

# Analysis on the Source of Vitality of the Public Space of Citizen Center

## Take the survey of Shenzhen Civic Center as an Example

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### ABSTRACT

The Shenzhen Civic Center, as the city's public space with the highest traffic volume, has extremely high urban vitality. This article takes Shenzhen Civic Center as an example to study the source of vitality of the public space of the Civic Center, in order to provide a reference for the future construction of the public space of the Civic Center. This study used a combination of PLPS survey method and qualitative analysis to conduct on-site investigations on the spatial quality and crowd activities of Shenzhen Civic Center and its surrounding areas. According to the analysis of the evaluation results, the main source of vitality of the public space of the civic center is obtained, and then the design strategy of the public space of the comprehensive civic center is summarized.

**Keywords:** component, Urban public space, spatial vitality, PLPS survey method, built environment

### 1. INTRODUCTION

Over the past ten years, the construction of comprehensive civic cultural centers has been a trend in the construction of urban public spaces in China. However, a large number of newly-built civic cultural centers have problems such as low vitality of public spaces and less civic activities. Since the opening of Shenzhen Civic Center in 2004, it has been carrying a wide variety of public activities for citizens, and it has extremely high spatial vitality. This article takes Shenzhen Civic Center as an example to study the source of vitality of the public space of the Civic Center, in order to provide a certain design strategy for the public space of the Civic Center in the future.

### 2. RESEARCH OVERVIEW

Shenzhen Civic Center is located in the northern area of Futian Central District, Shenzhen. It covers an area of 910,000 square meters. Together with the Lotus mountain in the north and the business center in the south, it forms a dazzling central axis of the city.

The research scope of this investigation is a block enclosed by Fu hua Road on the south side, Hong li Road

on the north side, Yi tian Road on the west side and Jin tian Road on the east side of the area. Taking Fu zhong Road and Fu zhong 3rd Road as the dividing line, the block is divided into the green square area on the south side (Node I), the civic center square area on the central side (Node II), and the cultural square area on the north side (Node III).



Figure 1. Node I \ Node II \ Node III

### 3. RESEARCH METHODS

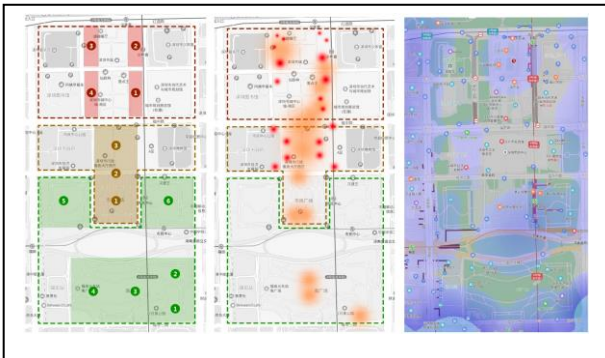
This survey uses a combination of quantitative PLPS survey methods and qualitative analysis to investigate the dynamic conditions of Shenzhen Civic Center and its surrounding areas.

PLPS (Public Space Public Life Survey) survey method is an assessment method for the quality of urban public space and the quality of citizens' public life. It was

first proposed by Mr. Yang Gale, and aimed at various scales and types of public spaces in cities, with the core being people and human activities. Its goal is to explore the relationship between the space environment and public life through the study of citizens' activities in public spaces. In terms of specific operations, the PLPS survey method is composed of map marking method, field counting method, field investigation method and interview method.

**4. QUANTITATIVE ANALYSIS**

According to the on-site investigation, the visual vitality distribution diagram and thermal distribution diagram of the research object were summarized, and the observation point of the research was finally determined. There are 6 observation points of Node I, 3 observation points of Node II, and 4 observation points of Node III. The selected time period for this survey is 5 minutes from 15:00 to 16:00 on weekends. Quantitative analysis is carried out from the three aspects of activity crowd, public facilities, and behavioral activities.



**Figure 2.** Distribution of public space and observation points, visual vitality distribution map, heat distribution map

**4.1. Crowd**

Through the on-site counting method, the age structure of the people in the observation point is divided, and the stay and movement of the people are observed.

From the statistical data of the tables, nodes two and three both show high spatial vitality. And nodes one and two are mostly spontaneous public activities. Observation points 3 inside nodes 1, 2 and 3 all show relatively high spatial vitality in their respective nodes. According to the proportion of the number of people staying in each observation point to the total number of active people, the observation point 6 of node one and the observation point 3 of node three show high spatial viscosity. Observation points 2 and 3 of node 2 and observation point 4 of node 3 have a higher total number

and a higher proportion of flow, showing a certain potential vitality.

**TABLE 1.** Node I Statistics Table of the Number of Crowd

Node I	observation point 1		observation point 2		observation point 3	
	stay	move	stay	move	stay	move
	4	21	6	7	56	38
	25		13		94	
Node I	observation point 4		observation point 5		observation point 6	
	stay	move	stay	move	stay	move
	29	21	0	0	150	38
	50		0		188	

**TABLE 2.** Node II Statistics Table of the Number of Crowd

Node II	observation point 1		observation point 2		observation point 3	
	stay	move	stay	move	stay	move
	54	72	7	150	66	232
	126		157		298	

**TABLE 3.** Node III Statistics Table of the Number of Crowd

Node III	observati on point 1		observati on point 2		observati on point 3		observati on point 4	
	sta y	mo ve	sta y	mo ve	sta y	mo ve	sta y	mo ve
	153	143	157	341	624	365	67	203
	296		498		989		270	

**4.2. Public Utilities**

According to the types of facilities in the site and the type of interaction between facilities and people, the facilities in the site are divided into recreational facilities (seats, landscape stone benches, landscape steps, etc.), landscape facilities (landscape sketches, artificial water bodies, etc.), and interactive facilities (landslide, wading pools, roller skating slopes, etc.) and art facilities (sculptures, art galleries, performance venues, etc.). Count the types and numbers of facilities at each observation point through the on-site counting method and on-site inspection method.

**TABLE 4.** Statistics on the number of public facilities

Location		Facilities Type			
		recreatio nal	landsc ape	interacti ve	art
Node I	Point 1	8	1	0	0
	Point 2	3	0	0	0
	Point 3	0	2	0	0
	Point 4	4	0	0	0
	Point 5	0	0	0	0
	Point 6	1	0	0	0
Node	Point 1	6	1	0	0

Location		Facilities Type			
		recreational	landscape	interactive	art
e II	Point 2	2	2	0	0
	Point 3	2	0	8	1
Nod e III	Point 1	46	3	4	0
	Point 2	83	4	1	0
	Point 3	72	0	4	10
	Point 4	58	0	0	1

It can be seen from the table that a small number of public facilities are distributed in nodes one and two, and most of them are concentrated in node three.

For node 1, there are fewer public facilities at each observation point, resulting in a smaller number of active people at each observation point. The configuration is dominated by rest facilities, mostly benches. For node two, observation points 1 and 2 are squares, and crowd activities are not attached to public facilities. Observation point 3 has attracted a large number of dance enthusiasts to practice due to the stable microclimate created by the large roof and the projection of the glass curtain walls of the surrounding buildings. For node three, the four observation points have a certain amount of rest space. Observation points 1, 2, and 3 equipped with landscape, interactive and artistic facilities show relatively high spatial vitality and viscosity. Due to the large number of public welfare and commercial planning activities and art performances in Observation Point 3, it exhibits extremely high spatial vitality and stickiness.

**4.3. Activity**

Static social behaviors include observation, rest, recording (photographing, photography, sketching, etc.) and reading (including electronic information reading and physical information reading); dynamic social behaviors include conversation, entertainment, walking, performance, and commodity trading. Through the field investigation method, record the crowd behavior activities of each observation point, understand the behavior preferences of each crowd and the influence of the diversity of behavior activities on the vitality of the space.

**TABLE 5.** Crowd static behavior statistics table

Location		Observation	Rest	Record	Read
Nod e I	Point 1	√	√	√	
	Point 2	√	√	√	
	Point 3	√	√	√	
	Point 4	√	√		√

Location		Observation	Rest	Record	Read
	Point 5				
	Point 6	√	√		
Nod e II	Point 1	√	√	√	√
	Point 2	√	√	√	
	Point 3	√	√	√	
Nod e III	Point 1	√	√	√	√
	Point 2	√	√	√	√
	Point 3	√	√	√	√
	Point 4	√	√		

**TABLE 6.** Crowd dynamic behavior statistics table

Location		Talk	Entertainment	Walk	Performance	Trading
Nod e I	Point 1	√		√		
	Point 2	√		√		
	Point 3	√	√	√		
	Point 4	√		√		
	Point 5					
	Point 6	√		√		
Nod e II	Point 1	√	√	√	√	
	Point 2	√	√	√		
	Point 3	√	√	√	√	
Nod e III	Point 1	√	√	√		
	Point 2	√	√	√		
	Point 3	√	√	√	√	√
	Point 4	√	√	√		

It can be seen from the table that nodes two and three have more dynamic social behaviors. The type and quantity of public facilities also determine the diversity of social behavior to a certain extent. Observation points 3 of nodes 1, 2 and 3 all have relatively abundant public activities. The higher the diversity of crowd behavior activities in public spaces, the higher the possibility of crowd activities, and the easier it is to generate new sources of spatial vitality.

**5. QUALITATIVE ANALYSIS**

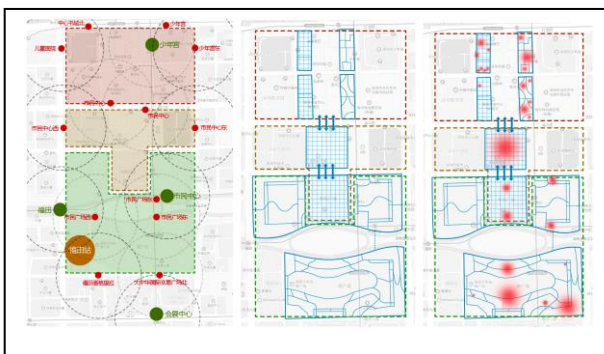
**5.1. Urban context**

For the three nodes, the analysis is carried out from the context of the three dimensions of natural environment, urban form and cultural symbols. Node 1 is

an urban green space park. Due to the higher planting density of trees and the lower terrain, it weakens its axis relationship and the ability to perceive the surrounding urban form from the perspective of people. The second node includes the Civic Center Plaza and the overhead plaza. You can enjoy the urban form of Lian hua Mountain and Futian core area without any obstruction. At the same time, the roof of the main building of the Civic Center echoes the urban cultural symbols of Shenzhen. The third node is the city square, which has a good view of Lian hua Mountain, but has a weaker ability to perceive the urban form of Futian District. Based on the above analysis, the second node has the closest connection to the urban context, and the dimension embodied in the region is also higher. The first node is relatively weaker than the third node.

**5.2. Accessibility**

It can be seen from the figure that the road traffic conditions in the surrounding cities of the three nodes are similar, and the connection with the city is relatively high. Node 1 lacks a north-south streamline corridor internally, the streamline density is low, and the network formation rate is also low. The fitting degree of the spatial node of the event to the pedestrian flow line network is also low, and the overall accessibility is poor; most of the pedestrian flow lines of node 2 are free flow lines, and the nodes where the event occurs are distributed along the spatial boundary, and there is almost no There is flow resistance. The spatial accessibility is high; the streamline density and streamline network formation rate of node three are both high, and the event nodes are combined with free distribution and design nodes, and the node accessibility is high.



**Figure 3.** Distribution of bus nodes, road network shape, and event node distribution diagram of each node

**5.3. Microclimate**

Node 1 is dominated by large areas of urban green space and tree planting, with large shade spaces and small natural water bodies, providing better shading and natural temperature regulation effects. The overall

microclimate is relatively stable; node two is only planted with a small number of street trees around, and part of the overhead square has a large covered roof and an air duct enclosed by the building volume. It has stable sun and rain effects, and the overall microclimate is stable and pleasant; there are a small amount of arcade space, tree shade and artificial water in the three parts of the node, but most of the space is directly exposed to natural light, heat, and wind. The microclimate stability is average.

**6. SOURCE OF SPACE VITALITY CONCLUSIONS**

The foundation of urban context based on the Shan shui axis and the urban axis. The public space of Shenzhen Civic Center has an excellent ability to perceive the urban form of Futian Central District. The unique shape of the public space also creates unique cultural symbols. The civic center strengthens the people's cultural identity and sense of belonging to the place, and lays the foundation for the improvement of the vitality of the civic center.

Mixed planning of public service facilities and highly accessible transportation planning. The Shenzhen Civic Center area has achieved a high degree of functional mixing in the functional group. The distribution density of urban public transportation nodes in the area is reasonable, and the urban transportation planning with relatively high accessibility is an important transportation basis for the gathering of people in the public space of the civic center.

Stable and comfortable activity environment and diversified public facilities. The Civic Center creates a good external environment for crowd activities through a stable and comfortable microclimate environment. The civic center is equipped with a large number of public facilities, which provides an important material foundation for the generation and diversity of crowd activities.

Open policy support. Shenzhen is highly open and inclusive. Shenzhen is highly open and inclusive. Regarding the spontaneous gathering activities of citizens, the government has not interfered or prevented too much. Openness and protection of public space recreation are important guarantees for the dynamic renewal of urban public spaces and the promotion of the development of more new forms of public life.

The comprehensive civic cultural center is an increasingly important form of urban space in the development of today's era. The Citizen Cultural Center is not just a pure material space, it contains the regional humanities of the city and carries the dynamic development of the city in the future. Through the investigation and analysis of Shenzhen Civic Center, the following four design strategies for the public space of

the Civic Center are derived: close contact with the urban context and fully demonstrate the city's regional characteristics; rationally plan traffic elements and organically mix group functions; create a stable and comfortable micro Climate, the allocation of diversified public facilities; to enhance the inclusiveness of policies, to protect the people's benign space for re-creation. Through the research on the public space of Shenzhen Civic Center, this article hopes to provide a certain reference for the construction of Civic Center in the future. It is hoped that the comprehensive Civic Center in the future will become a gathering place and creative place for civic activities.

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