

## Analysis of the "Urban Brain" Project in Shanghai

### --From the Angle of Project Practice and Project Monitoring

Xiaonan Gong<sup>1, a</sup>, Xiaotong Liu<sup>2, b</sup>, and Xinwen Miao<sup>1, c</sup>

College of Engineering, Rizhao Marine Engineering Vocational college, Rizhao 276800, China

<sup>a</sup>NAUxg68@foxmail.com, <sup>b</sup>1287911173@qq.com, <sup>c</sup>1114645720@qq.com

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#### Abstract

This paper makes some research on the IT project, and takes the "urban brain" project in Pudong New area of Shanghai as a case, and analyzes several aspects from the perspective of project practice and monitoring project. Including the brief description of the project, the practice and application of the project, as well as the preliminary research of the project, the expectation of the project, the three controls of the project, etc., hoping to sort out some useful ideas for the construction of IT projects for the governance and application of modern cities.

#### Keywords

IT Project; Urban Brain; Case Analysis.

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### 1. The "Urban brain" Project in Pudong, Shanghai

In the second decade of the 21st century, IT projects, IT systems and IT software, which combine artificial intelligence and data technology, are blooming all over the world. They are not only applied in various industries, major cities are also competing to practice, leading to a new round of technological change and technological preemption. A few years ago, the Pudong New area of Shanghai launched a reform, developed the "Urban brain" project, set up a comprehensive management center for urban operation[1], and initiated the application of technology to urban management with renewed ideas and thinkings. at present, a replicable and systematic empirical model has been formed.

#### 1.1 Project Planning

Based on the construction principle of "perception ubiquity, multi-dimensional research and judgment, accurate push and efficient disposal", the project integrates video resources, alarm and early warning system, disposal force scheduling and other modules, to provide strong support for the scientific, refined and intelligent management of Shanghai.

#### 1.2 Project Scope

The project relies on the "neuron system" built by Liwei Zhilian's "Ganges ubiquitous connection platform", covering 36 streets (towns) in Pudong New area, completing full data access to all kinds of sensing devices, including government and enterprises, and realizing access to more than 3 million shared data devices, forming a connection system with up and down, collaborative sharing and rapid interaction.

#### 1.3 Project Realization

The project initially supports broadband video data, narrowband IoT data, heterogeneous system data access, distributed deployment of 10 million-level data throughput. After intelligent networking, it achieves the goal of supporting hundreds of millions of connections and landing applications.

## **2. The Application and Practice of "Urban Brain"**

### **2.1 Application Practice of High Technology**

The project integrates not only data technology, information technology and control technology, but also simulation technology and early warning technology. In the practice of function development, data technology is applied to the data collection and calculation of the project, information technology is applied to the information analysis of the project, control technology is applied to the instruction dispatch of the project, simulation technology is applied to the graphic production of the project, and early warning technology is applied to the dynamic capture and signal transmission of the project. For example, the probability of detection of vehicles blocking license plates in urban rail operation has exceeded 90%[2].

### **2.2 Cross-domain Application Practice**

It would be a big mistake to describe the "urban brain" as an IT system. On the basis of the operation of the IT system, the project can not only assume the platform responsibility of the system, but also extend the "brain" function to urban management, street governance, environmental protection, people's livelihood and well-being, education and health care, government work assistance and so on. It is an innovative working platform with extensive inclusiveness, which truly realizes cross-domain application and practice.

### **2.3 Intelligent Application Practice**

In order to speed up the function construction, the Pudong New area brings together the forces of social enterprises, scientific research institutions, schools and institutions to deeply develop the intelligent plate of the project. Especially in the aspects of accurate positioning and block chain building, it realizes the intelligent combination of technology and scene[3], and injects the power of science and technology into realistic management. In terms of work innovation, Pudong New area relies on this project to achieve the visualization of part of the management, breaking the restrictions of space and region.

## **3. An Analysis of the Project "Urban brain"**

### **3.1 Preliminary Study of the Project**

At the beginning of the project construction, the project team conducted a basic data research on the future application of the project. After consulting by the author, the main data include: at the time of the construction of the project (2016), Pudong New area had more than 5 million resident population, ranking first among all districts in Shanghai; the annual passenger throughput of Pudong Airport was as high as 66 million; the traffic flow of Pudong New area in the motor lane in that year[4], there were more than 10, 000 container trucks, nearly 6, 000 dregs and more than 1, 000 dangerous chemicals trucks every day.

### **3.2 Expected Construction of Project Function**

Because the purpose of the project is to give full play to the comprehensive disposal function of urban data collection. Emergencies in urban operation, services, the operation of facilities, the process and efficiency of the masses, and so on, all need to be coordinated at all times. In order to avoid the closure of government management functions due to the division of functions, the "Ganges ubiquitous connection platform" used in this project makes the urban operation data be processed more digitally, scientifically and professionally, the functional operation ability of government agencies is continuously improved, and the horizontal cooperation function between departments is improved at the same time[5].

### **3.3 Monitoring of Project Requirements**

According to the four project principles, Liwei Company refines the "neuron system" of the project to specific requirements in the process of construction, forming a high match between urban demand

and project development. To solve the three major demand points of scientific, refined and intelligent urban management in Pudong New area, strengthen the perception and monitoring of the city in Pudong New area, the monitoring of the trend of urban operation and the evolution of problems, and the monitoring of the occurrence and disposal of all kinds of urban events.

### **3.4 Monitoring of Project Process**

Because of the huge volume of the project, in order to avoid the construction confusion of the sub-project team, the general manager focused on the monitoring of the project process. The three measures adopted are[6]: to ensure that the development process of the project is on the correct timeline at all times by monitoring the progress of the sub-project team, and to monitor the problems of the sub-project team, keep abreast of the technical problems and personnel deployment problems arising from the project development, and comprehensively check the rectification and implementation of the project by means of monitoring the improvement effect of the sub-project team, so as to ensure 100% transparency of the project.

### **3.5 Monitoring of Project Status**

#### **3.5.1 Monitoring During the Development Period**

During the development period of the project, the project leader established a record monitoring system to ensure the accuracy of data records. For example, when estimating the project, all technical personnel on the team are required to fully master the methods and means used in the estimation, and each time they complete a secondary estimation task, they have to do a verification and estimation monitoring[7], so as to ensure the accuracy of the data and constantly verify the coincidence of the data. During the specific implementation of the project, the person in charge also required that all data in the experimental database must be monitored to ensure the smooth and accurate flow of data, and avoid the distortion of the project construction.

#### **3.5.2 Monitoring in the Period of Application**

In terms of urban construction safety, the project team developed a site supervision system, which realized 24-hour monitoring of all buildings, municipal works and pipeline transportation in the Pudong New area with the help of data information, video network and sharing system. You can point or change points, and call in and out information at any time. Moreover, through the combination of AI technology, the project system realizes the omni-directional identification of the urban construction site, vehicle flow, environmental pollution and so on. For example, in the second year of the operation of the "city brain", in October, the "brain" detected 92 dangerous behaviors in the form of AI intelligent identification that did not wear helmets correctly at the construction site, and issued a timely signal warning to the territorial areas in the form of data transmission.

## **4. Conclusion**

Nowadays, the combination of IT project development and urban application is an inevitable trend, which will be closer and closer. Based on this, from the case analysis of "Urban brain", the management reform of Shanghai Pudong New area not only grasps the combination of technological development and change and the needs of urban governance, but also promotes the new development of the city with great wisdom and courage. and achieved progress and application in the following two aspects:

First, it has realized the systematic governance of the city and effectively integrated the disorganized data. At the same time, the overlapping attributes of management are divided and intercommunicated, and a parallel governance mode based on the IT system of "urban brain" is formed, which really strengthens the means of urban governance, solves the difficulties of urban governance, liberates the artificial labor force of urban management, and systematically constructs an efficient, cooperative and comprehensive management system.

Second, intelligent technology is introduced into the application and practice of "urban brain". It is not only conducive to the reduction of urban management costs, but also conducive to the rapid use

of urban management resources, in the form of human, machine and material coordination, the ability of urban management is further pushed to the intelligent track, opening up a new chapter of urban management and urban governance.

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