New Technologies in Modern Architecture and its Interaction with Traditional Architecture

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ABSTRACT
At the outset of the new millennium, a novel world is just about being developed wherein architecture can be considered as the most social art. Through the construction of spacial and situational solidarity and temporal continuity, such a notion of architecture can bring about an original development and civilization. Globalization has caused various social, economic and cultural evolutions throughout the world and cities are subject to getting the most impact from globalization. The advent of modern technologies into those nations which are rich in architecture, identity, art and history and the interaction of the architecture of such nations with ever-growing technologies are noteworthy and remarkable. Although there is no unanimity about the precise definition of a global city and the specification its criteria, there is moderate agreement on the significance of modern technologies such as information technology, telecommunications, transportation systems and the broad range of urban activities which have enhanced the role and importance of such cities in the world. This paper explores the use of modern composition technologies and new building materials in architecture. Also, it investigates the extent of utilization and employment of modern technologies in architecture and their integration and fusion with traditional and ancient structures and elements so that the cultural values and the principles of local and traditional architecture are not jeopardized.

KEYWORDS: modern technologies, global city, traditional architecture, identity

INTRODUCTION
The use and application of modern technologies in designing and building well-lit constructions has a variety of definitions and interpretations. Indeed, architects contend that such uses of technology depend on conditions, background and the presumptions of the design and the location. The use of technology to design and build constructions with respect to their conditions and situations is considered to be a novel and particular concept in modern architecture. The accurate and appropriate use of technology can result in the creation of perfect and flawless buildings. Hence, the sensible use of technology along with the application of local civilization is the resolution to the current challenges in architecture. Indeed, connecting the old architecture with modern architecture and its progression towards the future will enhance the active interaction between the global and local phenomena and civilizations; such an approach is proposed for modern Iranian architecture. As a matter of fact, modern technology should be applied in harmony with local, temporal, social, behavioral and in particular cultural circumstances of a region; technology can qualitatively help to express the values and facts and result in the creation of an innovative and original art. Technology has its roots in the past. According to Vitruvius, renowned roman architect, consistency, beauty and function are the distinguishing features of the architecture. Different civilizations consider the utilization of technology and useful developments as essential and critical. Islamic architecture has emphasized the sensible and appropriate application of modern technologies since architecture depends on time and should represent its own peculiarities; this is regarded as a justification for the dependency between architecture and technology. [1]

According to this paper, the following features are considered as the criteria for a perfect Iranian architecture:
• The application and use of modern technologies in combination with traditional and local elements and structures.
• Congruity with the local circumstances.
• Preservation of cultural and social values and the principles of local architecture.
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- The application of new technologies and new building materials in establishing consistency, contrast, transparency, etc, which are dependent on local and temporal circumstances.

THE STATEMENT OF THE PROBLEM

The advent of new technologies into a region with a rich history, culture and background in an area which has a rich background in art and architecture such as Iran can lead to a challenge between technology and architectural traditions of the region; one reason for the challenge between technology and the traditional architectural background is that the required infrastructure and the readiness for handling the concept of globalization does not exist. In the new millennium, a new globe is being constructed and in this process architecture is the most social art which can create temporal consistency and progression through unity and harmony in space. Such harmony and unity can help the development and expansion of a civilization. In modern times, we are witnessing the growth in a variety of fields. The phenomena of industrialization and globalization and also the networked connection of the societies have led to an evolution; hence, we are witnessing cultural, economic, scientific, technological, and political evolutions and the effects of these evolutions can be seen on communications, environmental issues, re-establishment of local traditions, globalization of science and technology, etc. These evolutions have affected the life of human beings in the new century. In a limited scope, the momentary consequences of technological developments can cause a lot of challenges. Thus the advent of technology into a society can bring about the concept of pluralism in many fields such as politics, economics, culture and society. The most important consequence of pluralism is cultural and conceptual crisis since, unlike notions such as land and ethnicity, culture is one of the distinguishing and identifying elements of a society. At the present, the loss of the significance of physical borders and the closeness of human beings to each other have led to the creation of a global identity in which many issues are shared. Regardless of economic and technological developments, the Iranian society is endowed with a rich and interesting cultural background. Likewise, inasmuch architecture is in regular contact with humans' everyday life, hence it can be argued that architecture can play an important role in enriching or impoverishing the culture and identity the people of a region. Indeed, technology is the realization and function of modern-day requirements; similarly in line with the changes in spatial, physical, social, cultural and political needs of people, the art of architecture should adjust itself and meet the changing needs of the people. [2] All the above-mentioned issues and the important relationship between modern technologies and the rich Islamic architecture have enhanced the significance and necessity of studying the interaction between modern technologies and the Iranian culture and architecture. We will explore the issue of whether we can optimally use modern technologies to create a perfect and ideal architecture? Within this issue, the quality and the manner of using technologies to create an architectural construction is considered to be significant and relevant. Another question which should be asked is to what extent we can benefit from modern technologies and achievements in Iranian architecture [3].

DEFINING TECHNOLOGY

Technology is a terminology which has just entered the contemporary literature of architecture. Despite the high significance and the widespread use of it, there is much ambiguity and inconsistency in the use of this term. For instance, the encyclopedia of McGraw-Hill has generally defined technology as the science and systematic operation in relation to industrial issues which can be generalized to other non-industrial fields. The encyclopedia of La Rose defines technology as the study of tools, methods and approaches used in different areas of industry. In sum, technology is regarded as the main factor for changing natural resources into work and services. There are four factors in technology which include the followings:[4]

- Technology demonstrated in objects and tools is referred to as the technology of tools.
- Technology displayed in human beings is referred to as the human tool.
- Technology expressed in documents is referred to as informational tool.
- Technology indicated in foundations is referred to as foundational tool.

These four factors interact with and impact on each other dynamically and the development in one aspect of technology depends upon the development of the other aspects. The elements for studying technology are divided into three classes: skill, data, and foundation. Skill originates from the ability and the physical and mental capabilities of people to do a specific task. Skill itself is divided into physical and mental skills. Data refers to that part of the technology information which can be gathered and written. Foundation is also an essential component of technology within which the other elements of the system of technology operate so that technology would function as a unified and integrated system. The foundation and data components make up the science of technology which is further divided into procedural and explanation parts [5].
The Informational Aspect of Technology

This part includes the following components:

- Physical skills such as the typical abilities needed for fulfilling a task.
- Mental skills such as the conventional methods of control and management.
- Procedural data such as the information gathered through everyday experiences.
- Explanational data such as the studied and investigated systems.

The issue of studying technology, the necessity of the application of technology in modern life and the choice of the best fitting technology is considered to be a scientific topic of discussion. [6]

The Interaction Between Modern Technologies and the Traditional Architecture

Scholars believe that the world is a manifestation of the Supreme Being and hence the nature with all of its testimonies is a reflection and expression of the qualities and virtues of God. In our opinion, God can also be manifested in man’s achievements and creations. Technology is a dominant and clear product of the creative and innovative gifts of the human kind; thus it can be argued that technology is one aspect of the manifestation of the essence of human kind. Similar to art, when technology reaches the actual maturation and development, it gains the position and significance of architecture. In such a position, technology is not considered as a threat to human life; rather, it is regarded as an opportunity and tool for the improvement and facilitation of human life. As the broken pieces of a glass can be assembled and attached, the traditional human being can also use innovation to organize and systematize phenomena and artifacts. The process of using technology can be considered as a sublime and supreme achievement; such a use of innovation is in line with a superb purpose and hence it is used to attain perfection. The glorious God is deemed to be the greatest creator in the universe and the human being who is the representative of the God on earth can organize the elements of existence and give them a global harmony and order. The traditional architect may consider technology as the gradual supplementation of the achievements and accomplishments of the predecessors and entrust it to the next generation. The traditional architect makes as much contribution as he can to the values of the architecture and does not directly claim credit for it [7]. There is a sharp contrast between the Islamic Iranian architects and the modern architects. Indeed, the difference between them is so high that despite the fact that modern architects and researchers benefit from new technologies, many of the modern buildings which they have constructed have serious defects such as lots of useless, non-functional, dark, dismal and unnecessary...
spaces. Such malformed constructions are the result of non-systematic and disorganized designing and there is no logical relationship and compatibility between different parts in the majority of them. The process of globalization has brought about space and time density. In the old Iranian architecture, the traditional architect was able to use both expertise and technology to create consistency and compatibility between different parts of the building and hence art and technology were integrated as well as possible. Compatibility, stability and permanence are considered as the characteristics of Iranian architecture which were finely and meaningfully embedded in the framework of architectural constructions of the past. Therefore, it can be contended that science and technology should be used with proper regard to the features and peculiarities of the local and specific area. In modern times, the undesirable conditions of the cities and the frequent social crisis of human beings have had a big role in eradicating the identification and originality of the human beings and the residential areas. Indeed, the identity and originality have turned into challenging issues. Since the concept of identity has its origins in the historical progress and consistency, the traditional human has tried to adopt a conventional-Islamic approach in maintaining his Islamic identity and has tried to connect himself to the Supreme Being so that such a spirituality has produced not only ethical and abstract effects but also concrete and physical manifestations. As a matter of fact, the topic of architecture and urban constructions are the product of the interactions between human beings and the society. In this regard, history has its own impact and effect on the architecture and thus it can be argued that architecture has gone beyond the limits of simple meaning of a building and hence reflects the identity of its residents [8].

ARCHITECTURE: THE ART OF INNOVATION AND CREATIVITY

Architecture is not regarded as an absolute art; rather, it is the art of innovation and creativity and retains significant relationships with time, space and culture. At certain period of time, architecture kept remarkable connections with politics and political economics. Thus architecture is a relative art which is defined internally from the architect’s perspective and outlook. Architecture and urban science ought to preserve a society against cultural invasion of foreign countries. A certain location should be reminiscent of certain values. Muslims’ cities and constructions are mainly regarded as partial imitations of western urban patterns and models and have been inspired from western outlooks and perspectives and hence they do not reflect Islamic viewpoints. As the traditional architects started to imitate modern western architecture and neglected their own traditional architecture, they failed to appreciate the values of their own original architecture and hence it led to the degradation of that architecture. Now after a century, there is no accurate appreciation of modern architecture and the timely understanding of the appropriacy of it leaves a negative impact on our architecture. Disregarding traditional architecture led to the neglect of its fundamental principles and likewise utilizing modern architecture was only limited to the surface features of it [9].

TECHNOLOGY IN GLOBAL ARCHITECTURE

In the past and present, architecture has used two types of technology: traditional technology and modern technology. The traditional technology was rarely documented but modern technology was regularly documented and written. Different methods of traditional architecture can be described but the fundamental underlying theories of traditional technology are only defined by the needs. In the traditional technology, the expert knowledge and skill were at the service of the industrial experts; however, in modern technology, new knowledge and expertise are at the service of the theoreticians. It can be mentioned that traditional technology was devised on the basis of the local culture and conventions but modern technology was inspired from new outlooks and viewpoints of the society. The traditional technology was instructed through apprenticeship but modern technology is conveyed and developed by industrial and educational institutes. However, in addition to the mentioned contrasts, the two types of technology also differ from each other in their manner of application and implementation in architecture. The modern technology has had a role in eradicating the identity and the importance of the spaces and the architectural elements. For instance, according to the traditional architecture, the presence of a fireplace in the living room of a residential building led to the gathering and socializing of the family members and developed a sense of intimacy among them; however, the elimination of the fireplace in the modern architecture resulted in the replacement of new and modern equipments which could not fulfill such social and spiritual roles as did the traditional architecture. The application of modern technologies has created independent and discrete spatial elements and has led to the mechanization and industrialization of architecture; under these circumstances, architecture will fail to play a role in transforming the concept of technology towards rich humanistic concepts in spatial values. As a result, the nature of architecture will give way to a technological phenomenon and the technological phenomenon will be changed into a humanistic event. [1]
EFFECTIVE ASPECTS OF TECHNOLOGY

Direct impacts of technology on architecture:
Buildings without pillars and thick walls and with big outfalls and delighted and flexible spaces which can be adjusted with the users’ needs are considered as the positive effects of technology on architecture. The famous architect Le Corbusier believed in technology and its effect on architecture and referred to the house as the *life machine*. Of course, this terminology was later argued against him. Mies Van Der Rohe had indeed a passionate interest in modern architecture. Though he was considered as a reticent and taciturn architect, he highlighted the significance of technology on architecture. He believed that the only way towards the development and advancement of architecture was through technology. Mies strongly argued that the value and merit of technology is in the novelty and innovation of it. However, at the time of Mies, technology was not highly developed. According to the current standards of technology which Mies used was the relationship between prop and pillar. In his style of architecture, props and pillars had the highest significance. He delicately designed the props and pillars simplistically and nakedly and put them on display. Of course, it should be argued that other qualities which are characteristic of Mies’s architecture include visible trusses on the ceiling, visible space frames and large outfalls. However, following the 1960s, technology has reached such an unprecedented and unforeseen development that almost any type of innovative and audacious designs can be operationalized. The developments of technology should not be limited to the structure of the constructions; rather, the effect of technology in architecture is evident in almost any aspect of industrial productions which can be applied and used in architecture. [10]

- Indirect impacts of technology on architecture:
The utilization of computers in architecture has created the concept of Beyond the two-dimensional in the minds of numerous people. The photos which can be produced from computer applications such as Auto cad, 3Dmax, Photoshop and etc, are able to demonstrate and simulate the design of the spaces of any kind of structure before they are constructed.[9]

THE RELATION BETWEEN ARCHITECTURE AND TECHNOLOGY

In a search for the definition of art and technology, we can define *art* as the expertise and the fine skill and ability in the production of something and *technology* as the method and technique of manufacturing machines and technical tools to bring about convenience and facility in accomplishing a task. Indeed, art can be regarded as the skill and imagination of creating fine and beautiful objects. It should be noted that the art and technological industry are considered as the essentials of modern life and thus the utilization of them is necessary. There are different viewpoints and ideas about the relation of architecture with technology; hence three types of relations between them can be defined: [9]

- *Definition one*: technology and architecture are both considered as activities in human life.
- *Definition two*: both technology and architecture are means of fulfilling a purpose.
- *Definition three*: technology and architecture are used for discovering and expressing the realities.

The first two views consider technology and architecture as two distinct phenomena; however, the third one mentions the values and realities of them and takes the nature and depth of modern life into account. Therefore, it can be concluded that technology maintains a specific relation and role with human beings and the nature. Sometimes, the excessive and inaccurate use of technology can change it into a tool for exploiting and misusing the nature. However, architecture by its nature is such a field which can use technology appropriately and usefully. Thus we can include both of the disciplines of technology and architecture into the more embracing area of art in a way that each one expresses a different facet of art and such a notion of art is genuine and original and excels toward perfection. [11]

THE IMPACT OF TECHNOLOGY ON HUMAN LIFE

In the ancient Iranian architecture, the formation and arrangement of elements is deemed to be the effect of the cohesion and connection of a number of qualities and features which all together make up the unified concept of architecture. The foundation and basis for the formation of Iranian architecture are the long lasting experiences and expertise which architects had gathered continuously and practically from building buildings. For example, the construction of domes in the traditional Iranian architecture was inspired from certain purposes and needs of the traditional Iranian community and the architect’s techniques and art originated from his architectural thoughts and views. Since traditional architects did not have the technology of covering large areas with resistant materials linearly in the past, they made use of bricks as a local building material and devised a traditional technique for constructing domes; hence, in this way they were able to use the technique of skeletons and frameworks to meet the...
architectural and urban needs of that time. Likewise, the traditional architects designed and constructed columnless spaces and structures in order to meet the social needs of the traditional community for social gatherings. Architecture is considered to be a contagious outlook for the living space of people and is a manifest factor for determining the social patterns and paradigms; in other words, architecture and human beings resemble the body and soul which depend upon each other and have direct contact and interactions with one another. As the time goes on, the living spaces and environments of human beings undergo numerous changes and the type of these changes have been influenced by the changes in the behaviors and lives of the society. A brief glimpse at modern life reveals that factors such as population, communications, transportations, standards and styles of conduct and behavior in modern life have significantly changed the viewpoints and attitudes of modern citizens towards the living spaces and housing issues. In other words, in the past, members of a family (parents, children and close relatives) lived in a house which had a yard and a small garden at the center; they lived with the minimum furniture without having facilitative and entertaining utensils such as TV, refrigerator, washing machine, etc. However, in modern housings, we deal with dramatic changes in the design of the houses and changes in the arrangement and position of the furniture within the houses. In the past, kitchens used to be designed at the corner of the yards but now they are assumed as a central space and part of the house; such a change in the position of the kitchen reflects a change in living which can be regarded as the effect of technology on modern life. Recently, we have parkings in the houses which are another evidence for big changes in the contemporary life. Indeed, all of the changes in the styles and behaviors of living make inevitable changes in the urban structures and organizations and will continue through time.[2] When very huge projects such as a cinema construction are designed and constructed, the need for the application of appropriate architectural techniques on the part of the architect becomes really evident and essential; in such a construction, in addition to the proper designing of the space, the architect needs to construct a well-built structure with appropriate building (insulating and resisting) materials which indeed requires a lot of expert knowledge and skill. Beside the application of the proper tools and technology in the building, proper internal heating, electric, plumbing and crane installations should be implemented which draw upon technology and skill. However, in large-scale constructions such as hospitals, recreational complexes, stadiums, hotels and etc, are considered to be defective and imperfect in terms of the application of technology and appropriate technologies have not been applied on them. [1]

THE SIGNIFICANCE OF TECHNOLOGY AND ITS FEATURES

Features of technology are as follows:
- It is an instrument for changing the environmental and surrounding circumstances.
- It is a device for transforming the natural resources into useful objects and artifacts.
- It can be regarded as a source for generating prosperity for the human beings.
- It can be considered as a factor for making social changes.
- It is a factor for causing intentional and planned effects on the process of development.
With regard to the above-mentioned features, we can contend that technology is a means of survival, organization and development for the community of human beings. As a matter of fact, technology may have negative as well as positive impacts on the society but the mainstream policy in the development and application of technology should be to minimize its negative effects and maximize its positive and useful effects. Technology is the product of work and thought. In any society in which people are actively involved and interested in productivity, development and efficiency, they should apply technology. Since human beings themselves are the creators of technology, they have to consider the process of developing and utilizing technology. Different communities need to emphasize different aspects of technology in line with their needs and developments. Developed and industrial countries have succeeded in developing, operationalizing and utilizing different aspects of technology. Furthermore, it should be noted that technology dynamically varies and the needs and challenges of a community change. In other words, technology needs to quickly adjust itself with the social, economic and cultural changes. In developed communities, the production, advancement and application of technology can be efficiently realized in the form of projects, enterprises and plans. However, in developing and underdeveloped societies, technologies result in more social impacts. As many important decisions are made about strategies of economic and social developments on broad and narrow ranges, similar concern and attention should also be given to the development and choice of technologies. Quantitatively, technology should be regarded as one of the most significant issues in plans of socio-economic developments of a community [9].

**EVOLUTIONS IN TRADITIONAL IRANIAN ARCHITECTURE**

The Iranian architecture in the last century was significantly and undeniably affected by the western ideological trends and thoughts. In the following section, some of these obvious evolutions in the Iranian architecture are mentioned. Nevertheless, it should be admitted that the most significant factor for the development and improvement in the architecture and its originality is the return to the history and Islamic culture of the country and the first step in this way is a full understanding of the related culture [1]. In the modern world and especially in the western world, identity crisis is widespread and noticeable. Indeed, the lack of ideological, ethical and logical conviction and belief has caused insecurity and difﬁdence for the modern citizens. The destruction of stable and consistent beliefs and opinions and the use of invalid and illogical deﬁnitions of development and improvement have obscured and concealed the nature of original and genuine identity. The refusal of original humanistic, moral and logical principles which are irreplaceable has alienated the human beings and has driven them toward absurdity [12].

**THE ESTABLISHMENT OF IDENTITY IN CITIES**

Architecture has always followed certain and well-known principles and regularities and has had strong and ﬁrm connections with the facets of identity such as culture, social norms and values; this is why the architecture of a certain era is believed to reﬂect and represent the culture and art of that era. A short examination of the old Iranian architecture reveals the great and magnificent Iranian civilization which was blended with Islamic culture. A fundamental question which should be asked is: What is identity? And what is the signiﬁcance of identity? In addition to the need to understand the concept of identity and different aspects of it, we should also understand the epistemological justiﬁcations and implications of it. Throughout the centuries, the contemporary science adopted a narrow perspective towards the phenomena and hence distorted the dominant balance in the nature for its own advantage and established an exploitative philosophy and thought in the societies. Such an exploitative motive spread to different aspects of modern life and impacted on the perception and attitudes of people and upset the existing balance. In his book on Architecture, Sense, and Space, Shoultz has related the existing disorganization and disorder of the western contemporary architecture to absurdity and lack of identity and has argued that the modern human being has lost his sense of belonging to the space and surrounding environment. Although the concept of identity is very complicated and abstract and the full appreciation of it is beyond the scope of the preset paper, it should be admitted that the concept of identity has become problematic, obscure and open to controversy in Iranian architecture. However, devaluation and reduction of the signiﬁcance and clarity of the concept of identity is not limited to architecture and such a crisis in the validity of the term is also evident in social, cultural and national areas. The achievement of an original and distinguished architecture is of high importance in Iranian architecture. An aspiration and attempt towards originality, distinction and identity in the Iranian architecture and civil science will respond not only to biological and living needs but also to the spiritual and mental needs of the human beings. [8]
DEFINING IDENTITY

Deh Khoda Dictionary has defined *identity* as the distinction of something which may apply to the existence of foreign objects or to a distinction with detailed reality. Identity includes the pure layer of the essence of something. Moin Dictionary defines *identity* as the essence of the Supreme Being and whatsoever which can be recognized. *Identity* encompasses the detailed truth; in other words, identity should be accompanied with distinction and sometimes a concrete existence of something is intended by identity. Identity can be the nature or nurture of something. By nurture, the environmental factors are meant which refer to the sources and norms of behavior. Sources of behavior include the dominant patterns of social behavior and physical environment. In general, it can be maintained that the environment includes the shared experiences of the local people in a certain location. Thus, it can be concluded that in the architectural designing of an environment, the native inhabitants of that environment can by no means be ignored [2].

FACTORS IN DETERMINING THE IDENTITY OF A LOCATION IN TRADITIONAL ARCHITECTURE

Lots of people consider the experience of a location as the relation between a person and the environment. Thus the understanding and recognition of a location is realized at the moment a person attends there and experiences it; that is, the physical, mental, and emotional characteristics inspire an appreciation of that location for the person. The traditional architecture was intended to lead us to understand the identity of the location and thus features such as aspect, prospect, spatial organization, reminiscence, interpretation and unity were supposed to be distinguished in traditional architecture. If the mentioned features are missing from a location, the location will not have any transparency and clarity for the attendee and viewer and the location will fail to inspire a certain sense for him. Thus without losing their quality and sense, the elements can be blended with one another to form a tangible and sensible whole. The existence of a center for ancient cities can verify this claim. The concept of identity lies at the heart of historical consistency and depends on time. Having many shared qualities and features in common in a society and its progress through time can clarify the concept of identity.

Architecture and civil science are the product of the interaction of human beings with the environment and also the interaction of society with history. In other words, architecture is regarded as the incarnation and embodiment of the social spirit to a location. Architecture and urban life have surpassed the limits of physical existence and give an array of understandings and feelings of the location and its components to the attendees. With the advent of Islam in Iranian architecture, immature interpretations of architecture gave way to rational and intellectual interpretations. According to Islam, every aspect of life is a symbol of logical thought and wisdom [12].

CHARACTERISTICS AND CONCEPTIONS OF ARCHITECTURE IN TRADITIONAL BUILDINGS AND THE EFFECT OF TECHNOLOGY

Islamic architecture has unique characteristics which distinguishes it from other kinds of architecture. Numerous studies and investigations have been conducted on the basic characteristics of Islamic architecture. Certain features of this type of architecture can interact with new technologies in constructing, building materials, and etc; consequently, they result in such structures and spaces which fit the contemporary society and meet the needs of modern human beings. In case the constructional and architectural principles are suited with the worldly and spiritual needs of human beings and the social, cultural and economical circumstances of modern life, it can obviously contribute to the creation and realization of an ideal society. Therefore, we can define an ideal society from an architectural perspective; that is to say, giving identity and character to the space and location along with the improvement of the environmental qualities, the realization of the ideal technical and application standards in construction and the fulfillment of the aesthetic aims can give a different definition for an ideal society from an architectural viewpoint. Furthermore, the classification and organization of different types of spaces without distorting the independence of them, protecting the inside of the building from theft, climatic and environmental conditions and harms, the interaction and consistency between the architecture and the nature, spatial continuity and the adjustable connections among them can also contribute to the fulfillment of such architecture. If architecture is defined in terms of culture and traditions, then, it will be considered as an original and recognized architecture and such recognition and identity will be long-lasting; however, the type of architecture which is merely based on the needs of the past and present time cannot be long-lasting and recognized. Although a large number of well-known Iranian architects have attempted to associate their own constructions and buildings to the history and culture of the country, their efforts in achieving this goal have been superficial and casual and they have not actively involved themselves with the soul and fundamental principles of the old traditional architecture. Also, despite the presence of shared views among the architects and civil designers towards traditional architecture, this
trend has not developed a clear and organized form nor it has established certain theories and regulations. The traditional Iranian architecture has had such enormous and great potential that many research studies should be conducted to revive and appreciate its value; also, modern technologies should be utilized and applied on it; the present needs of the society should also be taken into consideration and designing in modern architecture can be inspired and influenced by the traditional architecture.

In this paper, we addressed the challenges of utilizing and applying modern technologies in architecture from social, cultural, economic and political perspectives and recommended some ideas and resolutions on this issue in which we considered technology as an opportunity. Thus it can be concluded that the proposed criteria can be considered as patterns and models for sorting out the challenges of the modern Iranian architecture.

**TRADITIONAL ARCHITECTURE IN A TRADITIONAL CITY**

A traditional city can be regarded as a complex of constructions and buildings which has been dominated by conventional and traditional outlooks, customs and practices. Local and technological limitations have certainly their own impact and influence on traditional cities. They inevitable have unity and harmony. Since traditional architects design their constructions based on predominant traditions and the widespread identity of the society, hence, the architectural outcomes of the traditional architecture are uniform and consistent. The distinguishing feature which is highly emphasized for a traditional city is its strong social and structural homogeneity. Traditional cities incorporate fair and balanced patterns and policies of civil management, well-organized collaboration and have a shared resolution to construct and develop their cities. It can be contended that these characteristics originate from the consensus and unanimity among the members of the society. Indeed, we can consider a traditional city as an exhibition and demonstration of the practices and behaviors of the citizens, a homogeneous connection of the civil spaces and the social life and the association between the way of using the places and the citizens' imagination of the streets and squares. Inasmuch as the form and structure of traditional cities were organized as a direct reply to the simple and relatively limited needs of the citizens, they have certain physical and structural features as a reaction to the needs and each of the features are coordinated with
their surrounding environment. The mutual relationship and interdependencies between the citizens of a city, the social motives and the methods and styles of construction give special representation and distinguishable characteristics of the city. In traditional cities, every citizen has a contribution and role in the beauty and the refinement of the city and they should feel commitment, interest and respect towards their own cities. [5]

ISLAMIC CONCEPTS AND THEORIES OF TECHNOLOGY

The Islamic orientation towards technologies can be examined from different perspectives: In one way, Islam considers technology as a type of science. In another perspective, we can investigate the nature of Islam, its goals and an ideal community from the Islamic perspective in order to find out the position of science and technology in Islam. According to the most ancient written documents and books, the religion of Islam has given science and technology as much importance and significance as it has given to prayer and other Islamic rituals. According to the religion of Islam, the best utilization of the advanced technology is to satisfy the practical and the scientific needs of people. Although Islamic ideology does not consider scientific development and progress as the eventual aim of the human being, it regards scientific and industrial development as an instrument for refining the human being’s position and his closeness to the Supreme Being. Thus we can argue that the development of technology is not tantamount to the abandonment of valuable cultural and Islamic traditions. In other words, technology can be used to better appreciate and improve the traditional values and principles. In the course of economic and social development, technology is always regarded as an indispensable instrument. Consequently, we can maintain that technology is a key construct in resolving the problems and difficulties of the developing countries. Technology should be embedded within the sources and assets of a society and should be developed. Technology will prosper and succeed if it fits the cultural and social standards of the society. In Islamic culture, there is no boundary between art and technology since Islam as a sacred and celestial religion has underscored the significance of development and proper and purposeful utilization of new technologies. [13]

CONCLUSION

As the population of the societies has increased and the general and specific needs of people have changed, hence, the building materials and the constructional styles and methods should be changed and reexamined. The key point which we emphasized in this article was that the employed technologies should be consistent with the local, economic, cultural and practical factors of the society; hence, appropriate and well-adjusted technologies should be at the architect’s disposal and provide him with the required resolution and tools. With the advent of industrial revolution in western societies and the utilization of new building materials, the technologies of construction were improved and materials such as steel and Concrete began to be used in buildings. Gradually, many new and more advanced building techniques were invented and developed. Likewise, the Iranian architecture was influenced by the relationship with the western civilizations and the need for the utilization of new building materials; such changes can be viewed in many museums of science and technology. Although the industry of civil constructions in Iran has grown both quantitatively and qualitatively and unique and innovative manifestations of this industry have been realized, we cannot consider the current state of the Iranian architecture as a function of either the western architecture or the oriental one. Moreover, we cannot detect and identify the effects of traditional Iranian art and culture. The reasons for such problems in Iranian architecture include the following wide array of factors which were mentioned in the article: managing failure and deficiency, educational and cultural weaknesses, lack of responsibility and commitment of designers and contractors, employers’ disregard and depersonalization, inappropriateness of the building materials with the local conditions, inaccurate and wrong use of the tools and the materials, incongruity of the new designs with Iranian and Islamic culture and the changing styles in the lives of modern citizens. Furthermore, misinterpretation of the innovation and creativity in designing the buildings can also be regarded as another important reason for the disorganization and disorder in Iranian architecture. In other words, the majority of architectural designers and civil engineers’ creativity and innovation is tantamount to making a different building at the expense of scientific, traditional and spiritual criteria and principles. Indeed, we should have the art of applying our talents and skills, modern technologies, experiential knowledge and expertise so as to adjust and adapt our cultural and historical heritage with new needs and demands of the society and introduce a comprehensive and global standard for other societies. Conversely, uncritical and unconsidered imitation of other types of architectures and the inaccurate irrational combination of modern architectural and technological achievements with local knowledge and experiences will prepare the ground for the destruction of the highly valuable local architecture. According to the arguments mentioned in the article,
the utilization and application of new technologies in proper combination with the local and traditional elements and components and also their use in proposing the challenges and problems of the local setting were discussed to be the desirable and right paradigms in the application of new technologies in architecture. On the other hand, as it was discussed in the article, another paradigm and perspective for the application of new technologies is to preserve and protect the socio-cultural values and principles and the old traditional architecture of a certain location in harmony with the present day conditions and norms. New technologies should be modified and arranged in line with the behavioral patterns of life in the social settings. Last but not least, the new building materials can be used to create symbolic and meaningful blends of colors and decorations and enhance the compatibility between the structural structures and construction and respond to the ever-evolving needs of modern life.

REFERENCES

Citation of this article: