

Research on Evaluation System of Community Management Services Based on Decision Tree Analysis

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Contents of this paper present situation of community service as the background, provide the necessary guidance on the implementation strategy the key to the build process to achieve a seamless community services and urban grid management and organic combination of community services through the system grid management mode, hoping to achieve the following practical significance. With the rapid urbanization process in China, the new residential area of public services has failed to check in with the residents and tend to improve, which would result in a lower portion of the new real estate occupancy rate, resulting in a further slowing of public service facilities in place. Residents to meet the entertainment, culture, shopping needs, will still have a large number of modern urban centers of finance, commerce and social services as an important center of social life. Large number of people brought together not only the center of the car increased the flow of urban road load, waste of resources, but also increased the cost of travel of residents, making it more inconvenient life of residents. Basic community services situation and development trend analysis on the proposed management needs community services and grid management model will expand the application to the service management community recommendations.

1. Introduction

With the rapid urbanization process in China, the new residential area of public services has failed to check in with the residents and tend to improve, which would result in a lower portion of the new real estate occupancy rate, resulting in a further slowing of public service facilities in place. Residents to meet the entertainment, culture, shopping needs, will still have a large number of modern urban centers of finance, commerce and social services as an important center of social life. Develop community-building, and gradually transform government functions, the city's booming information technology, resulting in the field of community service coverage more widely, covering more and more to promote economic development (Braun and Salvador-Carulla, 2013). Maintaining social stability and improving people's quality of life play a crucial role in the connotation of community service, which management has always been a key component of the community service system determines whether a mature and perfect; while the community is the base unit of the city, the construction of the effectiveness of community service directly affect the stable and harmonious urban development. Based on the background of this development, community service management design work will gradually become one of the current focuses of urban management (Welsh et al., 2014).

With the establishment of the socialist market economic system, urban community space stratification has become increasingly evident, the original mandatory provisions of the conditions has not adapted to the reality of rapid urban development (Strohmeier et al, 2013). Resources, increasingly prominent contradiction between environment and economic and social development has seriously restricted the development of China's economy, the report stressed that to strengthen energy and resource conservation and the construction of a resource-saving society emphasizes the importance and urgency (Xu, 2016). Residential areas and public service facilities living are inseparable, but resource-saving methods to achieve its configuration rarely studied. Therefore, for the needs of the residents, the use of scientific research methods to build a resource-saving residential district public service facilities evaluation system has important practical significance (Gbanie and Underwood, 2013).

2. Classification tree

"Decision Tree" theory based on the basis of the classification tree model, which according to independent variable to predict the dependent variable, and the case studies are divided into several groups (Andersson , 2015). This method can be applied to the data segment, level, forecasting and dimension reduction and variable selection and other aspects of the specific content shown in Table 1.

Table 1: Decision tree classification application content

Effect	Content
Section	Determine who can become a member of a particular group
Level	The case is designated as one of several categories, such as a high risk group, risk group and low risk group
Prediction	Create rules and use them to predict future events, such as the possibility that a person defaulted loans
Data reduction and variable selection	Centralized selection of useful subset of predictors from a large variables to be used to construct a formal model of participation

Decision tree analysis is not an explicit function of use. The method as regression analysis is performed to determine or predict the decision tree for a large number of variables which can be split into several segments for the target variable as homogeneous as possible. All segments of the dependent variable values relative to the target variable is homogeneous, classification by representation and help people to understand the analysis. The node 16 as an example, Figure 1 shows a selection rule table, select the correspondence between reason and decision tree model column.

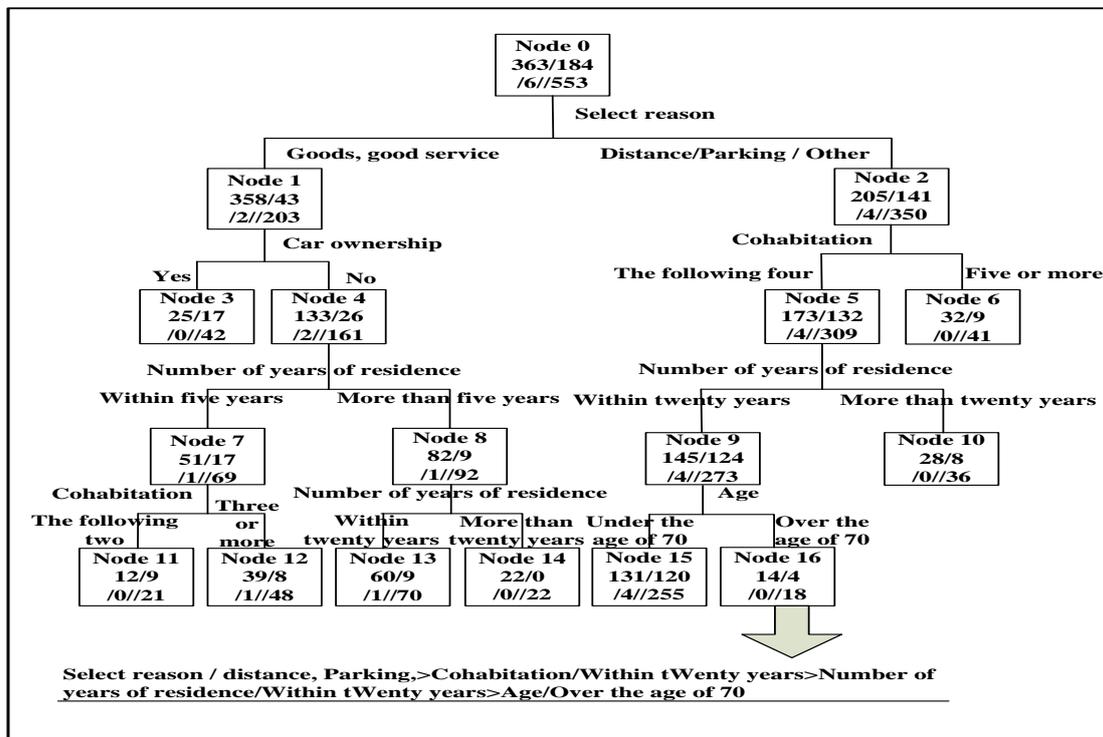


Figure 1: Branching rules schematic concept

Public facilities unreasonable lead to conflict and urban development have become increasingly prominent, such as "school and medical treatment" and other social problems and public service facilities irrational

allocation of resources has a close causal relationship. The city is a collection of various functions, the optimal combination of assembly, public service facilities and intensive optimization should focus on public services users - the residents. Public service facilities from residential areas to start, configure efforts to promote residential areas of education, health, sports, community service and other facilities, planning and optimization of supporting all types of facilities, improve the quality of life of residents, so as to realize the idea of a resource-saving society.

3. Community service grid management mode

On the basis of the basic structure of the grid management, combined with community service management features and demand, the overall structure of the formed community service grid management can be understood as the basis in a particular organization system and operation mechanism, service processes and evaluation system. The grid management system on the main part of the mesh structure can be divided into three levels constitute the grid respectively for clients grid, grid service, grid service management; a shared community-based information repository and information access channels.

Community Services Repository is a community service grid management system for all basic data collection and operational data through the establishment of community service repository, and give authority to operate depending on the different needs of the various functional units of the data to make Community Services Repository get the widest range of applications and shared avoid waste of resources caused by repeated collection of information according to information intended use classification, can be divided into the basic information and community service community service community service process information repository. Community service grid management mode was shown in Figure 2.

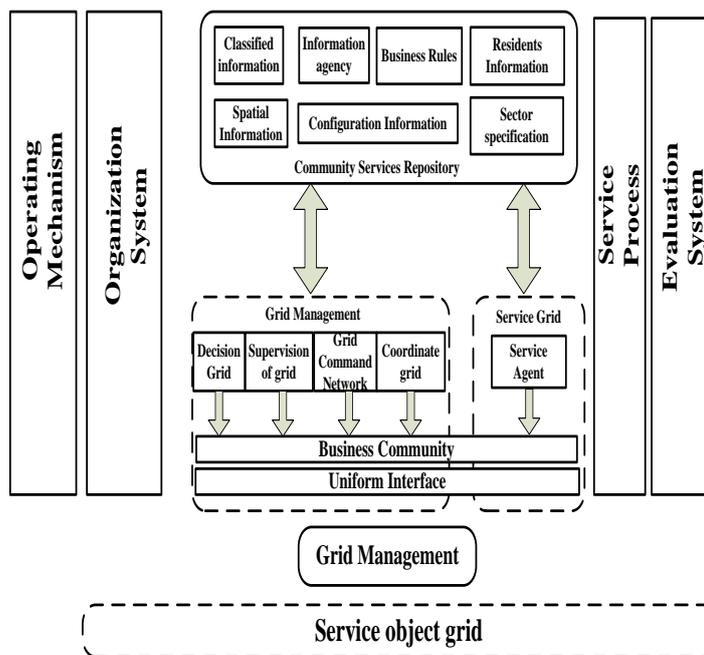


Figure 2: Community service grid management mode

4. Experiments and results

4.1 Residents of the community service satisfaction

Residents frequented service location reason was shown in Table 2. In actual use status of the population, the residents found for purchase groceries, beauty salons and other essential consumption tend to "close to home." As for the purchase of clothing with comparative nature of consumer behavior tends to variety.

Residents in the commercial and research facilities selection in relationship satisfaction, Sakamoto Long still found an association between residents choose to consider its commercial facilities element satisfaction that residents choose to considerations of commercial facilities were met, which for commercial facilities satisfaction is high. Therefore, the results of a comprehensive view of the above three researchers may be the main factors affecting the residents satisfaction commercial facilities classified as: facility location, quality facilities, facility size, types of goods, quality of service, the price charged, convenient traffic degrees.

Table 2: Residents facilities frequented reasons for choosing(Units: Number of households)

	Dish	clothing store	Commodity Shop	restaurant	Beauty salon
close to home	564	100	475	278	472
cheap price	88	148	82	126	122
Good quality	92	289	126	233	230
diverse	127	297	185	62	0
good service	9	16	7	89	53
Parking	5	9	7	12	1
other	3	13	1	26	1

$$\omega_i = \bar{W} / \sum_{i=1}^n \bar{W}_i$$

(1)

Finally get the weight of each layer index.

Effective supply of relatively subjective evaluation and scoring in different forms, evaluation rational allocation of daily travel distance is selected residents, is quantifiable and objective indicators. Thus, for the residential district public service facilities and reasonable allocation evaluation index system, the three indicators as a reference, residential facilities of public service facilities in the corresponding range of indicators given their respective evaluation values Φ_i :

$$\phi_{\text{Effective supply}} = \phi_{\text{education}} + \phi_{\text{medical}} + \phi_{\text{style}} + \phi_{\text{business}} + \phi_{\text{financial Posts}} + \phi_{\text{community service}} \tag{2}$$

4.2 Intensive evaluation and calculation model

How to determine the configuration of the three public service facilities and intensive process effective? First, we must define the intensive allocation of resources is based on adequate supply, so the first step in the "production" process, namely the construction of public service facilities, the number of its construction, the quality must be the same as the needs of residents; secondly, an important part of "assignment" as the allocation of public resources, the distribution of public services should be configured with their corresponding service groups; residents to use public services can be seen as the process of "consumption" by utilizing further determine the supply meets the needs of residents. A conceptual diagram was shown in Figure 3.

Based on the Analytic Hierarchy Process, according to the actual situation, select the appropriate evaluation method, a multi-level index system, because of space limitations, in this case to the secondary indicator system, for example, is given to solve the corresponding mathematical model: Let an index weight set is U, under which there are n an index, so there

$$U = (u_1, u_3, u_3 \dots u_n), \sum_{i=1}^n u_i = 1 \tag{3}$$

Wherein M represents a weight set that weight vector; u_i -level representatives of the i-th right index values:

$$W_1 = (w_{11}, w_{12}, u_{13} \dots u_{1n})$$

$$W_2 = (w_{21}, w_{22}, u_{23} \dots u_{2n})$$

$$W_3 = (w_{31}, w_{32}, u_{33} \dots u_{3n}), \sum_{i=1}^n w_{nm} = 1 \tag{4}$$

and

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$$W_n = (w_{n1}, w_{n2}, u_{n3} \dots u_{nm})$$

On the basis of obtained secondary index score Y_n on the secondary weights are calculated and then the value of the indicator and level indicators obtained solving score level indicators X :

$$X = Y_1 \cdot u_1 + Y_2 \cdot u_2 \dots + Y_n \cdot u_n \tag{5}$$

Contents of this paper is to present situation of community service as the background, analysing trends in community services and infrastructure management needs of the future, the grid management model extends to the end node urban structure / street a community, by the community grid service management model systematic research, providing a set of effective management ideas and theoretical framework for community service grid management mode configuration and health, and provide the necessary guidance on the implementation strategy the key to the build process to achieve a seamless community services and urban grid management and organic combination of community services through the system grid management mode, hoping to achieve the following practical significance.

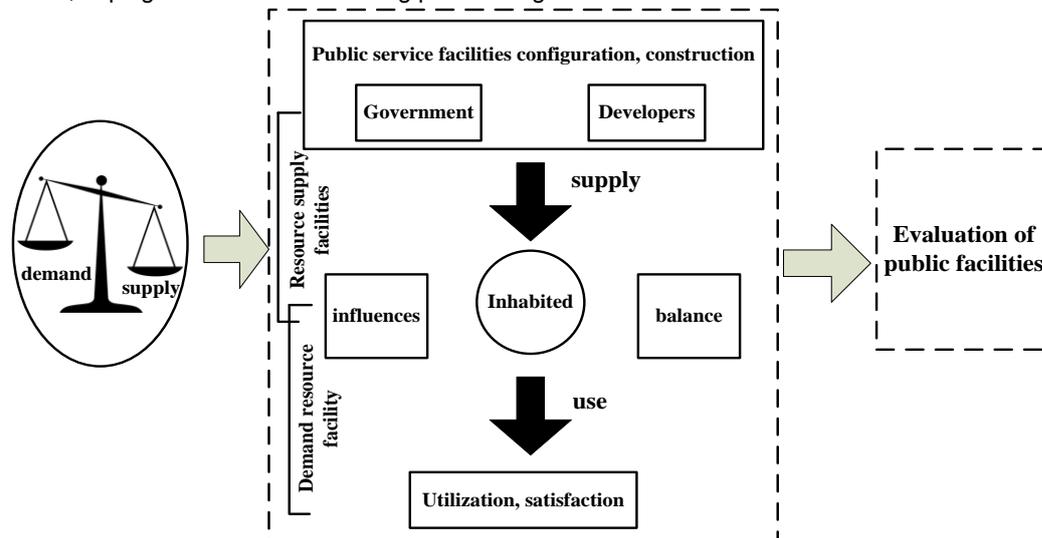


Figure 3: A conceptual diagram

5. Conclusion

With the rapid urbanization process in China, the new residential area of public services has failed to check in with the residents and tend to improve, which would result in a lower portion of the new real estate occupancy rate, resulting in a further slowing of public service facilities in place. Residents to meet the entertainment, culture, shopping needs, will still have a large number of modern urban centers of finance, commerce and social services as an important center of social life. Large number of people brought together not only the center of the car increased the flow of urban road load, waste of resources, but also increased the cost of travel of residents, making it more inconvenient life of residents. Basic community services situation and development trend analysis on the proposed management needs community services and grid management model will expand the application to the Service Management community recommendations. Contents of this paper is to present situation of community service as the background, analyzing trends in community services and infrastructure management needs of the future, the grid management model extends to the end node urban structure / street a community, by the community grid service management model systematic research, providing a set of effective management ideas and theoretical framework for community service grid management mode configuration and health, and provide the necessary guidance on the implementation strategy the key to the build process to achieve a seamless community services and urban grid management

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