

THE DIGITAL CITY MANAGEMENT SYSTEM IN HANGZHOU AS A PRACTISE OF URBAN GOVERNANCE IN CHINA

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ABSTRACT: During City Regeneration Program of Hangzhou, a Digital City Management System was created in order to improve the effective of city management. The system is a significant part in regeneration program. The system realized the digital-object, digital-subject and digital-component. It is a public participable system, which integrated and distributed city resource in an equal way. It is a system guided by city governance concept. The practice will help the complex city create a new harmonious management mechanism.

KEYWORDS: Digital City Management System, Urban Governance, Public participation, Integrate resource, Hangzhou

1. INTRODUCTION

1.1 Present Situation

During the first 20 years of reform and opening, Hangzhou's modernization is mainly depending on the development of industrialization. At the end of 2000, the total GDP had reached 138 Billion RMB (\$16.7Billion), 22342RMB (\$2725) per person. However, the urbanization level is Uncoordinated with economic and social development. Therefore, the urban regeneration projects in Hangzhou have begun. In last decade, there are great progresses in material aspect. In order to continue to develop and maintain the results, the government needs to improve urban management methods.

1.2 Disadvantages

Last century, the city management method in Hangzhou remained a traditional model which focuses on Cleaning and Greening.

The traditional city management methods can not afford the new century's needs any longer. Beyond Cleaning and Greening, as a complex program, management's field covers city planning management, infrastructure management, urban traffic management, urban ecology management, urban habitation management, economic management, social management, etc.

In traditional management, executive order is the primary means. Public participation in city management was still in a low level (Fig.1). It is opposite to current universal values. Nowadays, public concerned about every aspect of city management, especially in public transport, parking, water support and infrastructure. New management methods need to be people-oriented and focuses on the humanistic spirit. It will call for public participation not only the city government but also the individual and other organizations.

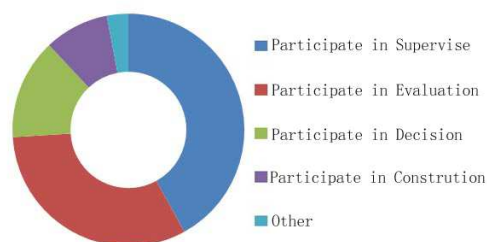


Fig.1 The Citizen's Participation

As a traditional management method, there was a shortage in effective resource allocation. It has resulted in an un-synchronized phenomenon that the urban expansion is faster than construction of infrastructure and service provide. An inefficiency will serious restrict the resident’s life quality.

1.3 Challenges in digital era

In the new century, Globalization, Reterritorialisation and Informatization are three key words in city development. The existing management system has been put in front of challenges. The ordinary management system has its own boundary and resources, however, the diversity of public ask for differences in demand (Fig.2) and equitable distribution of resources. And the limitations of the present management system cannot keep up with the pace of open-development of Hangzhou city. So it is urgent to set up a new city management system.

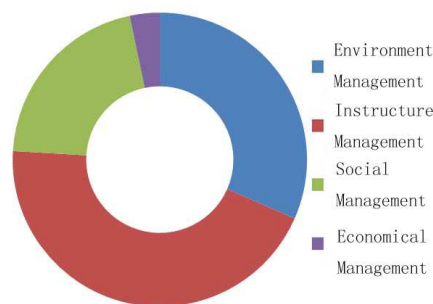


Fig.2 The Citizen’s Needs in Management

2. THEORY

Therefore, a new management system, which put City Governance idea, Sustainable Development concept and Digital Cities together, has been created during the Hangzhou City Regeneration Program.

2.1 Governance (Management) of Metropolitan

Different from traditional city management, City Governance is a higher and modern situation of city management. The primary difference between them is whether allow public, which includes normal citizen and other social or economic organizations, play important roles in system. City Governance says “yes”, but City Management says “no”.

City Governance emphasizes a process in which local government and public coordinate with each other and try their best to reach a common destination. The process comes from a universal value system that combines politics, economy and society together. And it is an interactive process among citizen, government and organizations.

The basic reason of this phenomenon is the diversity powers in the real society have been strengthen by Globalization, Reterritorialisation and Informatization. Thus there are no unique and concentrated decisive factors. The control powers in management become diversity and distributed.

2.2 City Complex System

System is a special functional entirety of some relational and interactional parts.

Modern cities, as a centre of regional politics, economics, culture, technology and information, are accumulated by labor force, capital and civil infrastructure. There are busy crossroads of person, funds, goods, energy and information. The city system always has a compound structure that includes multiple sub-systems, different levels, diversity functions.

In the system, factors interact each other continuously. It is necessary to find an effective mechanism to make full use of each factor.

2.3 Digital City

Digital City means integrating and using the city information resource with the help of digital information management technology and internet technology during the city planning, construction and operating. The

city planner and manager can do their planning, decision and management in a virtual 3D model. The Digital City Project integrates city information resource, sets up E- government affairs, E-business, E-communities, etc by some supporters like multimedia-Tech and GIS. In this project Digital city Management is an indispensable field.

3. METHODS AND GOVERNMENT'S STRATEGIES

3.1 Government's Main Strategies

In 2003, it was the beginning of the city management system reform in Hangzhou. The local government had published a principle of City Management (Governance). The document says it management is as important as construction and a effective management could benefit the whole city. And it is not only the city government's affair to manage all things; local governments should play an active role. Public participation is also encouraged in the document.

3.2 Change the Government's Role

The Hangzhou city has changed the traditional government role in which government make all the decisions, it is a compound of manager, caretaker, executor, constructor and operator. Nowadays, the city government's responsibilities are providing administrative license, which is considered as an indirect management. The other tasks are decentralized to lower-level departments.

3.3 City Management Joint committee

Setting up a City Management Joint committee can enhance coordination among the various departments and define the duties of the departments.

3.4 Management Market

It is not the best way to allocate resources by Government's executive orders. Government can't deal with so much information immediately. As a public commodity, such as public traffic, water supply, Waste disposal, city management should be put into the market. Competition will reduce the public costs and improve government efficiency.

4. ANALYSIS OF DIGITAL CITY MANAGEMENT SYSTEM

4.1 Main Contents

4.1.1 Process

The program finished the City Management Information System in 3 steps (Fig.3). First step created a city street management system by "3S-Tech" and "2C-Tech", which takes city case and city component as system's core. During this course, 10 sub-systems like GIS, Wireless Communications and Information Collection system, Video Surveillance System had been built up. The second step created an Underground Pipe Network Supervision System. The third step realized the Informatization in civil engineering, environment and public service.

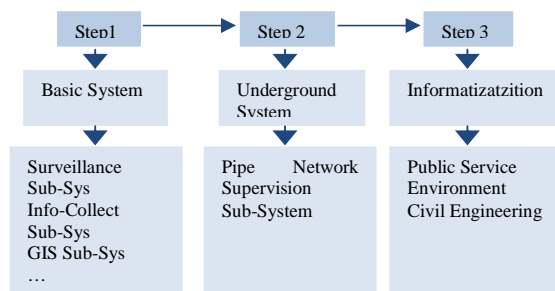


Fig.3 The Steps of the Digital City Management Program in Hangzhou

4.1.2 Categories

The program divided city (190.95km²) into 10074 grids and built a city case and component database

covering 2.02million details. There are 6 categories (97 sub-categories) of city case and 5 categories (61 sub-categories) of city component. After that a series of atlas and Regulations on digital city management had been published.

4.2 The System

4.2.1 Object (Fig.4)

Grid takes a number of square meters as the basic unit. It will locate the city case and component accurately. According to the principles of territorial management, geographic distribution, the system divided city's administrative region into irregular polygon grid units. In the grid management method City Management Supervisor monitors his duty unit at any time.

City Cases are behaviors and problems that come out from the process of management, such as illegal rubbish dumping, illegal structure, advertisement, public order, workplace management, etc.

City Components are the direct material object in city management. It includes all civil infrastructures. This category covers street, bridge, water supply, energy supply, Power Supply, garden, doorplate, etc.

All the cases have been put into the grid network in accordance with the geographical position. In that way, the management has become precise from rough and digital from artificial.

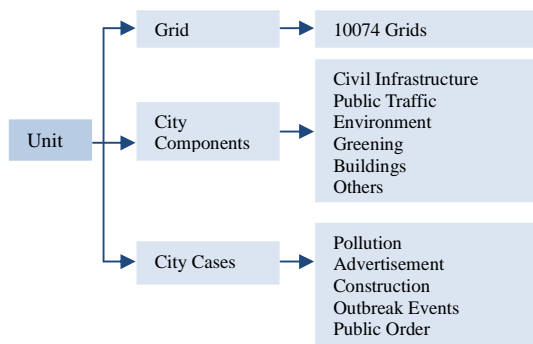


Fig.4 The Structure of Objects

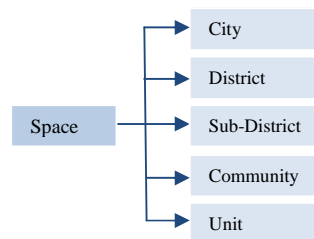


Fig.5 Space Structure

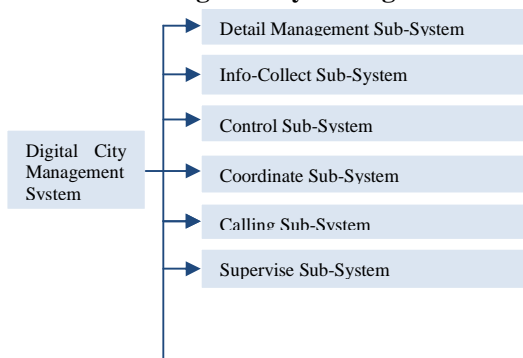
4.2.2 Subject

After innovating city management system and integrating government functions, two departments have been made. One is the city's comprehensive management committee which plays an important part in the management process as headquarter. It is a centre of command, scheduling, coordination. Another is supervision center. Monitoring and evaluation are its main task. This department will collect and arrange information timely, accurately and comprehensively. This mechanism will make the whole system more effective.

4.2.3 Space

There are 5 space levels in the system, from top city level to root unit level. Space level is a material response to the management system and its service network. Different space level has its own responsibility.

4.2.4 Digital City Management Structure (Fig.6 Fig.7)



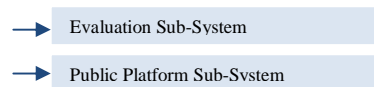


Fig. 6 The Structure of the Digital City Management System (Translated from X.B.Wu’s PPT)

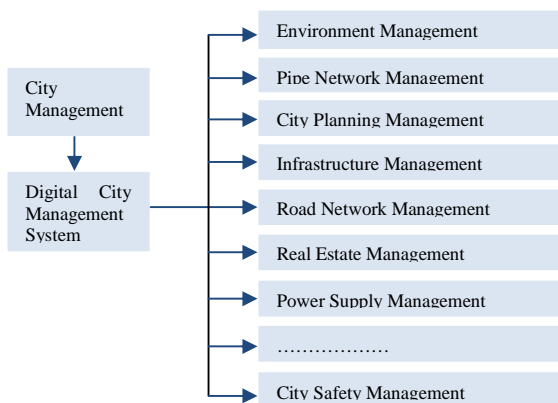


Fig.7 How Does the System Work (Translated from X.B.Wu’s PPT)

4.3 The Characteristic of System

4.3.1 Digitalization

The root of the system is Info-Tech and internet. From the management unit to management space, from city case to city component, from information collection to final operation, every step in the system is coming from digital signals. Working with the network is the basic style when managing the city.

4.3.2 Marketization

In the system, Management and operation are separated from each other. Public service, like information collecting, parking operation, public traffic, is no longer monopolized by government. Reduce the duty of the government improve the efficiency; on the other hand competition between economic organizations improve the quality of service.

4.3.3 Recourses Integration

The management system is a resources- information exchange platform which was built on the public network service. That means the total budget had been reduced from 70 Million RMB to 40 Million RMB including a 10 Million RMB network project cost. There are 359 base community stations in the city. In another word, the whole city can share the information recourse equally, especially in some unexpected events.

4.3.4 Decentralization and Public Participation

Government is no longer managing the city directly as the process of introduction of market. Management functions of government are gradually degrading while Service functions strengthened. It becomes an open and indirect manager and operator. Its primary duty is Administrative License.

Public can get information from the open network. It is necessary for public participation. In that situation, more economic/social organizations will get their access and take part in the management system.

5. CONCLUSIONS & EVALUATION

5.1 Citizen’s evaluation

After all, there are more citizens involved themselves into the city management program and express their opinions. The statistics below (Fig.8) show the citizen’s evaluation of the program.

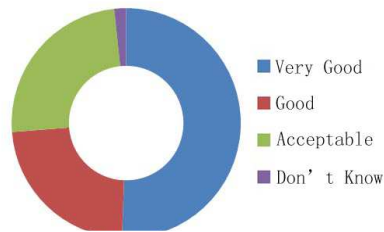


Fig.8 Citizen's Evaluation for Digital Management in 2007.

5.2 A Practice of City Governance

The digital city management system is a practice of city governance in China. It abandoned the traditional government-oriented management style. In the system city government, local governments, social/economic organizations and individual work together. All Participants create an effective network.

In the Hangzhou's Practice, the creation of the whole system is an integration of currently existing resource. To build up a digital city management doesn't mean spend a lot of money in High-Tech instruments, but it is a challenge to make full use of existing resource under the management theories.

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