

# Real Estate Management Information System Model Design Based on GIS

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**Abstract:** In order to solve the deficiencies of traditional real estate management information system, such as the amount of data is huge, the information is complex, the query and management is inconvenient, the paper proposes the real estate management information system model design management application based on GIS. It bases on the real estate information management system, effective analyzes the personnel management application and land utilization of the real estate, and on this basis to design the real estate information management model, suggesting the establishment of the system is more manageable than the traditional system, more straightforward of the query efficiency, which realizes the real estate management information system networking and digitization, greatly improves the work efficiency of real estate management personnel.

**Keywords:** Real estate information; System design; Model; Land utilization

## 1. Introduction

Recent years, with the improvement of material living standards, the real estate development is very active in the market. Real estate is an integral group which is about the self-interest of the people, also government strongly supports the healthy development of real estate. But the traditional real estate management information system is still commonly used in many backward areas, using the traditional manual input mode to input and output management. The relative backward management mode has not adapted to the current development of information society, the efficiency is very low and the management lacks scientific. Therefore, it is urgent to establish a new real estate information management system to solve these deficiencies.

Since the 1990s, China's real estate information management has gone through three development stages, but the result is not satisfactory, all are in the initial stages of real estate management information system. According to authoritative statistics, to the end of 2002, China had 660 cities and 20 601 towns, the total amount of cities and towns is 21,261 [1-3]. During the "Fifteen" period, the economic benefits of the projects which are directly used for digital city by the state and local place are about 47.47 billion yuan, nearly a third of cities will built the digital city geospatial infrastructure frameworks. Up to 2010, all cities in the country established such frameworks to better meet the needs of urban planning, construction, management, service and future development [4]. The sample survey of relevant department finds that: the basic data types of China's urban space is monotonous: for most place, the capital investment of data production and updating is inadequate seriously; the pheno-

menon of low level and repeated construction occurs frequently and the present situation of urban geospatial space base data is not very optimistic [5]. Emphasizing and strengthening the construction of urban geospatial base data has become the common voice of the industry insight, and is the big problem which is placed in front of digital city policymakers and must be seriously addressed. How to get high-quality spatial data has become one of the bottlenecks for digital city construction.

It is recognized that: in the numerous frequent changing elements of real estate management, the change of house spatial entity is slow. "Regarding the house, the spatial entity as a clue, you can retrieve all the information associated with it, and establish the historical evolution process". However, in GIS, the most direct, most effective and the only way to manage this space entity of house is its graphic". Therefore, after the introduction of the GIS, in the management, as long as through the real estate graphic, it is possible to accurately grasp the past and present of the real estate, maintaining the status quo. Real estate information management and organization is a complex systematic work, from the acquisition and arrangement of the natural information of the real estate development area to real estate construction planning, real estate community economic development plan, government real estate properties decisions and others which relate to the multiple layers of real estate development area, such as natural geographical landscape, land resources, transportation, economic, society, population, policies and regulations. The large amount of information and data brings many difficulties to the real estate management personnel. This traditional real estate information management and the mode of real estate information

management can not meet the management needs of the management personnel.

With the rapid development of GIS technology, it is used in real estate information management system more and more frequently that can use network platform to build the management and use of real estate data information. GIS can query the system intelligently at the first time and it can manage and input the information and so on. Even facing a large information management side and complex charts, it can solve and distinguish them quickly in the system which greatly facilitate the management of real estate information management personal and improve their work efficiency. Also, it improves the policy, regulatory and organizational system of the urban geospatial basic framework construction and gradually completes the work of making the standards of urban spatial data products, technologies, services and other aspects. It achieves the distribution of urban geospatial data and the digital networking of the service system to make the geospatial basic data to provide better service for the construction of digital cities, to display its potential and benefits maximally.

## 2.Theory of Real Estate Geographic Management Information System

Urban real estate management system includes the application system which supports the operation of land management business and the database that stores the data of image-text. The database should regularly update the maps and data to maintain the integrity and accuracy of the data. The application system which supports the operation of land management business is designed and constructed on the basis of systematic analysis, it has the universality and particularity, and can bases on the characteristics of the unit to develop and expand freely. Land management information system generally includes several subsystems: data collection, arrangement system, input system, processing system, transmission system, retrieval system, output system.

Geographic real estate management information system is through works of land information collection, editing, data management, query, analysis and output and so on, to achieve computerized management processes of cadastral information . Information flow of cadastral management information system is shown in Figure 1.

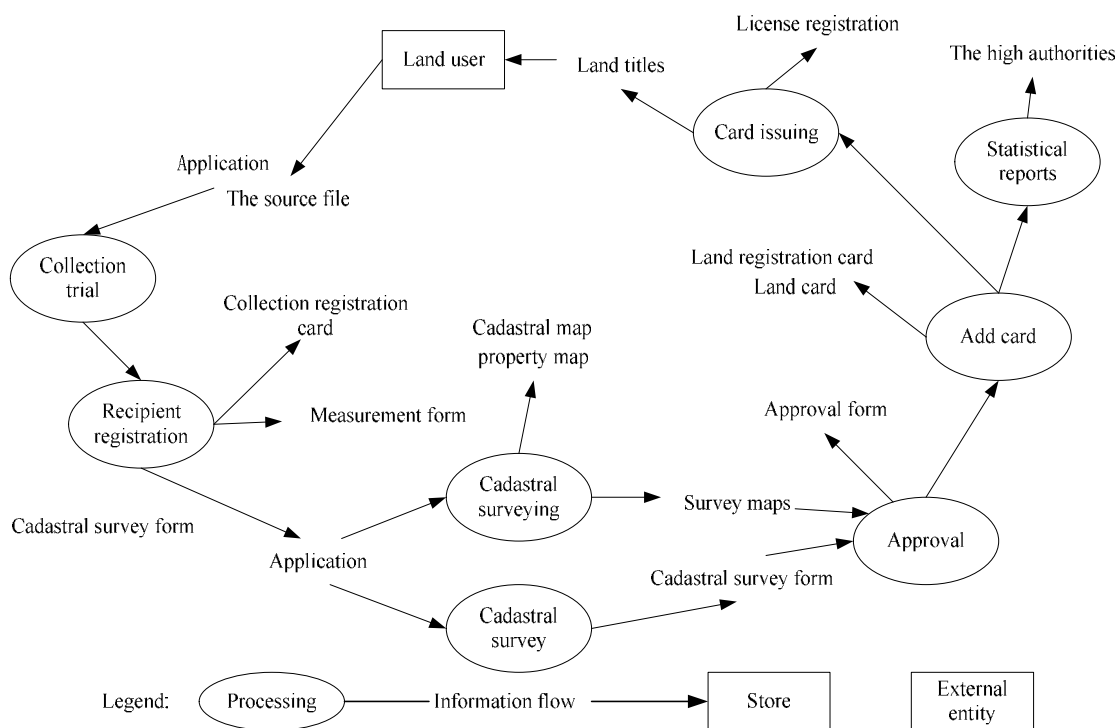


Figure 1. Geographic property information system process

### 2.1. GIS staff structure

Geographic information systems' data volume is so large, and geographic environment is also changing as the time goes on. The geographic database must be updated to

ensure the up-to- date of geographic data, which necessarily require staff to manage and maintain geographic databases. Geographic information system development process also involves a lot of different professionals. According to the size of geographic information systems,

personnel can be more or less, but the overall mission of personnel must be completed. Key personnel from the development of geographic information systems to the daily operation is shown in Figure 2.

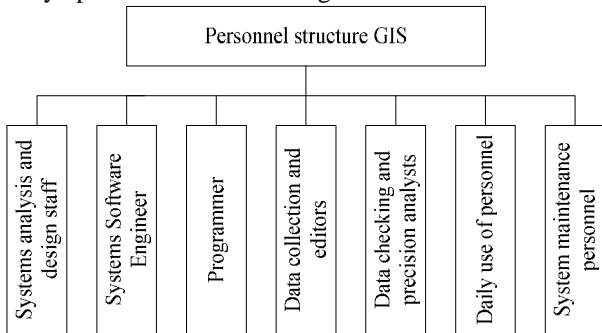


Figure 2. GIS staff structure

### 3. Urban Land Utilization

Urban land utilization includes land use classification, area, distribution and utilization status, etc. Its investigation figure generally use the proportion of 1: 10,000, 1: 25000, 1: 50,000 and 1:100,000. Work also needs corres-

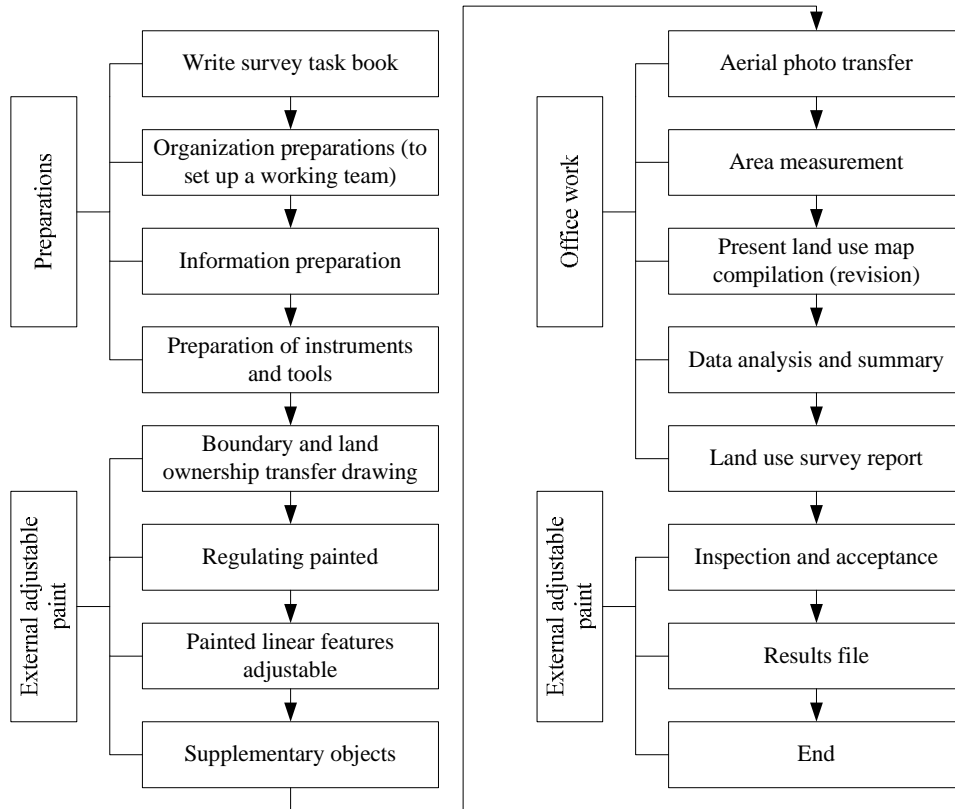


Figure 3. Urban land utilize situation

ponding scale flight plan or video camera chip. Work steps are shown in Figure 3.

### 4. GIS Data Model Establishment of Real Estate

#### 4.1. Establishment of dynamic database

Traditional updating methods of geographic data is difficult to ensure get the requirements of the up-to-date of geographic data. By using object-oriented spatial relationship inheritance mechanism, taking advantage of inheritance of spatial relationships of parcel data before and after the change, developing cadastral data changed module, at the same time synthetically using 34 technology, completely changed the past practice of large area, periodic updates, to achieve cadastral data real-time dynamic update, cadastral data update period shortened to 10 days from original a few months, effectively ensure the current tendency and accuracy of the data. System changes the graphic data more than 30,000 cases a year, about 150 square kilometers, and changes land registration information more than 12 pieces, which is difficult to make in other cities.

#### 4.2. Establishment of real estate GIS data management model

Establishing GIS database is a time consuming, labor costs, high costs work, and it often spend a lot energy of

employee. In order to expedite the construction of the database and put it into use as soon as possible, the process of building a database usually arrange manpower to convert and input data for 24h. Because of the huge workload, usually need to hire temporary workers into the job."Demand analysis and database design determines what data needs to be converted and entered into the database. The demand conditions for different data is not the same, therefore, it is best to sorted date according to the cost-benefit ratio to determine which data preferentially entry. Obviously, the data which many users have access to is the maximum value data, it should give priority to input", lowest cost-benefit ratio data may be those

data occasionally used in a particular case" Sometimes, if you are unsure whether some kind of data will be used, you may not have to enter such data.

In the actual process of building libraries, the involved main activities include: 1) the development of data entry template (if necessary); 2) special map data entry; 3) attribute coding and validation (attribute data entry) " If further decomposed, it can be divided into the following steps: data pretreatment, framing digitization, sheet line, polygon generation, attributes entry, note record entry and edit and modify. Figure 4 describes data collection and database construction process of the real estate surveying and mapping information management system.

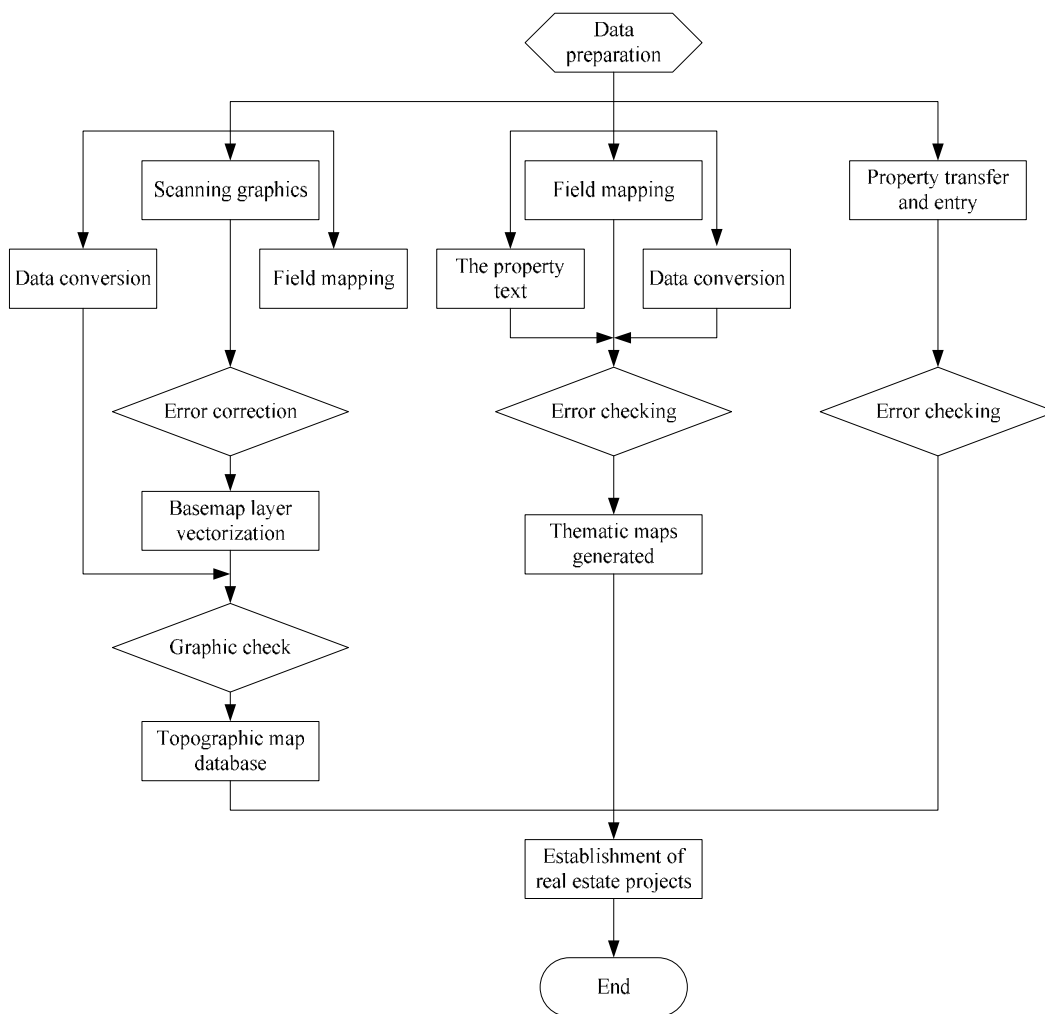


Figure 4. data collection and database construction process of the real estate surveying and mapping information management system

### 5. Conclusion

Along with the rapid development of real estate, as for the real estate information management, many small and medium-sized cities in China still use a lag traditional

way, which is the manual employed input management pattern. This kind of mode can not adapt to the large real estate information management, therefore in order to solve the defect of traditional real estate information management in this area, as a result, the model design

research based on GIS real estate information management system is put forward. The theory of real estate information, complex personnel structure and land utilization show that the establishment of the system can realize the urban real estate management paperless, networked, standardized and scientific, provide technical support for the urban real estate management and decision-making, constantly improve the management quality and efficiency, fully embody the principle of openness, fairness and justice, provide high quality and quick service for the society in all aspects, active the city real estate market, build the best investment environment, greatly improve the efficiency of the real estate information management, make the real estate management networked, digitized and high-speeding. What's more this

kind of mode has great practical value, complying with the development of the real estate information era.

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