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Impact of digital architecture: The impact of digital technology on ecological formations and its effect on determinants of identity and culture in architectural design

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ABSTRACT

Many researches and studies focused on the concept of identity, technology, and ecology, and the effect of these systems on the ecological and morphological formation of design. Lately digital technology spread very quickly and drew an effective impact on recent designs, but the connection between this digital development and the ecological and biological formations, especially the local and Arab ones, remains vague and cryptic. In fact, preserving cultural identity is considered one of the most prominent Arab issues raised for research and study, especially in the era of globalization 'the new world order', which is characterized by revolution in various fields. With that being said Arab and local architecture has been greatly affected. In many cases, the style of design used in local buildings is completely random and their origin is unknown. The best surviving example is the Islamic architecture. Back in the day it was characterized by a unique style and absolute originality, but with the latest developments its characteristic features started to fade away and changed it to an essence that does not resemble it and often does not define its civilization and its historical and cultural roots in any shape or form.

Introduction

Nature has always been a source of inspiration, knowledge and well-being from which human needs derive, and the easy prey from which they feed. With the development of modern science and industry, urban development has drove away mankind from nature and pushed them to strive and achieve their greatest goals, which resulted in many environmental problems. Therefore many proposals addressed the problem arising from the relationship between the ecosystem and the recent buildings. It is necessary to refer to the formation and planning of the ecosystem through both the building and the project site as an ecosystem, where the ecological design is concerned with the environmental and climatic characteristics and the natural boundaries of the project site to measure its impact on the designed system and its functioning instead of focusing on the building alone neglecting its biosphere. The ecological design aims to achieve formations that value the features of the area.

As the world is witnessing an unprecedented acceleration and development of digital technology, these deep and radical transformations in technologies began in the twentieth century and increased the speed of communication so that technical obstacles, political considerations and geographical borders are no longer an obstacle to its development. Digital revolution paved the way for a progress in all aspects of life, there is no field left without being invaded by it. Among these aspects is the field of architecture and design, where the use of technology enabled new design directions such as dynamic digital architecture that bonds the two directions of dynamic and digital architecture.

Through the changes brought about by technology on contemporary life, including the Arab world, we find that we have turned into consumers of the work of many Western architects. Some countries in the Arab region have turned towards rapidly seeking to transfer their latest innovations and works, which negatively affected the local identity, its distinction and privacy. Many people support globalization, see it as a human phenomenon that aims to link between different cultures, and exchange their knowledge for the sake of effective development such that it opens new horizons and provides great opportunities in global markets. While the opponents see that it calls for the erasure of cultural peculiarities that possesses technical power and economic control through imposing economic and trade policies that increase

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technological gap and dependency on other countries but in many cases, Western culture had a great influence in the originality and contemporary of urban identity. It is an intellectual problem in which the architects' opinions varied between supporters and opponents.

The blending of digital technology with conventional design techniques has sparked a revolution of creativity and innovation in the dynamic field of architecture. In addition to revolutionizing how architects imagine and realize their projects, the fast development of digital tools—from CAD software to virtual reality (VR) simulations—has also irrevocably changed the identity and culture of architectural design. Previously distinguished by hand-drawn sketches and actual models, today's architectural sector embraces technology as a crucial step in the creative process. This change has ushered in a new period of inquiry, allowing architects to experiment with shapes, materials, and spatial notions that were before infeasible. But when technology changes design fundamentals, it raises important considerations about how this transformation may affect architectural identity and cultural values.

Through the changes brought about by technology in contemporary life, including the Arab world, we have become consumers of the work of many Western architects. Some countries in the Arab region have turned towards rapidly seeking to transfer their latest innovations and works, which negatively affected the local identity, distinction and privacy.

Many people support globalization and see it as a human phenomenon that aims to link different cultures and exchange their knowledge for effective development such that it opens new horizons and provides great opportunities in global markets. We explore the substantial effects of digital technology on architectural identity and culture in this study intending to comprehend the many facets that this technological integration introduces. We look at how the use of digital resources has affected and changed architects' design philosophies, cultural manifestations, and identity perceptions. We also examine how technology interacts with cultural context, examining how architects adapt to the digital age's sociological, historical, and regional influences.

Research problem

The research problem is represented in the absence of an architectural identity, revealing the nature of the impact of digital technology on the ecological formations of local and Arabic architecture and finding solutions that help in designing an architectural design that fits with our identity.

Literature review

This paper is studying The impact of digital technology on identity and culture in architectural design. In this part some definition that supported the investigation of paper will be shown.

The digital revolution

The current era is witnessing acceleration and development since the appearance of computers and other modern technological devices that deal with digital methods. Digital technology like computers, the internet, smart-phones, cloud computing, artificial intelligence, and various software programs are at the heart of the digital revolution. The digital revolution has resulted in an abundance of data, which is critical in architectural design. The digital revolution has influenced architectural design by utilizing sensors, simulations, and data analysis to develop environmentally friendly and sustainable solutions. This data-driven strategy reduces adverse environmental impacts while understanding the architectural context. Energy simulations, building performance evaluation, and optimization are made possible by digital technologies, resulting in eco-friendly designs with lower resource usage.

The worldwide flow of architectural ideas and influences allows for concept cross- pollination and the fusing of design aspects from many cultural backgrounds, strengthening architectural design by merging global and local identities in innovative ways. [1].

The digital revolution is the main reason for the development in various areas of life. It is known for its rapid transformation of information in various parts of the world; hence the current era is called the era of digital life. Thanks to the digital revolution, everything is developing rapidly to the point where we cannot anticipate the features of the world of tomorrow, and its characteristics are unlimited, as the possession of digital tools has become an essential imperative in the simplest daily matter.

Digital architecture

It is not a new type of architectural style limited to integrating the latest techniques and technologies of modern architecture trends and discipline to find solutions. The true essence of digital architecture lies in the way it deals with problems and its ability to suggest feasible alternatives, which are dominated by non-standard relationships and non-repetitive designs far from their historical connection.

In his book "Hybrid Space", Peter Zellers defined it as a different form of architecture characterized by free and dynamic forms within the virtual environment. Digital architecture relies on defining the design and specifying the solution by diverting attention from the problem; therefore, the engineer who follows the digital approach must consider this change and shift to a method that suits systematic design [2].

According to Heisserman, digital architecture is a set of grammars for tackling design difficulties using computing techniques. The digital revolution has caused a significant shift in architecture during the last few decades. The use of cutting-edge digital technologies has altered the limits of architectural creativity and expression, in addition to revolutionizing how architects create and build structures. Pencil and paper have made way for CAD software, 3D modeling, and parametric design tools as the digital revolution has ushered in a new era of architectural design.

Architects can now visualize and refine complex designs with unmatched accuracy and effectiveness. These instruments' seamless integration has made it possible to investigate complex geometries, organic shapes, and environmentally friendly design strategies that were previously unthinkable. It also increases collaboration, streamlines operations, and expands design options, altering the future of the built environment.

Digital design

Like other fields, the digital revolution's effect was clear on architectural design, especially since all modern tools and theories in the current era were provided.

The launch of digital design for the first time started with the launch of the digital revolution in the contemporary art center at the crossroads in which the architect Nicholas Grimshaw presented research entitled "Architectural machines" that highlighted computer applications in architecture followed by a discussion of the electronic architecture in the conference of Los Angeles, in which the interactive relationship between architectural designs and digital screens was discussed.

Studies continued until the architect John Fraser 1995 dealt with the applications of digital technology in his book "Revolutionary Architecture". He also dealt with digital modeling inspired by nature and presented studies in the field of virtual creations in architecture.

The book "Digital Architecture Now: A Global Survey of Emerging Talent" by Neil Spiller features young architects who are recognizing the digital design revolution, exhibiting their cutting-edge work demonstrating how digital methods and instruments impact modern architectural profession [3].

Many architects who contributed to the revolutionary thought, like Frank Gehry, Peter Weissman and Greg Lynn, significantly supported the development of forms of relationships and spatial technology using

unfamiliar designs, which led to re-considering traditional design to study the changes.

Design trends of architecture

Technological development is the main reason for the current revolutionary designs. It brought about new materials and new techniques in architecture, resulting in a complementary bond between design and technology; Digital architecture is characterized by new forms that were not available in the past by the lack of construction techniques. Now, Sustainable and eco architecture has gained prominence, with architects incorporating green- friendly materials, energy-efficient system.

Biophilic design focuses on connecting people with nature, while adaptive reuse and renovation are becoming more sustainable and cost-effective. Modernist and minimalist design principles continue to influence architectural aesthetics, with clean lines, open spaces, and functionality. Inclusive and accessible design is also becoming more important. But architectural trends can vary based on regional and cultural contexts, technological advancements, and societal changes [4].

The main advantage remains the absolute freedom of information that was previously unknown such that the design serves as a guide for the technology to reach the embodied ideas through production materials and design tools that add various operational dimensions and forms that allow the designer to achieve his ideas with high quality and wide range of options to allow him to reach effective and final solutions..

Digital Design Concepts

Computer digital design has given various new design concepts. Branko Kolarevic classified them into:

- Topological design for topological buildings.
- Isomorphic design for the homogeneity of buildings.
- Animated Design for buildings with dynamic characters.
- Metamorphic design for simple, primitive blocks.
- Parametric design for parametric accounts of design.
- Generative design expressing evolutionary design [6].

The Impact of the Digital Revolution on Form and Function

The digital revolution had a major role in the changes in form and function and in satisfying the ambition of architects seeking to show distinctive forms that express progress and development. This effect is embodied in the following:

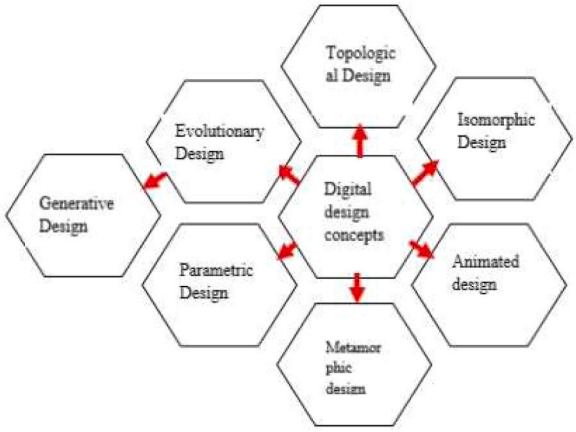


Fig. 1. Design concepts emerging thanks to digital design [5].

Fig. 2. Center Shanghai Financial Global (www.travelpedia.net).

Fig. 3. Towers Petronas Twin Malaysia (www.almrsal.com).

Fig. 4. Canary Wharf in London (https://mtnsh.com/).

CyberSpaces

Architecture the cyberspace provides an opportunity for architects to explore and test an idea before actually building it. It allows the user to take detailed walk through and provides a more realistic view of what it would be like in real life. It also allows different professionals to interact and simulate an idea before the actual construction. It allows theories and concepts to be realized and explained even with the physical body and thus generate new ideas even. However, when they seem implausible, it is much more than that [7].

Architecture's cyberspace has expanded swiftly, including digital technologies such as VR, AR, parametric design, and data-driven techniques. This has altered the design process, making it possible to create architectural solutions that are sustainable, flexible, and contextually sensitive. Which has completely transformed architects'

communication, engagement, and interaction with the built world.

Architecture, in its physical form, is no longer an important issue now that we can prefigure the different designs based on digital tools that respond to complex contextual or functional influences. Furthermore, cyberspace may supply and do what architects have always desired, such as erecting a castle in the air without being bound by gravity. Leading us to question whether the next step for cyber architecture in cyberspace is a logical approach.

Liberation of the External Form

In the era of the digital revolution, architectural forms are subject to additional rules such as proportions, modularity, and functions that go beyond those that emerged during the industrial revolution era. Architects search for consistency between technology and the organic organization of the building by integrating the concepts of building information and communication systems to achieve the expected spread of buildings and taking into account the concept of smart buildings, the building passes between the internal space and the external environment, and the sensitive surfaces of the outer envelope of the building become sophisticated outer covers whose aesthetics emerge from The technology used in the building.

The design stage is directly affected by the tools used in drawing, which influence the way design is thought. At a time when the use of manual tools such as flats and flat triangles prevailed, the design of flat lines on a square grid prevailed in architectural forms, while in the era of the digital revolution and the use of computers in various design programs, a radical change occurred and a wide spread of streamlined and more flexible forms [8]. It values unconventional techniques that.

deviate from traditional geometries and styles, allowing architects to experiment with more organic, fluid, and expressive forms.

Advances in digital technologies, computational design, and parametric modeling assist this freedom, allowing architects to build complex and dynamic forms that adapt to environmental elements and human demands. The resulting architecture is distinguished by its individuality, flexibility, and harmony with its surroundings, enabling a more inclusive and creative design expression [9].

Changing the Functional Elements and the Inconsistency of the Form with the Function at the Architectural and Urban Level

Digital architecture plays an important role in the relationship between form and function, or in terms of thought and philosophy, as it represents a new concept with the borders that the architect designs in the architectural space while using new technological upgrades such as smart materials and transparent materials. Translucent materials have become an important part of formal and functional applications, providing new solutions for architectural construction and a contemporary advantage.

Functionality is the reason behind the existence of architectural work and is the first and most important influence on architectural form. The first basic principle in functional theory, which was launched by "Louis Sullivan", is "form follows function"[8]. In fact, the form must be the product of the realization of functions since the architectural form is the only level to define the spaces that have functions for which they were created, and therefore the evaluation of the architectural form should be based on the link between the model and the function that led to it. The function is the motive that drives the form, and the success of the model is due to its provision of service.

A well-designed building integrates form and function, improving user experiences and spatial efficiency. When form and function are in sync, the overall aesthetic appeal and functionality improve, resulting in a more successful and long- lasting design. A thorough awareness of human demands and the surroundings helps architects to design places that are not only physically appealing but also functional and user-friendly. Creating this symbiotic relationship is critical to ensure that architecture enhances the lives of its residents while also positively contributing to the built environment [10].

However, it is no secret that the digital revolution affected the functional spaces and the spatial dimension, which will be reflected in the shape of the surroundings as a whole. For example, hotels that were previously designated for a specific function, that is, accommodation with a clear external form suggesting that, can be a place for work, meetings, and conferences in external forms free from all restrictions, so activities increase and others shrink, and new projects appear, and others go out of sight.

Transparency of architectural formation elements

The notion of transparency evolved as one of the key concepts used to characterise the features of cultural products from the twentieth to the twenty-first centuries. Including the artistic and architectural products and the concept of transparency was associated with architecture. With the intellectual development of civilizations and their social, political and economic concepts. In addition to the material and technical development in discovering new mechanisms to achieve them.

Transparency, sustainability and digital architecture are the new clothes worn by the new era, as they affected the form and spirit of architecture and design through new concepts that may widen up to new features and standards. They appear in an era that is concerned with expanding its circle to include the whole world and transforming it to the infinite, transcending the political borders of countries, and unleashes expansion of the economy; Transparency has embraced complexity and performance to engage with climate challenges and intense urban growth. It gave new orientations and generated new visualizations in the techniques of cutting-edge software and hardware technologies. All of which led to the lack of identity and it's fading. For instance, the new BIM (building information modelling) of modern construction processes that gives out models of efficient cost-savings and simulations of post-construction management processes was embedded in major projects to adapt and revise many of the current architectural landscapes[11]. The conceptualization of.

construction of form materiality and systems ended up in an unanticipated structure with divergent forms and design because the implemented high technology gives liberating methods for the building system, leading to a record of unanticipated plan landscape [8].

Simulations based on eco morphology and morphology

The generation of a form and its embodiment are closely related and inseparable." Accordingly, More Fujini Design brings design and fabrication much closer together. This is a general prerequisite for exploiting the full potential of digital technologies in architectural design and construction, making the overall shape of a building and its interior and exterior spaces, as well as its relationship with the surrounding environment or the so-called public site, usually in the form of space blocks depend on the homogeneous relationship to form function and logical arrangement.

Many previous studies have shown that the ecosystem depends on the approval process. To show the simulated picture of energy flow and indicate the role of materials or organisms in the ecological environment. They are critical for understanding and optimizing the interaction between natural environments and constructed form. Eco-morphological models are used to guide sustainable design ideas by analyzing natural processes such as sunlight, wind movement, and vegetation development. These simulations help in the design of ecologically friendly buildings and urban places with low energy consumption and environmental effect.

Morphological simulations, on the other hand, investigate spatial configurations and building shapes, optimizing layouts for utility and user experience. Architects may create harmonious places that respect both ecological principles and human requirements by combining eco-

morphology and morphology, resulting in resilient and efficient constructed environments.

Architecture and identity

The architecture reflects the identity of an area by depending on the region, its culture, the values and ideologies of the people in the area and the historical background they come from. The architect should always consider the feeling of belonging in a community according to the design location[12].

Architectural identity is the first impression of people when seeing a building. If properly interpreted, it stimulates confidence and luxury, giving a notion of the architect's identity and an impression of the region in a general sense [13].

Therefore, seeing a region suffering from a lack of identity implies a repercussion in its system, especially when the need to defend the national and cultural identity of the area is washed out. When reconstructing a building after destruction, the building can be re-established. It can pre-built with the same symbolism and familiarity. Another possible decision is to reconfigure the building and adjust it according to modern needs; however, it should be taken very carefully.

Some components represent the tradition or original design that can also be used to the advantage of contemporary concepts. Traditional architecture often portrays the identity of a given region or culture by employing local materials, construction processes, and architectural aspects founded in cultural tradition. These structures and places act as emblems of communal memory and community identity, instilling a sense of belonging and connection with the past. Architecture should help human beings reflect their true values with deep meaning[14]. In multicultural communities, architecture may also be used to express and reinforce cultural identity. Buildings and public places may be constructed to promote diversity, inclusion, and.

shared ideals, fostering harmony among varied populations.

Architecture and globalization

Globalization is connected to cultural and aesthetic diversity. This shapes the basis for architectural philosophy and design ideology [15]. It depicts the different ideologies and identities of the people of the area. The Romans, for instance, designed magnificent amphitheaters and temples to depict the greatness of their empires [15]. It indicates the domination of its people, who represented the hierarchy and values of Roman culture [16].

Globalization and colonialism

During the nineteenth and twentieth centuries, the French and the British dominated many parts of the world. They established their power in China, Southeast Asia, Africa and America. And influenced their designs. The design speaks of their colonial rule and politics. Regarding colonial cultural domination, (Metcalf QT.

said that their commanding officials hoped that preserving the traditional hierarchy of status would support their colonial system (Metcalf QT Wright, 1989). From then on, modernity prevailed in the buildings of the Post-War Era. Modern architecture spread internationalization. Modernism rapidly invaded this style, which placed concepts on universally accepted ideologies regardless of local identity. The modern style became more dominant, resulting in the decline of cultural characteristics because modernity did not depict the values and ideologies of the people within the area [17].

During the same era, the concept of inclusiveness emerged to express technological development and integration. By the end of the twentieth century, a wave of architectural styles emerged, reflecting the era of globalization. It adopted the global culture of design that erased historical classicism because it was based on globalization. Buildings started featuring skyscrapers, malls, and branded buildings.

Namely, The Petronas Towers, Sears Towers, the World Trade Center, the Shanghai World Financial Center, and Canary Wharf, for example, depict both consumerism and globalism. Hence, the global style dominated the world stage.

Globalization, the Arab Region and the current situation

The European command on the Arab world in the nineteenth century had far-reaching effects on Arab identity and culture. As was the case in North Africa and, precisely, Algeria. European societies settled in their homeland and influenced local architects by the European style of Architecture. They began to shift away from traditional Arab-Islamic designs designed to suit the local environment and started imitating global architecture[18]. They slowly started to lose their traditional identity. Today, one can hardly find a specific local architectural identity in urban buildings..

Analytical study

The research presents an analytical review of the results reached by applying the principles of the three dimensions (identity, technology, environment).

Empirical evidence

The third industrial revolution, sometimes known as the digital revolution, began in the late twentieth century and has had a profound impact on society, corporations, and individual lives. It has improved productivity, efficiency, information availability, social impact, education, healthcare, and environmental effect. Digital technology have considerably enhanced productivity and efficiency in a variety of industries.

According to studies, organizations that have embraced digital technologies have increased their efficiency by up to 40%. Automation, data analytics, and more efficient communication channels have all contributed to this. It also have changed the education sector, allowing for e-learning and remote schooling, which was particularly evident during the COVID-19 epidemic. According to a World Economic Forum report, the EdTech sector is predicted to reach $350 billion by 2025 [20].

Empirical evidence demonstrates the revolutionary influence of digital architecture and design on the construction and creative industries. 3D modelling and BIM (Building Information Modelling) improve design accuracy while also shortening project schedules and lowering expenses. Furthermore, virtual reality allows for immersive encounters with concepts prior to production. 3D printing and other digital fabrication technologies enable sophisticated designs, faster production, and waste reduction. Finally, data-driven design.

tools that use AI and machine learning improve productivity, creativity, and personalization. These technologies are transforming how we design, build, and interact with our built world.

It also shows that cyberspace has revolutionized communication, business and education. This change is evidenced by the increase in the use of social media, the increase in electronic business sales and the adoption of e-learning platforms. However, increased cyber security threats and digital divide issues also emphasize the need for better management and security measures[21].

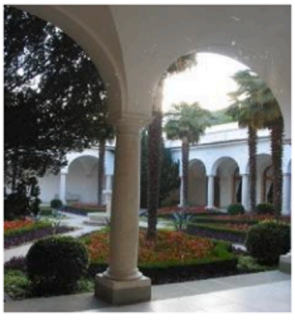
Empirical evidence shows that eco-morphology and morphology-based simulations contribute significantly to biological and environmental research. They provide information about the adaptive characteristics of species, ecosystem dynamics and evolutionary patterns [22]. Such simulations also contribute to climate change modeling, species conservation strategies, and understanding patterns of biodiversity. Empirical studies show that architecture plays an important role in the formation of community and individual identity. The design and aesthetics of buildings and public spaces often reflect cultural, historical

Table 1
Evaluation of achieving the three dimensions (identity, technology, ecology).

No	The Project	Adaptation from Traditional Architecture	Contemporary Values in term ofIdentityTechnologyEcology		
1	Figure 5:Bosco Verticale, a residential complex, Milan Italy 	Figure 6:Traditional Italian ivy- covered buildings. 	The design of the Bosco Verticale was inspired by traditional Italian ivy-covered buildings.	Bosco Verticale is a new idea for a skyscraper. It is the first example in the world of a tower that enriches the plant biodiversity and the fauna of the city that hosts it.[19].	Bosco Vertical was designed to serve as "a home for trees that also house humans and birds. The two towers are home to 800 trees. The plantbased shield does notreflect or
				Forest), Milan, Italy ", s. d.)	magnify the sun's rays but rather filters them, creating a Welcoming indoor climate without harmful effects on the environment." At the same time, the green curtain "regulates" moisture, produces oxygen, absorbs carbon dioxide and fineparticles.(Bosco Verticale) [19].
2	Figure7:Mandal slipway housing complex in Mandal at Norway 	Figure 8:Tregde Ferie cabins and apartments in Norway 	Mandal SlipwayHousing Complex is iconic with its distinctive roof shape and minimal window detailing, while evoking local character bydrawing	Mandal SlipwayHousing Complex, a residential Project combining contemporary timber architecture with local building traditions.[9].	The buildingsfeature roofs inspired by local building traditions. The facades and ceilings are clad in untreated cedar with balconiesfacing
			inspiration from the unique character of the Norwegian Mandal[9].		southwest. Great emphasis has been placed on the relationship between the outdoor spaces and the building's common functions, with great emphasis on providing daylight, open views and a good flow between indoor and outdoor facilities.

(*continued on next page*)

Table 1 (*continued*)

3	Figure 9: Al-Bahar Towers" in Abu Dhabi 	Figure10: Traditional Arabic Mashrabiya 	The design of thetower was inspiredby the traditional "mashrabiya" thatadorned the windows oftraditional Arab homes since the 14th century.Thiscleverly engineered mashrabiya design provides both shade and privacy, while allowing an outside view all the time	It is considered one of the largest towers in theworld, the tower's facade is dynamic, modern, andinnovative so that it can open And it closes as needed, in accordance with the movement ofthe sun, and thus it has been able to reduce energy consumption by 50%.	The building mimics nature, the shapeinspired by a pineapple The dynamicmashrabiya reduces the percentage of solar radiation that entersthe building by half, and thus saves a lot ofelectrical energy consumed by air conditioning. In addition, the ability ofthe awnings to provide shade for the buildingprompted thearchitects to dispense with the dark glass that obscures theoutside light at all times, and this workedto save the electricity that lighting consumesduring the day.
4	Figure10.11:Muttawar multifamily housing project in Muscat  	Figure 12.13:The traditional Arab Courtyard  	The neighborhoodis organized aroundthe principles of theArabian courtyardhouse with facadesinspired by the Mashrabiya, aresponsive responseto local culture and climate. The expansion of this vision into a full fledged, self contained community creates a new type of housing development that conveys the neighborhood feel of a home that has been expanded to support a new neighborhood while balancing in the microcosm The vitality of the city.	The design of thebuildings is based on reusingtraditional solutions in acontemporary way while still serving the same function as a means of cooling.preserving traditional crafts and promoting new techniquesand technologies passive cooling.	compact and organic, and will compriselocally sourcedmaterials includinglimestone, marble, andaluminum. It isinherently sustainable through passivemeans, such as naturalventilation, the use oftraditional arcaded spaces and loggias,mashrabiya screens and water features to maximize

(*continued on next page*)

Table 1 (*continued*)

5	Figure 14.15: Masdar city  	Figure.16: Traditional Arabic mashrabiya 	The architectural design of the city embodies a harmonious blendbetween traditionalArab architecture and modern technology asmachrabiya, wind	Technology has been used to modernize traditional Arab architecture tools	Masdar City relies entirely on solar energy and otherrenewable energy sources, anenvironment free of carbon and waste anduses naturalventilation provided
	Figure.17: The aerial catcher 	tower (malkaf),The courtyard andnarrow alleys	by wind towers, aswell as benefitingfrom the movement offresh air in it toprovide a naturalcoolness that guarantees a comfortableatmosphere during the high temperatures insummer.[11].		

and social values[23].

Empirical evidence points to the profound impact of globalization on architecture, leading to a convergence of architectural styles worldwide. It stimulated the rise of "stylized architects" and iconic buildings. However, it also raises concerns about the loss of local identity, cultural heritage and sustainable practices. Architects are increasingly addressing these issues in their designs [24].

Discussion

The above examples make it possible to talk about the successful implementation of modern energy-saving technologies in buildings while preserving identity. In this regard, along with the traditional techniques used in low and medium-rise buildings, the study proved that the heritage vocabulary can be re-employed and formulated in a contemporary manner in accordance with the current development and human need and the changes that occur in society, as it has achieved the maximum benefit from the heritage values of the heritage vocabulary that have achieved Contemporary values by merging them with technology, materials and modern building techniques, and this proves their flexibility in re-employing and benefiting from them in contemporary architecture and the ability to create and innovate without conforming to the original heritage work, which achieves civilized continuity.

Research results

- Western architecture was often associated with the determinants of their environment and the requirements of their individuals, so it came to be an honest, balanced expression suitable for them.
- Arab architecture is not a model but principles and concepts.
- There are wide areas of convergence between Arab and international architectural thought.
- There are no permanent constants, but the ideological and logical values and the ways of applying them differ according to the variables, from the needs of individuals to the elements of the environment and the difference of time, based on which the intellectual vision of any architect is formed.
- The application of the integration between digital technology and ecological formations with the vocabulary of Arab architecture is the task of the architectural designer, and it differs from one architect to another, according to his view.

Conclusion

The world's globalization, its innovations increased the overall global performance, which significantly impacted the urban identity of the Arab world in particular. Many factors contributed to this, namely the evolving technology that provided highly advanced digital features. The use of digital technology in architecture has sparked a creative and imaginative revolution, transforming how architects predict and realize their ideas.

The rapid development of digital technology such as CAD software and virtual reality simulations has opened up new possibilities and revolutionized the identity and culture of architectural design. The shift from hand-drawn designs to computer modelling has enabled architects to experiment with unknown shapes, materials, and spatial concepts.

Undoubtedly, with all these influencing factors, the architectural design process will differ from one project to another due to the diversity of creativity sources, their development, and their influence from one designer to another.

The sources of creativity are liberated from traditions and specific relationships and move towards free form and the use of digital technology in designing digital models. The preceding steps serve as a guide for the process, but each architect will take their own approach and produce a design in their own unique style. The design process will depend on points of view, ideas, and inspiration, and this does not mean staying in old molds to preserve identity; on the contrary, in the end, the design will be a reflection of the architect and his skills. Taking into

account the technological development in digital architecture and making the most of these capabilities in the architectural design process, the resulting creativity is the result between the designer and each of the digital architecture, identity and environment. However, this transition raises important considerations regarding how technology influences architectural identity and cultural values.

As architecture becomes more globalized, there is a risk of losing local identities and particular cultural expressions. As a result, architects must combine technology with cultural context awareness to guarantee that digital architecture respects and promotes the cultural legacy of the communities it serves. Architects can continue to build sustainable, practical, and culturally rich architectural settings for the future by adopting technology intelligently and in line with cultural values.

Declaration of Competing Interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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