sani and Khorasani 2005).

### **6.Idea to Build Tourist-Residential Towns Next to Wind Turbine Sites**

Iran is full of renewable and nonrenewable resources. Geographical location of Iran has given the country large sources of wind energy. An investigation in a recent ten-year report in synoptic weather stations shows that many regions in Iran, including shores of Oman Sea and Persian Gulf islands, beach regions of Khuzestan Province along with several other dispersed locations such as Manjil, Binaloud, Rafsanjan, Ardebil and Bijar are windy and are potentially able to generate windy electricity, especially in the Summer. Therefore, in some of these regions huge wind farms can be converted into sites for tourists to visit industrial heritages of Iran in addition to electricity generation and accordingly, express the history and previous culture of Iran in a contemporary form. Existing towns next to these turbines can also be turned into residential tourist complexes and by using small wind turbines for tourists, provide them with the residency experience in local households which are powered by wind energy.

For instance, by expanding the residential town of Mahmoud Abad which is located near the wind farms of Manjil, local households can be equipped with independent wind turbines. The minimum wind speed required for a home turbine to operate is 4.5 meters per second, which after investigating the diagram of Wind Rose (Golbad) (in the city of Rasht) and the annual diagram of wind blows in Mahmoud Abad can be interpreted that the speed is fit for electricity generation. (Fig. 5 and Fig. 6) Also, by connecting this region to the national power grid, possible difficulties can be prevented. In addition, since Mahmoud Abad is close to a wind farm, windmills in Manjil and also the olive factory in this region it can be considered very useful for the tourism industry and by converting it to a tourist residential town it can provide a source of income for local residents, so tourists can visit the industrial heritages, while also being able to feel the precise usage of it in day-to-day life. In addition to the recreational aspects, this potential can be used as an opportunity to develop economic and social structure of the region.



Figure 5. Location of Mahmood Abad (Manjil), Source: google map 2019

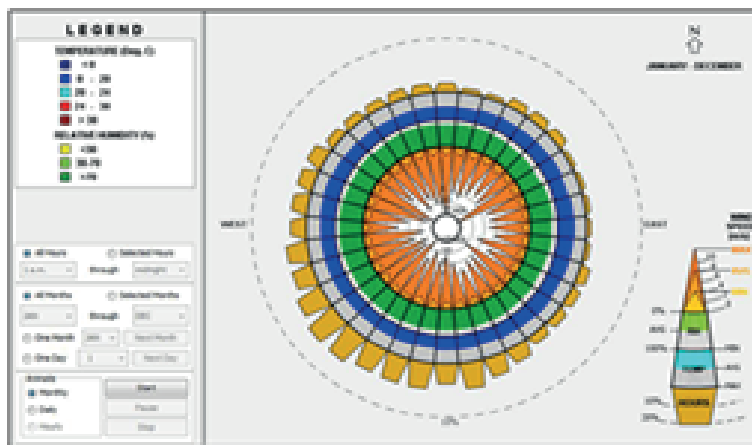


Figure 6. Wind rose map of Rasht city (climate consultant software, version 6.0)

### 6.1. The Effect of Constructing Such Towns in Attracting Tourists and Sustainable Growth

Today, tourism is considered the greatest and most versatile and diverse industry in the world and many countries use this dynamic industry as a main source of income, job creation and infrastructure development. Natural phenomena and specific climate traits and man-made structures to use them, provide the necessary potential to utilize tourism opportunities. Utilizing this potential with the possibility expansion of tourism can cause ecotourism and economic prosperity in this region. Therefore, the idea to construct a town, in addition to the realization of welfare possibilities for tourists can help the local residents' economy. Also, using tourist attractions properly provides the possibility for the next generation to use it and provides the infrastructures for sustainable development growth.

### 7. Conclusion

Every land is filled with heritages and antiquities that preserving, reviving and restoring them can be a vital factor that helps residents to know their history. In this regard, perhaps focusing on preserving contemporary industrial heritages and the contemporary industrial sector has been ne-

glected compared to ancient heritages and historical sectors. Preserving industrial heritage in the contemporary era establishes a link between the inhabitants and their contemporary history and in this decade people engagements with the emotional and psychological aspects of history can have a positive effect on them. Besides that paying attention to industrial heritages in modern times can create an important context for growth and development of tourism industry. Utilizing the power of tourism industry will increase income and gain positive cultural results in all contemporary societies, so we can also look at the subject of industrial heritage from another point of view and while reutilizing it, render it as an effective space to help tourism industry prosper. One of the cases that the tourism sector concentrates on is preserving and respecting the environment. In this research, effort has been made to create a trio-connection between the topic of reviving industrial heritages, the growth of the tourism industry and sustainable development. In this regard, we have pointed out to two important case studies in Iran in the field of producing clean energy: The city of Manjil in the Gilan Province and the city of Binalud in Khorasan Razavi. These two regions in the contemporary era are considered leaders in producing clean energy by wind powers, which play a vital role in order to reach sustainable development. The idea to construct residential towns next to these wind farms which have unparalleled beauty and perspective can be considered as an important step towards the growth of tourism industry in Iran. At the same time, public awareness of how these turbines work is upgraded and in this way, one of the contemporary Iran's progresses will be introduced and understood by the public. Also, income and job creation resulted from this plan will cause infrastructure development, upgrade qualitative life of local society, increase a sense of belonging to the place and also it will be a great help for developing these wind farms. This idea can be implemented and utilized in similar regions, which ultimately brings many cultural, economic, social and environmental benefits to the destination country.

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## Industrial Heritage Conservation with a Touristic Approach

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### Abstract

The heritage of Industrial Architecture contains the remaining creations of the culture of industry with their Scientific, Architectural, Social or Historical significance. One of the ways in which to protect the heritage of Industrial Architecture is to create and develop Tourism based on its capabilities and values. Industrial Heritage Tourism is not merely a business-oriented phenomenon aiming at developing the local activities of Heritage Sites; because, the most crucial role of Industrial Heritage Tourism is to introduce the history of Industry and the life events of people who have set it in motion. Therefore, the main objective of this article is to explore and describe the very notion of Industrial Heritage Conservation, using a Touristic approach. Accordingly, the method of Qualitative Research with an Interpretivist approach is used to characterize and interpret the subject matter; moreover, tools such as Desk Research and Documentary Research are utilized to collect data. The findings of this article show that paving the way for traveling to such sites can result in a great introduction of Industrial Landscapes, and will transform the associated national knowledge to other countries. Industrial Sites are a remarkable historical chance to reconstruct the face of urban areas. Concerning the financial aspects, industrial monuments can play an important role as the destination of a new branch of Tourism that focuses upon Industrial Heritage. In the Tourism Industry, it is highly important to take a strong approach; because, tourists must experience enough attraction to be convinced of worthiness of their visit. Industrial Heritage, generally speaking, is a thriving industry. Touristic activities done in many old industrial areas have been successful; consequently, it is adding to the value of such areas on a daily basis. Conservation of industrial monuments is not just a cultural formality; conversely, it is a significant issue, with a financial potential that guarantees a great economical turnover.

**Keywords:** Industrial heritage• Tourism industrial heritage• Industrial heritage valuation•Key features of tourism industrial heritage

## 1. Introduction

The early idea of the legacy of industrial architecture dates back to the mid-twentieth century. Starting a discussion about the values of this legacy was a reaction to the destruction of several industrial buildings in England, after which many efforts were made to recognize the legacies of industrial architecture. (Hanachi,2014:7). The first measures in the field of industrial heritage with the aim of protecting and researching industrial buildings in 1950 were taken by the world's first industrial country, the United Kingdom. In 1973, the Industrial Archaeological Association established the International Commission for the Conservation of Industrial Heritage (TICCIH), founded in 1973 in Irene bridge, as the World Heritage Organization, which was responsible for the interpretation, documentation, research and conservation of the World Heritage. The seventh meeting was held in Russia in 2003, in which the Nizhny Tagil Charter for the Industrial Heritage, the most important document of its kind on the international scene, was adopted in 2003 (Zhang, 2007:481-490). The heritage of industrial architecture includes the remnants of the industry culture, which has practical, architectural, social, or historical values. The introduction of industry in Iran in the contemporary period and the industrialization phenomenon in the country, which began with the Qajar period with military industries, peaked in Pahlavi era and brought with it a form of architecture into the country which did not precede it before. However, industrial collections have the opportunity to deploy functions needed in urban texture and can be reused to create lively and dynamic spaces (Hanachi,2004: 7). Today, in many advanced countries, the forgotten industrial buildings have been revitalized through defining new functions, and by restoring these spaces and utilizing their potential for improving the environment, they have been renewed to attract the attention of residents and visitors to the conversion of these spaces into a dynamic and vibrant environment (Pahlavanzadeh,2011:25). Industrial buildings that are classified within the framework of the industrial architecture inheritance, are of high potential due to their relatively large size and scale, their location in qualified parts of the cities and the flexibility of the maps, and in particular the modularity of their structure for the purpose of adaptive reuse as public and urban service centers (Mahdavi Nejad & et al, 2015: 22). Activities in the field of tourism have been successful in many industrial areas and increase the importance of these areas every day (Hanachi & Teimourtash 2017) Revitalizing a new industrial space can be an important step in promoting a city's living environment and a source for a social transformation. The best and most appropriate way to achieve these goals is to interact with the tourism industry on this topic, which will not only be welcomed and supported by investors, but has always been a matter of interest among various sections of society. This research is aimed at creating a new look into the important area of industrial heritage, as well as significant growth of tourism industry in this field.

## 2. Theoretical Foundations of Research

The United Nations World Tourism Organization (UNWTO), bringing into focus both past and present patrimony, identifies industrial heritage tourism in three broad areas:(1) industrial and technological monuments, eg sites, moveable heritage and artifacts in museums; (2) living industry of all types, including agriculture and food production; and (3) intangible heritage, c.g. cultural activities inspired by industrial development. Edwards and Llurdés i Coit (1996), through their study of mining and quarrying attractions, propose that industrial heritage tourist attr can be classified into the following four major categories:(1) productive attractions: these are sources of raw materials that have visible imprints on the landscapes; (2) processing attractions: these

represent traditional techniques at ‘site serving locations, such as smelting works, crushing areas etc.; (3) Transport attractions: these represent the distribution of raw and processed materials, such as railroad tracks (4) sociocultural attractions: these are housing quarters, resource towns and villages, and shops related to the industry and community life. There are many ways whereby industrial heritage can be used for travel and tourism. tourist activities involve viewing industrial museums, exteriors and landscapes; appreciating the aesthetic values of architecture and artifacts; and enjoying intangible heritage by participating in cultural events inspired by industrial (Feifan Xie,2009, pp:43-45).

**Table1.** Type of industrial site, source: (Feifan Xie 2009)

Type of Industrial Site	Examples
Manufacturing And processing	Factories, assembly plants, smelters, mills, glassblowing works, textile plants, leatherworks, breweries, wineries, mints, printing presses, potteries and kilns, diamond workshops, fish and animal processing plants
Resource extraction	Open-pit mines, underground mines, quarries, lumber yards and sawmills
Shipping and transport	Railroads, canals, aqueducts, bridges, shipyards, docks, warehouses, transportation museums
Engineering	Bridges, dams, aerospace facilities
Energy production	Hydroelectric plants, nuclear energy stations, dams, windmills
Disposal systems	Sewer systems, landfills, incinerators
Other related attractions	Waterfronts, brownfields, industrial museums

### 3. Key Features of Tourism Industrial Heritage

Project in industrial heritage has its own complexities including economic, historical, social, sensational, physical, etc. It is worth mentioning that that each destination is different, therefore, the complex history of each site is a potential industrial heritage, but there is a common thread. Six feature sets are presented as the main factors in the development of the industrial heritage tourism (Feifan Xie,2006).

1. Potentials: This so-called “industrial triage” serves to assess the characteristics of the industrial areas and to make a sound decision about which tourism programs to invest in. The major purpose of industrial heritage tourism should provide visitors “a heritage with which to continually interact, one which fuses with the present”
2. Stakeholders: Industrial heritage tourism relies upon a diversity of people who can operate in a multitude of fields. These stakeholders may include business leaders, planners, and coalition-builders who can easily adapt to the unique situations involved with each project. At the community level, stakeholders include active members in the grassroots organizations, supporters, and multiple audiences, or users of the facility. In terms of management, collaboration among stakeholders to develop consensus for a destination development is becoming



more and more important

3. Adaptive reuse: This attribute relates to the space where industrial cities recycle dilapidated buildings and constructive but unglamorous histories for new uses and tourist attractions. Many schemes for such reuse of individual heritage, apparently motivated by a concern for conservation, are responsive to the traces of industrial culture in its many aspects
4. Economics: Although tourism in these industrial areas would “take advantage of its historic character, ambience, and sense of place”, it has become an important economic means to minimize the losses associated with the changes in the US economy from de-industrialization
5. Authenticity: This attribute is a major factor in determining the vitality of industrial heritage tourism. Authenticity is seen as the “opposite of generic” or a genius locus—the spirit of place—as an area’s most important aesthetic attribute
6. Perceptions: The factors of community perception and aesthetic preferences, together with a highly simplified vision of history and heritage, have played a key role in determining what is worth conserving Successful tourism development needs a common community perception.

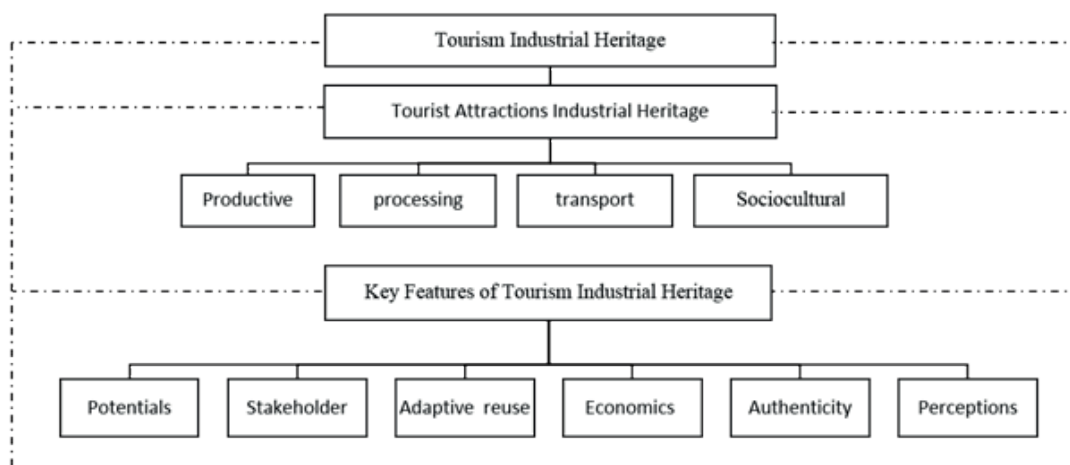


Figure1: The conceptual framework of Tourism Industrial Heritage, Source: Author

#### 4. Values of Industrial Heritage

The industrial heritage is the evidence of activities which had and continue to have profound historical consequences. The motives for protecting the industrial heritage are based on the universal value of this evidence, rather than on the singularity of unique industrial sites. Heritage the industrial heritage is of social value as part of the record of the lives of ordinary men and women, and as such it provides an important sense of identity. It is about technological and scientific value in the history of manufacturing, engineering, construction, and it may have considerable aesthetic value for the quality of its architecture, design or planning. These values are intrinsic to the site itself, its fabric, components, machinery and setting, in the industrial landscape, in written documentation, and also in the intangible records of industry contained in human memories and customs. Rarely, in terms of the survival of particular processes, site typologies or landscapes, adds particular value and should be carefully assessed. Early or pioneering examples are of especial value (The Nizhny Tagil·2003). The problem of industrial heritage in the meaning of understanding and valuing

the material evidence of industrialization has been addressing since about fifty years ago. When we think about cultural heritage values, we must understand that, in spite of the huge impact of industrialization on our lives, and partly because of this impact, the public perception of legacy derived from roots, feelings and approaches that are in another place, in an older age and in a different aesthetic perspective. In the valuation of the industrial heritage, the social, economic, environmental and political context must all be considered. Also, the skills and intentions of those who will be beneficiary in the future, such as ordinary people or professionals, developers and heritage professionals, should also be included (Hanachi & Teimourdash, 2017:15). The Industrial heritage has the following five values: (Xu & Cao, 2012).

1. **Historical Value:** Industrial heritage is the evidence of industrial activities and is a record of certain historical activities. These memorials help people understand the value of industrial civilization, industrial technology, organization, culture and etc. They cannot be replaced by any other type of cultural heritage. Therefore, industrial heritage condenses the universal historical value. **Technological Value:** Industrial heritage is a reflection of human intelligence, including a great deal of technological inventions and creations, which reveals the order of nature and scientific methods of production and organization. It will be beneficial to the progress of science and technology in the futur
2. **Economic Value:** Economic value is represented at the premise of protecting the authenticity and integrity of the industrial heritage. If the sites are developed and reused with respect to their protection, by developing industrial heritage tourism, rebuilding to exhibitions, museums and so on, their economic value will increase
3. **Educational Value:** For the purpose of education, especially in history and engineering, relics of industrial heritage are live teaching materials which cannot be replaced by others. Many industrial heritage sites are protected as teaching bases in Europe and the United States. It could be a method to combine industrial heritage protection, exhibition and education together.
4. **Psychological Value:** A representation of industrial heritage can be a symbol of a city is history, a multi-leveled spirit of the city and a common experience for all citizens. The characteristics of the industrial heritage could be national. They reflect the cultural identity and creative spirit of a nation (Xu & Cao, 2012).

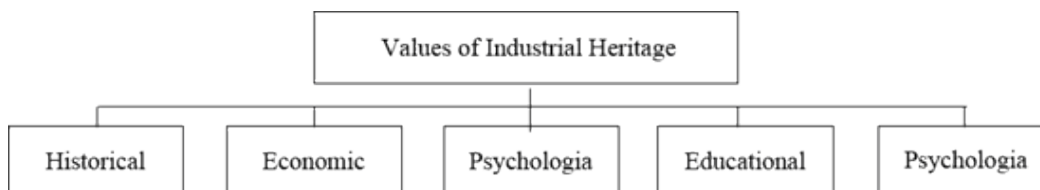


Figure2: The values of industrial heritage, Source: Author

## 5. Tourism industry

The tourism industry is one of the most attractive and largest industries in the world, which is considered as the most important source of income and job opportunities in most countries of the world. Tourism, being referred to as the development engine, has been gaining the attention of investors and governments due to its economic and social significance. Today, tourism industry can directly and indirectly influence other economic and cultural activities by creating the highest added value. The tourism industry is ranked third in the global division, after oil and automotive

(Abrishami & Barkish, 2015:29-31). Tourism is a great opportunity and alternative for areas in decline; it can provide them with a source of economic activity with enormous potential for social and business development and job creation. The regeneration of areas in decline can and should bring about better prospects and improve quality of life (EESC 2005).

### 5.1. Tourism with an Emphasis on Industrial Tourism

Due to the remarkable importance of the legacy of industrial heritage, several solutions have been put in place to restore these forgotten monuments nowadays. One of the possible solutions is to create life and social living with a focus on tourism (Memarian et al, 2016:21). Generally, industrial heritage is an increasing trade and one of the goals of conservation of industrial monuments is to strengthen regional identity. In terms of revenue generation, industrial monuments play an important role as a new branch of tourism in many old industrial regions. Activities in the field of tourism in many old industrial areas have been successful and increase the importance of these areas. In recent years, there are several projects focusing on industrial heritage tourism, often in Europe. The best of these experiences include: The Liverpool Dock Change Project in the Cattlefield area of Manchester in Great Britain, Development of the Port of Rotterdam and Amsterdam in Netherlands, the former Lukrchet mine in the Manage of Belgium, which has been renamed into a science park. Reconciliation and re-targeting is, today, the most important solution for urban planners, and since tourism has formed the economic core of many cities, the potential of industrial heritage in this area is also rapidly evolving (Hanachi & Teimourdash, 2017: 212). Heritage tourism is about the importance of creating a sense of place that emphasizes that it is unique, imaginative, valid, sustainable, and collaborative (Feifan Xie, 2006).

### 5.2. Tourism Application in Conservation of Iranian Industrial Heritage





Iran is one of the five most important countries of the world in the present era, where ancient traditions and customs are remarkable and it is the only country with all these tourist attractions that can easily be recognized in the tourism industry (Memarian et al, 2016:22). There are few studies and activities carried out in the field of industrial heritage in Iran and they are limited to industrial factories and industrial buildings within cities. A study in this regard, in addition to identifying the various aspects of the industrial heritage and attempting to double attention to its importance, will lead other affiliated industries, such as tourism, to be within the range of this growing area (Pahlavan Zadeh, 2014: 39). The revival of the industrial heritage and those parts of the monuments with a rich history of contemporary architecture that are subject to destruction can be used to prevent the desolation and to regulate the existing status of the collections for the development of the tourism industry. There are many historic sites and industrial buildings in Iran that have been used since the earliest years of the introduction of modern industry. Some are still in use and some have unfortunately been destroyed and left no effect. On the other hand, Iran is one of the five most important countries of the world in the present era, with ancient traditions and works of considerable significance, and it is the only country in which tourism industry can easily be recognized with all these tourist attractions (Memarian et al, 2016: 22). The revival of the industrial heritage and those parts of the monuments with a rich history of contemporary architecture that are in danger of destruction can be used to prevent the desolation of the current status of the collections for the development of tourism industry. By studying and evaluating the potential values in the architectural structure of Iran's contemporary industrial heritage, and by

preserving and reviving these old factories, there can be significant developments to attract tourists to the country. With the restoration of these old factories, we can transfer the values of the heritage to future generations.

### 5.3. Studying Internal Industrial Heritage

Reconciliation and re-targeting is today the most important solution for urban designers. And since tourism has formed the core of many cities, the potential of industrial heritage is also rapidly evolving. Iqbal Yazd Factory, Khosravi Leather Factory in Tabriz, Burian Sock Knitting Factory, Sun Kerman Factory and several others have been revived with new functions. Some examples of changes in the function of the internal sample of industrial heritage have been investigated in table.

**Table2.** The examples of changes in the function of the internal sample of industrial heritage ‘ source:Author.

Pictures	Location	Description	Components Industrial tourism	Key Features of Tourism Industrial
	Khosravi leather factory in Tabriz	The conversion of Khosravi leather factory to the faculty of art building reuse the maintenance of equipment in the factory, the construction of new buildings based on previous buildings.	This is a part of industrial tourism heritage in social group.	The introduced collections include all the key issues of the industrial heritage tourism that are presented as the main element for the development of the tourism heritage: Potentials Stakeholder Adaptive reuse Economics Authenticity Perceptions
	Ghale morghi airport in Tehran	Transformation of the airport into the Museum of Flight, converting half of the total area of the Qale'eh Morqi into the green area, reducing the occupancy level of the building to less than 20%.	This is a part of industrial tourism heritage in Transport group.	
	National library khorshid in kerman	Turning the spinning factory into a national library. The building was evacuated from the existing facilities and was revived to a more favorable reuse other than Khorshid factory	This is a part of industrial tourism heritage in social group.	
	Zanjan Match Factory	Remaining the facade of the building, which include the entrance gateway, the factory space and the yard. Converting the interior space of the factory into a space for public view, retaining the chimney as a sign of the complex	This is a part of industrial tourism heritage in social group.	

By studying the internal samples, we can study the potential values and capacities of Iranian architectural heritage in contemporary period, and examine the issues and problems by solutions proposed for conservation and maintenance of these old factories. Also, and with conservation and the revival of these old factories significant developments are possible in attracting tourists to the country.

## 6. Conclusion

Considering the industrial heritage in international forums and its recognition has become widespread in recent years. Considering the importance of such buildings in understanding the conditions and processes of the production and industry of each nation, the conservation of the heritage of industrial architecture of each country is highly significant. In order to achieve the right protection, it is imperative to know the values of these buildings from different aspects and different technological, social, and cultural levels. A closed industrial site, even if it is fully protected, cannot be excited in any way in comparison to a site which is still in the process of operation. Due to the remarkable importance of industrial heritage, today, many solutions are being used to rehabilitate these forgotten monuments. One of the possible solutions is to create life and social living with a focus on tourism. There are many historic sites and industrial buildings in Iran that have been used since the earliest years of the introduction of modern industry. Some are still in use, and some have unfortunately been destroyed and no trace remains. However, there are still a significant number of historical factories that have no previous industrial performance, abandoned and exposed to natural exhaustion or human destruction. If they do not pay particular attention to them, an important part of the country's industrial tangible heritage, indicative of industrial progress, will be destroyed. Nowadays, in many countries of the world, industrial complexes become beautifully residential, administrative, cultural and exhibition and tourist spaces, whereas in Iran their destruction orders are rapidly issued, despite the superiority of the architectural pattern of industrial factories. By studying and evaluating the potential values in the architectural structure of Iran's contemporary industrial heritage, and by preserving and reviving these old factories, we can take great steps to attract tourists in the country. With the restoration of these old factories, it seems that the values of industrial heritage can be passed on to future generations.

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### Abstract

The Old wastewater treatment plant (The Old WWTP) is the first modern urban waste water treatment plant in the Czech Republic, a water industry monument whose significance extends beyond the borders of the Czech Republic. In operation from 1906 to 1967, the plant was a part of the modern sewage system built in Prague at the turn of the 19th and 20th centuries. Today it is a testament to a modern and ecological approach to wastewater disposal and provides an understanding of the development and significance of water industry. The value of the monument is indisputable, its preservation for future generations is desirable. The use of the monument and its renewal and maintenance must not impair its authenticity and integrity. This contribution will present a practical example of site management, the forms of access and the activities that are needed to preserve the monument through new uses and in such a form that it is still incorporated into society and its informative value has not been violated. After ten years of experience managing the site, the company Tovarna, z.u. confirms that self-sustaining, financially independent economic self-management as a way of monument preservation is possible. It also confirms the importance of combining professional theoretical and practical experience in a targeted application in the care of a particular monument. In 2009 the historical site was put up for rent by the owner, the City of Prague. In 2018 the expert organizations of heritage in the Czech Republic – the Czech Icomos Committee and the Czech National Heritage Institute – recommend the registration of the monument on the Tentative list of the Czech Republic.

**Keywords:** Industrial Heritage, Tourism, Water Industry, WasteWater Treatment.



## 1. Introduction

Waterworks – structures using hydropower, channels, structures allowing river navigation – weirs, locks, water retention – dams, as well as structures for ensuring and distribution potable water to settlements – watersupply and sewage systems of towns and cities are an important group of industrial heritage. The Prague’s waterwork – the Old WWTP belongs to this group of structures, a building on a sewerage network. The Prague sewerage network was built at the turn of the 19th and 20th centuries Its part was a unique technical work – a wastewater treatment plant. This innovative structure was treating used water when this did not be common in other developed countries even though good sewer systems existed. Today the compound of the former mechanical gravity wastewater treatment plant illustrates the history of architecture, technology and water management. The plant as the first stage of three still existing stages wastewater treatment plants in Prague is important site for understanding the technical past for the next generations.

## 2. The site: The Old Wastewater Treatment Plant

This industrial compound is part of our architectural cultural heritage and belongs to the industrial heritage category. Specifically, it is a water management building – a construction of a sewer network used for wastewater treatment. The plant was built between 1901-1906 as a part of the modern Prague sewer system. The history of modern Prague’s sewer system began in the middle of the 19th century, when the growing Prague had, like other big cities, to solve the problems of hygiene in a period called by historians The Sanitation Crisis. The Prague sewer network was built at the turn of the 19th and 20th centuries. An essential part of this project was the design of mechanical wastewater treatment for responsible disposal of waste water before its discharge into the relevant recipient – the river Vltava. For this purpose it was necessary to unify the individual processes – mechanical cleaning and disposal of captured, polluting, undissolved material - together with the technical accessories into a functional unit. The designer of the project, a modern systematic gravity sewer system in Prague, is the experienced water and sewer engineer Sir William Heerlein Lindley (born on January 30, 1863 in Hamburg, Germany, died on December 30, 1917 in Putney, United Kingdom). He was renowned in Germany and also abroad as a consultant and designer.



Figure1: Old WWTP, Prague, CZ, The Main Operations Building.

The compound consists of underground and aboveground structures. The main operations building (Figure1) and underground spaces which include the sewage network and underground sand trap under the main operations building, settling tanks with an entry building, sludge wells, remnants of rails, a narrow-gauge railway bridge, and remnaand a new screens room). Wastewater treatment machinery such as the engines and powered machines remain preserved inside the buildings.

The treatment process took place underground. Wastewater flowed to the underground under the main operations building. There is a large vaulted tank here called the sand trap (Figure2). At the beginning of the cleaning process the wastewater passed through a simple lattice of grates called screens, which removed the coarsest impurities suspended in it – for example cloths, paper, food leftovers. This material was taken to the surface by elevator and then disposed of in landfills.



Figure2: Old WWTP, Prague, CZ, The sand trap.

Then the water flowed on to the next part of the tank, which was wider and deeper and where the heavier mineral particles like sand and soil particles were separated. The settled mineral particles were then sucked out with a centrifugal pump. The washed sand was used in the construction industry.

The water then flowed slowly into the settling tanks located underground behind the main operations building, to the last stage of mechanical cleaning - sedimentation of fine sludge (Figure3).



Figure3: Old WWTP, Prague, CZ, The sedimentation tank.

After that the treated water was pumped into the sewer and discharged into the river Vltava. There are spaces for machinery there – engines and powered machines. The engines were used for the removal and transport of screenings and settled material – gravel and sand, sludge disposal and water drainage, lime grinding and mixing chemicals. Auxiliary engines provided power for lighting, the ventilation of underground spaces and pumping floodwater. Two horizontal steam engines manufactured by the Prague company, Bretfield and Danek in 1903 are still operating (Figure4).



Figure4: Old WWTP, Prague, CZ, The steam engines room.

### 2.1. Property relations of the Old WWTP:

The owner of the site is the City of Prague and the property administrator is the City Hall. The Department of Administration of the Prague City Hall offered a cultural monument the Old WWTP for rent in 2009. The basic contractual obligations were to pay a rent of CZK 20,000 per month (EUR 800), to ensure the administration and maintenance of the monument at least up to CZK 400,000 per year (EUR 15,000) and make it accessible to visitors. The only tenant interested in the lease was the current manager the non profit company TOVÁRNA z. u.

### 3. Management: The Cultural and Educational Center

If we keep the site in working condition as an extraordinary testament to our past, its preservation also means its living involvement in contemporary life. For the management and operation, the manager compiled his own management plan in 2009 entitled: Use and renovation plan (Jiroušková, Šárka and Bruna, Zdeněk, 2009). The model for a new use of the site as a cultural and educational center is based on the original purpose of the site and fully respects the value and importance of the monument. The main objectives are preservation, revival and presentation of the monument. The aim of the activities was to verify the value of the monument at international level. This management plan was approved by the National Heritage Institute (Czech Heritage Authority).

Description of management activities:

Management engages in three major, secondary economic and property management activities.

- The main activity includes visitor traffic, which allows year-round visits to the technical area, educational programs, cultural events (exhibitions and concerts supported by the manager, free admission and rental of premises). This activity is financed by main and secondary economic activity.
- Secondary economic activity is the main source of finance to support all activities. These are mainly short-term property rentals, tenant services such as catering, technical provision of events, heating, cleaning, creating and securing a program of events, etc. There is also a café and a summer bar.
- Real estate management is funded from its own resources stemming from short-term lease of services for rentals and the operation of the café and bar. These include, in particular, the costs of maintenance of the property, cleaning maintenance of greenery and communications, restoration and renovation of real estate and technical operations, revision of steam engines and steam boilers.

The administrator also provides real estate investments up to CZK 2 million (EUR 80 thousand) from own funds. Investments are the contractual obligation of the principal manager the City of Prague, but he fails to do so.

### 4. The value of the site

The manager's program included verification of the value of the site in question. The site was registered as a cultural monument (1991). In 2010, it was declared a national cultural monument as the most important landmark of the Czech water industry. This rating is the highest valued of the significance of a monument in the Czech Republic. The work began with a construction historic survey. This means documentation of preserved construction and equipment and the identification of the purpose of technical equipment and their remains, verification of the technological process, the function of the premises, the identification of changes made by modernization of the technological process and structural modifications. Processing is based on the principles of industrial archeology. (Palmer, M., Neaverson, P., Industrial archeology: Principles and Practice). Survey information is used for maintenance and restoration work, as well as for site tours.

In 2013, the manager started to cooperate with ERIH, an international organization (see Tourism industry) in order to increase the popularity of the monument and also due to the discovery of other sewerage structures outside the Czech Republic. The site has been part of the ERIH tourist network since 2016; it is an anchor point of the Czech Republic and part of the European thematic route "Water". Adding to this network and communicating with other members has meant the

possibility of including a treatment plant among other European-scale water industries, which has also confirmed its uniqueness. TICCIH's co-operation, which began in 2016, means constant contact with the sites of industrial heritage worldwide, learning from the experience of colleagues from other places, bringing an inexhaustible amount of information and an overview of the construction and industry history.

These activities confirmed the authenticity and integrity of the site. The fact that this mechanical treatment plant is a precursor to the following biological treatment phase contributes to the importance of the old treatment plant. This first phase didn't begin in most cities until the mid-20th century. In Prague this technological process was replaced by a new plant in 1967 (Central Mechanical and Biological Activity – WWTP). The capacity of the Old plant could not be expanded and the construction of the new treatment plant took place nearby on Cisarsky Island. Thanks to this, the original compound the Old WWTP remained preserved. In 2018, Prague opened and began operating a 21st century plant. Its final approval is scheduled for this year, when 110 years will have elapsed since the final approval of the old WWTP. The old treatment plant, together with adjoining plants, located close to each other (the existing WWTP and the new water line of the 21st century) is a unique testament of the development of a significant water sector. The processing of the preliminary comparative analysis was completed by submitting an initiative to enter the Old WWTP on the indicative list of the Czech Republic in 2016 as a prestigious recognition of the value of the monument, as well as to maintain respect for the monument and ensure its future protection. The Ministry of Culture of the Czech Republic rejected the initiative and requested additional documents. The assessment of the importance and value of the old treatment plant was based on our own research and was finally confirmed on the basis of the thematic study „The Water Industry as World Heritage, TICCIH 2018“. In this thematic study water structures for the provision of infrastructure in the industrial period (water and sewerage networks and buildings therein) has been registered. It is the first global comparative study of these buildings (Thematic Study on the Water Industry as World Heritage, [http://ticcih.org/wp-content/uploads/2018/05/TICCIH-Water -Report.pdf](http://ticcih.org/wp-content/uploads/2018/05/TICCIH-Water-Report.pdf)). By comparing the Old Wastewater Treatment Plant in Prague – Bubeneč with other sites on the history of sewerage, it is clear that this monument is the only authentically preserved technological compound that represents the beginnings of a modern approach to wastewater treatment by treatment before discharged into nature worldwide. Based on this fact the third submission of the applying form was accepted in 2018 and registration on the site on the Tentative list of the Czech Republic was recommended by the professional organizations of the Czech National Heritage Institute and the Czech Icomos Committee.

### **5. Conservation of substance and facilities**

Regular maintenance is one of the core activities of the manager. The priority is to preserve the authenticity and integrity of the monument, so all plans are subject to the permission of the building authority and must be discussed with the monument preservation authorities. In 2013, the underground of the old treatment plant was flooded and all the treatment equipment was damaged. This required professional restoration, restoration of technological elements and machines underground. The restoration work started in 2015 and was completed in 2018. The restoration work was based on surveys of damaged materials, historical documentation, building survey history (see The value of the site). The restoration of plasters, machinery and technological equipment damaged during the flood of 2013 was presented in detail at TICCIH 2018, Chile, Santiago (Justa, P., Jiroušková, Š., The rehabilitation of the Old Wastewater Treatment Plant in Prague, The Czech

Republic).

## 6. Presentation of the site

An important component of the whole process is the presentation of the site to the public. This means presenting both activities for acquaintance with the history and purpose of the site, as well as the possibilities for new use. The presentation of the purpose and history of the monument is based on material remains and facts. For these purposes, a guided tour was created within the original authenticated spaces. The interpretation is based on a construction-historical survey (for more see The value of the site). The archival documents - preserved historical plans and photographs of construction were used for interpretation of the site. The telling the story of the site must be genuine and inventive. This is what the movie records contribute if they exist. In the case of the Old WWTP, a documentary of the 1943 film, where the original waste water treatment is recorded, is preserved in the National Film Archive. Minor records have survived since the 1960s and 1970s. More information is provided by witnesses. In 2017, two shift managers told about their work in the 60s when they worked in the plant.

Understanding the past is important for understanding the present. Not every technical field has the opportunity to present the development from the beginning to the current operation of a new device. The location of the 3 treatment plants- the three development stages are located in Prague, where the Old Treatment Plant is the oldest stage and it is possible to follow the development of the wastewater treatment process. At the same time, we can see how the city and the population are growing through wastewater production (for more see The value of the site).

Collaboration with foreign organizations will help to place the site into an international context of history and industrial heritage. In the case of the old treatment plant, this verification was carried out as part of a comparative analysis to confirm the extraordinary value of the monument on an international scale (see paragraph The value of the site). Attractive activities are offered to visitors: passing through the settling tank on the boat, passing through the sewage (Figure5), climbing up the ventilation stack (Figure6) and ascending from the stack into the underground, themed programs involving operating steam engines. The atmosphere of the industrial environment is attractive to many visitors and people interested in cultural events as concerts, exhibitions, weddings, family celebrations, corporate events.



Figure5: Old WWTP, Prague, CZ, The sewage open to public.

## 7. Tourism industry

Although industrial heritage is an important component of the past, it is not so much preferred as e.g. castles, palaces, monuments of older times. The experience of foreign colleagues is the same in this matter. The involvement of industrial heritage in tourism is becoming an additional component of the monument conservation system as an activity that brings the monument to life, popularizing the importance of protecting this type of monument, and expanding knowledge in the national and international context of industrial and technical development of civilization. “Industrial tourism” contributes to the knowledge of countries and helps to understand through historical buildings the development and current state of the technical fields. In the case of Old WWTP, it is connected to other developmental stages in one location (see Value of the monument). Linking the visits of all three plants is another way of expanding our offer to visitors. In addition to cooperation with Czech tourism (<https://www.czechtourism.cz/>) and Prague Tourism (<https://www.prague.eu/en>), the Czech Republic starts offering a presentation for incoming travel agencies: Czech industrial heritage. Due to the fact that industrial monuments are not a major tourist destination, it is advisable to use their potential for alternative excursions (in the case of the Old WWTP offer to foreign tourists on the third day in Prague after sightseeing of the main monuments). A targeted presentation with other sites like “Industrial Heritage Tourism” is preferred. For these activities, cooperation has been established with ERIH (Germany, <https://www.erih.net>) and Save Industrial Heritage (Italy, <http://www.saveindustrialheritage.org>), which provides a presentation for the localities at international tourism fairs. ERIH – a tourist information network to ensure targeted promotion of industrial heritage in the form of well arranged web pages. The annual conference provides the opportunity to exchange information on the management and presentation of sites within Europe, the opportunity to get acquainted with the approaches to presentations and interpretations in the field of excursions and tourism experts. The reason of combination of these activities resulted in increased traffic: 2009: 4,100 visitors, 2018: 14,900 visitors.

## 8. Conclusion

Ensuring the transmission of information to future generations is a living, responsible, system of many interdependent activities that are based on the material remains of the building – the cultural heritage. The management plan is dependent on the owner-manager relationship and the specific state regulations. The management plan of the Old WWTP confirms the possibility of preserving the monument through its own self-management. Practical experience also confirms that collaboration with international sites and organizations is important for the exchange of information and experience in the field of administration, maintenance, protection and presentation of monuments, as well as research and clarification of information in the context of contemporary events and the development of the relevant technical field. All this contributes to the understanding of an important component of the cultural heritage - industrial heritage.

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## Biography

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## Interiors in Transition: The Experience of the Current Iranian Homes

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### Abstract

The contemporary Iranian home has always functioned as a place that relieves the tensions between a series of contradictory processes such as modern and traditional practices. This investigation grounds on exploring the essence of the Iranian home centred on how Iranian homes are experienced on an everyday level. This is achieved by focusing on the notion of the atmosphere of space, addressing the complex cultural, spatial and gender-related elements that constitute Iranian home practices and leads towards altering its spatial identity. For that purpose, the spatial transformation of Iranian domestic space within the cultural, social and religious processes during the modernisation of the country has been examined. Subsequently, this paper emphasises particularly, on the atmosphere of home as a spatial character that is being created within a range of tangible and intangible elements and is representative of Iranian identity, culture and traditions. Theories on the notion of everyday architecture have been applied to examine the circumstances of Iranian home and the ways in which the Iranian home is perceived and experienced spatially and sensually within interior atmospheric qualities. Consequently, this research aims to remark the complexities of the study of Iranian home as a place of contradictory processes, proposing to exceed beyond conventional approaches of home and homemaking studies by embracing themes such as atmosphere and the sensory experience of home, placing them at the core of the architectural examination of home.

**Keywords:** Iranian home, homemaking, the architecture of everyday, the atmosphere of home, modernity and traditions

## 1. Introduction

This paper focuses on exploring what makes a home Iranian and what are the elements that are specific to the experience of current Iranian homes. There are comprehensive sources on Iranian traditional and vernacular architecture including houses, with particular attention to the material and the physical architectural elements and styles (Memarian and Pirnia, 2007) and the compatibility with environments (Ghobadian, 1998). Additionally authors such as Mohammad Reza Haeri Mazandarani (2009) and Fatemeh Kateb (2009) argue the necessity of applying solutions derived from the rich architectural approaches of the past in the current Iranian homes. Yet, the current Iranian domestic space as it is lived, on an everyday basis, has been a neglected area of study. This paper grounds on providing a view to the current experience of Iranian home, focusing on the notion of everydayness in architecture as an element that settles the complexities of past and present practices. The architectural perception of home is discussed by examining the atmosphere of home as a spatial quality that reveals multiple dimensions in regard to the everyday making of home.

## 2. Home and the architecture of the everyday

To be able to examine intangible conceptions such as atmosphere and the sensory experience, it is necessary to study home as a place that encompasses everyday life. In *The Practice of everyday life*, Michel De Certeau (1984) presents a profound discussion on the everyday life. He takes an optimistic approach towards the importance and the strength of the everyday and states that everyday practices “depend on a vast ensemble which is difficult to delimit but which we may provisionally designate as an ensemble of procedures” (De Certeau, 1984, p. 40). Grounding on the same notion, he differentiates space and place:

...in relation to place, space is like the word when it is spoken, that is, when it is caught in the ambiguity of an actualization, trans-formed into a term dependent upon many different conventions, situated as the act of a present (or of a time), and modified by the transformations caused by successive contexts” (De Certeau, 1984, p. 117).

Consequently, he describes a space as “a practiced place” where the past is embodied through the practice of the everyday, emphasising on the individual’s potentials to alter situations and to create independent circumstances (Macleod, 1997, p. 27). Rooted in De Certeau’s discussions, French philosopher Henri Lefebvre (1997) in “The everyday and everydayness” suggests that we need to decode the modern world according to the everyday and mentions that the notion of the everydayness does not dictate a system but rather is “a denominator common to the existing systems” and acknowledges that through repetition and “the organised passivity” of the everyday the past is elucidated (Lefebvre, 1997, p. 47-48).

Influenced by Lefebvre’s thought on the everyday, in architecture, the notion of the everyday has emerged as political resistance towards consumerism, a resistance that relies on the repetition, routines and the ordinariness (Berke and Harris, 1997, p. 14-15). In *Architecture of everyday*, Deborah Berke (1997) defines everyday architecture as inclusive, since it allows meaning making processes (Berke, 1997, p. 235). Additionally, the architecture of the everyday exceeds beyond sight and engages all senses. “The architecture of the everyday encompasses places known by

their aroma, surfaces recognisable by their tactile qualities positions establishes by echo and reverberation” (Berke, 1997, p. 236).

In the Middle Eastern context, Mohamed Gamal Abdelmonem and Gehan Selim illustrate that home is where the everyday practices embody cultural heritage and traditions (Abdelmonem and Selim, 2012, p. 164). At the heart of these practices, meanings and memories that can simulate collective identity, tradition and morale are performed that ultimately transform a house into a home (Abdelmonem and Selim, 2012, p. 170). Hence, home is defined as a space of routines and repetitive practices, where the memories and the traditions of the past create collective memories that are experienced on an everyday basis.

### 3. Iranian women perception of home

Lefebvre’s notion of the everyday was less optimistic than that of De Certeau (MacLeod, 1997, p. 30). He notes that this passivity in private life “means the imposition of consumption” and is distributed unevenly as “it weighs heavily on women, who are sentenced to everyday” (Lefebvre, 1997, p. 48). In the case of Iranian women, their identity has been long associated with the space of home; indeed only a few decades ago they used to be referred to as *Manzil*, the Persian word for house (Najmabadi, 1998, p. 91). The home for Iranian women is a particularly charged place and is therefore ripe for study since their relationship with the home is bound up with political change, gender relations and identity construction. For having a better understanding of the experience of the current Iranian homes and it’s spatial qualities, and the daily homemaking strategies, notions of public/private and *Birooni* (exterior, outside) and *Andarooni* (interior, inside) are examined by the ways in which Iranian women identity has been situated within the space of home. The presence of a specific space of *Andarooni* for women and a separate place of *Birooni* for social interactions that is particularly associated with men in Iranian homes could be perceived as gender hierarchy.

However, it has been argued that such spatial designation are more about *Unity* that is rooted in *Sufism* mystic notions of uniting the materiality and spirituality as an idealised, nostalgic place of Unity rather than a place of gender segregation (Ardalan and Bakhtiar, 1973: 68, see also Karimi 2009, p.245). Religiously it could also be explained in regard to concerns with notions such as cleanliness and dirt in Islamic Shiite gender restrictions. “We have seen that in both traditional and modern Shiite literature the male/female segregation as demanded by Islamic regulation never meant that there had to be a separate space - only something that keeps the other from being seen” (Karimi, 2009, p. 251). Hence, this juxtaposition of public and private is less about hierarchical spatial arrangements and more about creating spaces that are complementary.

With the advent of modernism at the beginning of the twentieth century, the Iranian domestic everyday space went through a massive change. The policies on rapidly modernising the country resulted in the foundation of British and American missionaries whose roles were to replace traditional habits and promote modernization expressed through better-organised, cleaner households (Karimi, 2009, p. 49). This was an attempt to encourage a modern lifestyle and the consumption of modern furniture and devices. However, Iranians over time accepted the modern lifestyle selectively, meaning they benefited from modern furniture and devices according to their religion and their cultural norms (Karimi, 2013). One example being the co-existence of the religious

notion of clean and filth and the new household devices challenged the spatial arrangement of the Iranian home<sup>1</sup>. For example, places such as toilets were considered inherently filthy and were therefore located outside the home, but gradually they became accepted to be inside based on the methods proposed by Shiite clerics such as *Ayatollah Khomeini*<sup>2</sup> who accommodated the new systems within the *traditional-Islamic*<sup>3</sup> ways of cleaning (Karimi, 2009, p. 214, 237).

This process of active adaptation of modern and traditional elements has been an on-going process. Contemporary Iranian homes look dramatically different from the traditional ones. Currently, Iranian society is in transition, opening up to the globalising tendencies of the twenty-first-century culture, restating its commitment to Islamic values while trying to stay loyal to the traditions of the past. According to the latest census in 2016, more than 74% of the Iranian population live in cities, an increase from 68.5% in 2007 (Fathi, 2016, p.8). Tehran and other metropolitan cities in Iran accommodate 38% of the whole populations settled in cities (Saremi and Ebrahimpour, 2012, p. 91). This also has caused a housing shortage that has resulted in smaller houses as according to the “Atlas of Tehran Metropolis” report, the size of current Iranian homes decreased to 106 m<sup>2</sup> from 140 m<sup>2</sup> in the 1980s. This pressure on space has also led in some cases to the destruction of heritage, such as garden spaces and have replaced one-storey houses with big gardens with apartment flats with small, shared green areas. The high demand for houses has not only minimized the size of the Iranian homes but has also resulted in losing the focus on building houses with spatial qualities. Although Iranian homes have changed a great deal, the cultural calendar, the traditions and religious practices have sustained as a significant part of Iranian home cultures. To capture what make a home Iranian within these rapid changes, an analysis is provided with an emphasis on lived experienced of Iranian home on an everyday basis.

#### **4. The Iranian home: the experience of an interior atmosphere**

The study of the everyday space of home deals with multiple complexities and various ambiguous notions. The developed approach in this study is to embrace this ambiguity by examining the atmosphere of home. The ways in which Iranian home is experienced in relation to the atmospheric quality is represented through discussions emerged from a series of interviews with Iranian women about the making of the Iranian home in the UK. Eight women were interviewed as a part of an investigation about the making of their diasporic homes, since the transient nature of the diasporic home provide a unique situation to be examined in relation to identity, gender, culture and homemaking. This analysis reveals how cultural and religious heritage are situated within the space of home in terms of both the spatial features and the practices of the everyday.

The circumstances of the diasporic life have led to the development of a consciousness about the spatial arrangements of the Iranian home that depicts different aspects of the Iranian home. The experience of the Iranian home plays a great role in the ways these women define home and the majority of the participants of still consider their home (mostly parental/childhood home) in Iran as their real home. The home of the past and its essential elements such as access to nature, the courtyard, family gatherings and the public and private division are illuminated through these descriptions that place the culture and traditions of the past in the heart of the Iranian home experience. One of the participants, for example remembers her home linked with its big garden: “Imagine whenever you open the door you had to walk through a garden at least for a few minutes until you get home. The garden was full of flowers and sometimes the sound of water. I always

thought this rout helps you to release all of your tiredness by the time you get to home”. The home is remembered through a fully sensory experience, where all the senses are evoked within a wider context with the thresholds of the home are being blurred. Similarly, another participant mentioned: “I love these houses, with the courtyard in the middle and there are three or four families that live in the same house and where my mum was brought up actually was exactly that. Her grandfather’s home had a courtyard where they lived with her uncle’s family.” The direct access to nature, nostalgia for traditional courtyard houses and the closeness provided by the social gatherings are what all these women acknowledge as the essence of Iranian home. Descriptions as such depict that the experience of the Iranian home still settles within a transitory process of modern elements and traditional routines. All these women have experienced Iranian home with big gardens, or a courtyard hosting big family gatherings as well as apartment flats with smaller spaces and less direct access to natural light and green areas. However, what is remembered the most is the atmosphere of home, especially during cultural celebrations such as the Iranian new year (*Nowrouz*<sup>3</sup>), *Yalda*<sup>4</sup> night and finally the religious traditions such as fasting during *Ramadan*<sup>5</sup> or religious ceremonies of *Tasua and Ashura*<sup>7</sup>. It is through these cultural and religious routines and everyday practices that the space of home finds meaning. Through the analysis of these interview sessions certain spatial elements were mentioned specific to Iranian homes, such as, designating privacy to particular parts of the house (bedrooms and bathrooms), spacious rooms and direct access to garden and natural light. Nonetheless, the physicality of home, its architecture and spatial elements were all described within illustrating the ways in which the atmosphere of Iranian home is experienced. All these women described the feeling of being at home within ephemeral spatiality such as feeling the breeze of an air in a summer evening, being sat in the living room having tea with the family, having the TV on in the background or hearing the sound of Azan or the children in playing in the street. The all spoke of a feeling of content rooted in a passivity of the everyday life, the everydayness when being at home is being at the state of passivity (Jacobson 2009: 355-356).

## 5. Conclusion

In the core of Iranian identity lays the duality of modern/tradition, public/private and cultural and religious principles. This has resulted in Iranian identity being a combination of pre-Islamic, Islamic and modern traditions (Jahanbegloo, 2015, p. 78). The duality of modern and traditional practices specifically has put Iranian society in a “limbo position” (Jahanbegloo 2015:76), however, these different layers are “co-existing productively” rather than conflicting each other (Malek, 2015, p. 28). Subsequently, the Iranian home, as a place of encompassing everyday life, is where all these co-existing notions are embodied. Grasping these notions within spatial properties, however, is a complex process that is aimed to overcome through acknowledging the spatial aspect of atmospheric and sensory qualities of home by discussing the strength and significance of everyday practices. The everydayness is where the current routines are connected with the past and therefore the duality of modern and tradition is put into relief. This combined with examining what home means in diaspora where the very idea of home is broken and is being reshaped again, the importance of everyday practices in studying home architecturally is remarked. Based on the notion of the everyday architecture, this research suggests architectural studies on home to be situated within dynamic processes to embrace the intangible and ambiguous aspects of home as well as its physical and tangible parts.

## End Notes

<sup>1</sup>In Shiite regulation water plays a great role; it has to be clean itself (rain water, spring water, water from fresh wells and tap water). If it is a right amount (3 square feet) it can purify anything that is not originally filthy. Natural substances are inherently clean (Taher) unless they become filthy (Najis) in contact with filthy materials. The recognition of filthy and clean is essential especially for the daily praying that is accompanied by the ritual of ablution (washing the face, hand and feet with water) and is a symbolic act of cleanliness (Karimi, 2009, p. 233-236).

<sup>2</sup>High ranked shiite clerics explain Shiite orders for every day life issues within a handbook called tawzih –al masael. In the New tawzih –al masael of Ayatollah Khomeini, he discussed the updated ways in which new domestic devices can be used within the Islamic Shiite framework. Through examining New tawzih –al masael, Karimi discusses this process of adjustment to the modern life in the domestic domain by the help of updated methods proposed by religious thinkers (Karimi, 2009).

<sup>3</sup>Additionally, Karimi notes that the Iranians first resisted using detergents for washing clothes, as they preferred alkaline soil to soaps because of the place it has in Iranian culture. At the same time clothes washing was also practiced like a ritual accompanied by Salavat (expressing blessing Allah and praising Prophet Mohammad), which was believed to enhance the purification level. However the use of the washing machine was proposed as purifying, as long as the water exits in the machine (Karimi, 2009, p. 214-234).

<sup>4</sup>Nowrouz: The first day of New year and the first day of Farvardin (the first month of Iranian calendar), on 21st of March. It is the beginning of a two weeks holiday the most important event throughout the year. Iranian households prepare for the New Year celebration from weeks before *Nowrouz*. Starting from Khane Tekani that prepares the house for hosting the relatives during the holiday and by shopping new clothes to show a perfect appearance to friends and relatives. In the Iranian households, this day is celebrated through symbolic representation of this new beginning with preparing Haftseen table. Haftseen table includes seven elements that each starts with the letter “S” in Persian alphabet and conveys symbolic meanings, wished for the New year,

<sup>5</sup>*Yalda*; winter solstice, the longest night of the year on 21st of December is celebrated by spending the night with relatives and friends by reading Hafiz poetry.

<sup>6</sup>The ninth month of Islamic calendar is the month of fasting. During the Ramadan people host their relatives for dinner (Iftar) with the variety of Iranian sweets and food specified for this month.

<sup>7</sup>The ninth and the tenth days of Muharram (the first month of Islamic Calendar) are the days of mourning for the martyrdom of Imam Hussein (Third Shi’a Imam). People in Iran honour these days by offering Nazri (food and drinks specially prepared for these days) to the neighbours and the poor. In a traditional Iranian home the process of food preparation starts a few days before when relatives and neighbours gather and offer their help.

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## Biography

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## Integrated Conservation and Development in Modern Heritage Complex: (Case Study: Central Campus of Tehran University)

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### Abstract

The conservation-and-development approach is one of the key approaches in the intervention of the buildings as well as complexes which, has been able to take advantage of conservative approaches and economic-based development policies as a balanced approach to solve conservation knowledge challenges. The importance of conserving modern heritage as evidence of the modernity process is increasing and efforts to achieve a comprehensive approach to solve the challenges of its conservation and development are greatly followed. The construction of Tehran University as one of the most important complexes of Iranian modern architectural heritage dates back to 1934. This complex represents Iran's neoclassical and international modern architectural style and has always been eligible to protect heritage values. After explaining, the conservation and development approach's criteria and presenting a conceptual framework, the purpose of this research provides the theoretical suggestions for implementing of "Integrated Conservation and Development Approach's features in the central campus of Tehran University as a modern heritage complex. This research has been carried out using the library study tool and related texts and with the logical arguments strategy. Finally, the approach of measures in the encounter of values as well as development layers are proposed in accordance with the case study and presented in a table.

**Keywords.** Integrated Conservation and Development, Modern Meritage, Tehran University



## 1.Introduction

The challenge of conservation and development as one of the main challenges in solving the problems of historic monuments and cities has always been discussed by conservation professional. This approach in line with the emergence of a more comprehensive approach is in attempt to resolve its problems. Among the all approaches, we can point to the historical urban landscape that consistently responded to the city's continuity and dynamism, and has achieved a lasting balance between continuity and change in the development of interaction between development and conservation. (Poorbahador & Fadaei Nezhad, 2018, p. 73) In recent years, the new attitude towards conservation in the form of "change management" and the management of developmental measures has gained great importance utilizing full recognition and understanding of the concept of "significance" of heritage and has been emphasized in numerous contemporary documents. "The neglect of the modern monuments values in countries, which are in riched pre-modern heritage, is a challenge and this issue remains too many of the heritage places and sites of the twentieth-century at risk. Although appreciation of mid-century modernism is increasing in some regions, the range of buildings, structures, cultural landscapes and industrial sites that are characteristic of the twentieth century are still threatened by a general lack of awareness and recognition. All too often, they are pressured by redevelopment, unsympathetic change, or simply by neglect. Awareness of these threats, in 2010 the members of the ICOMOS International Scientific Committee on Twentieth-Century Heritage (ISC20C) began to draft a reference text, setting out the approach and the principles that should be applied to managing and interpreting twentieth-century sites and places. The ambitious objective was to provide an international benchmark" (ICOMOS, 2017, p. 2). The Central Campus of the University of Tehran, that its plan established in 1310 (1931), constructed in 1313 (1934). The whole campus consists of some appreciated modern construction like, medical collogue , the technical collogue, the law collogue , and the campus of fine arts, ...witch planned by some great contemporary modern architects such as Maxim Siro, Mohsen Forooghi Ronaldo Duberl and, ... In the modern international style between 1313 (1934) to 1330 (1951), and then gradually completed until 1345 (1966). The primary purpose of this study is to explain and to extract the features considered in the integrated conservation and development approach from its conceptual framework. Subsequently, this research tries to classify the values of the case study in relation to the extracted features and identify the developmental layers in this modern heritage complex. Finally, in order to conserve the values and encounter with the developmental layers, it is attempting to present a comprehensive theoretical suggestion in accordance with the central campus of Tehran University in the form of a table.

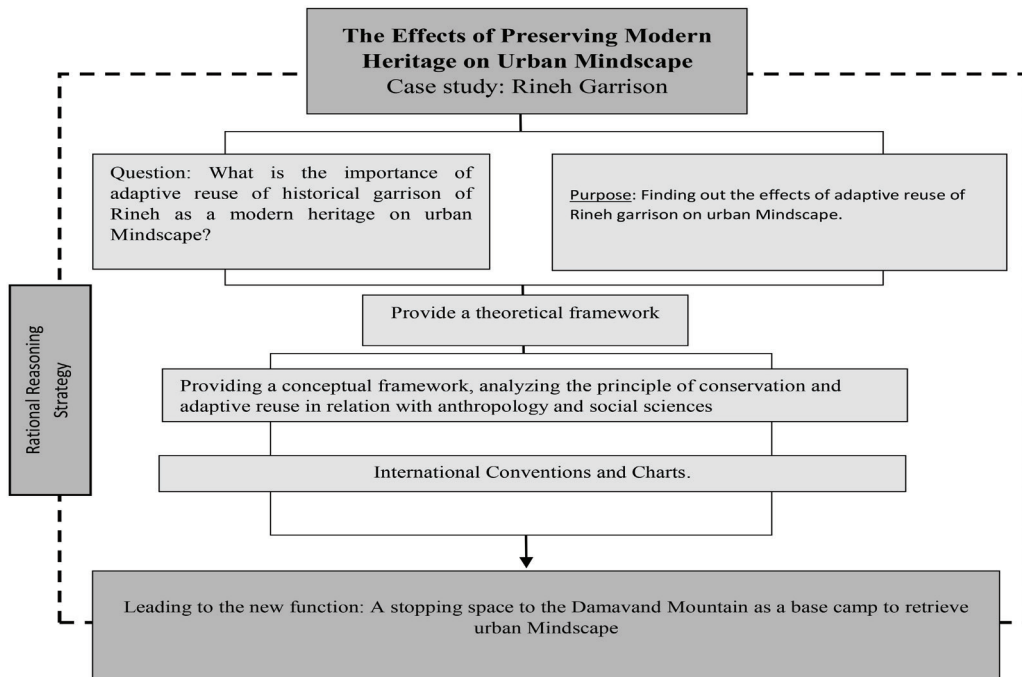


Figure 1 .The research design introduces the main stage of the study, their contents, the relationship and hierarchy of the subject (Source: Authors)

## 2.Literature review

### 2.1.Review and analysis of the integrated conservation and development approach from the viewpoint of related documents and theories:

With a short look at the evolution of the concept of conservation in recent decades, a historical advance can be observed in theories and policies associated with conservation. The concept of “conservation” has first developed in order to protect and preserve historical unique monuments in the sense of “conservation” of historical collections, center and historic city, cultural landscape, and historic urban landscape. Modifications and reforms of the policies began during the 1970s and an appropriate environment was provided for conservation, in which conservation policies were gradually enhanced, and then in the 1990s, the matter of conservation was introduced as a major objective in the planning process and was considered empirically in revitalizing many of the historical centers of small and large cities (Pendlebury & Strange, 2011, pp. 361-392). According to this study, the concept of conservation, which was, initially, defined as the maintenance and upgrading of historical structures, has been scrutinized with the concept of “change management” in historical environments in recent years. “Conservation is a process to manage changes in historical environments that best preserves the “heritage values” of a place through maintaining significance and integrity in their place while protecting opportunities to reveal or enhance values for present and future generations” (Drury & mcpherson, 2007, p. 59). The effects of globalization on societies are manifested in the attrition of their values, identities and cultural diversity, and of their tangible and intangible heritage, in the broadest sense. So, the relationship between development and heritage must be examined (ICOMOS, 2011, p. 1). Therefore, efforts to

balance between development and conservation in all layers and features are globally examined, and the emergence of new concepts can be useful in solving this challenge.

In recent years, the new attitude towards conservation in the form of “change management” and the management of developmental measures has gained great importance utilizing full recognition and understanding of the concept of “significance” of heritage and has been emphasized in numerous contemporary documents. Besides considering the issue of transferring traditional approaches of conservation to change management as the sign of extent endeavors being made in the context of determining the new patterns and processes.

The most important international documents associated with the integrated conservation and development approach include the European Charter of the Architectural Heritage, 1975, the UNESCO “Recommendation Concerning the Safeguarding and Contemporary Role of Historic Areas” (Warsaw - Nairobi, 1976), Washington Charter, 1987, ICOMOS New Zealand Charter, 1993, Fas Charter, 1993, Bergen Protocol, 1995, Declaration of San Antonio, 1996, Stockholm Declaration, 1998, Burra Charter 1999, Santiago de Compostela Declaration, 1999, Mexico City Charter on the Built Vernacular Heritage (1999), Charter of Krakow, 2000, Declaration of Quebec City, 2001, Budapest Declaration, 2002, Kazan Declaration, 2002, ICOMOS Charter of Zimbabwe, 2003, Bam Declaration, 2004, Norwich Declaration, 2004, Seoul Declaration, 2005, Declaration of Xi’an, 2005, Gutenberg Declaration, 2005, Declaration of Innsbruck, 2007, ICOMOS Charter of Quebec, 2008, 2011 UNESCO Recommendation, Valletta Principles, 2011, and finally the Paris Declaration, 2011. However, the economic and social dimensions of conservation and the necessity of an integrated approach in the planning and management of historical environments were considered in the Charter of Architectural Heritage of 1975 for the first time (Strange & Whitney, 2003, p. 220). Thus, since resilience is based on a systemic approach, integrated conservation and development strategies can only be realized by crossing the frontier of sectoral policy. The threats and challenges that cities face rarely stand out as one-dimensional, and because of this, the best response and stabilization strategies must be worked out with the above in mind. The approaches for promoting good governance are, therefore, just as important as the approaches for implementing holistically integrated planning. (Bandarin & Roders, 2017, p. 111). In addition, shifting the traditional patterns of conservation to change management indicates the considerable effort that is being made to determine new management patterns and processes. Integrating time (the past and present), as well as integrating “natural and cultural heritage” can be considered as the fundamental concepts in the preparation and codification of new management plans (Francesco Bandarin, 2012, p. 191).

Therefore, the review of documents and conventions, especially in the last three decades, indicates that establishing a balance between conservation and development approaches is one of the most important aspects taken into account in recent documents; the content of these documents witnesses the issue of its conservation and valuation as an active concept companion of development. Conservation in the direction of valuation and to Realize the concept of cultural significance, after the classification of the values, weighs them, but most importantly, suggests the set of measures to protect, to promote, to present, etc. In correspond to the case. In parallel, development in the sense, which is extracted from “change management” concept practice management of developmental layers, and in addition to prioritizing them and defining its boundaries in the historical context, suggests useful guidelines for integrating developmental dimensions. Although some of the early developmental approaches, including the irregular and large-scale reconstruction and renovation over the past decades have eliminated many of the cultural-historical.

heritage monuments, many of the recent documents utilized the concept of conservation, which often emphasized preservation and promotion of historical structures, with the concept of change management in historical environments in recent decades. The concept of change management and controlling developmental actions exploiting the full recognition and understanding of the significance of the heritage has gained great importance in recent years and has been emphasized by contemporary documents.

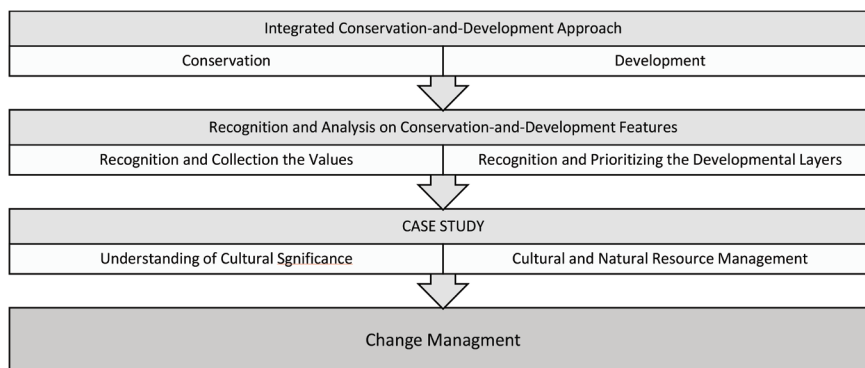


Figure 2. Conceptual Framework of Research (Source: Authors).

## 2.2. Values and Developmental Layers from the Viewpoint of International Document:

According to The most important international documents associated with values conservation scope, many guidelines elaborated and usually applicable to all types of heritage, this guidelines briefly mention that, “The aim of conservation is to retain the cultural significance of a place” and “Conservation of a place should identify and take into consideration all aspects of cultural and natural significance without unwarranted emphasis”. Related documents hint, “Relative degrees of cultural significance may lead to different conservation, In addition “Understanding the cultural significance comes first, and then development of policy and finally management of the place in accordance with the policy” (ICOMOS, 1999, pp. 2-5).

In addition Understanding the cultural significance comes first, and then development of policy and finally management of the place in accordance with the policy. The meaning of cultural significance under the Burra charter refer to “aesthetic, historic, scientific or social value for past, present or future generation”. These values may imply to the other values. It is obvious that The Identification and assessment of the significance of twentieth- century cultural heritage should use accepted heritage criteria. The cultural heritage of this particular century (including all of its elements) is a physical record of its time, location and use. “Its cultural significance may rest in its tangible attributes, including physical location, views, design (for example, form and spatial relationships; color schemes and cultural plantings; construction systems, fabric, technical equipment, as well as aesthetic qualities). Significance may also lie in use, historic, social, scientific or spiritual associations, or evidence of creative genius and/or in its intangible values” (ICOMOS, 2017, p. 3).

In the development issue associated with heritage resources, all documents hint to the comprehensiveness of sustainable development. Actually “economic and social benefits need to be maximized in order to enhance living standard as far as the city target is sustainable in terms of environmental limitations and socioeconomic equity” (Mori & Yamashita, 2015, p. 12). This defi-

nition was developed in the 1980s based on three dimensions or pillars: economic growth, social inclusion and environmental balance. It is noteworthy that” The Executive Bureau of UCLG, approved the Policy Statement “**Culture is the Fourth Pillar of Sustainable Development**” on 17 November 2010, in the framework of the World Summit of Local and Regional Leaders - 3rd World Congress of UCLG, held in Mexico City”.” As various aspects of development threaten to degrade and destroy heritage and its inherent values, it is necessary to take up the challenge of conserving this fragile, crucial and “non-renewable resource” for the benefit of current and future generations” (ICOMOS, 2011, p. 2).

In most of the relevant documents, heritage is considered as an unrenovable resource, which in conservation is prioritized for development, and has many limitations in physical development. In fact, it can be said that the purpose of development in the heritage sites necessarily more than emphasizes on physical development, underline to promote the cultural significance of the place and the expansion of existing values in the place. The combination of these components in the process of conservation and development, in addition to establishing sustainability in the place can realize the integrated conservation and development approach. In the diagram below, heritage values and developmental layers have shown on the base of study and evaluation related document.

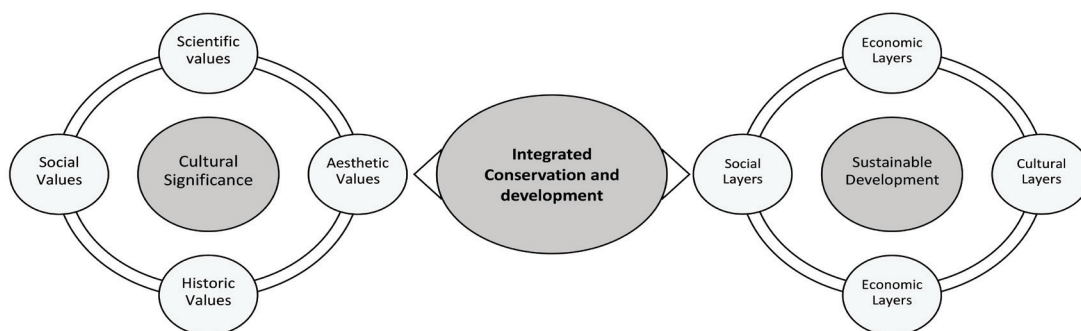


Figure 3. Realization of the Integrated Conservation and Development Approach (Source: Authors)

### 3. Central campus of Tehran University as a modern heritage complex

One of the most important institutions that took shape at Reza Shah’s time was the Tehran University that its plan was provided in 1310 and constructed in 1313. The first college opened was the medicine college Designed by André Godard, in collaboration with Maxim Siro and Mohsen Forooghi. The Faculty Building is located on the longitudinal axis of the university site, which is a privileged position. The master plan of the faculties of the Tehran University in the same year, 1313, was designed by Andre Gödard, Maxim Siro, Roland Duberl, Nikolai Markov and Mohsen Forooghi. (Ghobadian, 2012) On the rectangular site with the area of 10 hectares, 19 building was designed. Except for the building of the Fine Arts Campus, designed by Ronald Duberl that designed completely modern, the design of most of the colleges is in the neoclassical style combined with modern architecture (Masood, 2014).



Figure 4. Central Campus of Tehran University, 1960, (Source: (Masood, 2014)

“The methodology used to assess the significance of the architectural heritage of the twentieth century should follow a culturally appropriate conservation planning approach. This will include comprehensive historical research and significance analysis in the development of policies to conserve, manage and interpret the identified cultural significance “ (ICOMOS, 2017). Thus, it is necessary to identify and assess the complex values of the complex.

In addition to the “aesthetic values” of the building, due to the modern style, the “historical values” of the building due to the Time position that it was built and lived is undeniable. In addition, the central campus of Tehran University was witness of many historical and political events related to the Islamic Revolution and even afterwards, hence, it has a powerful role of collective memory in the social fabric’s minds. The atmosphere around this university, due to its location on the ENGHELAB street, which is now a place of gathering of the most important publishing office of country, is very much in line and integrity with this complex and its related population. The breaking of this connection will lead to eliminating “sense of place values”, “Social and cultural values” related to this place. The campus landscape plan is such that in addition to having open spaces with rich greenery, each school specifically has at least one yard. Therefore, the “natural values”, which are all designed in this building, cannot be ignored. In addition to all of the values stated, the “functional value” of the complex, which it has been designed and applied throughout its lifespan, is also indisputable as a dynamic function in the service of the community. Based on the integrated conservation and development approach and in order to conserve the values of this modern heritage complex, the following guidelines have been proposed by the authors.

**Table 1.** Strategies Encounter with Heritage Values,( Source: Authors)

Values	Strategy	Description
Aesthetics Values	Absolute Conservation	No change in the design of the plan, facades, site and decoration.
Scientific values	Update	When the danger of destruction or influencing other values threat the complex, it is necessary to preserve the structure through updating tech-nics.
Historical value	Present	It is necessary to emphasize and recall on this values via existing social fabric. This can be done in the form of cultural, artistic, and scientific events and activities.
Functional value	Promote deeply not widely	Upgrading the existing function, rather than other functions such as economic function, etc.
Natural Values	Protection	Protecting and promoting the existing species, protecting the original landscaped plan.
Socio-cultural Values	Support and Promote	Eliminating the social weaknesses of the region in order to conserve the integrity and social sustainability of the region.

#### 4. Central campus of Tehran University as a case involved in development

Development in national complex with a political and social propaganda range is always discussed by experts in all relevant fields. About development issue experts believe that, development must be equitable (interaction between the economic and social dimension), livable (correspondence of the environment to social needs, which can refer to the concept of quality of life), and viable (economic development must abide by the supportive capacity of the ecosystems, and depletion of nonrenewable resource must be avoided). (Tanguay, et al., 2009, p. 418) One of the challenges of this issue is the inability to manage the development of this complex with many stakeholders and custodians. Nevertheless, when we are faced with the heritage it should be considered that as various aspects of development threaten to degrade and destroy heritage and its inherent values, it is necessary to take up the challenge of conserving this fragile, crucial and “non-renewable resource” for the benefit of current and future generations (ICOMOS, 2011, p. 2). However Understanding the issue that, in which dimension and layers development is necessary, is a complicated matter. With regards to this study approach (integrated conservation and development) and its upgrading concept of “change management”, the concept of development, especially in complex such as the Tehran University with great political, social, cultural or even economic significance, does not mean absolute physical and economic development and large-scale development is not suggested. Cultural identities should not be compromised by uniform and insensitive planning. The protection and sustenance of heritage resources should be the basis of development policies and planning programmers, integrating heritage-conservation strategies within the larger goals of sustainable development. Specific guidance is necessary to ensure the harmonious insertion

of contemporary interventions into heritage settings (ICOMOS, 2017, p. 2). In result, Based on the integrated conservation and development approach and to know how it should be faced with such modern heritage complex in the development issue considering conservation, the following guidelines have been proposed by the authors.

**Table 2.** Guidelines Suggested for Developmental Layers in Central Campus of Tehran University, (Source: Authors)

Developmental layers	Guidelines
Body	The body should proceed with respect and consistency with the core zone, and do not undermine the main materials of design and decoration of the building and design of the sites
Economic	The economic layer should work in an interaction with the social layer and should put these two components in parallel
Social	The social layer should pursue participatory actions and strengthen social integration
Functional	Functional layer should work in the scientific context of the complex, economically enriches itself and possess a deep growth rather than a wide one.
Cultural	Cultural layer should promote cultural understanding and creative potential
Political	The political layer should make accessible local management through existing sites, provide development plans and organization in major levels and facilitate the conservation process.

## 5. Conclusion

An integrated conservation and development approach is a comprehensive approach available for heritage and other resources that has been very helpful in solving the challenges of these complexes to balance the need for economic and value conservation. An attempt to realize this approach is now applicable under the concept of change management. The central campus of Tehran University has been involved in planning and development projects since 1995 due to its high importance on the political, cultural, social and other levels. There is, however, the risk that in future development plans the complex's value layers will be missed as a heritage resource. Conservation and development can be two key elements of this approach each of which has important components that will illustrate the way in the management of complexes and the integration of these two. Protecting the cultural values of buildings and complexes as the main focus of conservation and balancing the implementation of development in its various layers together and prioritized can be fully effective in putting this approach into place. The central campus of the University of Tehran, as a modern heritage complex, has aesthetic, historical, political, and scientific values, which, as an indispensable source for the implementation of development plans, should be the priority of protecting these values. Based on studies on the values and development dimensions of a case study, development in this set should not be focused only on one layer. It is also recommended



that the development approach be used to promote the characteristics of the location in a deep and not a wider direction. Development in the body layer according to the guidelines established on the basis of research findings has a constraint in the main zone. Hopefully and according to the instructions given on the components of the Integrated Protection and Development Approach, the protection in this complex is clearly specified. It is also suggested that a careful study of other values of the complex, should be carried out in depth so that the integrated protection and development approach based on the extracted components will be realized through integrating “cultural significance understanding” and “development management” leading into the emergence of the concept of change management.

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## Biography

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It's an exciting opportunity for the Research Institution of Art and Culture at University of Tehran as we continue to grow, adapt, and remain motivated, responsive and open to new ideas. The invited speakers of this conference are leaders in their respective fields, who shall assist the School of Architecture in providing a platform and opportunity for participants to network, and help this Conference in meeting its aims of creating the right environment for bringing inspired people together, ensuring for our University to remain at the cutting edge.

Similar to many countries influenced by the Modern Movement, modern architecture in Iran began in the late Qajar Period and especially in Pahlavi dynasty, through the return of Iranian architects educated abroad and the arrival of European architects in Iran; making Iran, home to significant number of lasting structures of Iranian and western architects. This has indeed marked the initiation of a similar development trends in Iran. Today, conservation of these important legacies is crucial and their negligence is a threat to their survival. Over the past years, Iranian authorities have also shown significant acts on these concerns, where particular attention has been paid to modern heritage for growing a trend in recognizing and conserving the values of modern built heritage in Iran; through some groups of academics and professionals, establishment of new publications, groups and organizations. However, obtaining the confirmation of Modernism as heritage by all professional societies and general public remains a great challenge. Experts and academics have the vision, knowledge, wherewithal and experience in assisting us pave our way into the future, they are truly our greatest asset today.

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