

## Original Research Article

## Economy-based Contemporization and Preservation of Contemporary Architectural Heritage; Strategies for Action in Residential Buildings from the 1951s to the 1971s\*

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### Abstract

**Problem statement:** The discussion about the financial feasibility of contemporization among investors, planners, policymakers, and supporters of cultural heritage is ongoing. The ideology-driven approach that advocates for demolishing old houses and replacing them with more profitable structures has transformed many streets in Tehran into soulless places. Generally, investors show minimal interest in investing in the renovation and reuse of old buildings. However, there is a growing number of successful projects emerging that involve refurbishment and reuse of existing structures.

**Research objective:** The objective of this study is to examine the preservation of historical buildings and their contemporization from an economic perspective in contrast to building new structures.

**Research method:** The research methodology employed in this study is quantitative, utilizing the techniques of smooth regression and coding in the MATLAB software.

**Conclusion:** The findings indicate that economic growth based on contemporization follows an upward trend. While there are various costs involved, such as attracting audiences to buildings and the implementation of strategies that are discussed further, economic growth has demonstrated a greater inclination towards contemporization rather than demolition and construction. Proposed solutions in this study include the establishment of financial packages, loans, and banking partnerships to incentivize the contemporization of residential buildings and discourage the demolition of structures from the 1950s to 1970s. Furthermore, the results suggest that municipalities should adopt new policies to promote contemporization and integrate it as an integral part of smart growth initiatives. Municipalities should enforce strict design guidelines in neighborhoods with the potential for contemporization to attract more investment, protect communities, increase property values in those areas, and facilitate potential investments.

**Keywords:** *Contemporization, Renovation, Historical building, Identity, Financial feasibility*

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Diba” and in consultation of Dr. “Mohammadjavad Mahdaveinejad” which has been done at Islamic Azad University, Central Tehran Branch, Faculty of Architecture and urban planning, Tehran, Iran in 2023.

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## Introduction

Nowadays, the concept of contemporization has gained attention among architects, planners, and urban designers as one of the primary design approaches to address the numerous architectural challenges in urban spaces. Extensive research and studies have been conducted on the contemporization of urban spaces, particularly on the revitalization of deteriorated and historical urban fabrics. These studies have taken the form of articles, and books, including the comprehensive book “Principles and Foundations of Contemporization: Contemporary Architecture in Ancient and Valuable Historic Fabrics” by Dr. Mohammad Javad Mahdavinezhad in 2019. However, despite the variety of research conducted on the contemporization of urban spaces in Iran, this important aspect has received relatively less attention in contemporary architecture. This has led the author to focus on research in this area, which is one of the main concerns of contemporary architecture in the country. It is worth mentioning that studies have been previously conducted on comparing traditional Iranian architecture with contemporary Iranian architecture. However, their output did not aim to articulate the principles of housing contemporization. Instead, they mainly analyzed the physical and structural characteristics of Iranian housing in traditional and contemporary periods, highlighting the points of differentiation between them. By providing practical solutions for the contemporization and reconstruction of buildings dating from 1951 to 1971, it is important to preserve these valuable structures that are currently being demolished and renovated. Furthermore, this study can contribute to economic prosperity and achieve its goals with the help of a banking system. Additionally, through interactions with advanced countries, it is possible to introduce new construction industries and related technologies to the country, which will assist in the economic growth of the country considering the influx of foreign investments in this field. Among policymakers and government officials, it is recognized that economic growth generated by creating green spaces is no longer the best alternative for planning and development to address growth challenges. As a result, growth strategies are changing.

Now, many municipalities are seeking the potential of buildings that have been damaged due to previous activities or abandoned for various reasons and are no longer in use or underutilized at their best. The decline of heavy industries in the early and mid-20th century, due to the transition from an industrial-based economy to a service-oriented one, has left a legacy of abandoned and underutilized buildings in urban centers throughout the country. Every city, town, and suburb has this type of property. Empty and underutilized buildings, often located in the main areas of urban districts, are the main targets for urban revitalization. These buildings are in the process of being transformed into potential valuable advancements that improve communities and revive the ones facing challenges. These vacant properties not only provide an opportunity for urban revitalization but also serve as a substitute for developable land that is not reliant on suburban green space. Furthermore, the opportunity for their reuse supports new urban planning initiatives for further intensification and mixed-use as a tool to halt urban sprawl (Stas, 2007). The relationship between the two subjects, contemporization, and economy, is highly complex. Contemporization economics is often interpreted as addressing simple questions such as “How can the project be financed?” “What tax incentives are available?” “What impact will it have on property value?” In fact, contemporization economics is a much broader topic than questions related to financing or taxation. These questions range from issues affecting the local and regional economy to questions related to the economics of individual projects. This study aims to clarify the concept of the main questions related to the economics of contemporization projects from the perspective of investors. The literature shows a lack of sufficient research on the economic benefits of private contemporization. This study will contribute to understanding this subject. In this study, the assumption is made that contemporization is economically viable compared to the destruction and reconstruction of buildings from 1951 to 1971, and it can be assumed that by implementing economic strategies, financial resources can be attracted for contemporization instead of demolition and reconstruction.

## Research Background

Extensive literature has covered various aspects of contemporization (Mason, 2005), including topics such as the extension of the building life cycle (Kohler & Hassler, 2002), cultural heritage policies related to building contemporization (Berens, 2010; Noonan, 2007), sustainability and applications (Bullen, 2007; Bullen & Love, 2010). Studies have also examined the potential of contemporization and vacant industrial sites (Navrud & Ready, 2002; Wadu Mesthrige & Poon, 2015). Langston, Wong, Hui, & Shen (2008) developed a model of contemporization potential in decision-making processes for asset stakeholders, moving towards more sustainable approaches and strategies. They provided a tool for identifying and ranking existing buildings that have a high potential for adaptive reuse. The ARP model is an important step towards better utilization of resources and guiding the contemporization process toward more sustainable social and economic outcomes. On the other hand, empirical studies have shown that urban renovation projects have positive and negative external effects depending on the timing of public announcements (Chau & Wong, 2014). Contemporization of cultural heritage buildings is inherently complex and intertwined with cultural, social, and environmental processes, and therefore, the importance of the subject is increasingly recognized (Camocini & Nosova, 2017).

The literature on the economic benefits of contemporization can be divided into two categories:

1. Economic benefits for owners/investors.
2. How reutilization projects contribute to the local and regional economy.

Several studies demonstrate the suitability of reusing vacant and underutilized buildings as a beneficial investment for owners/investors. The economic advantages of preservation activities in local and regional economies have been examined by a number of researchers. All studies suggest multiple positive economic benefits, including:

- Job creation.
- Multiplicative effects.
- Heritage tourism.

- Reinvestment in city cores (Stas, 2007).

Rypkema (1994) argues that contemporization is 20% more labor-intensive than new construction, especially for a specific type of skilled workforce in building renovation and heritage preservation. He highlights that the money spent on labor in a contemporization project remains in the community and circulates through the economy, increasing the economic impact of the investment.

Listokin (1998) in his study, "Historic Preservation's Contribution to Housing and Economic Development," wrote: "Direct benefits associated with historic preservation have a multiplier effect that makes it economically advantageous". He compared the economic impact of a one-million-dollar expenditure on contemporization projects with an equivalent investment in pharmaceutical and electrical manufacturing and found that investment in contemporization projects generates more jobs, income, and government and local tax revenues compared to other sectors.

Heritage tourism is another economic benefit for local and regional economies. A study on heritage tourism in western Pennsylvania examined 19 heritage sites in 9 counties and found that preservation activities in these areas resulted in a direct income of \$12.2 million and an indirect income of \$5.6 million. These regional effects support \$5.0 million in wages and salaries and 337 jobs annually (Strauss, Lord & Powell, 2002).

Revitalization and reinvestment in city cores are expanding to hundreds of communities across Canada and the United States. Reports, with the help of government tax credits and economic revitalization programs, demonstrate a positive economic impact as a result of these activities (Stas, 2007). Most previous studies that examined the return on private investment in contemporization primarily relied on financial calculations, cost-benefit analyses, and "other forms" of development that are derived from real estate and properties. Rypkema (1994) provides the clearest case for this framework. In the booklet "The Economics of Rehabilitation," published by the National Trust for Historic Preservation, Rypkema discusses 19 "cases" regarding the relative costs of building rehabilitation

versus new construction. Rypkema utilizes detailed analysis and comparisons between new construction projects and rehabilitation. These underlying analyses and accompanying detailed explanations show that contemporization is an effective and profitable scenario among other development options. He concludes that “rehabilitation projects, with all their shortcomings, still ended up being economically more attractive as an alternative” (Rypkema, 1994).

The Lazarus Effect is a study conducted by Shipley, Utz, & Parsons (2006). This study analyzes a wide sampling of contemporization projects in Ontario to determine the characteristics of successful contemporization development. Shipley, then, discusses the findings of several in-depth interviews with various stakeholders. The findings reveal various facts regarding the constraints of reusing old structures, return on investment, benefits of older buildings, and government incentives. The study also conducts a comprehensive cost comparison between contemporization and new construction, demonstrating that contemporization is not always cheaper than new construction. However, the study shows that heritage advancements yield significantly higher returns on investment, regardless of their cost. The mentioned research examined building contemporization techniques from an economic perspective in different parts of the world, while in Iran, the economic aspect of building contemporization from 1951-1971 has been overlooked.

## Theoretical Foundation

### • Contemporization in the world

When cities transitioned towards industrialization and industrial products entered the market, European cities underwent crises for over a century. During this time, the efforts of many intellectuals and reformists to address these crises did not yield the desired and correct results. The attempts made by theorists such as John Ruskin in search of ideal cities did not lead to any satisfactory solutions in terms of economic, social, cultural, and their consequences (Vahdati Asl, 2001). In this regard, in examining the evolution of urban preservation and development worldwide, these transformations can be

divided into three categories of the 19th century, the 20th century, and the postmodern era. The first actions related to the preservation of the old fabric of the city of Paris were carried out by Baron Haussmann. The principles of Haussmann’s plan for changing the map of Paris were not only aimed at preventing people’s uprisings in the streets but also had an impact on the new organization of the city to respond to new economic forces. To put his ideas into practice and highlight certain buildings, he proceeded to demolish the surrounding structures and adjacent fabrics. Haussmann’s efforts aimed to address the sanitary and infrastructural deficiencies, renovate dilapidated buildings, and alleviate the political disorder resulting from the transformative social-historical conditions in France (Mahdavinejad & Shahri, 2014, 31). He proceeded to demolish sections of densely populated residential neighborhoods and created wide boulevards in their place, constructing orderly buildings on both sides of these boulevards to accommodate public, commercial, and residential activities. He expanded the city and built new structures. Haussmann’s approach had both supporters and opponents, with critics arguing that his actions were antisocial and hindered cultural growth (Habibi & Maghsoudi, 2009). Thus, the first phase of urban development coincided with the upheaval of the French Revolution and the industrial revolution in Britain. In response to these developments, theories of architectural conservation emerged (Sahizadeh & Izadi, 2004, 45). Consequently, in 1837, the National Commission for Historical Monuments was established to protect such historical artifacts.

Towards the end of the 19th century, a new movement called the Modern Conservation Movement emerged based on the ideas of John Ruskin, with the efforts of William Morris and a group of artists. These individuals initiated the formation of societies for the protection and preservation of historical buildings and advocated for minimal intervention and continual care of historical artifacts (Mahdavinejad & Shahri, 2014, 31). In line with this movement, the Town and Country Planning Association, formerly known as the Garden City Association, was established to protect open spaces. Eventually, these two associations merged and

have been operating as the National Trust to this day, serving as an influential institution in the preservation of historical artifacts in Britain. In the 19th century, the preservation of individual buildings gained popularity in France, Germany, and England through figures such as Viollet-le-Duc, Schinkel, and Scott. Table 1 illustrates the evolution of legislation in the 18th and 19th centuries regarding building preservation.

In the first half of the 20th century, the modern architecture movement gained momentum, particularly in Europe. As a result, attention shifted towards individual buildings without considering their surroundings, among the proponents of modernism (Tiesdell, Oc, & Heath, 2000, 49). In response to the impact of the industrial revolution, a solution based on reducing congestion, creating residential areas with low density, and separating houses from industrial areas and the pollution they caused, was proposed. The concept of zoning had already been present in the thinking and experiences of 19th-century Germany. In the midst of this, Le Corbusier, to align his ideal city plans with the city of Paris, led to the destruction of two square miles of the central area of Paris (ibid.). The Athens Charter, in the Fourth International Congress of Modern Architecture, established the certainty that architectural values, including both individual buildings and complete urban cores, should be protected. In 1964, for the first time, the Venice Charter introduced and emphasized the concept of the socially beneficial use of historical buildings (ICOMOS, 1964). In this charter, the value of the building takes priority, and the use is merely a means to ensure the preservation of the structure. In cases where extensive changes are necessary, finding an alternative use that inflicts less damage to the building will be considered. However, it was from the 1970s onwards that the concept of compatible reuse emerged as a creative

approach to the utilization of historical buildings. During this decade, awareness of global environmental issues and concerns about energy resources increased. Also, the economic recession and the decline of heavy industries led to many previously industrially active areas within cities being abandoned due to deindustrialization (Hanachi, Diba & Mahdavinejad, 2007, 51). Therefore, the expansion of compatible reuse as a result of growing environmental concerns and the abandonment of industrial areas became one of the most important trends of this decade. On the other hand, the second half of this decade, with the European Architectural Heritage Year in 1975, witnessed an increase in public awareness regarding architectural heritage and the acceptance of reuse as a tool for the preservation of constantly expanding heritage (Kurul, 2003). In the 1980s, the trend of reusing historical buildings, which had begun in the 1970s, continued. In this decade, with the introduction of industrial heritage, first in England and then in other European countries, the reuse of historical buildings took on a new form and was utilized as important physical assets to give them new functionality. Additionally, a new approach called “redevelopment” emerged to address urban challenges resulting from economic restructuring. Among various forms of redevelopment, one of the most successful outcomes was related to conservation-based redevelopment. This type of redevelopment focused on the optimal use of existing structures, their physical and functional adaptation, and the transformation of architectural heritage into a container for cultural, artistic, and tourism-related activities, making it the primary focus of redevelopment (Lotfi, 2010). Since the early 21st century, heritage not only had to cover its own costs but also had to generate financial benefits. Therefore, the focus of heritage conservation approaches shifted towards increasing financial value and marketability

Table 1. The evolution of the legislation. Source: Authors.

Date	Description of the law
1850	Municipalities, as the only authorities involved in cities, were allowed to supervise the sanitary issues of residential units and expropriate property.
1902	Protection of monuments and antique and artistic objects
1939	Law 1089, in addition to the protection of historically valuable objects, emphasized the preservation of villas, parks, and gardens.

(Orbaşlı, 2017). In such a way, the British White Paper on Heritage for the Twenty-First Century in 2007 introduced the concept of reuse as a catalyst for attention to redevelopment and economic development, ensuring sustainable use of resources (Department for Culture, Media and Sport, 2007). The movement towards recognizing the role of heritage in the economy can also be observed in how organizations prioritize their budgets. Both in England and Wales, budget allocation programs prioritized unique buildings in need of repair to promote heritage-based redevelopment programs and bring about a new life in deprived areas (English Heritage, 2002). As a result, the role of historical buildings and their use for cultural purposes underwent a fundamental change. Over the past two decades, a movement has emerged to utilize heritage as a force to combat social deprivation, with a focus on recognizing the social benefits and investment values in heritage. Active utilization of these buildings has become predominant in creating dynamic urban environments (Hanachi, Diba & Mahdavinejad, 2007, 51). Various aspects of contemporization have been addressed in Fig. 1.

#### • Contemporization in Iran

Contemporization of traditional housing patterns is one of the most important needs for the architectural community in Iran. Intelligent utilization of Iranian traditional architectural patterns, alongside breaking away from the trend of designing based on past experiences and utilizing modern technologies, is considered a key topic in contemporary architecture in Iran and the world (Latifi & Diba, 2020, 163). In examining the evolution of the reuse movement, the development of ideas and policies regarding reuse in the country from pre-revolutionary times to the present is discussed. Generally, the concept of reuse in its modern sense does not have a long history in Iran, and the reuse movement, after its formation in Europe, has taken a long time to reach other countries, including Iran. Since reuse policies in Iran are the result of evolution in protective concepts and laws, the process of forming effective protective laws, policies, and programs in this evolution is examined and researched. One of the important measures in the field of preservation and reuse during the pre-revolutionary period was

restoration for new practical use and the liberation of buildings for public visitation between 1965 and 1978, which has resulted in successful examples such as the conversion of the Madarshah Caravanserai or the Qavam al-Saltaneh House from that period. After the revolution, the general policies of the regime focused on the subject of preservation and restoration, and this issue has had a significant impact on the laws, from the program law to the third and fourth program laws. Although the third program law (2000-2004) was the first to address the subject of restoration and conversion of historical buildings and pay attention to the role of economic utilization of historical buildings, important measures had been taken in the field of restoration before that. For example, the government was allowed to acquire, repair, restore, and transfer old buildings for public use from special credits in the 1990 budget law. The New Life, Old Structures program was also launched in 1993 as the first structural approach to restoration with the aim of attracting investment in historical centers through the reuse of historical buildings, and the Pardisan project was also developed in 1999 to utilize historical buildings for tourism development and achieve sustainable preservation. In general, one of the most significant achievements of the program laws regarding restoration was the establishment of the Restoration Fund in 2009 with the task of facilitating intermediation, transfer, and licensing of historical buildings based on item (v) of the Fourth Program Law. In 2014, with the approval of the National Restoration, Renovation, and Empowerment Document for dilapidated areas, planning for the preservation and restoration of buildings and historical sites was considered as one of the six policies of this document. In addition, in 2017 and 2019, two important measures were taken to protect cultural-historical fabrics and, subsequently, reuse historical buildings (Hanachi, Diba & Mahdavinejad, 2007, 51). Given the discussed history of contemporization, the modern definition of contemporization in historical areas has not been defined. Reuse of buildings in a way that involves minimal intervention has been the focus of attention in recent decades. In recent years:

1. Reference has been made to the reuse of historical

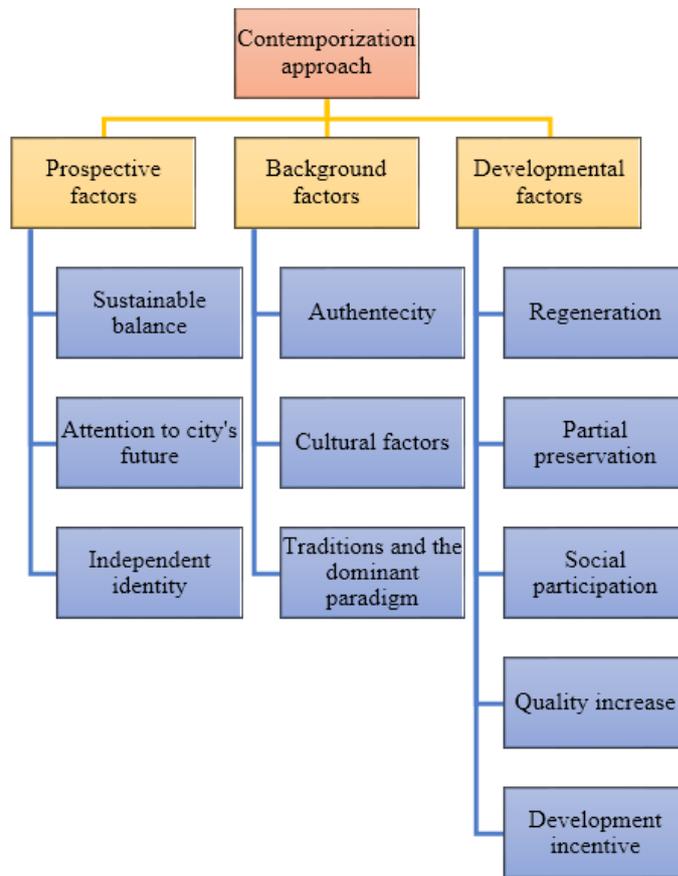


Fig. 1. Contemporization approach and its various factors.. Source: Authors.

buildings with respect to their authenticity and integrity in the document for the protection of cultural-historical fabrics in 2017.

2. Reference has been made to exemptions for valuable buildings that have been restored and reused from the costs of change of use, conservation, and reconstruction in the Law for the Protection and Restoration of Historical Fabrics in 2019.

Contemporary restoration periods in Iran can be divided into 7 periods. The first period starts from the beginning of new urban developments until the Constitutional Revolution. The second period starts from the Constitutional Revolution until the establishment of the National Monuments Association. The third period starts from the establishment of the National Monuments Association until the amendment of the Law for the Protection of National Monuments. The fourth period starts from the amendment of the Law for the Protection of National Monuments until the establishment of the National Organization for the Protection of Antiquities.

The fifth period starts from the establishment of the National Organization for the Protection of Antiquities until the victory of the Islamic Revolution. The sixth period starts from the victory of the Islamic Revolution until the establishment of the Cultural Heritage Organization, and the seventh period starts from the establishment of the Cultural Heritage Organization until the present day.

• **Fourth period 1944-1965**

This historical course spans from the approval of the amendment to the National Heritage Protection Law in the National Consultative Assembly to the establishment of the National Organization for the Protection of Antiquities and its transfer from the Ministry of Education to the Ministry of Culture and Art. In 1950, with the initiation of the reformation plans of Razm Ara, the restoration of the streets surrounding the Golestan Palace and the historical texture of Tehran began. According to the law on land ownership for urban development programs, dated June 7th, 1960

(Resolution No. 2738), the government could acquire land for the implementation of urban development plans, a law that intensified the process of destroying central city structures. The implementation of the land ownership law resulted in damage to the urban fabric and a decrease in the quality of urban life. The First Development Plan (1948-1955) is considered the first systematic measure in guiding development. The first development plan, with a focus on widening existing streets and axes in historical areas, provided the grounds for extensive destruction of the urban fabric. The most significant impact of the second development plan (1955-1962) can be attributed to the initiation of comprehensive master plans by foreign consulting engineers. Limited protective measures were also implemented during the second plan until the National Consultative Assembly approved the establishment of the Ministry of Housing and Urban Development on March 16th, 1964. From that year, the third development plan began and continued until 1967. In 1964, the Ministry of Culture and Art was formed, and in the following year assumed responsibility for the protection of national antiquities (Mahdavinejad & Shahri, 2014).

#### • The fifth period 1965-1978

This period began in 1965 with the establishment of the Protection of National Antiquities Organization and continued until the victory of the Islamic Revolution. The most significant event during this period was the approval of the National Heritage Registration Law on December 3rd, 1973, by the National Consultative Assembly. Resolution 4828 mandated the establishment of the General Directorate of Preservation to officially continue paying greater attention to buildings of historical value. The country's third development plan focused on preparing comprehensive plans for guiding the growth and future development of 17 cities. The fourth plan, with a focus on urban renewal, led to the destruction of large parts of historical urban fabrics. The fifth development plan can be considered more comprehensive compared to previous experiences. The establishment of the Supreme Council of Urban Planning on March 13th, 1973 marked a new era in the country. During this period, conservation programs

played a greater role in the overall policies and strategies of society (Hanachi, Diba & Mahdavinejad, 2007).

According to the approved detailed plan of 2012 for Tehran, efforts have been made to preserve and protect historical buildings. The plan includes provisions such as: "The Cultural Heritage, Handicrafts, and Tourism Organization of Tehran Province are obligated to identify and introduce valuable historical and contemporary buildings to the municipality within a maximum period of two years. During this time, the Tehran Municipality is required to officially inquire about any proposed changes to the mentioned buildings, and if there is no response from the organization within a maximum period of two months, the Tehran Municipality is authorized to take action regarding the proposed cases". However, one of the main problems of such resolutions has been the lack of recognition of many buildings from the period between the 1950s and 1970s. Additionally, the lack of economic justification for the maintenance of these buildings is another unseen challenge in these resolutions.

In the current national development process, a change in approach is observed in the private sector and non-governmental entities to transform historical fabrics into economic cycles through the revitalization of historical buildings. However, what is important and necessary in this regard is the primary responsibility of the Cultural Heritage organization and appropriate facilitation by municipalities and urban management. They should create suitable rules and regulations to provide the right space and opportunity and address the obstacles and challenges in this field. Challenges such as the disregard for the preservation boundaries of valuable buildings, the absence of a cultural heritage court specifically dedicated to reviewing cases of registered historical buildings and issuing verdicts on problems with the help of expert opinions, and ultimately the major challenge of financial provision, which can undoubtedly serve as a significant incentive for reuse in the private sector and by the public, considering financial benefits and perks (Hanachi, Diba & Mahdavinejad, 2007, 51). There is a growing need to pay attention to the contemporization of existing

buildings and to avoid demolishing them, especially buildings from the period of 1950-1970.

## Research Methodology

The research method used in this study is a descriptive-survey method, which actually combines two research methods. In the theoretical section of the research, descriptive methods such as drawing graphs, tables, diagrams, etc., were used to analyze the information. Furthermore, for the examination of Iranian residential buildings in Tehran, a survey approach was used, which involved interviewing experts who were questioned about the non-physical analysis factors of the plan and utilizing artificial intelligence. Then, assuming that the impact of contemporization on the country's economic growth is asymmetric compared to the demolition of buildings and the creation of new ones, a smooth transition regression<sup>2</sup>(STR) model was used. The process of conducting field studies has been as follows: initially, the researcher identifies and reviews the architectural systems of the targeted study areas (historical and valuable houses in Tehran) by being present in those areas. Then, to obtain more precise information, structured interviews are conducted using descriptive data and are distributed among the target community. Interviews with experts were also conducted to collect data for regression calculations. The research components were reviewed during the interviews, and ultimately, the final components were reached. Based on the interviews with the experts, their specialized opinions concerning the non-physical components were collected, considering the importance level of each component. A total of 34 non-physical components were obtained through background research, and finally, using content analysis and considering the frequency of mentions and ranking by the experts, the selected non-physical components are listed as: Number of nodes, Facilities, Depth of space, Ability to be found, Social Space, Visibility, Flexibility, Integrity, Control, Open spaces, Semi-open spaces, Confined spaces, Complexity, Intermediate space, Vertical and horizontal linking spaces, Different areas of life and Accessibility<sup>1</sup>. The top priority of each component was determined by asking five subject experts and performing various

calculations, such as the numerical and arithmetic mean of the obtained numbers. Table 2 evaluates the coefficients assigned to the components and indicators based on the experts' responses. Finally, these coefficients were used in formulating the questionnaire questions and determining the final results Fig. 2 illustrates the research process.

## Research Findings

In examining the data obtained from the research, optimal trade-offs for economic growth were determined in terms of contemporizing existing structures and promoting economic growth through the demolition of existing structures and the construction of new buildings. According to the Schwartz and Hanan Cohen criteria, they were ranked 8 and 6, respectively. Based on the collected data, a non-linear relationship between the considered variables was found.

The findings indicated that economic growth follows an ascending trend based on contemporization, while it entails various costs, such as attracting audiences to buildings. The solutions for these costs are discussed further. However, the results showed that economic growth is more evident in contemporization, comparison to demolition and construction, as depicted in Fig. 3.

1. Economic growth of a Contemporized building
2. Economic growth of a new building

Jane Jacobs (1984) introduced the concept of composite development based on composite financial resources, stating that renovation and revitalization at the individual building level do not lead to overall project cessation due to financial issues for participants. In this way, two types of economic and social participation can be incorporated into contemporization, as shown in Table 3.

In order to attract public participation, important components depicted in Figure 4 and obtained from expert interviews should be given importance. The scale and pace of intervention in valuable old and historical fabrics should be chosen in a way that does not disrupt the flow of life within them and, by their continuity, fosters hope and a sense of participation in the revitalization process among residents while considering maximum satisfaction of the people and safeguarding their interests.

The proposed solutions obtained from expert interviews

to preserve buildings from the 1921-1971 period and prevent their destruction are as follows:

Solution 1: Considering that anyone can obtain Iranian residency by investing \$250,000 in Iran, it is recommended to create economic and investment packages and attract 10 individuals and their capital in contemporizing existing houses and changing their usage. This would allow these buildings to be utilized and preserved.

Solution 2: Implementing incentive programs for companies and large organizations, such as the Ministry of Interior, Ministry of Foreign Affairs, Ministry of Economic Affairs and Finance, or major companies like Digikala, to invest in historic buildings and preservation through contemporization. For example, these companies could invest in the contemporization of buildings instead of paying taxes, thus revitalizing historical city centers and attracting public capital and tourist attention.

Solution 3: Reducing the costs of contemporizing

buildings and land prices for these structures through organizations, such as municipalities and the Ministry of Roads and Urban Development, and implementing strict and costly laws against the destruction of such buildings and making the process difficult, would incentivize builders to preserve the structures.

Solution 4: By creating opportunities for banks to participate in providing low-interest loans for the contemporization and utilization of these buildings through government policies, it is possible to privatize and preserve historic buildings. These buildings can be repurposed and used for various purposes such as boutiques, hotels, cafes, restaurants, and other functions, with the bank also benefiting from the contemporization process.

Solution 5: The provision of alternative property schemes is a method that can be employed to address the ownership of dilapidated units. Considering the inflation in the housing market, people believe that they

Table 2. Coefficients resulting from interviewing the experts. Source: Authors.

Component	Indicator	Superiority coefficients
Authenticity	Intervening	0.9
Time	Identity	0.8
Place	Technical-artistic	0.7

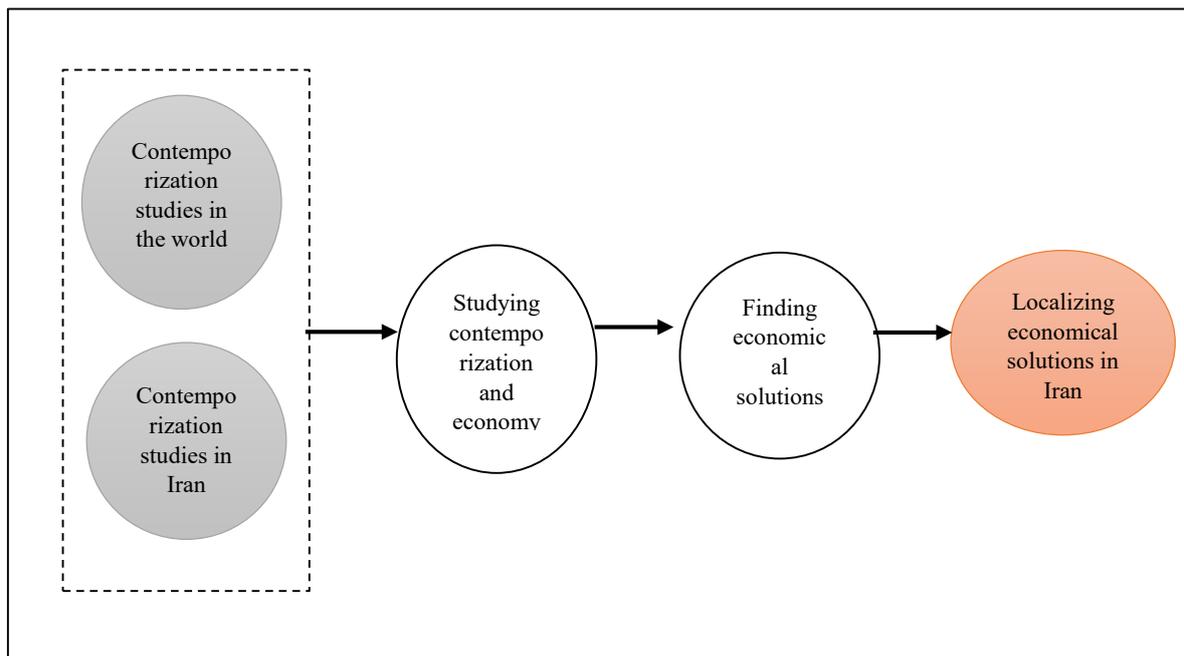


Fig. 2. The process of research. Source: Authors.

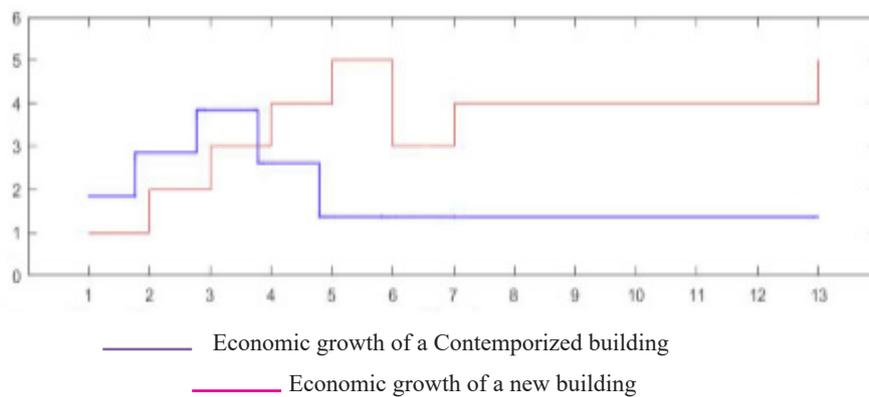


Fig. 3. Comparison of the rate of economic growth with the modernization and preservation of buildings versus with the destruction of buildings and renovation. Source: Authors.

will always be at a disadvantage when exchanging their property for money. In this approach, through managed and guided urban planning, in addition to enhancing social vitality and public participation, it can prevent intermediaries from taking advantage, control inflation resulting from a cash injection, and prevent public dissatisfaction during the implementation of projects. In the proposed model, initial investment is provided from government resources. After the successful implementation of the initial phase of urban ownership control, the return on investment begins, and the success of the first phase attracts public participation. Even in areas where the first phase of urban renewal reaches the operational stage, returning previous residents by allocating housing units in the vicinity of the same area will attract investment and participation for the next phase.

### Conclusion

There is no doubt that contemporization is one of the most effective ways to promote new urbanization and resist urban sprawl. Old buildings contribute significantly to the importance and identity of the urban fabric, and preserving these structures enhances values such as history, continuity, identity, and smart growth. These elements are not only essential for sustainable economic development but also for the entire community and region. Municipalities that aim to foster smart growth must acknowledge the fact that

contemporization is one of the most powerful tools for sustainable urban development. It is evident that this action carries environmental, social, and economic benefits, with a focus on the economic aspect in this study. The study assumes the economic viability of contemporization compared to the demolition and reconstruction of buildings from the period 1950 to 1970. It hypothesizes that by creating economic solutions, financial resources can be attracted for contemporization instead of demolition and reconstruction. As stated in the research hypothesis, the results demonstrate that there is a significant nonlinear regression between the variables with a low margin of error and a confidence level of 99.99%. Additionally, the economic growth rate with contemporization compared to reconstruction is 7 to 5, indicating that contemporization is a more suitable solution over time. Considering that the study aims to examine the preservation of historic buildings and their contemporization from an economic perspective compared to reconstruction, the results indicate that, from an economic standpoint, the preservation and contemporization of buildings from the period of 1950 to 1970, which are sometimes subject to demolition, are highly economical. Economically viable contemporization is essential for reviving architectural heritage in contemporary structures. Therefore, municipalities should adopt new policies and programs to promote contemporization and integrate it as an integral part of smart growth initiatives. The

Table 3. Solutions and results of dimensions of participation in contemporization. Source: Authors.

Dimensions of participation	Solutions	Results
Economic participation	<ul style="list-style-type: none"> <li>- Attracting capital from the private and public sectors.</li> <li>- Increasing participation from the private and public sectors, as well as voluntary groups and associations.</li> <li>- Incremental space utilization.</li> </ul>	<ul style="list-style-type: none"> <li>- Greater inclination towards investment by residents and visitors.</li> <li>- Preserving historic buildings and urban fabric leads to a reduction in the destruction of public properties and an increase in security.</li> </ul>
Social participation	<ul style="list-style-type: none"> <li>- Conducting a participatory survey in the recognition of challenges in the target urban fabric.</li> <li>- Encouraging the participation of private-public sectors and volunteer groups in urban planning.</li> <li>- Integration of cultural ideas into future programs.</li> </ul>	<ul style="list-style-type: none"> <li>- Transformation and revitalization of a place's reputation and restoration of social pride.</li> <li>- Enhancing self-confidence, hope, and enthusiasm among residents.</li> </ul>

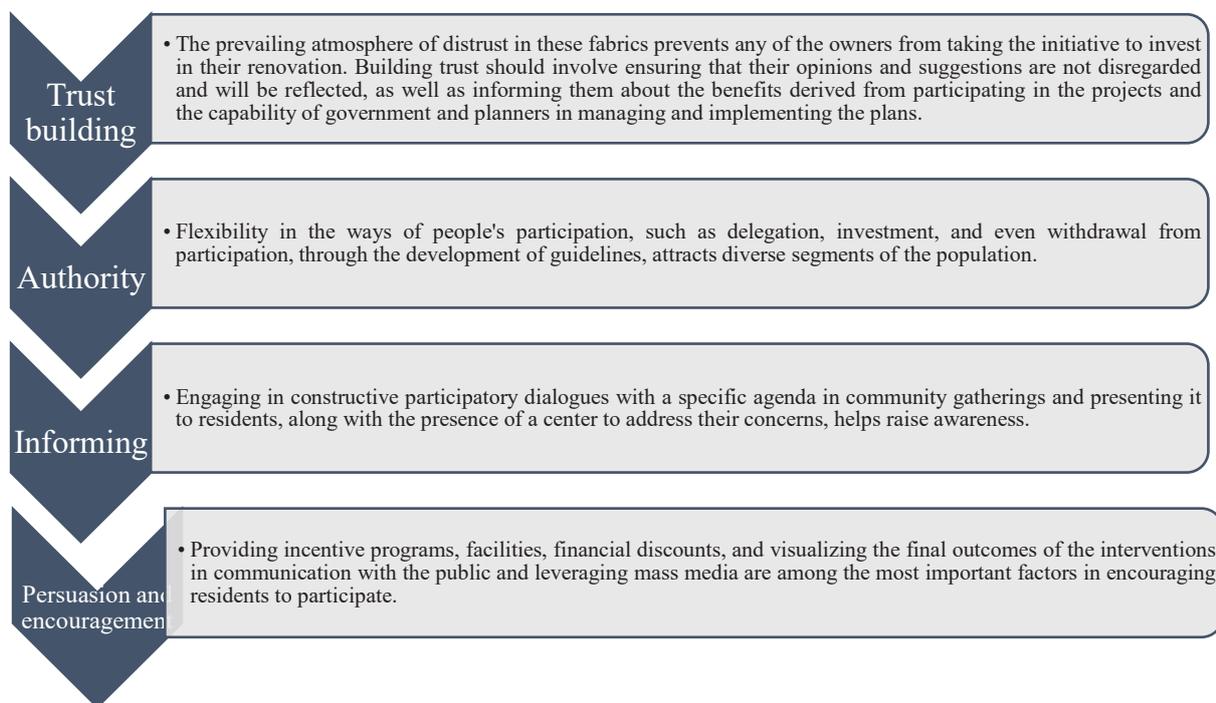


Fig. 4. Tools to attract people's participation. Source: Authors.

strategies also demonstrate the economic viability of contemporization over demolition and reconstruction. As a result, municipalities should enforce strict design guidelines in neighborhoods with the potential for contemporization to attract more investment, preserve community identity, increase property values in those areas, and safeguard potential and previous investments.

**Endnote**

1. In the physical and non-physical algorithmic analysis, according to the statements of Rahbar et al. (2020) the three senses of touch, vision, and hearing are utilized for a better understanding of patterns. The process of finding form in architecture can be divided into functionality, features, symbolism, and shaping. According to the findings of Latifi & Diba (2020) spatial hierarchies and the relationship of residential spaces with courtyards and linking spaces, the number of floors, direct and indirect access, the number of nodes in each floor plan, amenities, and spatial depth are considered as

physical and non-physical patterns. In another study, access, privacy, social space, and discoverability are recognized as analytical patterns of the plan (Ortega-Andeane et al., 2005) Access, openings, visibility (Rashid et al., 2006)connectivity, centrality (Varoudis & Psarra, 2014) area, performance, number of residents, walls, doors, access, flexibility (Haq & Giroto 2003) control, integration, and spatial connectivity (Dawes et al., 2021) are among other patterns found in plan analysis

In their research, Rahbar et al. (2020) considered the dimensions of spaces, the proportional relationships of each space's area, and the entrance of the space as parameters. Parameters such as the area of openings, the perimeter of openings, the window-to-wall ratio, and the width of openings were considered by Ostwald Dosen (2016) in their research. In another study, open and semi-open spaces, complexity (number of vertices, vertex thickness, roundness, irregularity, and clustering coefficient), and order (frequency and symmetry) were considered influential parameters (Franz & Wiener, 2008). Shahzamani Sijani and Ghasemi Sichani (2017) divided the spatial organization of a house into two parts: the division of the structural configuration of space and the spatial relationships of the house. The division of the structural configuration of space includes the division of space in terms of physical enclosure, different life domains, shape and context, positive and negative space, spatial organization of the house's configuration, intermediary space, and space composition. In the section on spatial relationships of the house, the

relationships of access to the house, internal relationships of the house, vertical and horizontal communication spaces, and spatial nodes are considered.

2. In a smooth regression model, changes occur over time, and variations in the components can occur gradually. Accordingly, following Checherita-Westphal and Rother, (2012), the following pattern has been used:

$$EG_t = \phi' \omega_t + (\theta' \omega_t). G(\gamma, c, S_t) + u_t \quad (1)$$

The EG represents the gross income growth resulting from contemporization,  $\omega_t$  is a vector of the variable DE (the ratio of income from contemporization to the gross income generated from building destruction and new construction).

$\theta'$  is a vector of nonlinear components,

$\phi'$  is a vector of linear coefficient components,

$u_t$  represents the disturbance term in this equation.

The function G is also a logistic function, continuous and bounded between zero and one. The details of the function and formulas are not included in the subject of the article.

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