Construction and Development Countermeasures of Characteristic Towns Based on Geographical Big Data

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Abstract. This paper studies the hot spot distribution and Construction Development Countermeasures of characteristic small towns based on geographical large number. This paper first uses the big data method of Baidu map POI points of interest to explore the construction method of industrialization and urbanization transformation. Secondly, it analyzes the consumption transformation from the production-oriented economy in large and medium-sized cities to the multi pole enjoyment economy in urban and rural areas by using statistical big data, and points out that the transformation has the characteristics of market demand pulling and policy supply promoting. At the same time, this paper points out that the differentiation of location preference of four industries, namely, historical classics, traditional county economy, new economy and tourism, lays a foundation for the development of characteristic towns, but it also faces the dilemma of imbalance of urban system structure and failure of micro design. Finally, this paper proposes that it is necessary to complete the overall site selection and spatial scale intensity control with the help of big data, complete the regional spatial organization and the spatial supply of characteristic industries by means of data fusion, and organize and create the environment by micro characteristic spatial sequence. This conclusion has a certain reference value for the research on the hot spot distribution and construction development of characteristic towns.

Keywords: POI, Data Relevance, Big Data, Characteristic Towns

1. Introduction
In recent years, Jilin's "characteristic town fever" has not only aroused the national attention, but also stimulated the "cold thinking" on the transformation of Jilin's industrialization and urbanization: under the backwardness of overcapacity and the accumulation of environmental costs, how can the county economy shift from the expansion of production factors to the promotion of total factor productivity? [1] Under the resource bottleneck of spatial expansion, how can the spatial organization mode change from large-scale and batch "rapid industrialization driving urbanization" to exquisite "high-quality urbanization boosting high-quality industrialization"? [2] Under the upgrading of science and technology, how to create a high-quality space of new economic elements with the help of Characteristic Towns and seize the opportunity of emerging industries' rise?

In order to solve the above three problems, it is necessary to summarize the classification
characteristics and case experience of Jilin characteristic towns on the basis of reviewing the practice research and policy guidance of Jilin characteristic towns, and with the help of Baidu map POI big data method. From the perspective of neoclassicism, this paper discusses the transformation experience of urbanization and urbanization behind the strategy of small towns with Jilin characteristics, and then puts forward the organization ideas and planning policy suggestions of spatial elements suitable for the synchronous transformation of four modernizations and the transformation of Characteristic Towns in Jilin in the future.

2. Comment on the Practice Research of Characteristic Towns in Jilin and Interpretation of Policy Guidance

2.1 Review on the Practice Research of Characteristic Town and Characteristic Small Town

In order to alleviate the pressure of population and housing in metropolis, foreign countries built a large number of anti magnetic centers such as satellite cities and rural towns under the trend of smart growth in suburbs and new urbanism in 1940s [3-4]. However, the lack of popularity of the town has caused academic reflection. Some literature points out that blueprint design is difficult to achieve under decentralized decision-making. It is more rational to plan supply and demand guidance strategies, such as small-scale limit, landmark public space creation, multi-mode guidance, environmental protection zoning, floating performance subsidy and so on. This idea of guiding the localization, miniaturization, customization and suburbanization of the new economy through market factors such as big events and social folk customs has successfully cultivated small towns such as Provence and Davos in Europe and America in the post-Ford era, but there are also some small towns such as Tsukuba that have grown under the leadership of the government [5-7].

In order to achieve the maximum income and optimal layout in the minimum space, Jilin has experienced the exploration of "small family workshop - large industrial agglomeration area - Industrial City - small and medium-sized incubator". The pilot project of provincial characteristic towns was launched in 2014. After that, the first batch of 37 and the second batch of 42 creation lists were successively announced. Hangzhou, Ningbo, Haining and other places also cultivated hundreds of municipal characteristic towns. At the same time, Sichuan and Taiwan have also carried out pilot towns of amorous feelings and charms, and Hainan has also compiled the standard for characteristic tourist towns in Hainan Province.

In view of the political and economic phenomenon of "characteristic town fever", the domestic academic circles also try to make a normative explanation.

(1) In terms of the connotation of characteristic towns, some built comprehensive industrial zones, development platforms, preferential policy areas and industrial niche are generally recognized by experts;

(2) In terms of the problems and causes of the characteristic towns, academic attention shows that there are inherent deficiencies in the policy design of characteristic towns, such as unclear access standards, uniform assessment standards, incomplete construction standards and multiple management standards. It is also faced with over packaging and secondary town building, contradiction or repetition between characteristic towns and surrounding functions, path dependence of spatial incremental expansion, separation of emerging industries from reality and slow transformation of traditional industries, and large gap between internal and external policies of characteristic towns, which can all find common roots in the "planning paradigm and land finance mode";

(3) In terms of the Countermeasures for the establishment of characteristic towns, the government and academic circles believe that whether the supply of characteristic space can match the demand of characteristic industries is the key to determine the performance of characteristic towns. The corresponding solution is to reduce the transaction cost of new economic elements and new space gathering, but there is no consensus on the replication of promotion experience, the definition of access assessment criteria, and the improvement of effective supply of planning and construction management;
In terms of performance measurement of characteristic towns, the commonly used methods include economic input-output model analysis, land use adaptability and boundary analysis, traffic and facilities demand analysis, environmental impact assessment, system analysis, etc., but they are limited by the availability and integrity of various data.

In conclusion, it is worth learning from foreign countries in guiding the supply and demand of small towns. However, due to the differences in system and foundation, the application of experience needs further investigation. The research practice of domestic characteristic small towns is mostly based on the "policy area" of characteristic towns; Jilin political circles have formed a heated debate of optimism and wait-and-see for characteristic towns, and the planning circle is still lack of in-depth research, and a few summaries focus on the phenomenon level of spatial design, and lack of systematic analysis on the links of industry culture tourism space mechanism. This paper holds that the characteristic town is a new economic form of Jilin "private + block" economic development to a certain stage. But before the phenomenon rises to the rule of experience replication, we need to use the analysis tools such as Baidu map interest point POI big data which is open and available to examine the special endowment of Jilin's development and the reform orientation of the transformation of industrialization and industrialization.

2.2 Interpretation of "Five Special" Orientation of Jilin Characteristic Town Policy

In April 2015, Jilin provincial government issued the guiding opinions on speeding up the planning and construction of characteristic towns which made it clear that characteristic towns are new space platforms with clear industrial orientation, cultural connotation, tourism and certain community functions, and have the policy guidance of "five special" [8].

The requirement of short-term effectiveness determines that the characteristic town must abandon the large platform and can only be a part of the built town, small town, industrial park or scenic spot. This is also the original intention of the specific nature positioning of non town and non Town Park, which can be understood as a concentrated and compact short-term development unit, which is between the regulatory planning unit and a single plot, usually across administrative regions or regulatory planning units. This kind of unit takes the massive economy as the object, takes the regional spatial function as the foundation, and plays the role of connecting the meso micro space and optimizing the project layout.

The space of characteristic town is restricted by location of specific scale, although it does not necessarily have complete form under the control of investment. However, we should emphasize the "small and beautiful" space scale control within 1-2 km, highlight the space organization goal of "compact and exquisite", create a "ten minute walking work and life circle", and avoid large-scale motorization and separation.

3. Classification Characteristics and Case Experience of Jilin Characteristic Towns Based on Baidu Map POI

According to the factors of location, topography, industry, expansion and main body, Jilin characteristic towns can be divided into various types, and the spatial location shows the centralized distribution characteristics of "giving priority to big cities, supplemented by small and medium-sized cities, relying on established towns, and supplemented by rural areas" (Fig. 1). It not only reflects the idea of improving the overall efficiency and reducing the risk cost with the help of a variety of policy divisions, but also highlights the intention to force the transformation of urban system, construction and development mode, and financial right management according to the needs of the new economy through characteristic towns. The high performance of the development of the first two groups of characteristic towns also verifies the effectiveness of the policy. According to statistics, in 2015, the town has an average planning area of 3.5 square kilometers, 12 new projects, completed fixed assets investment of 1.3 billion yuan, and 89 newly settled enterprises. However, the different characteristics of various towns still need to be subdivided and discussed.
3.1 Big Data Method Based on POI Kernel Density of Baidu Map
Taking all kinds of points of interest (POI) of Baidu map open platform of nearly 200000 as data sources, the locomotive software is used to collect open source web data information, and the real data of search hotspots are obtained through coordinate system transformation and definition projection transformation. Based on the assumption that POI data have the same caliber in different regions and scales, the kernel density function is used to estimate the data distribution density. Aiming at the process of urbanization and industrialization transformation in Jilin Province, this paper explores the coupling relationship between specific interest points and four characteristic towns, namely, traditional county economy, tourism and health, historical classics and new economy. Such as the distribution density of network enterprises and the location of new economic towns, and then provide the basis for the characteristic mechanism and case experience summary of various small towns.

3.2 Characteristics and Examples of Historical Classic Characteristic Towns
There are 16 such characteristic towns, accounting for about 20.3%, which are mainly distributed in the outer suburbs with superior environment in small and medium-sized cities (Figure 2). The POI distribution of shopping interest points based on Baidu map also shows that market classic towns are often related to the scattered Kernel Density of shopping facilities at all levels, but not necessarily close to large and medium-sized cities (Figure 3). Most of them rely on the "one town, one product" endowment, such as tea, silk, root carving, study room, etc., to realize the localization development from the family workshop in the construction town to the park in small and medium-sized cities. It has the advantages of clear industrial direction and large spatial flexibility, but it faces the disadvantages of insufficient blood production and weak facilities. At present, the characteristic industry is upgrading to the direction of high-quality agricultural ecology, high-end processing industry and diversified service industry. It is in urgent need of block structured agricultural production experience, dot high-end art creation, and block combined reception service.

Figure 1 Spatial distribution of the first two groups of provincial characteristic towns in Jilin Province
Discussion on the Experience of Urbanization and Urbanization Transformation Behind the Characteristic Towns in Jilin Province and the Planning Policy Response

4.1 "Neoclassical Model" of the Transformation of Urbanization and Urbanization and the Evolution of Characteristic Towns in Jilin Province since the Reform and Opening Up

The big data coupling analysis of Baidu map interest point POI and characteristic towns shows that classic, traditional, new economy and tourism towns have specific industrial elements and spatial location preference. The characteristics of these differences are like a prism, reflecting the process of urbanization and industrialization in Jilin Province, which is dominated by county economy for more than 30 years. Since every major transformation starts from the bottom-up reform of local governments (mainly small towns), Jilin economy is called "grassroots economy", and Jilin model is called "neoclassical industrialization and urbanization".

(1) The transformation of township economy from family workshop to "one town, one product" has accumulated original capital for classic industrial characteristic towns, but it is facing the crux of imbalance of urban system structure. In the 1980s, although there was a shortage of materials, the family workshops all over the villages and towns relied on the flexible mechanism of "shop in front of the factory and people living in the factory" to timely supplement the shortage of material production and supply of state-owned enterprises in cities, so that Jilin quickly seized the domestic market with various professional markets as the starting point.

(2) The consumption transformation from the production-oriented economy in large and medium-sized cities to the multi pole enjoyment oriented economy in urban and rural areas enlivens the value potential of tourism characteristic towns, but needs to get rid of the constraints of meso organizational failure. In the past five years, with the development of comfortable consumption and the increase of...
family income, overseas travel and overseas shopping have become the primary pursuit of residents. In addition to high-end durable goods such as luxury goods with tens of thousands of yuan and smart toilet covers of thousands of yuan, the consumption frequency of daily necessities with high quality and low price is also rising, which shows that geographical price is no longer the comparative advantage of "made in Jilin", and the hedonic economy with quality, brand and experience as its main feature has become a new strength.

4.2 Space Control and Elements Organization of Characteristic Towns in Jilin Province
In view of the characteristics of "demand driven, policy driven; enterprise oriented and government led; industry as the core and space as the starting point", Jilin characteristic towns should avoid "small town on town", strengthen macro, medium and micro transformation oriented spatial control and element organization, and promote planning and policy innovation.

"3D oriented" overall site selection and spatial scale intensity control. Promote the nod service-oriented mode, formulate the reasonable range of town location and facility service radius, and pay attention to the demand control of facility supply orientation according to the transformation orientation and location preference of various small towns (for example, the new economy type is close to the large city enterprises, the county economy type is near the Industrial Park, the classic class is near the suburban construction town, and the tourism type is near the tourist source area, etc.). "3S integration" of regional spatial organization and characteristic industry space supply. Promote the integration of the future space and the existing spatial texture (spatial combine), use the typology method to extract the map base, and promote the structural elements through guiding indicators. Promote the integration of space and traffic, sort out the through traffic and resident traffic network, design a variety of pedestrian and vehicle diversion scenarios, and form a public transport dominated, open and accessible block.

4.3 Planning and Policy Suggestions of Characteristic Towns in Jilin Province
Build a new comprehensive construction planning and design system of "1 + 2 + X" for characteristic towns. It is a strategic concept planning, focusing on the forward-looking issues such as the connection, orientation and development direction of Characteristic Towns and surrounding industries and spaces. 2, namely, regulatory detailed planning and urban design (including the design of start-up area), in which the detailed planning of control line focuses on strengthening the connection between the scale, scale, boundary and other indicators with the statutory planning, and flexibly dividing the local blocks within the urban (town) planning area. Urban design focuses on the planning of the overall urban space features, the town living room and other node images, special landscape system and design guidelines. X refers to industry, cultural tourism, three-year plan and other topics. Among them, the industrial topic focuses on defining the regional energy level of characteristic industries, undertaking industrial links and the platform needed for value-added; the cultural theme focuses on exploring the connotation of characteristic culture and activating the potential of value utilization; the tourism topic focuses on analyzing the positioning of tourist market and the cultivation organization of business products.

5. Conclusion
Under the new normal of industrialization from "iron ring" (single industry link) to "iron chain" (whole industry chain), urbanization from "ceramic tile" (single spatial organization) to "mosaic" (multi spatial organization). The strategy of characteristic town can be seen as the thinking and practice of the continuous transformation of industrialization, urbanization and marketization in Jilin Province, and it is also the crisis public relations on the eve of the economic cliff fall.

In order to restrain the impulse to replace "another problem" with "one problem", the planning industry should pay more attention to the policy and grasp design that meets the needs of each stage of transformation before promoting the experience of characteristic towns. Through customized planning and control, we can tap the potential of the carriers such as characteristic towns to promote growth and
connect macro, medium and micro spaces, so as to realize the structural supply side reform from spatial productivity to spatial competitiveness.

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