

## **Research on Application of Light Art in the Construction of Creative City : The Case of China “Dreamy Wuhan” Lighting Show**

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### **Abstract**

The emergence and development of light art is established on the maturity of lighting technology and also combined with innovative technology and charm of art, which has been widely applied in the fields of night scene construction, exhibition and festival activities. As the element that is easiest to be captured and felt by vision, light is an essential part of the construction of creative city and gradually becomes a new design outlet in the construction of creative city. On the basis of this, taking China “Dreamy Wuhan” lighting show as an example, the paper analyses the path of light art in the construction of creative city, and also studies the integration of light creation and visual perception. It is expected to enrich the practical research of light art creation in the construction of creative city.

**Keyword:** Urban design; Creative city; Light art; Visual perception.

### **2. Introduction**

At present, a large quantity of industrial cities in China are facing the problem of urban transformation. Building a city driven by creative city and creative industries is one of the ways chosen by these industrialized cities. "The Creative City" is a clarion call for imaginative action in developing and running urban life (Landry, 2000). Like Yokohama, Japan, has revived itself as a city of art and culture through the development of creative industries (Sasaki, 2010). And the case study of Turin represents a typical example of an industrial town, trying to promote new urban representations at an international level, and celebrating ideas of a cultural, post-industrial economy through campaigns of urban branding (Alberto, 2008). Lighting, as an essential part of the construction of creative city, has received attention from all aspects. However, in the era of rapid technological development, traditional

lighting has also been unable to meet the increasing aesthetic needs of the public, in urgent need of artistic, scientific, characteristic and functional lighting to improve public satisfaction. To this end, a large number of Chinese cities, such as Hangzhou G20 summit night, Beijing "Forbidden City Shangyuan night" lighting show and so on, began to extend the landscape construction to the night landscape, lighting art level. In order to make the city culture and light art interact with each other, more efficiently and appropriately show the city context, and play a beneficial role for the construction of creative city.

### **3. The creative process of " Dreamy Wuhan " lighting show**

#### **2.1 The origin of creation**

Since China reform and opening up, with the introduction of advanced western civilization and modern lifestyle, cities have been keen to demolish the old and build the new. In such a tide of development, the image of a city is "the same as a thousand cities", and the problem of assimilation is serious and worrying. As a newly emerging megacity in central China, Wuhan cannot develop without industry and water. The city is crisscrossed by rivers, lakes and harbours, and the water area accounts for one quarter of the total area of the city, constituting the ecological environment of Binjiang and Binhu waters. Buildings along the river and the old concession stand in great Numbers, and different architectural forms restrict the city's cultural environment. A large number of tall buildings are designed according to the modern architectural style, lacking regional characteristics. At the same time, Wuhan's local urban culture cannot be seen in these dense public buildings along the river. Therefore, it is urgent to build a city with recognizable characteristics.

With the advent of the digital era, Light art has been used for heritage buildings to express their cultural, historical and visual importance (Zakaria, 2015). The application of it in the construction of creative city endows diverse possibilities for artistic creation. And it provides a new perspective for solving the current situation of monotonous urban construction in the early and middle stage of China urbanization. As one of the important contents of Wuhan Yangtze river's main axis landscape construction, China "Dreamy Wuhan" lighting show aims to break the dilemma of " the same as a thousand cities" of China urban construction. The lighting show involves a wide range of regions and many carriers, and its scale ranks the first in Chinese landscape lighting construction. The first phase of the "Dreamy Wuhan" project covers the Linjiang area at the core of the main axis of the Yangtze river, and the second phase is the expanded supplementary area. The core scope of lighting involves 510 buildings along the "two rivers and four Banks", 25 kilometers along the riverbank, and Bridges

across the river, etc. Intelligent monitoring and remote switch control are adopted, and wireless and wired networks involve more than 80 dedicated lines and 450 mobile points (data source: China Changjiang Daily, October 3, 2018 edition). Through the combination of cutting-edge lighting technology and animation, this lighting show shows the ancient and modern features, cultural history and urban fashion of Wuhan, enriches the animation content of night scenery on the two rivers and four Banks of Wuhan, and improves the lighting effect of the landscape on both sides of the Yangtze river (figure.1).



**Figure 1.** Scene Photo of China "Dreamy Wuhan" lighting show (Shot by Author)

## 2.2 Create content

There are many chapters in China " Dreamy Wuhan" lighting show, including Praise of National Day, City of Science and Technology, Four Seasons of Unreal Colors, Arms Preparation for Military Games, etc. Among them, Praise of National Day is the core representative of this series of works(Effective video screenshots such as figure. 2, 3). This work takes Praise of National Day as the theme, and selects fireworks, Chinese national flag, flowers and other festival typical and traditional elements to combine. Fireworks race to open like a meteor flash, forming a colorful visual feast of flowers. Red flag hunting sound in the autumn wind, the flag represents the blood of countless revolutionary martyrs dyed red, red blood ignited the patriotic enthusiasm of every Chinese . It embodies the three basic characteristics of National Day celebration, enhances national confidence, embodies cohesion and exerts appeal. The animated image of a wishing lamp is a symbol of the wishes of everyone in the city. The sky lamp rises slowly to the sky together, in order to pray the wish can realize. The whole work presents the happy and joyful atmosphere of National Day. Works in line with

the performance and festival mode, increase the lively atmosphere, form the colorful cheerful effect of the festive interpretation, let the festival appear colorful, highlight the beautiful life.



**Figure 2.** Screenshot of Chinese Theme Part Lighting Patterns (Drawn by Author)



**Figure 3.** Screenshot of Chinese Theme Part Lighting Patterns (Drawn by Author)

### **2.3 Technology overview**

Wuhan takes the lead in introducing the concept of "layered lighting" on lamp laying (figure.4). Namely, it has three modes of weekdays, weekends and large holidays, which realize layering, timing and directional switching on and off lights, and realize the progress of background computer operation and switching on and off lights with one key. It is also the predecessor of the three modes of static, performance and festival of "Dreamy Wuhan" lighting show. The "Dreamy Wuhan" landscape lighting adopts three modes of "static, performance and festival" to carry out unified and intelligent control of all lighting facilities in the region, so as to form a beautiful and quiet weekday night, timing theme performance dynamic charming, festive interpretation of colorful cheerful effect. The theme mode of multiple themes and the intelligent background system can ensure that the animation of two rivers and four rivers will not be repeated for two weeks. At the same time, in terms of energy conservation and environmental protection, all the lighting chips of China "Dreamy Wuhan" lighting show are provided by Osram, the world's top brand. LED is mainly used for dot matrix lighting, supplemented by partial floodlight lighting. The highly efficient lighting method has greatly reduced energy consumption, and the total energy consumption of lighting is expected to be reduced by 3,000

kw compared with the previous one, saving about 1 million US dollars in annual electricity cost (data source: China Changjiang daily, Oct. 1, 2017 edition).



**Figure 4.** A Silhouette of a Layered Building (Drawn by Author).

#### **4. Analysis on the value of " Dreamy Wuhan" lighting show**

##### **3.1 Economic value**

In the middle of the Yangtze river there are Zhiyin, Captain No. 9, Liangjiang Tour and other river pay lines. According to incomplete statistics, from October 1 to 3, the number of tourists who chose to take a boat tour of the river and see China Dreamy Wuhan reached nearly 30,000 (the data comes from Changjiang Daily Newspaper Group). And along the river in a number of points, the number of night tour with a family, friends called is also endless, injected new blood for Wuhan's night tour economy. This situation also drives the rapid development of tourism around Wuhan. From the above data and situation, we can know that the lighting show brings huge explicit and invisible economic benefits to Wuhan.

##### **3.2 Cultural value**

There are many chapters in the " Dreamy Wuhan" lighting show. By integrating Wuhan culture, red culture, bosom friend culture and dock culture into the picture, narrate and disseminate the past culture of the city in an intuitive and rapid way. To varying degrees, it guides social groups to have a deeper cultural understanding and cognition of the city. Taking urban culture as the starting point, the spirit and cultural atmosphere of the place should be remolded to maintain its unique urban characteristics and create its own spiritual place.

##### **3.3 Social value**

The footage of I love you China National Day lighting show on China central television news channel Oriental Time and Space also focuses on the night of the riverside in Wuhan. Together with Shenzhen,

Shanghai, Guangzhou, Beijing, Hangzhou, Xiamen and other cities, Wuhan "shows" the beauty of Wuhan lighting show all over the country and "shows" overseas through live broadcast. At the same time, the lighting show was also reported by many top media at home and abroad, such as People's Daily of China, Xinhua net of China and Hubei Daily .The information covers a wide range of areas, is highly valued by all parties, and has a strong social influence and communication degree.

## **5. The role of light art in the construction of creative city**

### **4.1 Rendering the festival atmosphere**

Ambient light has been utilized in different application domains and holds promises as a valuable and aesthetically pleasing information channel while at the same time being very unobtrusive and requiring minimal attention (Tscharn, 2016) . The atmosphere of light rendering has a decisive influence on people's psychological state and the artistic appeal of light environment. China " Dreamy Wuhan" lighting show is to show the city, the charm of the city and the love of the people of Wuhan for the motherland. Patriotism is always an important part of our spiritual culture, and there are many manifestations of patriotism. China " Dreamy Wuhan " theme lighting show highlights a strong patriotic atmosphere. It not only aroused the enthusiasm of the people in Wuhan, but also made the whole country feel the atmosphere through the live TV broadcast. And put this warm atmosphere of the National Day root in the hearts of the public.

### **4.2 Enriching civic life**

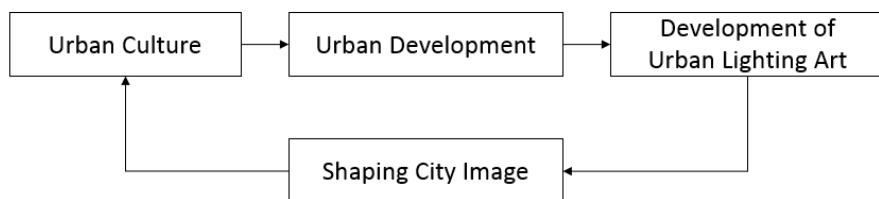
The invention of the incandescent light bulb extends life from day to night. The construction of light art enriches people's night life. Today, the principal contradiction in Chinese society has been transformed into the contradiction between the people's growing need for a better life and unbalanced and inadequate development. Lighting art enriches people's night life experience and provides a safe living environment. It is a manifestation of social value to improve people's livelihood. Light art can respond to different psychological demands, environmental conditions and the public's psychological expectations of the environment, and make targeted design. For example, to properly control this variable demand, to meet people's needs for a better lighting environment value through a variety of control systems. Lighting can also make use of the characteristics of space carrier, expand the time depth and scene width of resources, improve the efficiency of resources, and give more value to the living space of citizens.

### **4.3 Improving environmental quality**

The comprehensive environmental quality of a city depends on all kinds of environmental factors in the city, including the quality of the functional environment of facilities, the quality of the urban social environment, the quality of the urban spiritual environment, and the quality of the urban natural environment, etc. With the rapid development of urban economy and the improvement of people's aesthetic awareness, urban night lighting has become an indispensable part of the improvement of creative urban environment. To some extent, urban light art has become a window to show the image of a city and a symbol to measure the overall development level of a city. As an important part of creative urban planning and environmental construction, it not only reflects the economic prosperity of a city, but also reflects its cultural temperament and civilization. It has been paid more and more attention by the government and the public. Through the transformation of the night scenery on both sides of the river, China " Dreamy Wuhan" lighting show improves the environmental quality of the space along the river in Wuhan and further improves the quality of the urban environment.

### **4.4 Shaping the image of the city**

The culture of a city is the long-term development and accumulation of its history, determined by its natural environment, spatial characteristics, people's characteristics and many other elements. As an artistic image carrier, light art spreads the cultural image of a city through various forms of carriers and spreads the image and characteristics of a city subtly. The maturity of city image makes the function and strategic significance of light art and even lighting show to spread cultural image clearer (figure. 5). Different cities have different light and shadow performance. For example, first-tier cities like Shanghai and Beijing in China will set various lighting effects on the buildings in their blooming central areas. The lighting effect of the bund and the Oriental pearl is the representative of Shanghai. Whenever people refer to the lighting pattern of the Oriental pearl, they will associate it with Shanghai. In China " Dreamy Wuhan" series of urban lighting ideas, the effect of the " Dreamy Wuhan" theme lighting show is deeply shocking. At the same time, this is the unique lighting shape of Wuhan, which represents the creative design of Wuhan. The form of light art makes the city's cultural image concentrated and representative cultural expressed, and improves the city's cultural quality, artistic repair and self-feelings.



**Figure 5.** Cyclic Graph (Developed by Author).

## 6. Conclusion

Under the background of the new era, the construction of creative city is in full swing. We should learn how to use art to lead urban construction, rely on such a way to urban cultural Renaissance, promote the soul of urban culture to be shown in the light art, reshape the spiritual place of the city, tell the life course of the city, increase people's sense of belonging and identity, and build a truly vibrant city. The exploration of China "Dreamy Wuhan" lighting show is a beneficial attempt. It can serve as a reference for both LED display characteristics and multimedia content design of high-rise buildings. It also provides a paradigm for lighting show design and planning of middle and high-rise buildings in creative city.

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