

**Almnshdawy Hussain Abdualee**

University of Thi-Qar, Nasiriyah, Iraq (corresponding author)

E-mail: [hussain\\_a\\_falih@utq.edu.iq](mailto:hussain_a_falih@utq.edu.iq)

ORCID: <https://orcid.org/0000-0002-4356-619X>

## Modern Design Tools from the Perspective of Graphic Design Development

**Abstract.** A scheme for considering design as a complex system with appropriate linguistics and a significant replenishment of the design system with new categories useful for further theoretical research and practical use is developed. The state of modern design is considered, its purpose is the expediency of existence, the harmony of the architectural and subject environment, the technical perfection of products with technological feasibility and economic efficiency, ergonomic comfort and environmental priority. Its social significance is the creation of a secure and decent way of life and work, artistic imagery of the object world, social self-organization and humanization of society, the formation of social consciousness, inspiration, purification, ennoblement of a person, his or her spiritual revival and recovery, the acquisition of labor and creative motivation and, as a result, the progressive economic development of society. The article discusses media design as an innovative development of design, paying attention to media design in the system of modern Internet technologies. Information and communication technologies as a set of methods and software and hardware expand the scope of media design in the information space, which contributes to the meaningful assimilation of information. Thanks to high-quality media design and its mobility, modern information Internet technologies provide relevance, selectivity, interactivity, multimedia, rapid production and distribution of interactive technologies.

**Keywords**

design, system, design linguistics, principles, means, purpose, theoretical support, basics of functioning

**JEL:** A22, F20, I2



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### 1 Introduction

The current state of ergonomic design solutions is extremely difficult. Design objects are rarely holistic with elements that are subordinate to each other, balanced, uniform in nature, order, scale, and carry certain figurative information. Taken together, they are usually eclectic, far from ensemble and unified style. All this hinders spiritual revival and progressive social development. A different view of the design system will make it possible to replenish its theoretical scientific basis and initiate relevant research to eliminate the difficult situation under consideration.

Due to the growing computerization of society, computer-demonstration interactive design techniques are actively involved in such important modern socio-cultural processes as communication and information. Trends in the modern world actualize the study of the degree of importance of the form of information presentation in both its traditional and new computer form.

The development of information technologies and their use in various spheres of human life requires publishers to know the basics, principles and rules of media design.

Media design is a new area of scientific research, which, in the context of the development of computer technologies and the information society, requires development, new research, training of specialists in the field of media design, coverage of the results of domestic and foreign research and the achievements of media designers, and the formation of a clear understanding society about media design as a scientific field, not amateur art.

Today, due to the rapid information development and digitalization, graphic design is very relevant, because everything that surrounds us: books, various packaging, advertising, billboards, websites, and much more, is designed and created with its help. In modern society, graphic design is a tool for creating all kinds of visual content. It reflects a special form of aesthetic and creative thinking of a designer who constantly strives for perfection and development of his skills and creativity. Since the inception of graphic design, it has undergone significant changes and transformed into a powerful tool that can be used to create all kinds of masterpieces. In the modern world, it is impossible to imagine it without the use of digital technologies. The main task of graphic design, or as it is sometimes called "communication design", is to create an information environment for society.

The processes that contributed to the development of this art form led to the creation of its unified standards. These standards included the same approaches to solving communication problems and similar design tools. However, in recent years, there has been an active development of graphic design with an emphasis on the peculiarities of national culture. This means that we need to pay attention to the fact that modern graphic design influences the formation of national images and consciousness.

## 2 Analysis of recent research

If we consider the current state of design as a separate field of science, it is obvious that research in this area indicates that it belongs to art history (Abdel-Rahim, F. & Ali, M., 2016; Ahmad, et al, 2016). Although, as practice shows, in most cases, there is still a separation of design from other areas, in particular, this is evidenced by certain linguistic misunderstandings in the conceptual apparatus, which hinder the successful development of this field of science.

Translations of foreign authors' works are not adapted audience (media design affects a person's perception of information, shapes their attitude to what they perceive, and since each nation has its own ethno-national characteristics, such works need not only to be translated but also adapted, which requires a deep knowledge of not only the psychology of perception but also suggestology).

Most of the information about the process of creating and using media design products and its use can be found on the Internet, as there is a difficulty in illustrating in printed publications – it is difficult to show examples of successful or unsuccessful use of colors, examples of multimedia presentations, audio or video accompaniment in dynamics in printed scientific collections.

There are web resources on design in segment of the Internet, but none of them consider media design from a scientific point of view. The information presented on such sites is based on the personal experience of individual practitioners.

The purpose of the article is to substantiate the essence of graphic design and to consider the history of its transformation; to identify the main problems of graphic design in the context of art history.

## 3 Results

### *The concept of "design"*

In addition to creating a harmonious architectural and object environment, technical perfection of products with technological feasibility and economic efficiency, ergonomic comfort and environmental priority, it is necessary to add the most important social value – the creation of a secure and decent lifestyle, artistic imagery of the object world, social

self-organization and humanization of society, the formation of social consciousness, inspiration, purification, ennoblement of man, his spiritual revival and recovery, the acquisition of labor.

Sociology of design, conditions of emergence, current problems, prospects for development, relationship with art, technology and culture, aesthetics of the subject environment and its requirements for industrial products and structures, assessment and forecasting of technical, aesthetic and qualimetric quality indicators of industrial products and structures, formation of an optimal range of goods.

The place and typology of aesthetic design in the general structure of design and its automation, patterns of creative thinking of the designer, principles, means and methods of his professional activity, laws of form (the relationship of the form of the product with its geometry, design, material, production technology, function, historical patterns of change in the form and style of the product, psychological features of the psychology of sensory perception of the designed), design linguistics (theory of composition, its categories, its possibilities of creating poetry, etc.

Acquisition of a decent way of life, work and leisure, orientation to the ability to overcome difficult situations, to achieve success, wealth, well-being and prosperity as programming of health, luck, hope and faith in the fulfillment of desires, in a better future. The modern media space has a number of distinctive differences compared to foreign ones and requires a deep study of media design issues, its scientific substantiation for the needs of the modern information society, which is a prerequisite for the further development of science, education and society, and integration into the global academic community.

In the context of the modern development of the information society, it is obvious that the psychological, aesthetic, cultural, educational and environmental impact of a new field of design design, which is not related to the mandatory features of traditional design – material production and the instrumental function of the product – is growing. Among the names of this young design field are the following variants: computer design, information design, program interface design, media design, interactive design, electronic environment design, etc.

The concept of "design" is defined in different ways: as an activity aimed at creating both things and a form of organization (Ahmad, et al., 2016, p. 183); as a product of design activity (Abdel-Rahim & Ali, 2016, p. 133). At a generalized level, design is understood as an appearance (the form of a product or the product itself, its functions); as a process of its mental creation – design; as a field of activity that covers theory, practice, products and services, etc.

There are different interpretations of the concept of "media design", but we adhere to the classical Western position in understanding this term as the entire

communication environment, as it is more logical and widespread, and therefore will avoid conflicts in the interpretation and translation of foreign literature.

So, media design is the practice of artistic and technical design and presentation of information, taking into account the ergonomics of working with information sources and services, the functionality of information presentation, the aesthetics of visual forms of its presentation, and the psychological criteria for human perception.

The modern media industry encompasses many elements. Its traditional channels include television, radio, newspapers, magazines, books, movies, and music recordings. However, with the development of new technologies, this industry has expanded to include the Internet, video and computer games, mobile devices (e.g., tablet computers, iPads), and mobile phones. The media environment is multidisciplinary in terms of topics and varied in terms of promotion techniques, so the core range of media design includes web design, art design, land design, TV design, etc.

Today, the information environment is being rapidly virtualized, i.e., all means of communication and information media are being digitized. Almost any textual or graphic information is initially created, transmitted and stored electronically, which provides a greater degree of mobility and freedom of data handling, but at the same time, it also raises the issue of information ecology (a reasonable and balanced approach to information production).

### **Evolution of graphic design**

Let's analyze how styles in graphic design have changed over the years.

1. Victorian style (1820–1900). The Victorian style got its name in honor of the coronation of Queen Victoria in 1837 and was a kind of reaction of society to industrialization. The universal desire for wealth led to the creation of affordable household items that looked like luxury goods (Estrada et al., 2015).

2. Art Nouveau style (1880–1910). The Art Nouveau style originated in England in the late nineteenth century as a kind of rebellion against the Victorian aesthetics imbued with the spirit of the past and became the brightest creative innovation in the history of design. The exponents of the new style wanted to revolutionize every area of design and set standards that would meet the spirit of the new era (Estrada et al., 2015).

3. Modernism (1910–1940). Modernism arose as a result of the industrialization process and became the leading design trend of the twentieth century. The development of modernism was fundamentally influenced by the idea that design can serve as a tool for changing the social order by creating beautiful and comfortable everyday goods. Excessive decorativeness was considered a sign of decline, and the emphasis was on simple, austere design. The main features of the style were simple, strict shapes, smooth coatings, and minimal surface modeling (Estrada et al., 2015).

4. Art Deco (1920–1930). The style that was later called Art Deco appeared in Paris in the 1920s and became another confirmation of the end of traditional design, but unlike abstract modernism, it was based on lightness and friendliness. Art Deco borrowed its stylistic features from an eclectic set of sources, including ancient Egyptian civilization, primitive art, surrealism, futurism, constructivism, neoclassicism, geometric abstraction, folk culture, and modernism. It is a combination of sophisticated aesthetics and modernity, an atmosphere of eccentricity and phantasmagoria. The style celebrated travel, speed, luxury, and flight of imagination (Estrada et al., 2015).

5. Dadaism (1920s). Dadaism originated in Zurich during the First World War as a literary movement and later spread to other types of art. Its main idea is the rejection of all art forms and existing barriers, developing its own unique language of poetry, theater and graphic design. Dadaism had almost no impact on industrial design or architecture, but it had a great influence on graphic design, especially on book publishing (Estrada et al., 2015).

6. Kitsch (nineteenth and second half of the twentieth century). Kitsch is a term that was originally used to describe vulgar design samples that looked attractive. Later, kitsch began to include elements of mass culture, such as commercial advertising and "cheap" literature (Estrada et al., 2015).

7. Late Modernism (1940–1980). The era of late modernism was formed on the basis of classical modernism, but without its rigid dogmas. The impetus for its development came from advances in photography and computer technology, which revolutionized the world of printing and typography and changed the image of graphic design. Late modernism rejected outdated old ideas and formed new ones, looking for a "modern day" style, which led to the formation of various movements. A common theme was the revision of the role of images, which ceased to be descriptive and were often replaced by photography and photomontage (Estrada et al., 2015).

8. Postmodernism (1970–1980). Postmodernism emerged as a reaction of designers to rational modernism. It combined heterogeneous and even opposite artistic phenomena, united only by their opposition to modernism, or rather, to the sterile aesthetics of geometric forms, which both professional designers and ordinary consumers were tired of (Estrada et al., 2015).

9. Vintage (1950–1980). The term "vintage" refers to a certain object, a typical thing of its time, which carries special unique style trends of the era or culture of the past. A typical technique of this style is the artificial aging of photographs and images. One of the most common aging techniques is sepia (Estrada et al., 2015).

10. Op art is a style of art and graphics that emerged in Europe in the 1960s. It was preceded by centuries of transformations in the visual arts and the development

of neuropsychological science. Op art is based on the peculiarities of visual perception: the image exists not only on the canvas, but also in reality: in the eyes and imagination of the viewer. The task of op art is to deceive the eye, provoke it to a false reaction and evoke a non-existent image (Estrada et al., 2015).

11. Pop art (60s of the twentieth century). Pop art emerged in contrast to abstract painting, which was considered too complex and elitist. The charm of pop art was that it poeticized the everyday life of modern society, made us see beauty in mass-produced products, for which there were no differences between high and mass culture (Estrada et al., 2015).

12. Digital design (since 1984). The digital era in design began in 1984, when the first desktop personal computer Apple Mackintosh appeared, which revolutionized the traditional centuries-old art of designers and engineers. Designers received new tools in the form of graphic editors and layout programs, which greatly simplified their work and significantly reduced the time from the initial idea to the creation of a real prototype (Estrada et al., 2015).

13. Neomodernism (early twenty-first century). Neo-modernism is a logical continuation of previous variations of "modernity": avant-garde modernity, modernism, postmodernism. And just like each of them, it is a certain combination of form and content. Neo-Modernism refers to a significantly updated aesthetic that stems from the Bauhaus and Swiss Modernism. This style is characterized by laconicism, economy of expressive means, functionality and restrained sophistication (Estrada et al., 2015).

14. Infographics (late twentieth century). The need for infographics – a visual representation of information – became acute in the 2000s in the context of a tremendous increase in information flows. However, the universal symbolic system used by modern designers to create infographic illustrations, diagrams, and graphs was developed in the 1920s by O. Neurath and has its origins in ancient rock paintings. The peculiarity of infographics is the ability to convey the maximum amount of information in a short time, in an original and attractive way, using minimal space (Estrada et al., 2015).

15. Minimalism (XX century). The term "minimalism" first appeared in the mid-1960s in New York to describe the sculptural works of some artists of that time as opposed to the then dominant abstract expressionism. Today, the term is used in a variety of fields: from fashion and music to design and architecture. Minimalism embodies the idea of striving for simplicity in the face of excessive amounts of information and allows us to put content and meaning in the first place in design (Estrada et al., 2015).

16. Lettering (twentieth century). Lettering is not a font at all. It is a unique collection of letters and letter combinations drawn and created for one specific project. Lettering was popular during the Renaissance,

and it is no less relevant in the digital age. After all, it deprives the design of traditional restrictions, adds expressiveness, and allows you to maximize the author's individuality (Estrada et al., 2015).

Thus, we can see that graphic design styles have changed several times over the course of the century. In our opinion, this is due to the demand of society and fashion.

### ***A media design product***

A media design product is a form of communication through a static or dynamic medium. The static medium of a media design product is materialized.

For example, to "make" a booklet, you must first create an original layout (design design stage) and then print it (media production stage). A design layout that is not materialized in a medium is not a booklet from the customer's point of view, but from the point of view of design (as design), it is realized.

Electronic design of a product in the field of static printed media does not allow the final product to be classified as an electronic dynamic medium, since the properties of the latter are revealed through the characteristics of the medium, which in the printed medium, regardless of design, is always static. The dynamic medium uses electronic information carriers that transform the classic scheme into a new one: "one medium – many layouts". The most widespread are universal electronic means of communication: television, computers, global electronic networks.

Nowadays, in most cases, the customer is obliged to choose among the existing means of mass communication, and he does not have to worry about the production of the medium. The need to choose from the existing media is explained not only by the prevalence of electronic media, but also by standardization: any electronic media has its own data format, which must be known to the addressee and the addressee (Kapoor, et al., 2018).

For all types of design, without exception, the digital environment has become a means of designing any final product. And in the case of the design of the electronic environment, the design tools are combined with the design object itself, that is, a tool for implementing a task with a product. This creates a fundamentally new communication environment (new media).

The new communication environment, having increased the availability of information, has significantly expanded the field of activity of media designers. In the new environment, different media can exist simultaneously and be fully integrated into one, such as text, sound, static and dynamic images (video and animation).

Thus, the components of media design include the following areas: information design, which is aimed at organizing and presenting data (text, sound, still and dynamic images, video, graphics) and transforming them into valuable and meaningful information; corporate design, which aims to create an image of a

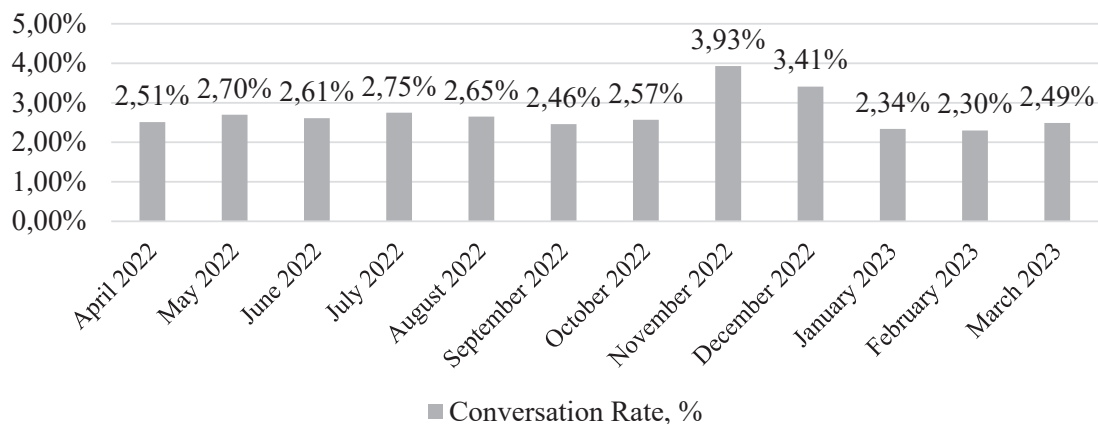


FIGURE 1 The average e-commerce conversion rate on mobile in terms of modern graphic design tools

Source: (Fitzgerald, 2023)

product or company that can attract a potential client; advertising design.

Media design covers the following elements of material presentation: components of the information structure (textual material, halftone and color illustrations and graphics, animated graphics, video materials, audio materials, reference and support equipment); technologies (scenarios of interaction between the user and the product of design, hypertext, design principles, features of the designed product (according to the information carrier). The information should be structured and it should be determined what each component should convey (animation, sound, text, graphic image, etc.).

In the process of creating a media design product, it is necessary to take into account the psychological aspects of information presentation: factors that influence the processes of perception and thinking; psychological characteristics of the user that are important in the process of interaction with the product; the dominant style of information perception by the user.

Prospects for the development of media design allow us to conclude that there is a tendency to shift the emphasis from the traditional print medium to the new one with its moving dynamic composition. Billboards are being replaced by displays, mobile phones and laptop computers are being used more often instead of notebooks, etc. In contrast to the trends of digitization of information, there is a growing interest in various kinds of "material" effects. The emergence of new materials and technologies allows us to achieve new effects and ways of application and exploitation, expanding the project field. For example, the Dutch studio "underware" used polymer paper for the "sauna" font catalog, which changes its properties (hides or reveals the image) depending on the temperature and humidity in the room (Denysenko, 2021).

Images and sound convey emotions and impressions, but they are more superficial and

are perceived in the context of time sequentially. Development in time as an integral part of existence is most clearly manifested in movement and is subconsciously associated with the natural environment (in the real world, any moving object is unconsciously perceived as alive). Delivering information through a change in time is one of the most important advantages of video images or animation, which allows you to tell more with less, and therefore is one of the main tools of modern media design. The temporal component is something that text lacks, in which the stages of information unfolding exist simultaneously. Printed text is read faster than speech is perceived or a visual story unfolds, and reading also allows you to simultaneously perceive large amounts of information, comparing different fragments and returning to them if necessary. Media design allows you to combine two systems – static-textual and dynamic-audiovisual by means of global networks or other electronic information carriers.

The new media industry is characterized by a high level of interactivity. For example, one of the most important changes in the structure of information exchange with the advent of broadcasting was the emergence of the principle of feedback; new media, thanks to more advanced communication channels, have the ability to respond to messages instantly. Thus, the recipient himself is involved in the process of forming a message perceived by a huge audience. In the context of the global network, everyone becomes both the source and the recipient of a message.

In order to understand the real problems of the development of contemporary graphic design within the framework of art history, it is necessary to consider its close connection with social processes and trends that characterize the formation of modern culture. In recent years, new concepts related to design have begun to emerge actively, namely: industrial art, technical aesthetics, artistic

design, graphic design. They have a similar semantic meaning, but graphic design is the most common today. In the past, graphic design and design were synonymous, both in terms of expressiveness and metaphorical thinking. With the advent of the computer, the style of design work has become more dynamic, original, sometimes aggressive and artificial.

The history of human creative activity, which we now call "design", goes back to the most ancient civilization of mankind. The earliest theories about aesthetic criteria and the correlation between beauty and utility come from the ancient Greeks – Socrates, Aristippus, Plato, Aristotle, and Protaton. In the civilized world, the modern idea of design is associated with a wide range of human creative activities. This includes advertising, printing, environmental and industrial product design, industrial design in the Internet information environment, website design, and the fashion industry. The main idea of this field of activity is to combine aesthetic principles and functional tasks in one design (Abdel-Rahim, F., & Ali, M., 2016).

At the turn of the twentieth and twenty-first centuries, the art of design became a complex task aimed at organizing and changing the human environment. From this point of view, design today is viewed as a complex creative, scientific and practical activity carried out to create aesthetically coherent conditions in the environment in which a modern

person lives with its emotional, social, political, informational and technological changes.

Modern types of creativity in design are described on Figure 2.

## 5 Conclusions

Design is a multifunctional phenomenon that combines logical and artistic aspects. In its turn, an artistic solution in design also has two tendencies: it either continues the traditional vector of form development or deliberately violates these formal principles, defining new directions and lines of development. That is why the specificity of design as a type of independent creative activity lies in the constant updating of the means of visualizing an idea and the active search for a new artistic language for its maximum popularization, and thus the issue of harmonious color relations becomes important. Today, graphic design is a rapidly developing field of activity that finds application in many areas: logos, corporate identity, outdoor advertising, printed materials, etc.

Considering design as a complex system will allow us to improve its theory, to pay attention to the energy fields of influence of compositional parts among themselves.

The interactive environment as a medium has a number of significant advantages over classical print technologies. At the same time, the perception

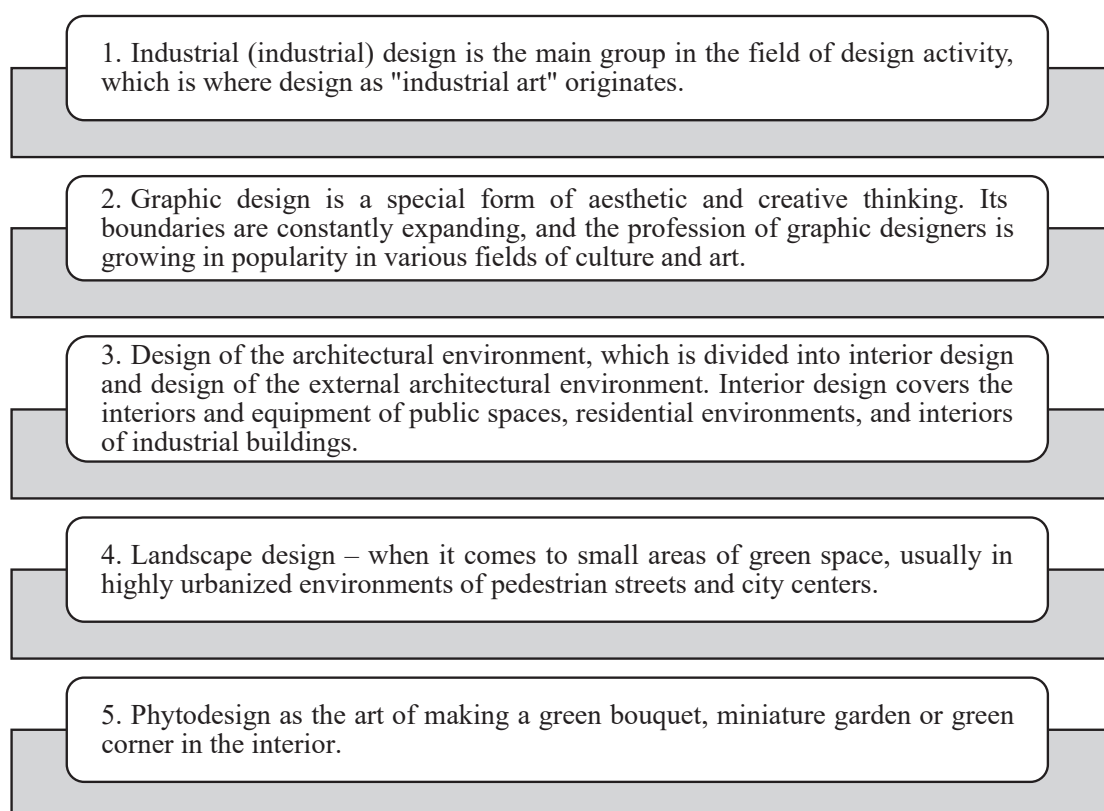


FIGURE 2 Modern types of creativity in design

Source: author's development

of electronic documents (periodicals, books) is not as psychologically comfortable and convenient at the level of basic manipulation as the perception of printed publications. New principles of presenting information (both textual and graphic) adequate to the media are needed. However, until now, innovative

possibilities have initiated the interest of designers mainly in technical effects, diverting their attention from comprehending the aesthetic potential of computer-aided design. As a result, the unprofitable use of digital technologies leads to a decrease in the quality of design projects.

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