

# The Art of Interior Layout Design in Chinese Museums: An Exploration Based on Typical Cases

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## Abstract

*In the construction of a museum, the most important part is the interior layout design and space layout, etc. This paper mainly takes the typical museums in Beijing, Shanghai, Nanjing and other famous cities as examples to discuss the importance of interior design. At the same time, in the exhibition design of the museum, relevant personnel can combine modern information technology with traditional culture. In the process of emphasizing the harmonious coexistence of man and nature, they can pay more attention to the sense of experience and participation of tourists, maintain innovation, and enhance the influence of the museum through interior design optimization.*

**Keywords:** Museum, Interior Layout, Interior Design, Case Study.

## INTRODUCTION

In museums, interior design and spatial layout are very important, and play a pivotal role in the construction of museums. If the museum wants to adapt to the development of The Times, it must make the interior design and spatial layout conform to the local development trend, it must also add the local characteristics of human history elements and symbols to reflect the exhibition mode and spatial layout of the museum, and it also needs to add modern style elements to constantly innovate and develop in essence (Yoon et al., 2018). So that the local museum can be better developed. By observing the museums with characteristics in China, we can understand the original intention of the design of local museums and the layout style of interior design, and provide some theoretical insights for the design of Chinese museums through typical cases.

## BASIC CONCEPT OF MUSEUM CHEN EXHIBITION DESIGN

Chen exhibition design can be mainly interpreted as exhibition and display design, which mainly means that relevant researchers transform the space and plane of the museum through the use of design language art within a certain period of time, so that the space becomes a unique space containing artistic atmosphere, the specific contents are shown in Table 1, so that the public can fully integrate into it (Du et al., 2013). It includes museum exhibition outline, planning layout display, space design and artistic creation, as well as the rational use of sound and electricity and the use of technological materials.

Table 1. Display design classification table.

Classification mode	Specific classification content
Presentation mode	Hanging and cabinet display
	Suspended display
	Placement display
	Scene display
	Interactive display
Contents of exhibits	Multimedia display
	Social history
	Natural history
	arts
	Science and technology

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### Combine Cultural Relics with Indoor Exhibition Halls

Most of China's museums are mainly indoor display, but this method often ignores the cultural heritage of the museum, so in the future development, it is necessary to organically combine local cultural sites with the museum, such as the Terracotta Warriors of Qin Shihuang, the magnificent momentum of the Terracotta warriors can remind people of the grand Qin Dynasty(Huang, 2018). And it is this cultural site that reflects the historical and cultural value of the museum to a certain extent. Therefore, in the display work, due to the cultural elements and differences between different cultural relics, relevant researchers need to comprehensively consider the museum's collections, as shown in Figure 1(Peng et al., 2019). In the process of designing the exhibition, the traditional design concept of Chen exhibition should be abandoned as much as possible, but the focus should be placed on how to enhance the experience of the masses, so that the visitors can better feel the local humanistic and historical spirit, The specific contents are shown in Table 2.



Figure 1. Museum of Qin Terracotta Warriors and Horses in Shaanxi Province.

Table 2. The importance of the combination of cultural relics and indoor exhibition halls.

	Specific content
The importance of heritage sites	It has high historical, cultural and scientific value Inherit and carry forward the fine traditional culture of the Chinese nation An important resource for promoting tourism development
Cultural relics combined with indoor exhibition halls	Promote the development of tourism and improve economic benefits Promote the development of cultural industries and enhance cultural soft power
Heritage sites and indoor exhibition hall combined development trend	Focus on innovation and creativity to enhance the visiting experience Pay attention to the unity of social and economic benefits to achieve sustainable development

### Combination of Physical Display and Digital Display

Most of the traditional museum display methods are physical display, but it is true that most of the museum cultural collections do need physical display to display the cultural value of the collection to the maximum extent, and physical display is also the value of history and culture(WAN, 2014). However, with the development of The Times, the traditional physical display should not meet the needs of modern goods display(Que, 2020). Therefore, in the process of traditional display, certain technical means can be adopted to restore important exhibits in the museum through virtual means, which can restore the exhibit style to the maximum extent. Through high-tech means to show the real appearance of cultural relics, to a certain extent, can change the public's cognition of museums, as shown in Figure 2.



Figure 2. Virtual means to restore the display scene.

## CASE STUDY OF MUSEUM INTERIOR DESIGN

### Beijing Palace Museum

The Palace Museum in Beijing is centered on the north-south central axis, symmetrical left and right, with a very rigorous layout and a well-defined structure. Its structure mainly adopts wooden structure, mainly adopts beam and column structure, the overall building structure is reasonable and rigorous, its architectural decoration is also extremely exquisite, in each structure can see the epitome of our traditional culture (Yan et al., 2023). The building is divided into two parts of the outer court and the inner Court. As can be seen from Figure 3 and Table 3, the center of the outer Court is the Hall of Supreme Harmony, the Hall of Central Harmony and the Hall of Preserving Harmony, which are collectively referred to as the three main halls. The center of the inner Court is the Palace of Dry Qing, the Hall of Communication and Tai, and the Palace of Earthly Tranquility, collectively referred to as the latter three palaces (Li, 2018).

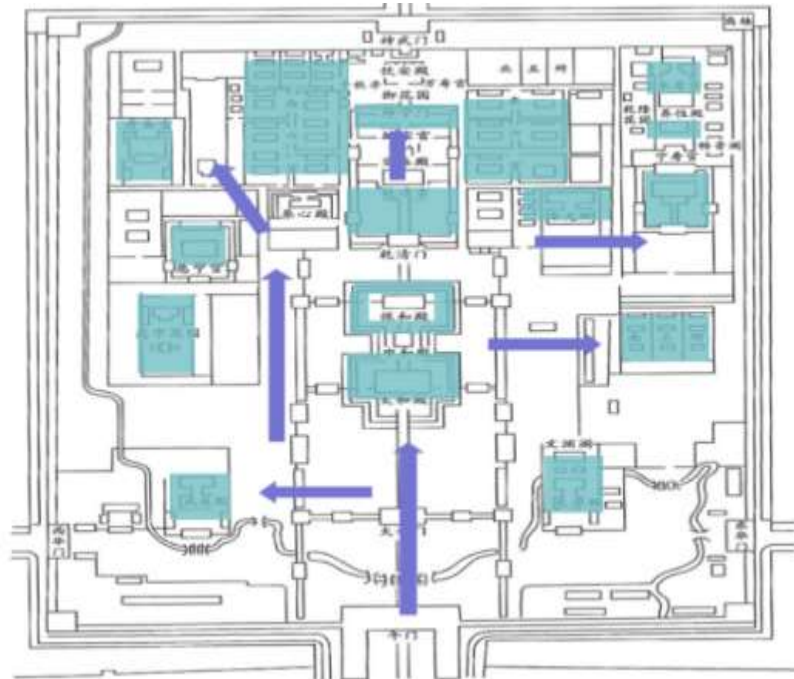


Figure 3. Graphic design of the Palace Museum in Beijing.

**Table 3. Architectural features, main buildings and pavilions of the Palace Museum.**

	<b>Basic content</b>
Architectural feature	Large scale, rigorous layout, exquisite shape Traditional Chinese architectural style A large number of wood, stone, brick and other materials are used
Main building	Hall of Supreme Harmony Hall of Central Harmony Hall of preserving Harmony Dry Qing Palace Hall of Union and peace Palace of Earthly Tranquility
Main exhibition hall	Cultural relics exhibition hall: ceramics, jade, etc Historical exhibition hall: bronzes, stone carvings, etc Art gallery: Sculpture, painting, etc

### Tianjin Museum of Natural History

As can be seen from Figure 4 and Table 4, at present, the design of Chen exhibition combines the local culture and history of Tianjin, so as to realize the fluidity and agility of the spatial layout. The museum also provides many Spaces to interact with cultural relics, allowing visitors to better understand the history of cultural relics, increasing educational significance and mass participation(Li, 2020). The museum is also designed to add an education exhibition hall as well as a meeting room and a library, which can more reflect the humanistic care.



**Figure 4. Graphic design of Tianjin Museum.**

**Table 4. Architectural layout of Tianjin Museum.**

	<b>Basic content</b>
Entrance hall	Set up a ticket office, information desk The theme is Tianjin history and museum culture
Display area	Ancient relics exhibition, modern art exhibition Adopt technological means Display artifacts and works of art
Multi-function hall	Provide meetings, lectures, performances, etc Well equipped, can accommodate hundreds of people
Special exhibition	Multimedia interactive equipment Functional and artistic combination

### Nanjing Museum

Nanjing Museum in the sense of space first adopted the open and smooth design concept, the museum has a large area, in the design process, the use of different architectural styles and spatial layout, mainly to show the culture and history of Nanjing area. As can be seen from Figure 5 and Table 5, the exhibition hall and display area of the hall can ensure that tourists have enough space to visit the cultural relics and feel the historical atmosphere(WANG, 2020). The indoor environment adopts the combination of physical space and virtual

space, coupled with perceptual air conditioning, which can make tourists feel as if they are in the exhibition environment during the tour, and constantly get a sense of freshness and increase their novel feelings.



Figure 5. Graphic design of Nanjing Museum.

Table 5. Exhibition of some exhibits in Nanjing Museum.

Exhibition hall	Exhibition hall name
History hall	Jiangsu ancient civilization
Republic of China Pavilion	Old Nanjing
Art gallery	Painting exhibition of the past dynasties
	Calligraphy exhibition in the past dynasties
	Historical sculpture exhibition
	Jiangsu Folk art Exhibition
Intangible cultural heritage	Jiangsu intangible Cultural Heritage Exhibition
	Master workshop
	Folk tea house
Digital library	Physical pavilion and network virtual pavilion

## Shanghai Museum

First of all, in the design of Chen exhibition, the concept of protection and inheritance of cultural relics is fully considered in the design, coupled with the need to pay attention to the story of the exhibits, Shanghai Museum in practice adopted a combination of paleontological characteristics and the environment, so that the audience can feel the secrets of nature more directly during the tour(ZHANG, 2023). The second is the layout of the interior space, taking into account the practicality and comfort, in each space has increased its function, in each area has set up a rest area, education area and exhibition hall and other different functions of the place, which each area is very clever connection. As shown in Figure 6, because of the emphasis on openness and sharing, the Shanghai Museum has made a high treatment in the atrium, adding a lot of floor-to-ceiling Windows, which can introduce more natural light, so that visitors will not have a sense of distance in contact with cultural relics.



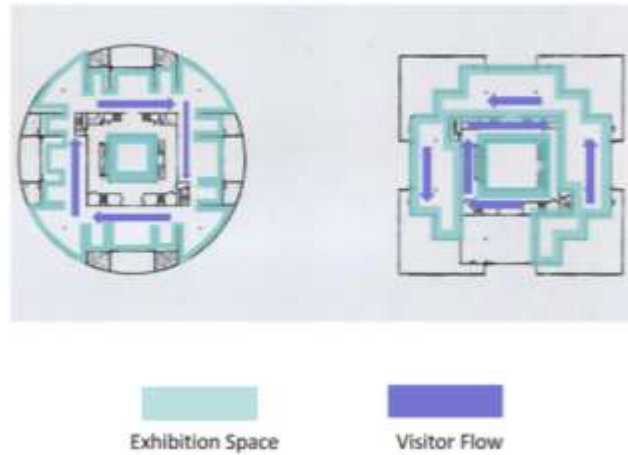


Figure 6. Graphic design of Shanghai Museum.

### Space Layout of Museum Exhibition Design

Traditional museums often give people a mysterious and deep feeling, it is with this feeling that tourists will have a sense of distance in the process of visiting. However, with the development of modern information technology, the most direct way for people to learn about local culture and history is to visit local museums (Sabrina et al., 2013). Therefore, most museums are getting closer and closer to the public, which will show more affinity. There is also the use of artificial light in the museum, which is too dark, will produce a strong sense of pressure, resulting in a poor experience for tourists, if you can use natural light may be better. Secondly, in the process of visiting, we should appropriately create some space for leisure activities, so that we can experience humanistic care in the process of visiting.

## RESEARCH ON SPATIAL LAYOUT DESIGN STRATEGIES OF TYPICAL CHINESE MUSEUM CASES

### Symmetry and Correspondence of Beijing Palace Museum

Symmetry can be reflected in every place of life. Symmetry is the traditional technique of formal beauty. Most modern buildings adopt this kind of symmetrical architecture, but the Palace Museum in Beijing is to give full play to this kind of beauty, As shown in Figure 7. In addition to the 5,000 years of Chinese cultural heritage, this place has become a treasure of Chinese culture (Pan et al., 2021). The layout of the garden in the courtyard is clever, the landscape echoes, each palace is extremely symmetrical, and each palace has another palace corresponding to its relative position. The six eastern and western palaces are self-contained, relatively arranged and orderly.



Figure 7. The overall layout of the Palace Museum in Beijing.

### Level And Contrast of Tianjin Museum

As shown in Figure 8, the new Tianjin Museum has five floors above ground and one underground. Each floor has its own relative theme. The interior space is designed to pass through the time tunnel and connect the window of the future. This is to review the civilization accumulation of Tianjin in the past hundred years, the interior space is bright, the entrance of the sixth floor gradually appreciate the ancient, modern and modern changes of Tianjin, you can feel the cultural history of Tianjin in a short time (Yao, 2019). At the same time, the 100-meter panoramic hall of the museum fully shows the development and changes of Tianjin in recent years, indicating the beautiful future of Tianjin. Each floor of the exhibition hall will also be equipped with water fountains and vending machines, in the process of rest, you can feel the good feelings brought by modern life. Through the comparison of each era, we can show the prosperity of Tianjin's rapid economic development.

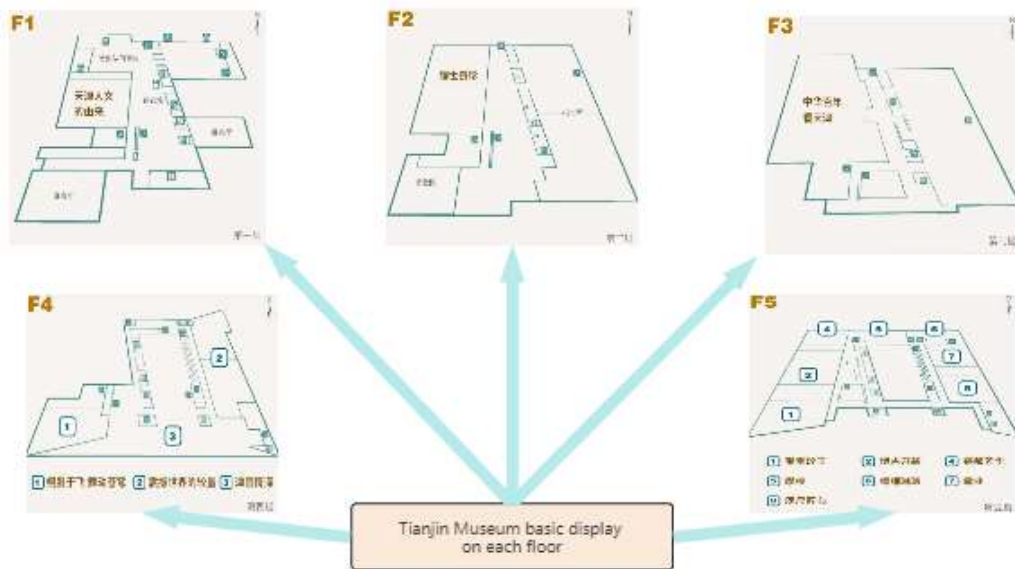


Figure 8. The overall layout of Tianjin Museum.

### **Balance and Continuity of Nanjing Museum**

Nanjing Museum interior space design area is large, including a certain orientation, visitors in the tour process, can personally experience the museum guided by the environment, can have a novel feeling. As shown in Figure 9, and in the process of design, the display of its shape, the division of space, the use of decoration materials are very reasonable, but also contains a certain physiology and psychology content, all aspects are very balanced (Fang, 2020). The use of colors in the museum also reflects the lively and free character of Nanjing people, and its exhibits can not only show mysterious and strong cultural colors, but also show the gentle and smart temperament of Jiangnan region.

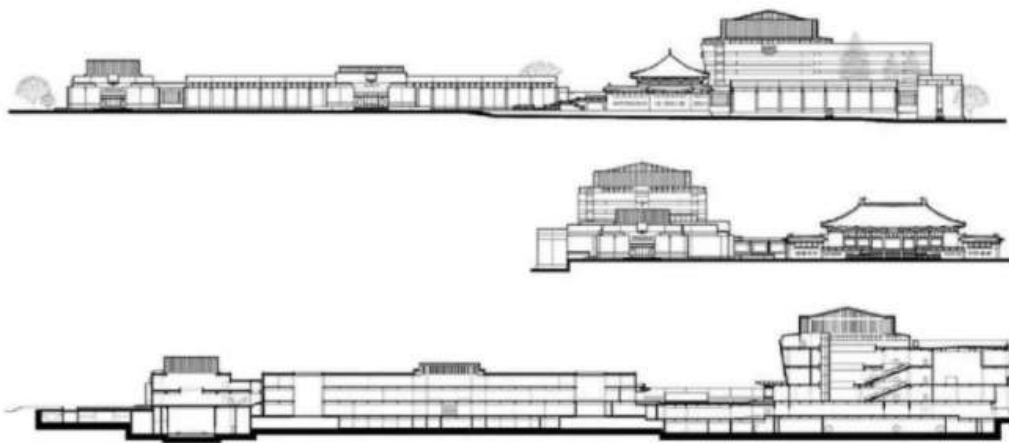


Figure 9. Overall layout of Nanjing Museum.

### **Harmony and Uniqueness of Shanghai Museum**

The appearance of the East Hall of the Shanghai Museum seems to be aggressive, but it is not aggressive, and its characteristics show the geographical location of Shanghai and Shanghai culture. As shown in Figure 10, each exhibition hall of the museum has its own design style characteristics. In the exhibition positioning, the



construction of the Shanghai Museum is mainly composed of ancient Chinese culture as the core of the exhibition system, which not only integrates multiple categories of collections, but also the bronze and porcelain in the museum correspond to each other and coexist harmoniously with China's ancient culture (Beth, 2012). In addition, the Shanghai Museum is asymmetrical around, and there is no particularly unique shape, just like a quiet child, the building is like doing a subtraction, gradually removing a certain space from the outside, although it does not look special, but it reflects its uniqueness.

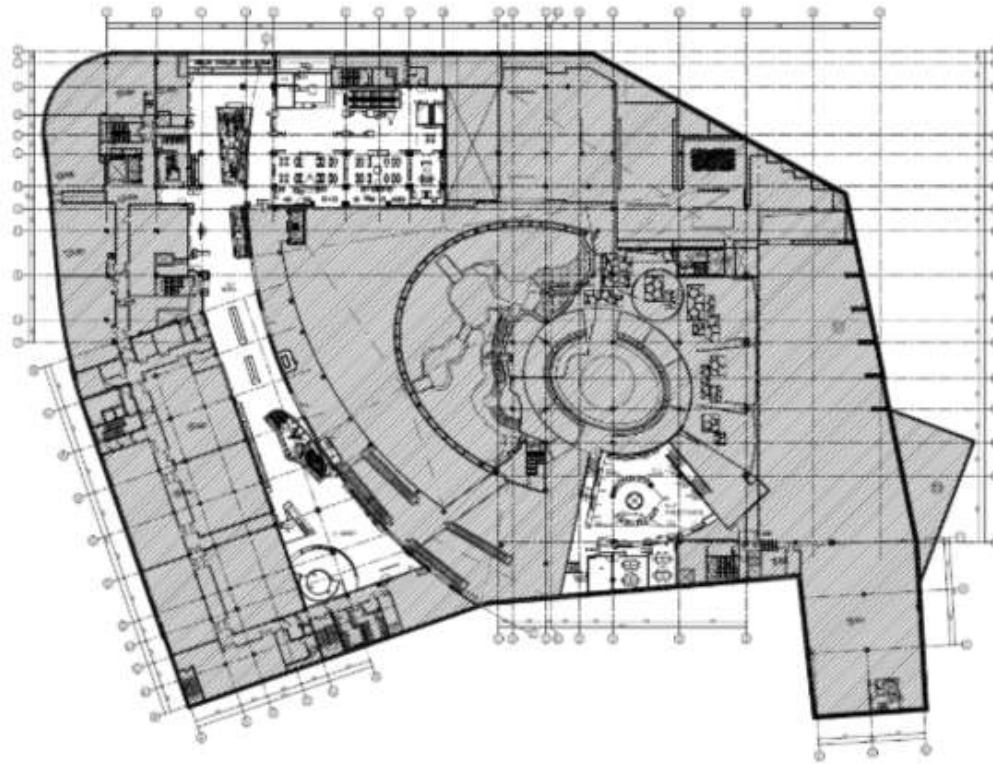


Figure 10. Overall layout of Shanghai Museum.

## Analysis of Excellent Design Strategies for Domestic Typical Museums

### Emphasize The Combination of Modern Information Technology and Traditional Culture

Traditional culture is the treasure of our 5,000 years of precipitation, it is the inheritance and development of these traditional cultures, China can stand in the forest of nations in the world (Amani et al., 2021). However, with the development of high and new technology, some cultural collections that are difficult to see are displayed through specific technologies. It is in this way that the physical objects can be more realistic in front of tourists, which can break the audience's view of traditional cultural museums (Ji, 2014)

### Emphasize the Harmonious Coexistence between Man and Nature

In particular, the concept of harmonious coexistence between man and nature should be reflected in the museum, and natural light can be introduced into the interior. This can not only make visitors relaxed, will not have a certain sense of distance, in the process of visiting the exhibits can also enjoy the calm of nature (Almiranti et al., 2021).

In the design of the light environment, it is necessary to calculate some physical quantities to ensure the quality of light requirements, based on the luminous flux, the formation of a photometric system, the most basic of which are luminous flux, brightness, illuminance and luminous intensity.

(1) Luminous flux, the part of the radiant flux that has visual sensation is called luminous flux:

$$\phi = K_m \int_{380}^{780} V(\lambda) \phi_{e, \lambda} d\lambda$$

(2) Luminous intensity, the luminous intensity of the light source in a certain direction is the luminous flux emitted by the light source in the direction of the unit solid Angle, that is, the density of the luminous flux:

$$I = \frac{d\phi}{d\Omega}$$

(3) Illuminance, the luminous flux of the light source falling on the unit illuminated surface is called illuminance:

$$E = \frac{d\phi}{ds}$$

(4) Brightness, in all light measures, brightness is the only amount that causes the eye to feel, which can be expressed as:

$$L = \frac{dI_{\alpha}}{dS \cos \alpha}$$

### **Enhance Tourists' Experience and Interaction**

During the tour, for the part of traditional culture of our country, some scene performances can be added, which can allow tourists to experience our traditional culture during the tour. We can also use interactive challenge games and talent shows to understand the rules of the game, under the premise of telling tourists to listen carefully during the tour, pay more attention to what happened in the current period and key cultural relics, perhaps the clues of the next interactive game are among them(LIU, 2019). In this way, visitors can have a deep memory of the tour, and the museum should also introduce more relaxed and creative cultural activities to provide tourists with a richer and more diverse cultural experience, so that the museum can become a favorite time slot for tourists of different ages.

### **Challenges and Prospects of Museum Interior Design**

First of all, the main points of the museum's interior design should be designed and laid out according to the local traditional culture, especially at the macro level of interior design, but also in combination with the characteristics of local architecture. It is not only necessary to ensure a certain indoor space, but also not to imitate some large-scale shopping malls, but also not to affect the expression of the museum's regional culture because of its large volume. While meeting the basic height of the room, it is also necessary to ensure the safety of cultural relics, and evenly divide the areas of different exhibits, so that too much of a certain collection can not lead to aesthetic fatigue of tourists(Kezia et al., 2021). In the part of transition space, square space should be adopted as far as possible, and the use of the same area or similar space will not produce the illusion of differentiation. Secondly, the understanding of regional characteristics should be combined with the window, roof, landscape wall and other aspects of the museum. For example, the roof design of the buildings in the Jiangnan area mainly adopts the characteristics of staggered height, so the museum in the Jiangnan area can adopt the decoration concept of polyhedron and design in equal proportion according to the characteristics of staggered height and height of the traditional roof. Add regional character to local museums. Although most of the current museums are subject to a certain degree of obstacles or difficulties, but at the same time there are opportunities, only by grasping the current development situation of the environment, design a museum that conforms to contemporary aesthetics.

### **CONCLUSION**

By summarizing the above four representative museums in China, we can understand the basic situation of museum interior design at present. Under the infiltration of local traditional culture, museums in each region can have the most direct understanding of the cultural deposits and historical thickness of various regions in China. Through discussing the expression methods of interior design of typical museums, the author has a deep

understanding of the style characteristics of interior design in various regions, and analyzes its excellent strategies to strengthen the development of modern information technology and traditional culture, the harmonious coexistence between man and nature, and the increase of tourists' experience and interaction, and better increase tourists' satisfaction through interior optimization design. Further enhance the social status and influence of museums. Only through continuous innovation, such as the combination of technology and art, can museums be full of prospects and hopes in today's digitalization and globalization.

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