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## Large scale olympic buildings surplus value extensification and its development planning study

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### ABSTRACT

Since opening –up and reform, China has made constant innovation and progress in every aspect, China hosted Olympic Games in Beijing in 2008 has let China's impacts in the world to be increased, newly-built all kinds of buildings in the Olympic Games have also become one of the focus buildings in the world. The paper studies all kinds of buildings during 2008 Olympic Games from the perspective of large scale Olympic buildings post-game surplus value extensification and development plan, and makes concrete statements on Venues natural conditions, interior management, government supports and symbolic significances. By statistics perspective analyzing, and relative numerical computation, finally it gets conclusions that in interior management factors, service quality is one of the crucial item in interior management, is an important factor that affects large scale Olympic buildings post-game utilization and development planning; in government supports, governmental investment occupies larger proportion; in symbolic significances, statements on the national culture is the key to affect large scale Olympic buildings symbolic significances. All above analytic factors decide large scale Olympic buildings post-game surplus value extensification and its development planning orientations from different degrees.

### KEYWORDS

Large scale olympic buildings; Surplus value; Development plan; Statistics; Sports industry.



## INTRODUCTION

Since opening-up and reform, China has gradually grown up and become world power, it has joined in the rank of the world no matter in economics, military, sports, or education, all countries in the world have also changed their attitudes towards China from previous “the sick men of China” to nowadays “the lions of Asia”, thereupon, China’s strength has obtained affirmation and blessings from all people in the world, China has gradually become a world power.

Large scale Olympic building is one of buildings of representative significances constructed during Olympic Games; it not only stands for the national traditional culture, but also is a reflection of a nation’s strength. Several large scale Olympic buildings during China’s 2008 Olympic Games present Chinese culture from different perspectives, its post-game surplus value development and extensification have become a focus of current Olympic Games post-game works. With respect to this, lots of scholars have made theoretical researches. Such as, Ma Jun-Feng in the article “Beijing 2008 Olympic Venues temporary scenes construction and utilization”, analyzed Olympic Games value reflection from temporary scenes constructive perspectives, through discussing temporary scenes importance in Olympic Games organization and post-game utilization, and its utilization status, affirmed temporary scenes importance. The thesis pointed out that Olympic buildings were the key in the whole Olympic Games, but temporary scenes also provided very convenient tourism resources for tourists from all countries in the world, after Olympic games ending, these temporary scenes should be sufficiently utilized, and meanwhile they also had very high utilization value. And as Yu Jian-Hui in the article “Olympic Venues survival and development”, from the perspective of survival and development, it put emphasis on analyzing Olympic Venues utilization issues before, during and after the game, proceeded with development and utilization for different Olympic Venues values to different degrees, were important issues that current Olympic Games group work staffs should solve and consider. The thesis pointed out every large, medium, small sized Olympic stadium survival conditions, and put forward that reasonable utilizing and developing these Venues resources and values were quite crucial.

The paper makes theoretical analysis of large scale Olympic buildings post-game surplus value extensification and development planning, respectively makes statements from Venues natural conditions, interior management, government supports, and symbolic significances to different degrees, and carries out concrete researches from statistics and numerical analysis two orientations, and further gets Venues natural conditions, interior management, government supports, symbolic significances’ importance in large scale Olympic buildings post-game surplus value extensification and development planning.

## MODEL ESTABLISHMENTS

### **Influence factors statistics**

Bird’s nest, water cube, national stadium, the Olympic Green and others are basic buildings, these buildings not only mix with Chinese traditional cultural factors, but also combine with Olympic Games spirits “faster, higher, stronger”. During 2008 Olympic Games planning period, China designed and built many buildings of Chinese traditional cultural culture symbolic significances and unique architectural styles, but these large scale Olympic buildings proceeding with Olympic Games post-game surplus value development and development planning become top priority in current China. For these large scale Olympic buildings, main causes that affect their planning and development, surplus value utilization, now conclude them into following points:

### **Venues natural conditions**

Venues natural conditions refer to large scale Olympic building construction period, its basic design, including buildings positions, building style, covered building areas, building types, admissible population, total investment and other basic information, these basic contents about buildings have become the value utilization and development constraint key factors in Olympic buildings post-game utilization process, so it should be taken into consideration.

### **Interior management**

Interior management refers to large scale Olympic buildings’ interior management mechanism, including personnel allocation, institutions setting, service quality, administrative rules, and personnel education degree and so on. In large scale Olympic buildings management procedures, all these factors are the key to affect their development. Only good management and operation modes can give maximum large scale Olympic buildings values into play, then continue to perform Olympic buildings surplus value after Olympic Games ending.

### **Government supports**

Government supports refer to government attitudes during large scale Olympic building design, implementing building, post-game value development, continuous utilization process, from which they include government investment, management strength, before and after game publicity and post-game surplus value development on large scale Olympic buildings. Government construction implementation in large scale Olympic buildings, especially in post-game reutilization process, it plays a very important role, is a leader.

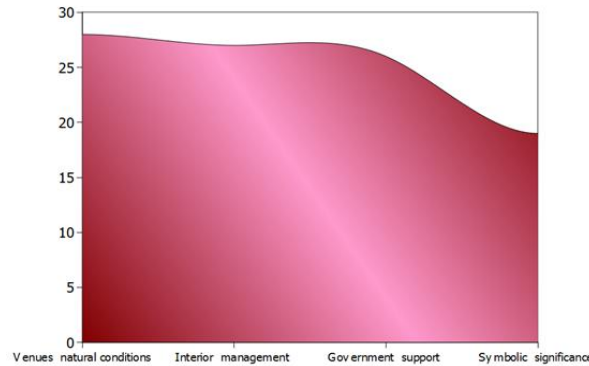
### **Symbolic significances**

Any building has its unique symbolic significances, which is one kind of buildings final constructive significances and objectives; value in the constructive significances levels is an affirmation to one building. Building symbolic significances mainly include connotation on building styles, statements on the national culture, and discussion on building itself characteristics. By buildings constitution, form and other exterior factors, they present buildings’ interior definitions to everyone.

**TABLE 1 : Influence factors statistics**

	Venues natural conditions	Interior management	Government supports	Symbolic significances
Percentage%	28%	27%	26%	19%

Above TABLE 1 is statistics of large scale Olympic buildings post-game utilization and development planning influence factors, from which percentage refers to statistical investigation results.



**Figure 1 : Factors affecting the statistical**

By analyzing Figure 1, it can get conclusions:

- (1) Venues natural conditions are still one of most important items in four investigation factors, because only buildings themselves being well built then can have bigger surplus values to be performed.
- (2) Interior management similarly also an important factor that affects large scale Olympic buildings post-game utilization and development planning, only sound and qualified management then can let large scale Olympic buildings to run normally.
- (3) Government supports and symbolic significances percentages in statistics are relative smaller, but they are still important factors that affect large scale Olympic buildings post-game utilization and development planning, during large scale Olympic venues operation and value development process, it should consider the two points.

**Venues natural conditions**

Large scale Olympic building’s location of building, building style, buildings areas covering, buildings types, the amount of people that accommodates, total investment and other basic designing, all are large scale Olympic buildings post-game utilization procedures their values utilization and development constraint key factors. In analyzing large scale Olympic venues natural conditions process, it should analyze these factors and then give large scale Olympic venues into full play.

**TABLE 2 : Venues natural conditions**

	Percentage%
The location of the building	18.8
Building style	14.2
Building areas covering	14.7
Building type	19.4
The amount of people that accommodates	17.5
Total investment	15.4

Make a summary of above statistics TABLE 2 results, analyze Figure 2 and it can get following results:

- (1) In large scale Olympic venues natural conditions, building types decide their future utilization orientations and values, so they occupies the maximum proportion;
- (2) Secondly, the location of building similarly also exert huge impacts on large scale Olympic venues post-game utilization and development, its location decides traffic issues, and traffic as the key to any building development naturally becomes the key that restrict large scale Olympic venues post-game utilization and development;
- (3) Besides, the amount of people that accommodates is also an important factor, large capacity admissible population could stimulate tourists and visitors consumption to provide sufficient fields for consumers;
- (4) With respect to above three factors, building style, building areas covering, total investment are also relative important factors, when considering venues natural conditions, these must be focused on.

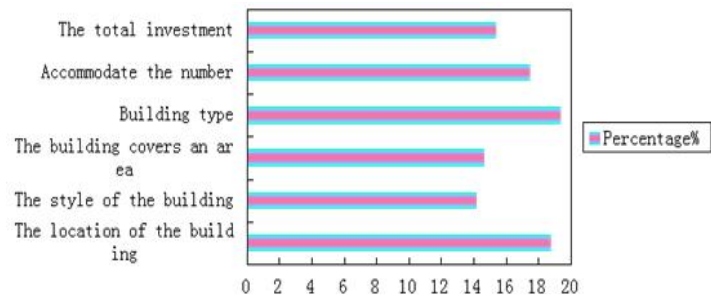


Figure 2 : Venues natural conditions

With respect to this, it makes further SPSS analysis of above data, utilizes *Kolmogorov–Smirnov* test to research and further gets following TABLE 3 conclusions:

TABLE 3 : Single sample *Kolmogorov–Smirnov* test

		Percentage%
Normal parameter <sup>a,b</sup>	N	6
	Mean value	16.667
	Standard deviation	2.2033
The most extreme difference	Absolute value	.217
	Positive	.217
	Negative	-.167
	Kolmogorov-Smirnov Z	.532
	Asymptotic significance(bilateral)	.939

a. Test distribution is normal distribution.  
 b. Obtain according to data computation.

SPSS analytic conclusions are as following

- (1) In the location of building, building style, building area covering, building types, the amount of people that accommodates, total investment six large scale Olympic buildings influential venues natural conditions, their *Kolmogorov–Smirnov* = 0.532, bilateral asymptotic significance is 0.939;
- (2) By statistical results, it is clear that for venues natural conditions data analysis, its data conforms to standard normal distribution, normal parameters are as above table described.

By analyzing, and get following analytic Figure 3:

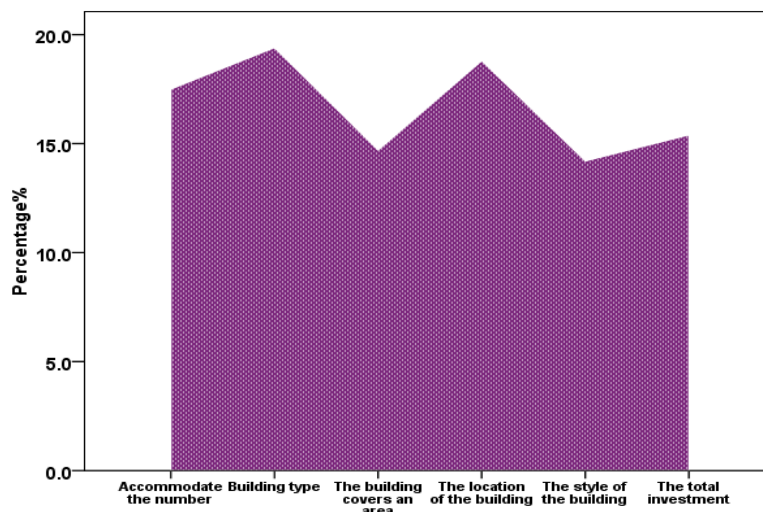


Figure 3 : The results

Above SPSS analysis more affirms statistics analytic conclusions that is in large scale Olympic venues natural conditions, building types decide their future utilization orientations and values, the location of buildings similarly exert huge effects on large scale Olympic venues post-game utilization and development, big capacity admissible population could more stimulate tourists and visitors consumption. All these factors are key factors that should be focused on.

**Interior management**

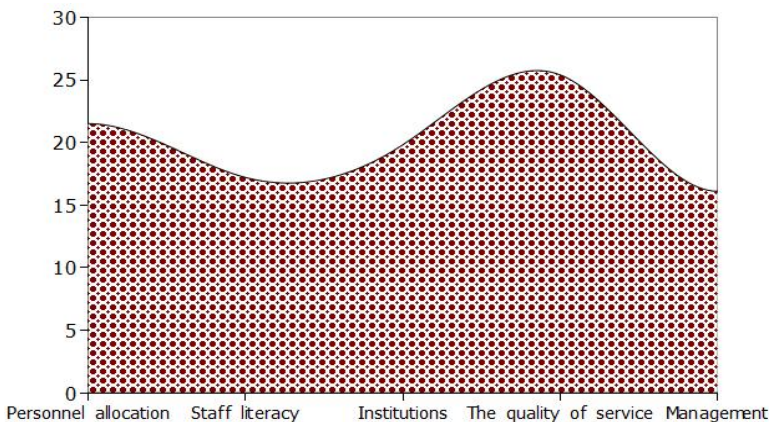
Large scale Olympic buildings’ interior management mechanism, including personnel allocation, institutions setting, the quality of service, administrative rules, staff education degree and so on that are very important for the post-game surplus value development. Good management and operation modes then could bring Olympic buildings surplus value into full play.

**TABLE 4 : Interior management**

	Percentage%
Personnel allocation	21.5
Staff education degree	17.2
Institutions setting	19.8
The quality of service	25.4
Administrative rules	16.1

Make a summary of above statistical TABLE 4 results, and get analytic Figure 4:

- (1) In large scale Olympic buildings’ interior management factors, the quality of service is the most crucial and also most important factor, because the quality of service decides large scale Olympic buildings future operation, service directly affects its exterior images, thereupon, its occupied evaluation proportions are also higher;
- (2) Secondly, personnel allocation is also very important, because personnel allocation status decides large scale Olympic buildings future management process its management level and management standard;
- (3) Besides, institutions setting is also quite important, only sound institutions setting could let large scale Olympic buildings management to run normally;
- (4) Though staff education degree, administrative rules evaluation proportions are smaller, they are still important factors that affect large scale Olympic Games interior management.



**Figure 4 : The interior management**

With respect to this, it makes further SPSS analysis of above data, utilizes *Kolmogorov-Smirnov* test to research, and further gets following TABLE 5 conclusions:

SPSS analytic conclusions are as following:

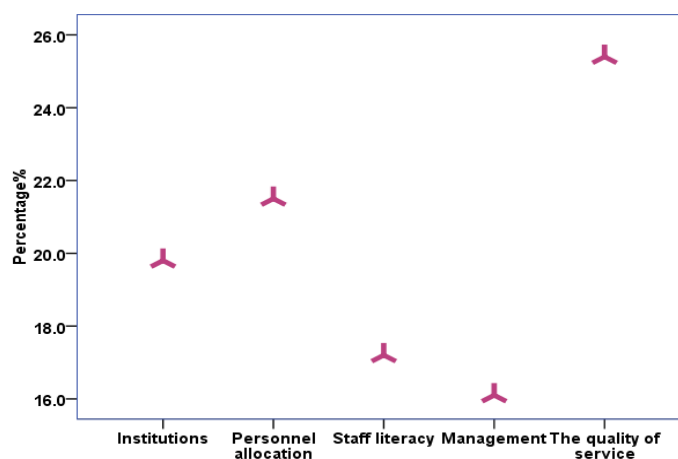
- (1) In personnel allocation, institutions setting, the quality of service, administrative rules, staff education degree five large Olympic buildings construction influential interior management factors, *Kolmogorov-Smirnov* = 0.393, bilateral asymptotic significance is 0.998.
- (2) By statistical results, it is clear that for interior management factors data analysis, its data conforms to standard normal distribution, index parameters are as above table described.

By analyzing, it gets following analytic Figure 5:

**TABLE 5 : Single sample Kolmogorov–Smirnov test**

		Percentage%
Index parameter <sup>a,b</sup>	N	5
	Mean value	20.000
	Standard deviation	.553
The most extreme difference	Absolute value	.281
	Positive	-.553
	Negative	1.236
	Kolmogorov-Smirnov Z	1.236
	Asymptotic significance(bilateral)	.094

a. Test distribution is index distribution.  
b. Obtain by data computation.

**Figure 5 : The results**

By above statistics perspective analysis, and then it more affirms:

- (1) The quality of service is the key to decide large scale Olympic buildings post-game operation exterior images, only improves the quality of service then can attract more tourists;
- (2) Personnel allocation status decides large scale Olympic buildings management level and management standard level in post-game management process, only promotes management quality to higher level is the highest end of management;
- (3) Sound institutions setting, promote staff education degrees, and sound administrative rules are similarly the key to large scale Olympic buildings post-game operation.

### Government supports

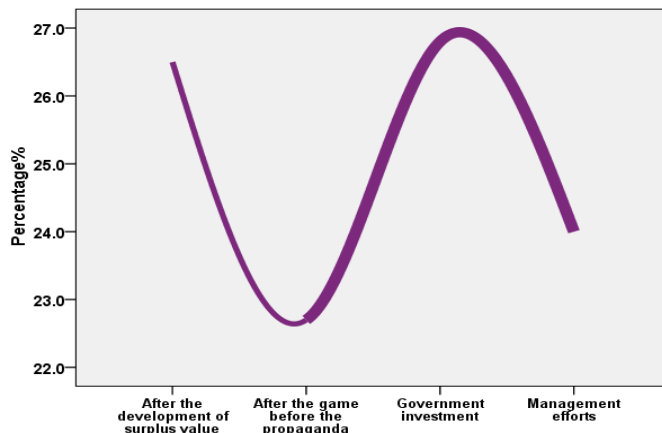
Government investment, management strength, before and after the game publicity, post-game surplus value development on large scale Olympic buildings is the key to government design, implement, post-game value development and continuous utilization on large scale Olympic buildings. No matter large scale Olympic buildings spend on constructing, or its post-game surplus value utilization, government is the leader. Therefore, government functions among them cannot be underrated.

**TABLE 6 : Government supports**

	Percentage%
Government investment	26.8
Government management strength	24.0
Before and after the game publicity	22.7
Post-game surplus value development	26.5

Make a summary of above statistical TABLE 6 results:

- (1) When analyzing large scale Olympic buildings government supports such factor, government investment occupies larger proportion that is 26.8%;
- (2) Secondly, post-game surplus value development similarly also is one of crucial items in government supports and government attitudes, its proportion is 26.5%;
- (3) Government management strength, publicity on large scale Olympic buildings before and after the game, though proportions in government supports are smaller than government investment and post-game surplus value development, they still occupies certain proportions and should be also taken into sufficient consideration in government supports.



**Figure 6 : The government's support**

By analyzing Figure 6 from above statistical perspective, it gets following conclusions:

- (1) Government investment is the key to affect large scale Olympic buildings, only sufficient investment and preparation could ensure buildings schedule and implementation;
- (2) Post-game surplus value development is higher level value utilization in large scale Olympic buildings, the item plays very crucial roles in government supports factors;
- (3) Government management strength, publicity on large scale Olympic buildings before and after the game are also similarly an item in large scale Olympic buildings surplus value extensification and development planning procedures that cannot be ignored.

**Symbolic significances**

For annotation on building styles, statements on the national culture, discussion on buildings themselves characteristics, all are symbolic significances in buildings. No matter which kinds of buildings, all have their own unique symbolic significances; symbolic significances are one building final constructive significances and constructive objectives.

**TABLE 7 : Symbolic significances**

	Percentage%
Annotation on building style	32.2
Statements on the national culture	34.3
Discussion on buildings themselves characteristics	33.5

Make a summary of above statistics TABLE 7 results and Figure 7:

- (1) In statistics of symbolic significances, statements on the national culture is the key to affect large scale Olympic buildings symbolic significances, it proportion is 34.3%;
- (2) Secondly, discussion on buildings themselves characteristics occupied proportion is 33.5%, which is just next to buildings style annotation, thereupon buildings themselves characteristics are also the key to affect buildings significances ;
- (3) For building styles annotation, though its occupied proportion is the minimum one, building style decides buildings post-game utilization value and utilization way.

By analyzing from above statistics perspective, and then it further more affirms:

- (1) Statement on the national culture is the key to affect large scale Olympic Games symbolic significances, a kind of buildings with more profound national characteristics, it could attract more audiences;
- (2) Discussion on buildings themselves characteristics is a kind of final reflection of buildings, whether can better reflect buildings themselves characteristics is one of large scale Olympic buildings construction purposes;

- (4) Annotation on buildings styles similarly as one of factors that should be considered in large scale Olympic buildings constructing moment, it also makes contributions to buildings post-game value.

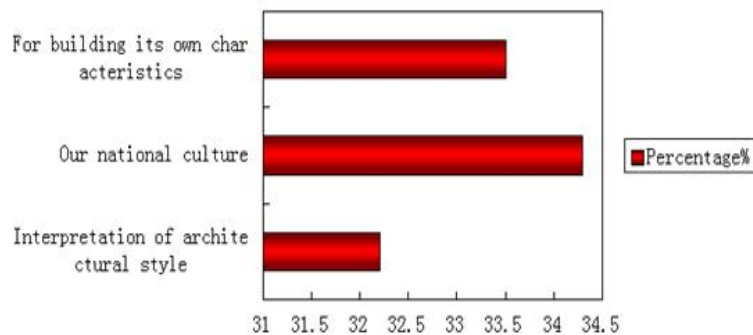


Figure 7 : Symbolic significance

### CONCLUSION

The paper studies factors that affect large scale Olympic buildings post-game surplus value extensification and development plan, firstly it makes comprehensive statistical analysis, and on this basis, it respectively makes concrete statements on venues natural conditions, interior management, government supports and symbolic significances:

- (1) Venues natural conditions are still one of most important items in four investigation factors, from which in venues natural conditions, buildings types decide large scale Olympic buildings future utilization orientation and value;
- (2) Interior management similarly also is an important factor that affects large scale Olympic buildings post-game utilization and development planning, and the quality of service is one of most crucial item in interior management;
- (3) Government supports importance is relative weaker, but is also very important, from which government investment occupies larger proportions;
- (4) Symbolic significances percentage in statistics is relative smaller, but they are still important factors that affect large scale Olympic buildings post-game utilization and development planning, here statements on the national culture is the key to affect large scale Olympic buildings symbolic significances, and also the most fundamental factors.

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