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# Development of Rejuvenation Process in Iranian Industrial Heritage Based on Grounded Theory

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**Abstract**

Today, one of the most important issues related to the industrial heritage in Iran is the rejuvenation and reuse of such assets. The industrial buildings dating from the Pahlavi era (1925-1978) have the adaptive capacity to create modern spaces. These industrial sites provide suitable opportunities for deploying new functional systems, since they can be reused to create dynamic spaces. The present study seeks to answer this question: "How is the developmental approach formed with regard to industrial heritage?" Therefore, some indicators were extracted using the Grounded Theory Method (GTM) that include four effective criteria for the revitalization of industrial heritage; that is, the effect of hidden values on the improvement of industrial heritage, capacity to adapt to new conditions, a consistent relationship between old and new structures, and development of a new combination. The study explained a theory called "Crystallization of Industrial Heritage" by analyzing the indicators mentioned above . As myths can be crystallized in contemporary literature, it is thus possible for the industrial heritage to be crystallized in each period. Research findings show that this approach can be generalized to the revitalization of industrial heritage. In this regard, the study focused on how the industrial heritage is crystallized and the adaptation of this theory in the development of three Iranian projects.The results indicate that one of the complexes has succeeded in inspiring crystallization once again in the modern era by creating a significant relationship between the past and present. The development of industrial heritage and adaptation of this theory in the development of the Qasr cultural complex show that this complex succeeded in inspiring crystallization once again in the modern era by creating a significant relationship between the past and present. According to the conducted surveys, the adaptivity criterion has been given less attention in most of the existing samples. Most industrial heritage revitalization projects have been largely unsuccessful in creating identity and legitimizing their valuable heritage. Also, due to various reasons, such as the location of some of them in the old and dense fabrics of the city, the possibility of developing and achieving the capabilities of producing new functional spaces has not been provided. In this case, it is possible to use the successful experience of the Argo factory in building the capacity of internal spaces to create and develop new functions. Also, strengthening the hidden values in the framework of the existing plans can be very effective in the process of upgrading to adapt industrial heritage revitalization projects to the theory proposed in the research.

***Keywords***: Industrial heritage; The Grounded Theory; Revitalization; Adaptivity; Extensibility; Authenticity; Crystallization.

## 1. Introduction

The industrial heritage inherited from the Industrial Age requires protection and research like the legacy of other historical eras. The main disadvantages of such complexes are the lack of harmony with today's progressive development of modern urban needs, physical degradation, and mismatch with the changes. The buildings remained have different values, each of which can represent a part of the identity of contemporary history. In Iran, the phenomenon of industrialization first began in the military industry during the Qajar era (1789-1925). Industrial progress peaked during the Pahlavi era (1925-1978) and brought with it a form of architecture into Iran. The establishment of manufacturing industries such as textiles, glass, brick, silo, cement, and railway were the hallmark of the grand days of industrialization. Valuable aspects of such historic complexes include a wide range of social, political, and cultural dimensions in addition to technical and architectural aesthetic dimensions. In many countries, a major step to improve the surrounding areas is to revitalize and reuse such potential spaces. Moreover, Iranian industrial complexes, especially the Pahlavi industrial heritage sites, are considered to be examples of industrial architecture. Therefore, it is absolutely necessary to preserve these valuable structures that offer golden opportunities. This study aims to have an evolutionary look at the realization of industrial building capabilities in terms of the appropriate strategy for building a complex compatible with a new function. It seeks to restate old concepts and values in a new form, introduce them into future space organization of the city, and re-activate the building that has lost its efficiency.

## 2. Research Background

### *2.1. Brownfield*

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This term is generally used to describe every element from industrial pollutants to formerly operational manufacturing buildings both spatially and formally, including empty or abandoned sites in old urban districts (Loures and Vaz, 2016, 1). This paves the way for developing and reusing them (Xiaodan et al., 2016, 1). Many of the industrial heritage sites (Brownfields) were built by unprofessional or incompetent companies, causing negative effects on urban environments and landscapes (Fetisov, 2015, 7).

*2.2. Industrial heritage*

Industrial heritage links the contemporary world to the works of the past, which are authentic documents of the progress of civilization (Bellakova, 2016, 1927). Historically, one of the factors of the urban growth of cities and the formation of their bodies was industrialization (Kermani, B. M., Majedi, 2019). These sites are valuable (Adiwibowo et al., 2014, 353). The reuse of such complexes as industrial assets (Cristina et al., 2014, 162) and monumental sites indicates the emphasis on modernist and industrial importance in the form of a landscape of nostalgia (Feifan Xie, 2015), since the respect for industrial heritage and their revitalization with certain changes can improve the lives of local communities (Zagroba, 2016). Converting these abandoned industrial sites into public centers (Langston et al., 2008) may contribute to preserving the historical and architectural value of older buildings. However, the influence of other parameters such as the natural environment should not be neglected (Kheirabadi, F., & Alizadeh, 2019).

*2.3. Revitalizatio*

Revitalization of industrial heritage through transformation involves major changes that may result in initiative for modernization and passivity in regional advancement (Grozdanovića et al., 2016, 1837). For social reasons, this process also improves the quality of life and the image of the housing area or district (Alpopi and Manole, 2013), as the cultural dimension is another essential element in the emergence of such projects. This can mainly replace former industrial activities for potential tourist development (Loreta Cercleux et al., 2012, 217). Hence, it is vital to protect and legitimize an industrial complex to adapt it to new demands (Cho and Shin, 2014, 70) and even to demolish some parts that make a building less efficient or flexible for providing usable spaces (Worthington et al., 1998).

*2.4. Adaptive reuse*

It is an attempt to revitalize to find new applications for recycling buildings (Ijla and Broström, 2015, 53). Adaptive reuse is an important strategy for preserving industrial heritage and urban planning to achieve urban sustainability (FiorellaGranata and Scavone 2016, 394). Although it seems that in the category of adaptation, addressing the context of the subject is of great importance (Medi & Fedelle, 2021), but adaptive to new social needs and homogeneous with the authenticity of the building, this process gives it a new use so that it can play a role in meeting contemporary needs by adapting its current functions (Yıldırım and Turan, 2012, 494). Therefore, the reuse of industrial buildings is an effective solution as a new method for changing the negative landscape of declining areas (Nepravishta, 2015, 385) to create new urban uses.

## 3. Research Methodology

This is a case study (Groat and Wang, 2013) using the Grounded Theory based on a data analysis method developed by Corbin and Strauss (Corbin and Strauss, 2008). In this method, there is no generalizability, but the goal is to understand a phenomenon. The fundamental difference between the Grounded Theory and other qualitative research methods is the emphasis on theory development . The Grounded theory is based on the idea that a theory may not be available or that those who are available may not be able to describe incidental occurrences in a situation. Using this method, the theory is based on data that has been systematically compiled and analyzed. The theory is developed during the research process and is the product of continuous interaction between analysis and data collection (Strauss and Corbin, 1994). In this approach, the data are collected and analyzed through a process for formulating a theory (Kneale and Santy, 1999). The Grounded theory is used in some cases such as the role of designers in interdisciplinary fields for development and redesign of the healthcare building (kasali and Nersessian, 2015), the development of theories based on tourism research (Matteucci and Gnoth, 2017) and also in audio landscape perceptible in open plan offices (Acun and Yilmazer, 2018). The first step in this method is the research proposal and involves a review of technical studies. The second step is collecting data that can be extracted from case studies. The third step is to customize the data and write the concepts. At this stage, the researcher reviews all the data and looks at interesting things and indicators (Mehmetoglu and Altinay, 2006). The fourth step is data analysis in an open, axial, and optional coding; at fifth step, the data are converted to the theory. In the present study, the data were analyzed through constant comparison in three stages; that is, open, axial, and selective coding. In open coding, as an analytical process, the identified concepts and their dimensions in the data were discovered. Accordingly, 63 codes were obtained and a code with the letter M was selected for each class in axial coding. In this stage, the process was carried out regularly in the tables (T1-T4) to determine whether any event belongs to any class that had existed before in the data or it is necessary to assign it to a new class, since the comparison makes it possible to assign the data to similar groups in a cluster manner for creating classes and concepts. The coding process took place based on a category (Strauss and Corbin, 1998), and the result of this process was divided into four sections with fifteen main classes and four concepts.

Table 1
The Grounded Theory in terms of the development of brownfields

| Code | Open Coding | Axial Coding (Concepts resulting from Open Coding) | Core Category |
|---|---|---|---|
| M1 | using multifunctional zoning system (Bretagnolle, 2018) | Use diversity | The hidden values of brownfields play an important role in their development, and it is a factor in promoting their identity (authenticity) |
| | Using Flexibility to facilitate possible changes (Martínez, 2018) | | |
| | Density in the context of mixed use (Al-Shawabkeh, 2018) | | |
| | Interactivity to functional changes (Mahdavinejad, 2020) | | |
| M2 | Enhancing diversity in the context of mixed use (Al-Shawabkeh, 2018) | Mixed form and use | |
| | Using coherency in forms (Al-Shawabkeh, 2018) | | |
| | Compression and concentration of uses (Mahdavinejad, 2020) | | |
| | Preserving the physical continuity of the walls in public spaces (Mahdavinejad, 2020) | | |
| M3 | Adding value to existing historical elements (Allies, 2004) | Spatial quality (space-oriented, location-oriented) | |
| | Creating public spaces in the key points of a site with a traditional identity (Brebbia, 2006) | | |
| | Revitalizing the public spaces (Brebbia, 2006) | | |
| | Creating a new space, character, and neighborhood (Allies, 2004) | | |
| M4 | Establishing a link with context (Allies, 2004) | Integration and unification | |
| | Promoting quality capabilities in urban environment (Allies, 2004) | | |
| | Establishing Internal integration (Al-Shawabkeh, 2018) | | |
| | Enhancing integrity between site and Neighborhoods (Al-Shawabkeh, 2018) | | |

Table 2
Grounded Theory in terms of the adaptivity of industrial heritage

| Code | Open Coding | Axial Coding Concepts resulting from Open Coding | Core Category |
|---|---|---|---|
| M5 | Valuable assets for rejuvenation (Feifan Xie, 2015) | The Exploitation of industrial heritage inherited from the Industrial Age as an evolutionary process | Ability to adapt to new conditions in terms of physical, cultural, and social dimensions (adaptivity) |
| | Having revitalizing potentials (Ijla, 2015) | | |
| | Having the capacity to revitalize (Van Dujin, 2016) (Feifan Xie, 2015) | | |
| | Need to Preservation of industrial values (Nepravishta, 2015) (Cho, 2014) | | |
| M6 | The potential for continuing history and enriching industrial heritage sites (Bellakova, 2016) | Creating identity and legitimizing the valuable heritage | |
| | Potential for eliminating neutral and unattractive functional uses (Yıldırım, 2012) | | |
| | The potential of mental landscapes for preserving the identity and signs of industrial heritage (Fetisov, 2015) | | |
| | Possibility to create a connection with the past and to develop spatial identity (Bellakova, 2016) | | |
| | Ability for being linked to the past and creating a spatial identity (bellakova, 2016) | | |

Table 3
Grounded Theory in terms of the connectivity of industrial heritage

| Code | Open Coding | Axial Coding Concepts resulting from Open Coding | Core Category |
|---|---|---|---|
| **M7** | The need for modernization and a retrospective approach (Bellakova, 2016) (Grozdanović, 2016), | Promoting environmental and functional quality | Establishing a consistent relationship between valuable architectural physical aspect and the newly designed identity and the creation of a compromise for the reuse of the industrial heritage based on contemporary needs (connectivity) |
| | Redefining context features (Ning Lu, 2019) | | |
| | Replacement with new activities (Ning Lu, 2019) (Grozdanovića, 2016), (Haidar, 2014) | | |
| | Using anything valuable architecturally (Balgojevic, 2016) (Cho, 2014) (Ijla, 2015) (Feifan Xie, 2015) (Fetisov, 2015) | | |
| **M8** | Creating the proper conditions in spatial organization (Haidar, 2014) (Zagroba, 2016) | Change and adaptation | |
| | Compromise between the body and contemporary needs (Adiwibowo, 2014) (Grozdanovića, 2016) | | |
| | Activating a situation that has lost its effectiveness (Van Dujin, 2016) (Cristina, 2014) | | |
| | Granting a new use (Cho, 2014) (Zagroba, 2016) | | |
| | Functional consistency (Yıldırım, 2012) (Cho, 2014) | | |
| | Meeting contemporary needs (Yıldırım, 2012) (Worthington, 1998) (Loreta Cercleux, 2012) | | |
| | Creating consistency through available space (Haidar, 2014) | | |
| | Creating various opportunities (Loreta Cercleux, 2012) (Grozdanovića, 2016) | | |

Table 4
Grounded Theory in terms of the extensibility of industrial heritage

| Code | Open Coding | Axial Coding Concepts resulting from Open Coding | Core Category |
|---|---|---|---|
| **M9** | The need for renovation (Ning Lu, 2019) (Van Dujin, 2016) | Recovering and adjusting the core capabilities of industrial heritage | Spatial-physical production and capacity building in order to incorporate new functions (extensibility) |
| | Change- transformation (Grozdanović, 2016) (Haidar, 2014) | | |
| | Creation of activity and relivening the building (Van Dujin, 2016) (Worthington, 1998) | | |
| | Improving living conditions (Zagroba, 2016) (Cho, 2014) | | |
| **M10** | Restoration of worn-out valuable spaces (Cho, 2014) (Nepravishta, 2015) | New architecture for old structures | |
| | Design approach to the valuable legacy of industrial (Penica, 2015) (Haidar, 2014) | | |
| | Converting industrial uses to new ones | | |
| | Planned intervention (Penica, 2015) | | |
| | Using the architectural patterns of industrial heritage | | |
| **M11** | Redefinition of space (Ning Lu, 2019) | Redesigning and improving spatial and physical capacity | |
| | Reflection of historical layers in the design idea | | |
| | Design in valuable contexts (Penica, 2015) | | |
| | Enhancing the durability and integrity of the industrial heritage spaces (Nepravishta, 2015) | | |
| | Adjusting and redefining valuable spaces (Feifan Xie, 2015) (Cho, 2014) | | |

In selective coding, the relationship between the concepts was interpreted according to the proposed model, since selective coding is formulated through axial coding. Selective coding is the integration and concepts developed for the initial formulation of the research framework (Francisa et al., 2008), then the data are converted to a theory that covers the overlap between the topics.

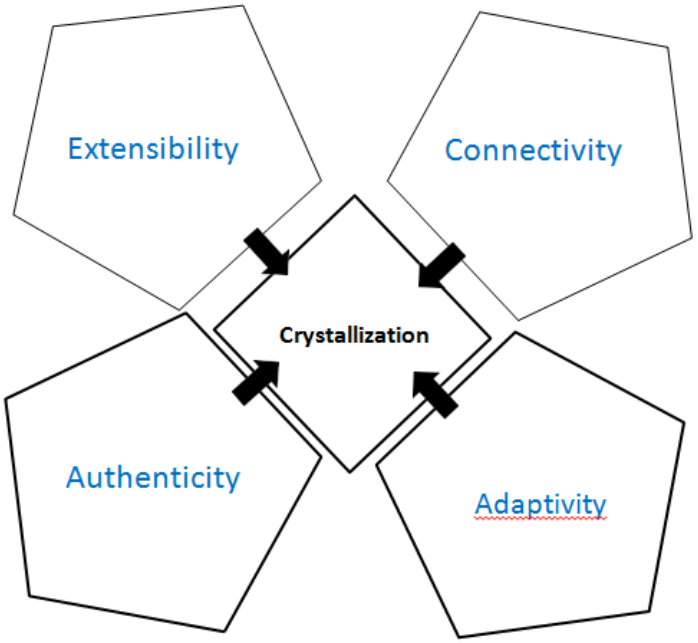


Fig. 1. Categories in selective coding

**4. Domestic Experiences**

In this research, eight industrial sites were selected from among the available samples. Most of these examples are related to the period when the industry entered Iran (late 19th century and early 20th century AD). These monuments are the most prominent examples of industrial architecture in Iran and are still on their feet and we cannot see any major destruction. In addition, the buildings are a sign of the industry's entry into the country, but also reflect the architectural characteristics of this period, and especially the manner in which Iranian architects interact with imported practices. Therefore, these buildings create an opportunity to accumulate experience in protecting the legacy of industrial architecture through the definition of appropriate use. Social and cultural functions of these complexes include an introduction to the history of industrial heritage, architecture, and their historical development.

SELECTED ADAPTIVE REUSE EXAMPLES

| General information | Photo of the building |
|---|---|
| **Name:** Risbaf Cultural Complex **Location:** Isfahan, Iran **Date of construction:** 1931 **Date of renovation:** 2002 **Original function:** Spinning Factory **New function:** cultural Center |  |
| **Name:** University of Art **Location:** Tabriz, Iran **Date of construction:** 1931 **Date of renovation:** 1997 **Original function:** Leather manufacturing Factory **New function:** University |  |
| **Name:** Qasr Museum Cultural Complex **Location:** Tehran, Iran **Date of construction:** 1929 **Date of renovation:** 2011 **Original function:** Prison **New function:** Museum |  |

| | |
|---|---|
| **Name:** Argo Factory<br>**Location:** Tehran, Iran<br>**Date of construction:** 1889<br>**Date of renovation:** 2016<br>**Original function:** Beer factory<br>**New function:** Institute of culture & art |  |
| **Name:** The Beryanak factory<br>**Location:** Tehran, Iran<br>**Date of construction:** 1922<br>**Date of renovation:** 1997<br>**Original function:** Sock weaving factory<br>**New function:** The museum of nature & wildlife |  |
| **Name:** Rasht post & telecommunication office<br>**Location:** Gilan<br>**Date of construction:** 1931<br>**Date of renovation:** 1994<br>**Original function:** Post & telecommunication office<br>**New function:** Post Museum |  |
| **Name:** The Shams Factory<br>**Location:** Tehran, Iran<br>**Date of construction:** 1931<br>**Date of renovation:** 1992<br>**Original function:** Beer factory<br>**New function:** Cultural center |  |
| **Name:** The Eghbal factory<br>**Location:** Yazd, Iran<br>**Date of construction:** 1931<br>**Date of renovation:** 2003<br>**Original function:** Spinning & weaving factory<br>**New function:** Science & technology center |  |

Fig 2. General information about the selected adaptive reuse examples.

### *4.1 Risbaf Cultural Complex*

The western side of the site of this factory includes the entrance and administrative and service areas, while the other sides are all allocated to storage units. The workshop spaces are thus surrounded by these areas in the middle of the site. That is why there is a high, simple wall on northern and southern sides of the factory, where the wall is decorated by few windows. In the middle of the site, there are production halls in the west, completion halls in the northwest, and painting hall in the south east. The air purifier tower located on the northern side of the complex and the chimney on the east side are modern elements resembling traditional minarets, which have a symbolic role with their height.

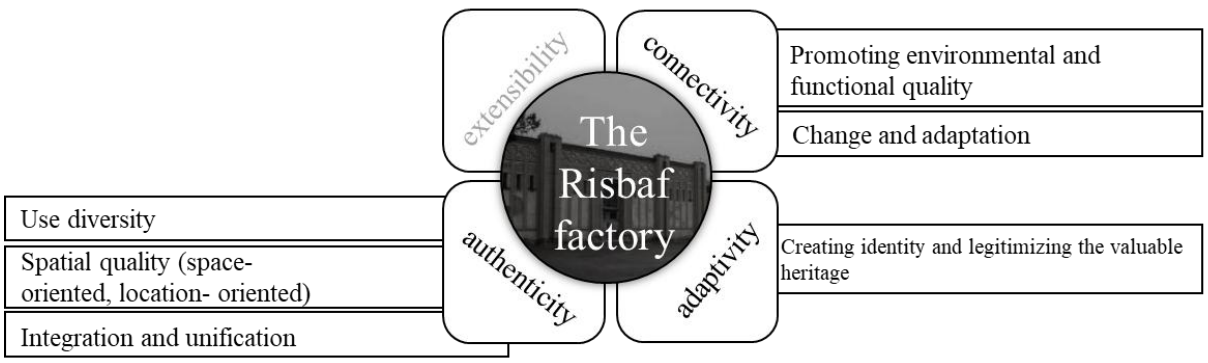


Fig.3. Main features of Risbaf Cultural Complex.

*4.2. Tabriz University of Art*

Khosravi Leather Factory includes eight old buildings. Single- and two-story buildings with two minarets (chimneys) and sloping and gable roofs and square pools are a mixture of Iranian-European architecture and features of the late Qajar and the early Pahlavi architecture. The revitalization of this complex has begun by changing the use of industrial halls to sports halls, an amphitheater , office, self-service restaurant, and library.

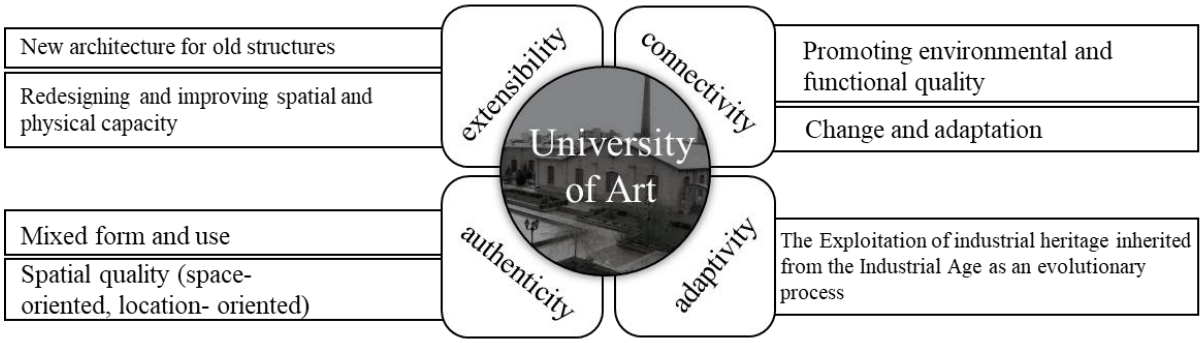


Fig. 4. Main features of Tabriz University of Arts.

*4.3. Qasr Museum Cultural Complex*

The main idea for redesigning and redeveloping the Qasr complex was based on two historic elements; that is, the Qajar palace (Iranian garden) and the prison. For this reason, the design of the northeastern part of the site, in which the remaining Qajar palace is the most prominent feature, was considered as the main design objective as an Iranian garden (Arel, 2022). In general, the function of the complex includes open public spaces, sports spaces, amphitheater, a museum, cultural spaces, and a commercial center.

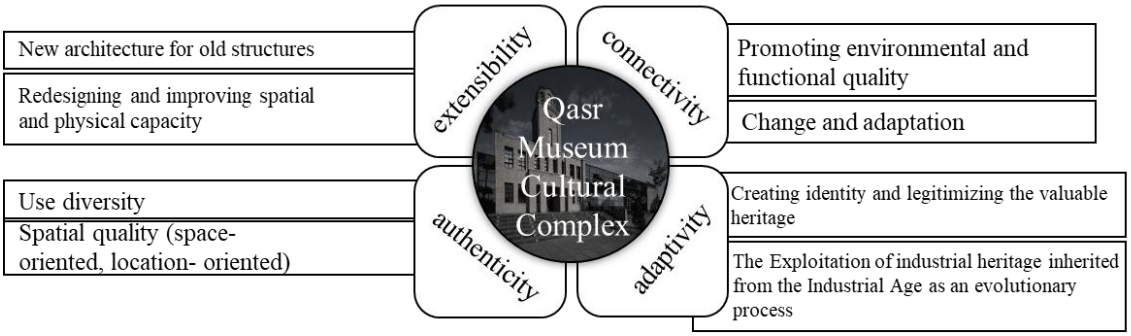


Fig. 5. Main features of Qasr Cultural Complex.

*4.4. Argo Factory*

Contemporary Art Museum & Cultural Centre is a nearly 100-year-old abandoned factory that has found a new life after transforming into a museum and gallery space for contemporary art. Argo Factory has become a notable destination within the complex urban fabric of the megacity inhabited by 14 million people. Following the 1978 Islamic revolution, most of the area's major theaters and entertainment venues closed, except for the old palaces and museums, as the neighborhood changed from an upper-class district to a commercial and tourist center. But, decades later, the movement to regenerate Tehran's historic fabric took hold, and the old buildings began to be converted to cafés and galleries.


Fig 6. Main features of Argo Factory.

*4.5. The Beryanak factory*

The building of the museum is a historical building belonging to the early 20th century (Qajar period), which initially started as an electrical factory and after a few years was converted into a hosiery factory. The reason for naming the Haft Planar area with this name is due to the existence of an old plantain tree whose diameter reaches 7 meters. This complex is a combination of old architecture, green space and wildlife museum. The old and beautiful building of the museum can be considered one of the architectural splendors left over from the late Qajar and early Pahlavi periods. Its green space is a reminder of the old gardens of Tehran.

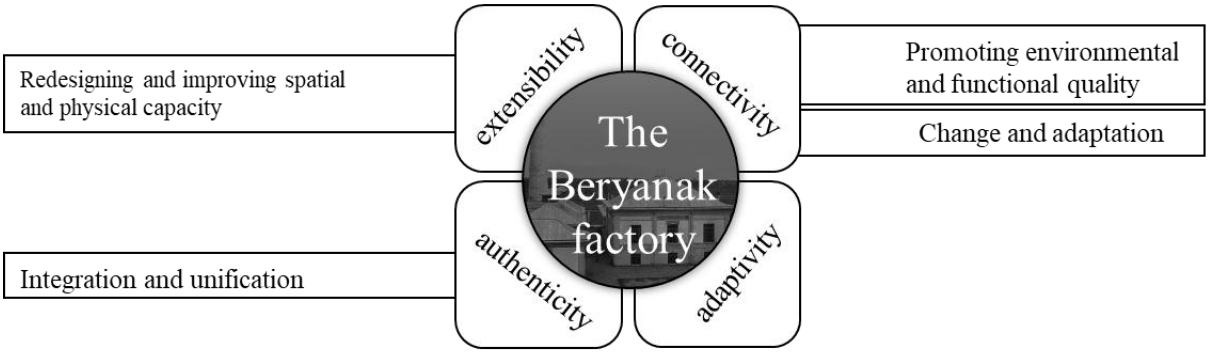


Fig. 7. Main features of Beryanak Factory.

*4.6. Rasht post & telecommunication office*

Rasht Post Museum is located in the city's municipal square. This building is actually Rasht's post and telegraph building, which is located on the north side of this square. Rasht Municipal Square is one of the most central parts of Rasht and this museum is located exactly in the center of the city. This museum dates back to the Pahlavi era. The large size of this museum is one of its characteristics of this museum.

The area of this museum is about 1930 square meters. This museum has four floors, each of which is designed for a specific purpose. The third floor of this mansion is Kolah Ferangi.

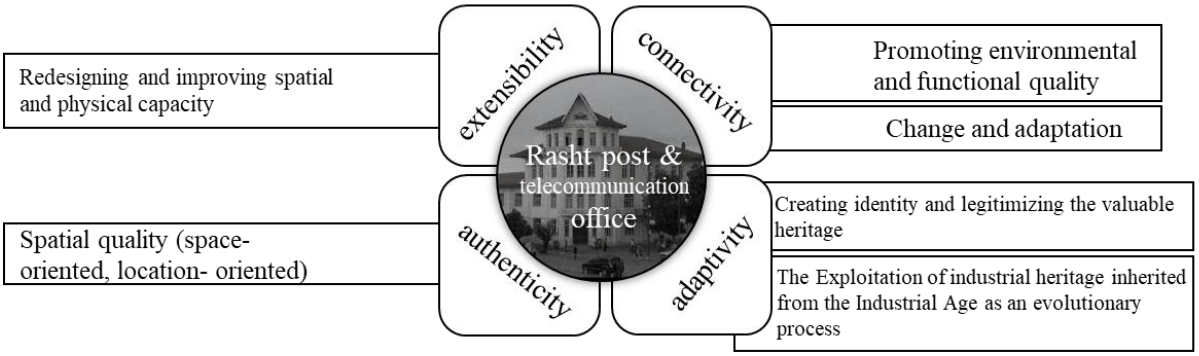


Fig. 8. Main features of Rasht post & telecommunication office.

*4.7. The Shams Factory*

Shams Brewery was one of the oldest factories in the east of Tehran, located on Majidieh Street, and its building dates back to the 1310s. This factory and many liquor stores were set on fire in the midst of the revolution. In 1375, in its previous location, the Center of Tehran Studies was established in Bar Pashd and a museum called Zaman Art Museum was established in the cellars of the factory. These cellars are located at a depth of more than 12 meters underground. In 1380, a new factory was established in its new location in the Shahryar area, Baghistan, Khadim Abad, and this popular Iranian brand of non-alcoholic beer was distributed among enthusiasts.

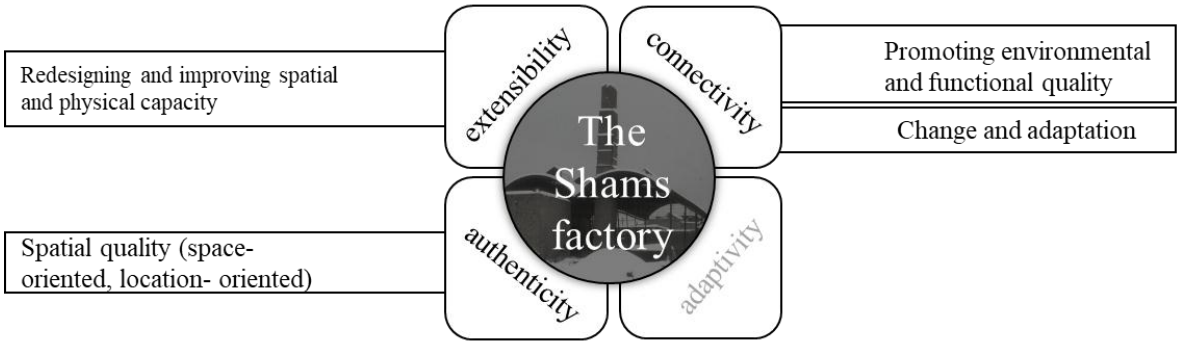


Fig. 9. Main features of The Shams Factory.

*4.8. The Eghbal factory*

The Eghbal Factory was established under the name of Yazd Spinning Joint Stock Company in 1312 on a land of seventy-six hectares. This factory is the first modern industrial factory in Yazd city and the first new and modern spinning factory in Iran. About seven hundred workers worked in the Eghbal factory in Yazd. The head of this building is a tall tower in the shape of a rectangle, in which decorations in the form of flowers, circles and upside-down hearts can be seen. This building has nothing similar to Iran's factories and is similar to a historical building. The factory building is surrounded by a green and very beautiful yard. This factory is made entirely of bricks and has wooden doors and windows. The factory hall is surrounded by traditional round rooms. Having arches and arched roofs and high external walls in this factory is another architectural feature of this building.

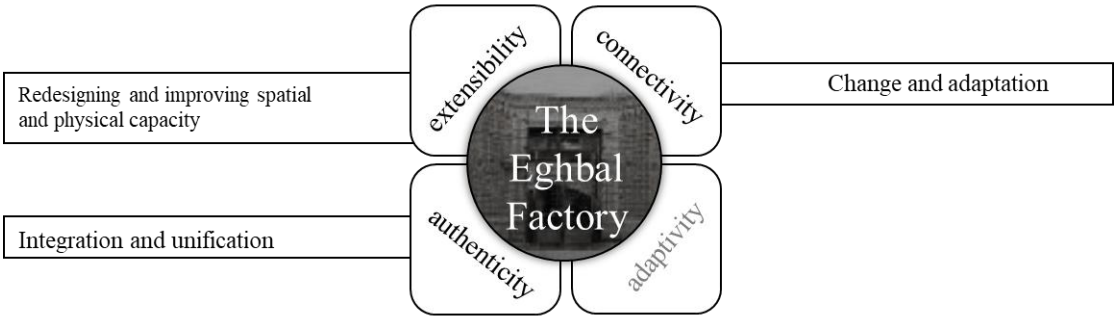


Fig. 10. Main features of The Eghbal Factory.

## 5. Discussion and Adaptation with Case Examples

- **Effect of hidden values on the redevelopment of the heritage:**

Historical and cultural myths of the nations are some provable historic events (Fic and Ďoubalová, 2014). Such myths are never forgotten but they are changed and crystallized with a new structure over time. The phoenix rebirth is typically the recurrence of ancient myths that have persisted until the present day. The most important internal factor in the rebirth of the myth is the return to the origin, and this historical recurrence is a type of return to the origin (Eliade, 1986-1907) because one of the most commonly used motifs in eternal myths is the return to the origin of the Creation and the symbolic representation of life (Guerin et al., 2010). Industrial heritage can also be manifested according to its hidden values and circumstances. These values, such as a valuable architecture, are important factors as nostalgic elements in the redevelopment of the industrial heritage.
Based on the model defined for the review of existing samples, it can be seen that "Risbaf" factory has the most success in obtaining the parameters related to "authenticity". On the other hand, in " Rasht post & telecommunication office" project, "Shams", "Eghbal" and "Beryanak" factories succeeded in extracting historical identity and hidden values from their project to a lesser extent.

- **The Consistent relationship between old and new body**

Contemporary literature does not create myths, but it often recreates popular myths. Myths are recreated or reborn with the goal of linking the past to the present and also providing mythological bases. Hence, contemporary literature links the past to the present and provides the reader with political or social perceptions and deductions through this link. Phoenix is a mythical creature that is cyclically born again and obtains new life by arising from the ashes of its predecessor. This rebirth-like change requires a series of developments to adapt the subject to new spaces (Dehghan, 2012, 53). For this reason, mythology embraces certain ideal and real aspects in contemporary literature and is widely reflected in contemporary culture. Contemporary poetry revives the glory and grandeur of a silent world through the rebirth of myths. This also applies to the crystallization of industrial heritage so that such sites can be modified to create a new function (Zeren Mine, 2013, 18). “Tabriz Art university” has managed to preserve its very existence due to the adoption of new interactions in physical space. This also applies to the Risbaf factory, as the maintained integrity in this building has affected the design aspects and has made it more acceptable in the historical context. The use of modern materials in these two buildings is required to meet only the basic needs, and all elements that are used are far from theatrical and decorative purposes in the simplest possible way. Since the limits of intervention are low, the general pattern of buildings, as well as historical restoration, has been considered. Therefore, the old decorations are kept inside and outside, and no new physical changes have been made in the interior spaces. Revitalization of the Qasr cultural complex with public functions included a series of physical interventions to define new patterns. To create a significant relationship between the past and present, designers have expressed the interventions made in buildings with classical architecture in a very explicit and modern manner. This creativity has been made by a combination of historical features and modern structures in the redesign of this building, and has transformed the old and new components into a single unit in such a way that in spite of the many interventions, we cannot see any damage to the façade and even the interior space of the collection, because of the use of the form and matching materials. The incorporated spaces respect the height, dimensions and proportions of the main building, and borrowed the general lines of the design from it. In this regard, " Rasht post & telecommunication office ", "Beryanak" and "Shams" factories have similar conditions. While in "Argo" and "Eghbal" factories, we can rarely see a connection between the valuable body of the past architecture and the new designed identity.

- **Ability to adapt to new conditions**

Myths are capable of adapting to any political or social situation as they affect humans’ unconscious. In most of his works, Eliade argues that myths carry very profound implications and meet pressing needs (Eliade, 1958, 46). That is why they are always subject to revival and rebirth. Contemporary literature recreates old myths in the contemporary world. This recreation or rebirth not only revives the myths, but also crystallizes the national and ancient culture. Given the necessity for the redefinition of contemporary humans, there are flexible innovative approaches to myths among authors because each generation perceives and interprets them according to their needs, beliefs, and sometimes strategic motivations (Mirabedini, 2007, 342). The Qasr complex was constructed based on a mixed use, and Risbaf Factory and Tabriz art university were built as large-scale industrial spaces. Considering this and their large interior spaces or their aesthetic values, they have provided a unique opportunity for reuse. The development of the buildings mentioned above from both functional and spatial perspectives was based on changes consistent with the new body. The adaptive capacity of the complexes has enabled them to respond well to the inclusion of their new use. However, what is different in the development of the Qasr complex is the contrast made by the historical and modern aspects. These developments result from an all-encompassing adaptation to new conditions in the contemporary world. For this purpose, the revitalization of this complex has overlapped with the Revitalizing of myth in interpretation and is linked to a comprehensive picture.
The Rasht post & telecommunication office has been able to adapt well to new use that is related to its past nature and has crystallized its past heritage in the heart of the new use in the best way. In the meantime, the important point is that Shams and Argo factories have not been able

to show signs of the past in their current state due to the conflict of past uses and current values in the society. It seems that Eghbal and Beryanak factories have also failed to identify their historical heritage and exploiting it as an evolutionary process.

- **A new production and presentation (achieving a new combination)**

Myths represent those archetypes that can be revived, which are manifested in a new form. Therefore, old myths disappear in a period and emerge in another era (Mousavi Gilani and Molavi 2011, 145). In contemporary literature, these myths are reborn according to their new period and they can thus persist. This crystallization coincides with a different manifestation. In fact, this is why they can persist. The generality of this aspect provides a suitable ground for repeatability and, consequently, a link between predecessors' culture and new civilization (Hejazi, 2009, 127). It is clearly necessary to use charters and regulations when dealing with the context and historical heritage. Thus, the value of the historical heritage may only be represented through the restoration and preservation of its authenticity. Several factors play a role in this approach, including a preference for using homogeneous materials of the same style (ICOMOS, 1999), non-transformation of existing relationships in terms of color and volume (ICOMOS, 1964), and considering a neutral building without any particular attraction where there are new structures (ICOMOS, 1963) so as not to overcome the volume and color of the surrounding buildings. However, industrial heritage such as myths is not supposed to be exactly restored to their original condition as required to adapt it to the new conditions, since the aim of revitalization is not to achieve their former function or nature. Modernization is thus only aimed at the preservation of such buildings to give them an architectural character and neglect the situation of a mere museum object, as any building may require different factors to implement a viable project according to its physical condition and its status where located. Hence, this formation or evolution is not regarded as a metamorphosis in the rebirth of myth and industrial heritage because the changes resulting from the growth of a living being led to something different from its previous state in the process of metamorphosis. As a result, this adaptation and overlap with mythology is the crystallization of industrial heritage in the contemporary world. What is evident in the revitalization of the Qasr cultural complex is the combination of structures as heterogeneous members in connection with the old complex building . These structures are entirely adapted to the old body in the form of temporary structures. The forms adapted based on the surrounding buildings have led to a mixture of old and new walls. This complex has successfully manifested the adaptation of the crystallization theory at present due to its consistency with the new use and a newly-achieved combination so that the two factories have undergone minimum physical change despite their capacity. They have not thus managed to portray anything but their old bodies. In this development, a suitable definition of spatial organization has made it possible for this legacy to be present again in the contemporary era.

In the Argo factory, new architectural capacities have been optimally used to revive the old structure. Also, with the design of new spaces in the center of the complex, its spatial and physical capacities have been significantly improved. On the other hand, due to the fact that Rasht post & telecommunication office is located in the dense fabric of the city, as well as the existing use, and also Shams, Eghbal and Beryanak factories, due to the lack of attention to future needs and weak planning in their revitalization process, they have created spaces that are less able to develop and create new capacities.

## 6. Conclusion

The present study aimed to examine the formation of the developmental approach to industrial heritage in Iran. A theory titled "Crystallization of Industrial Heritage" was explained based on the indicators extracted using Grounded Theory Method, shown in Figure 11 As myths are crystallized in the literature, it is thus possible for the industrial heritage to be crystallized in a new form. Depending on place and time condition or even the building age, such crystallization can be different. Inspired from past myths, contemporary literature recreates them under new forms. In addition to the revival and remembrance of myths, this revitalization crystallizes the past values in contemporary times. The findings indicate that this view can be generalized with the revitalization of industrial heritage.

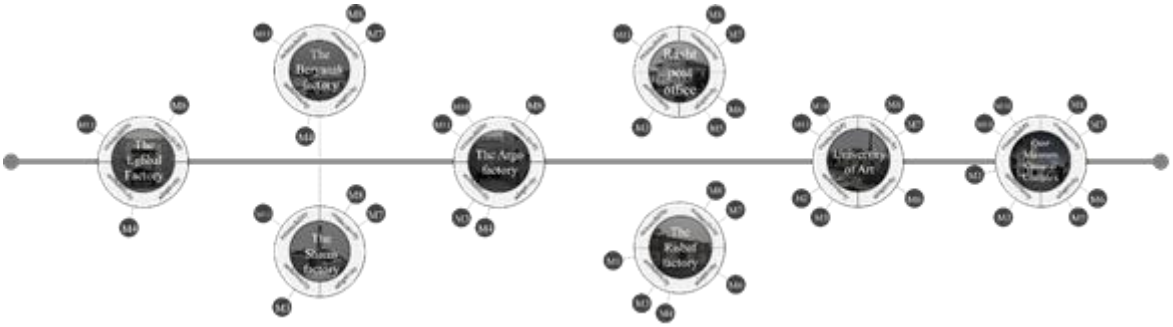


Fig. 11. Spectral diagram of compliance of samples with crystallization

The development of industrial heritage and adaptation of this theory in the development of the Qasr cultural complex show that this complex succeeded in inspiring crystallization once again in the modern era by creating a significant relationship between the past and present. These developments are caused by an all- encompassing adaptation to contemporary conditions. Therefore, the crystallization of the complex has overlapped with the crystallization of myth in interpretation, as achieving a new combination in old space reveals the adaptation of the crystallization theory in this old body. This creativity, which is the result of combining historical aspects and modern structures for redesigning the building, transformed different old and new components into a single entity at the present era. Consequently, this not only reflects its historical identity but also represents its former values in the contemporary era. However, the definition of a spatial organization consistent with the old body in two other cases has allowed for the presence of this legacy in the modern era. According to the conducted surveys, the adaptivity criterion has been given less attention in most of the existing samples. Most industrial heritage revitalization projects have been largely unsuccessful in creating identity and legitimizing their valuable heritage. Also, due to various reasons, such as the location of some of them in the old and dense fabrics of the city, the possibility of developing and achieving the capabilities of producing new functional spaces has not been provided. In this case, it is possible to use the successful experience of the Argo factory in building the capacity of internal spaces to create and develop new functions. Also, strengthening the hidden values in the framework of the existing plans can be very effective in the process of upgrading to adapt industrial heritage revitalization projects to the theory proposed in the research.

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