

# Research on the evaluation of urban network traffic vitality distribution in the new media era——Take the analysis of Beijing's old urban areas based on microblog check-in data using QGIS operations as an example

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**Abstract.** At present, it is an era of rapid development of information technology. "Network traffic" is of great significance. It can be divided into "discussion traffic of topic quantity" and "user traffic of user quantity". In a comprehensive view, traffic is social resources. The larger the traffic, the higher the attention and influence it can bring, the stronger the ability to drive the benefits of all parties and occupy more social resources. Traffic value evaluation has become an indispensable work in the industry development process in the new media era. Starting from the attraction ability of network topic traffic at each location and relying on the microblog check-in data, by using QGIS analysis, this study evaluates the traffic distribution of each plot in the old urban area of Beijing and the distribution of social resources in each plot, in order to put forward a feasible method to evaluate the influence of plot use and promote the fair and balanced distribution of social resources, so as to provide reference ideas for urban vitality evaluation, urban resource allocation guidance and urban design.

**Keywords:** urban vitality; big data; QGIS; Microblog data; network traffic; Old city of Beijing

## 1. Introduction

Traffic refers to the number of visits. In network terms, traffic refers to the attention received by a website or person or place within a certain period of time. For traditional industries, integration with new media is the direction of industry transformation. Traffic is the inevitable highland for them to stand out and avoid being eliminated by the times. Accepting traffic value evaluation has become an inevitable topic.

Users can share real-time information in the form of text, pictures and other forms through the microblog and social media terminals. As the most influential head social platform in China, the microblog check-in data records which points of interest users have interacted with. The microblog check-in data in the old urban area of Beijing are summarized to evaluate the flow vitality of various plots and points of interest in the region[i].

Beijing - the capital of China, the political and cultural center and the first tier city in the world. As the old urban area of Beijing, the second ring road and its surrounding areas are the areas with the most concentrated historical and cultural essence of Beijing. As the center of the capital and the core of the core, the old urban area of Beijing shoulders the important task of carrying forward Chinese civilization, spreading Beijing culture, attracting capital inflow and driving the economic development of the surrounding areas. Due to its special political and historical status, the old urban area of Beijing has both opportunities and challenges between the old and the new. The urban development planning in its area should carefully divide each plot and evaluate the value of the interest points of each subdivided plot, so as to comprehensively grasp the utilization benefits of each plot, analyze its current flow state, and then implement the guidance of industrial planning to "make the best use of the land"[ii].

## 2. Introduction to research scope and data sources

### 2.1 Research scope

The research scope is in the rectangular frame of the old urban area of Beijing (within the second ring road and adjacent surroundings).

### 2.2 Data introduction

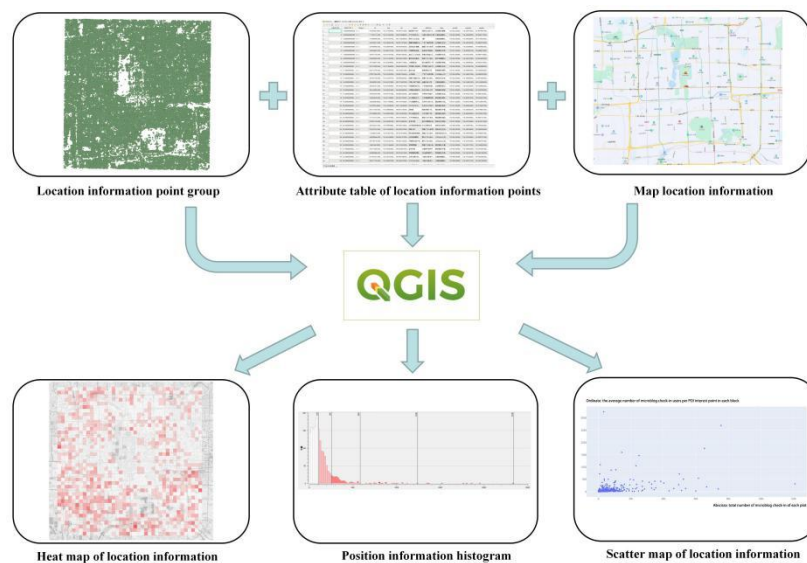
- ① POI points of interest in the second ring road and surrounding areas of Beijing.
- ② Weibo\_poi\_checkins. It contains the following two data.
  - i checkin\_Num: the total number of check-in times at the check-in point.
  - ii checkin\_user\_Num: the total number of users who check in at this check-in point.
- ③ Data source: Microblog public database

### 2.3 Establishment of grid

According to the overall area of the old city of Beijing and the distribution density of interest points, and according to the meaningful visual recognition in the urban streets, the distance is about 250m. Therefore, a rectangular grid with a side length of 250 meters is used to divide the old urban area.

### 2.4 Link between data information and grid

In order to realize the measurement of POI interest point data and Microblog check-in data at the spatial level. In this study, QGIS is used to link the data with the grid established previously, so that the data in each grid can be statistically calculated from different perspectives: the initial shape of the data is a collection of point information, and each point contains multi-dimensional data such as spatial geographic location information, location point name, functional attribute, and usage information. Finally, through the visualization function of QGIS and the map, the distribution statistical map with geographical coordinates is drawn. The redder the color is, the higher the value is. The information processing flow chart is as follows (**Flow chart1**).



**Flow chart1.** Information processing flow chart

### 3. Analysis of dimensions of data in the old urban area of Beijing

#### 3.1 Distribution number of plots at POI interest points

##### 3.1.1.Introduction to related concepts.

The statistics of the distribution number of plots at POI interest points is a step that precedes and is independent of microblog data statistics. Through big data crawling, the position coordinates of various types of POI interest points within the research scope are obtained, and finally the number of POI interest points in each rectangular grid is counted(Algorithm 1).

**$POI_{niep}$ : number of POI interest points in each plot**

(We use the computing system provided by QGIS to count the POI interest points number in each plot)

#### Algorithm 1

##### 3.1.2.Interpretation of data statistics.

Each POI interest point carries a certain function supply function. Therefore, the existence of POI interest points is the premise and foundation of attracting traffic. According to the “Distribution number of POI interest points in each plot”(Figure 1) , there are mainly four areas with the most dense POI points, which are "Wangfujing Street and nearby area", "Chongwenmenwai Street, new world center business hotel area and nearby area opposite Guorui shopping center", "Zhuangsheng square, xuanwumenwai Street" and "both sides of Xidan North Street and nearby business area". In terms of orientation, the four points are roughly located on the geometric diagonal of the old urban area of Beijing and symmetrically distributed in the four directions of the geometric center of gravity[iii](The grids with values between 1240-2338 in Figure 1 ).

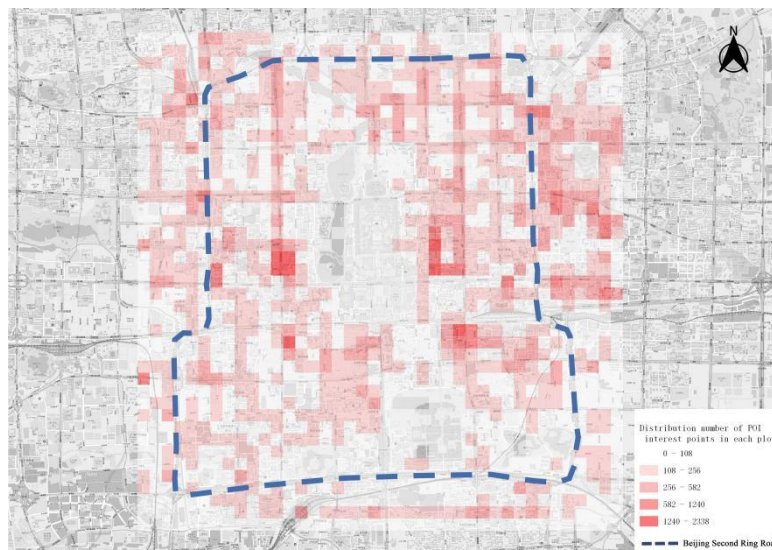


Figure 1. Distribution number of POI interest points in each plot

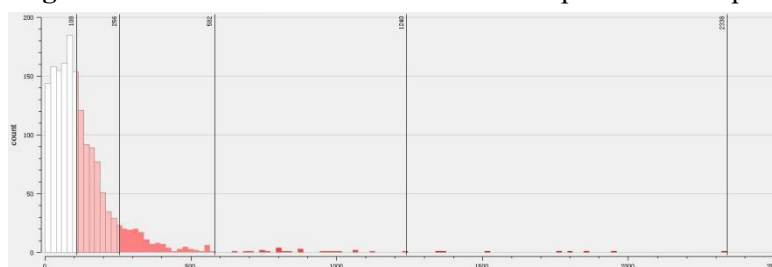


Figure 2. Distribution histogram of plots at POI interest points

The secondary areas with dense POI numbers are "Metropolis classic building on the southeast side of Dongzhimen bridge and its surrounding areas", "Chaowai Market Street youtang Life Plaza, Fanli building, industrial bank, China Life Building", "Shimao Tianjie pedestrian street, world city area, Jianguomenwai Street Saite shopping center, Huabin central office building", "Fuxingmen northeast corner international enterprise building, Parkson Shopping Center", "Fuchengmenwai street new world commodity trading market", "Kaide mall, West Ring Plaza, southwest of Beijing North Railway Station"(The grids with values between 582-1240 in Figure 1 ).

From the overall point of view, there are great differences in the distribution of POI interest points of various plots in the old urban area of Beijing. With the Forbidden City as the center, the interest points in the northeast area are the most dense, while the interest points in the southeast area are the most sparse. In addition, the number of POI interest points in and around large cultural park attractions in the region, such as Jingshan Park, Beihai Park, Taoranting Park, Temple of Heaven Park and Longtan Park, is the least. In terms of POI density distribution, the plot where large historical and cultural scenic spots and scenic spots are located has the lowest POI density. The commercial gathering area based on large shopping malls has the largest POI density in the plot. From the overall distribution, the areas with dense POI distribution are the plots along both sides of the streets of major cities, and the grid texture of Beijing streets is obvious. From the perspective of functional categories, POI gathering areas are all commercial areas, gathering a large number of merchants and shops. Therefore, there are the largest number of POI interest points distributed per unit area.

It can be learned from the " Distribution histogram of plots at POI interest points" (Figure 2)that there is an overall trend in the number of POI interest points in various blocks in the old urban area of Beijing, which does not show a normal distribution. On more plots, the number of POI is less than 500 points per grid (62500 m<sup>2</sup>), and the number of plots larger than 500 points suddenly decreases. From the perspective of land use, the overall utilization intensity of the old urban area of Beijing is not high. For future development, we should consider improving the utilization intensity per unit area of the plot while continuing the context texture.

According to the distribution shown in the "POI plot distribution map", the POI interest points in each region in the old urban area of Beijing are roughly evenly arranged, but the northeast corner is the most densely arranged and the southeast is the most sparse. In order to realize the further coordinated development of infrastructure allocation in the region, the second ring road and its surrounding areas, and the southeast are the key areas for further development and adjustment in the future.

### 3.2 Distribution number of microblog check-in points in each plot

#### 3.2.1.Introduction to related concepts.

The statistics of the number of microblog check-in points distributed in each plot means that after the microblog data is crawled, each check-in point is included in the grid, and the number of check-in points in each grid is calculated(Algorithm 2).

#### ***MCP<sub>nlep</sub>* : number of Microblog check-in-points in each plot**

(We use the computing system provided by QGIS to count the Microblog Check-in-Points number in each plot)

#### **Algorithm 2**

#### 3.2.2.Interpretation of data statistics.

According to the "Distribution map of each plot of microblog check-in points"(Figure 3), there is one area with extremely dense microblog check-in points: "nanwanzi Hutong and beiwanzi Hutong area"(The grids with values between 572-19452 in Figure 3 ).

The secondary dense areas are "Wangfu central on both sides of Wangfujing Street, AMP and nearby areas of new Dong'an square", "viewing platform on the east of Jinshui bridge of Tiananmen

Square, Cultural Palace police station and Taimiao area", "Beijing Dongjiaominxiang Hotel, Huafang hotel catering area on Zhengyi road", "new world Center Business Hotel area and Guorui shopping center on Chongwenmenwai Street". "On both sides of Xidan North Street, near Xidan Joy City, Juntai department store, Warwick building, Hanguang department store, etc."(The grids with values between 260-572 in Figure 3 ). The next level is "Wangfujing building on both sides of Wangfujing Street, Yuhua Minzu building, new Anton square", "new Yansha Jinjie shopping square on both sides of Wangfujing Street, Dongfang Xintiandi office building", "Zhuangsheng square in xuanwumenwai Street", "Baisheng shopping center in the northeast corner of fuxingmenqiao", "financial Street shopping center on the east side of Financial Street", "youtang life square in Chaowai Market Street and Honghao business center", "World Trade Tianjie pedestrian street, world city area"(The grids with values between 91-260 in Figure 3 ).

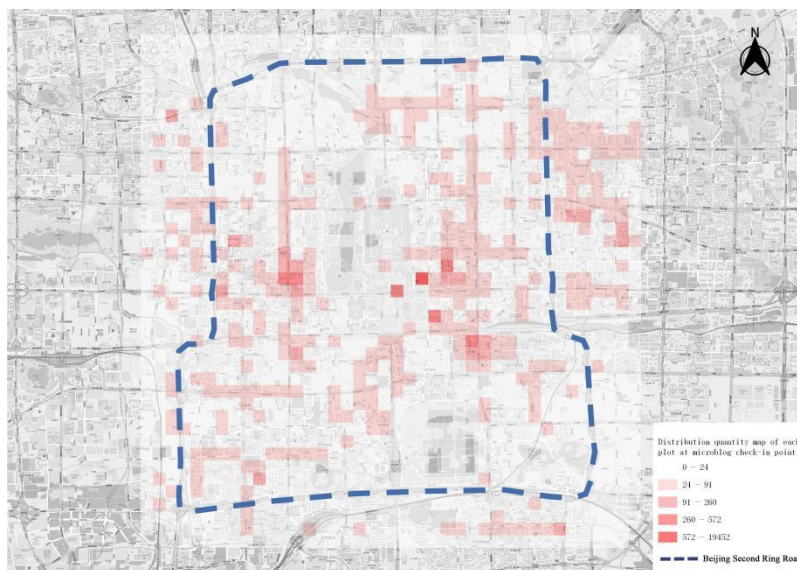


Figure 3. Distribution quantity map of each plot at Microblog check-in point

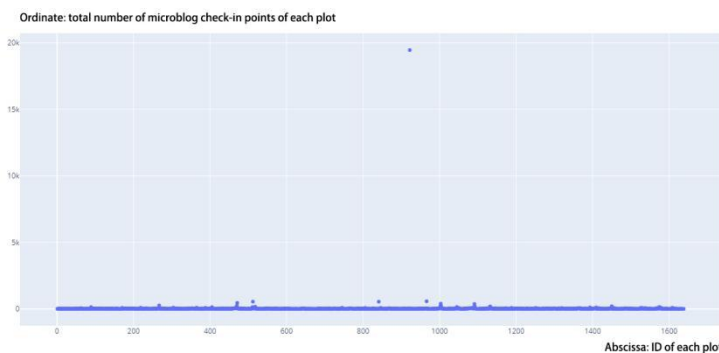


Figure 4. Scatter map of the distribution number of plots at Microblog check-in points

From the difference between "microblog check-in point distribution quantity map of each plot" and "POI distribution quantity map of each plot", it can be seen that the distribution synergy between the density of POI interest points and the intensity of topic traffic attraction is low. It can be seen that the location with high density of POI interest points is not completely the hot location of microblog discussion. The number of microblog check-in points in each plot shows an obvious weakening trend in the edge of the old urban area far away from the Forbidden City. The areas with the most dense check-in points are concentrated on both sides of the Forbidden City[iv].

By generating a scatter diagram for the distribution of each plot of microblog check-in points, it can be seen that there are huge quantitative differences in the distribution number of microblog

check-in points. From the positioning, we can know that the microblog check-in points gather in large numbers near "nanwanzi Hutong and beiwanzi Hutong", and the microblog check-in points contained here are much higher than those in other regions.

Through the analysis of the "Distribution map of each plot of microblog check-in points" combined with the "Scatter map of the distribution number of plots at microblog check-in points"(Figure 4), it can be seen that the number of POI interest points signed in by microblog far exceeds that of other plots in the unit plots of "nanwanzi Hutong and beiwanzi Hutong" which represent the "Hutong Culture" of old Beijing. It shows that there are many POI interest points that can cause topic discussion, are worth punching in as a souvenir, and are recommended to be shared with others. It can be seen from this phenomenon that even though the times are changing and the wheel of history is moving forward, the "Hutong" is still the most eye-catching and most worthy place to visit and punch in in the old urban area of Beijing.

From the perspective of the number of plots distributed at the microblog check-in points, except for the "nanwanzi Hutong and beiwanzi Hutong" as the top attraction of traffic, it is far more than other plots, and other plots show a weak competitiveness in the distribution of microblog check-in points. From the perspective of balanced development of the whole region, the old urban area of Beijing should develop some competitive areas in other locations to drive the common development of the surrounding areas.

### 3.3 "Distribution map of microblog check-in number in each plot" and "Distribution map of the number of microblog check-in users in each plot"

#### 3.3.1.Introduction to related concepts.

In order to determine the attention of Weibo in each area within the scope of the study, determine the total signed in amount of Weibo in each area and the number of audience users, the "Distribution map of microblog check-in number in each plot(Algorithm 3)"(Figure 5) and "Distribution map of the number of microblog check-in users in each plot(Algorithm 4)" (Figure 6) were made. The former can reflect the total amount of microblog topic traffic caused by all POI interest points in a grid, but it can not reflect the number of users affected by all POI interest points in the grid. It will ignore the situation that individual users check in at that point many times. The latter can reflect the number of users affected by a POI interest point, that is, the number of audiences, but can not reflect the number of multiple check-in, that is, it can not reflect the number of individual check-in for some POI interest points.

**$MCN_{niep}$  : number of Microblog check-in-number in each plot**

**(one user may check-in not only once )**

(We use the computing system provided by QGIS to sum the Microblog Check-in-Number number in each plot)

#### Algorithm 3

**$MCU_{niep}$  : number of Microblog check-in-users in each plot**

**(No matter how many times each user signs in, it is only counted once )**

(We use the computing system provided by QGIS to sum the Microblog Check-in-Users number in each plot)

#### Algorithm 4

#### 3.3.2.Interpretation of data statistics.

From the comparison of "Distribution map of microblog check-in number in each plot", "Distribution map of the number of microblog check-in users in each plot" and "Microblog check-in quantity and distribution histogram of each plot"(Figure 7) and "Number of microblog check-in users and distribution histogram of each plot"(Figure 8), it can be seen that the two are basically similar except for slight differences in subtle data. On the whole, they show a more uniform and dispersed pattern. The most densely distributed places in the map of Beijing are "South stations"(The grids with values between 75427-120899 at south side of the outer bottom of Beijing

Second Ring Road in Figure 5 ,The grids with values between 49083-94765 at south side of the outer bottom of Beijing Second Ring Road in Figure 6 ). The secondary dense areas are "Wangfujing Yintai in88 on both sides of Wangfujing Street, Wangfujing taohui Xintian shopping plaza", "new Yansha Jinjie shopping plaza on both sides of Wangfujing Street, Dongfang Xintiandi office building" and "viewing platform on the west side of Jinshui bridge of Tiananmen Square". "Juntai department store and Xidan renewal field on both sides of Xidan North Street", "Hutong areas on the north and south sides of Shichahai Yinding bridge", "qiangulouyuan Hutong, black sesame Hutong and xiaojuer Hutong area of NanLuoGu lane", "Chaoyang Gate Bridge and Chaoyang Gate subway station area", "Beijing station area", "Dongzhimen Station area", "Dongli campus of workers' Stadium", "World Trade Tianjie pedestrian street and world city area", "Siyuan lawn of Beijing Jiaotong University"(The grids with values between 75427-120899 at central part of the outer bottom of Beijing Second Ring Road in Figure 5 ,The grids with values between 49083-94765 at central part of the outer bottom of Beijing Second Ring Road in Figure 6. The grids with values between 40217-75427 in Figure 5. The grids with values between 25769-49083 in Figure 6 ). There is no obvious distribution trend along the street in the overall image presentation.

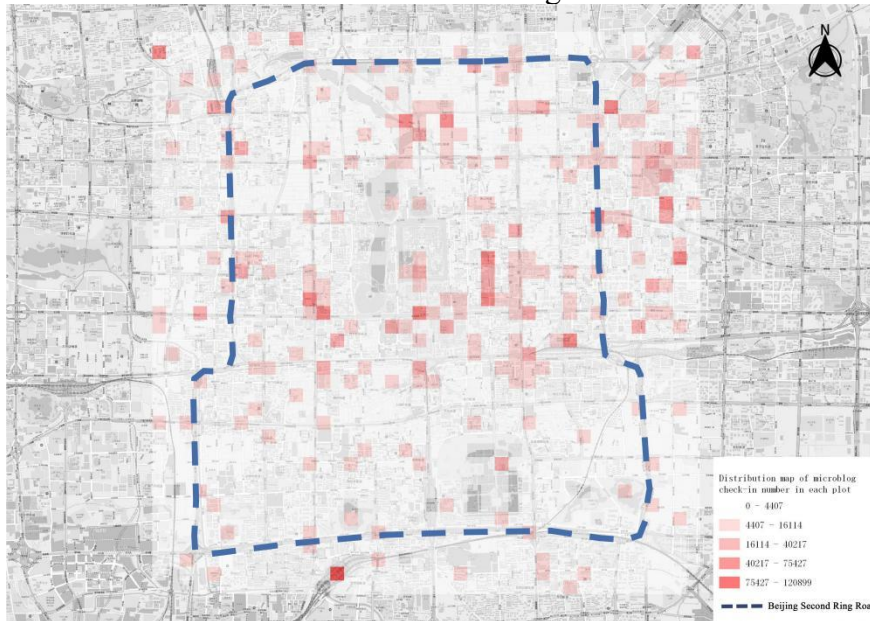


Figure 5. Distribution map of Microblog check-in number in each plot

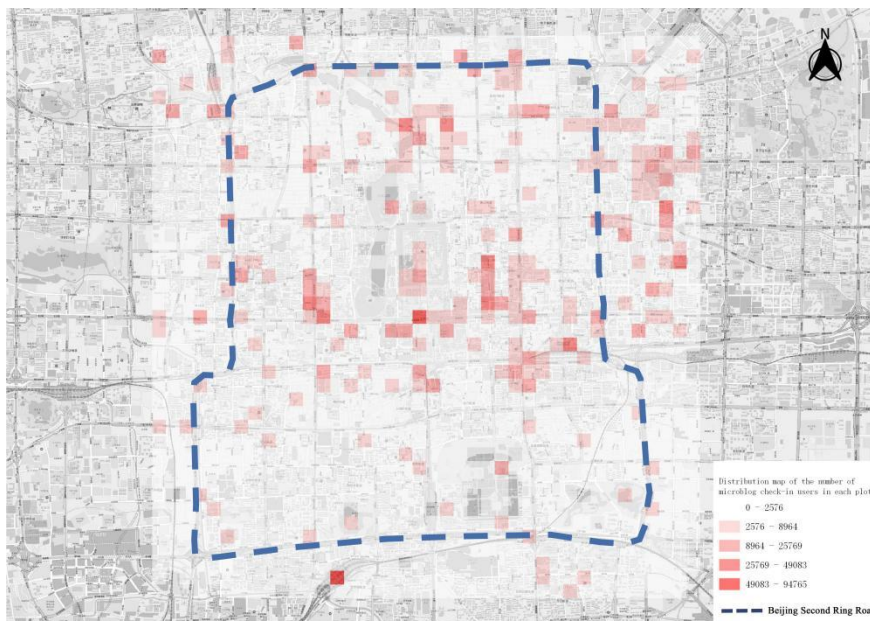
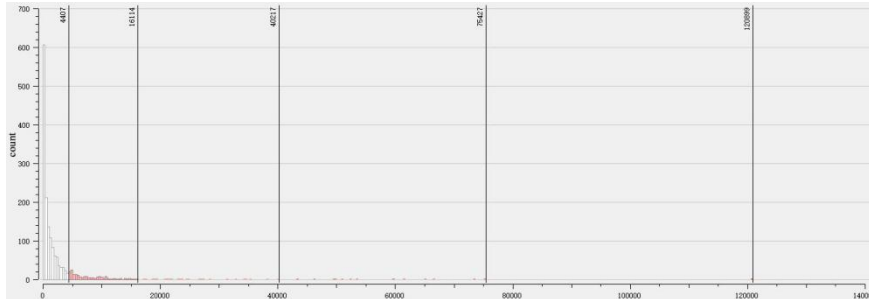
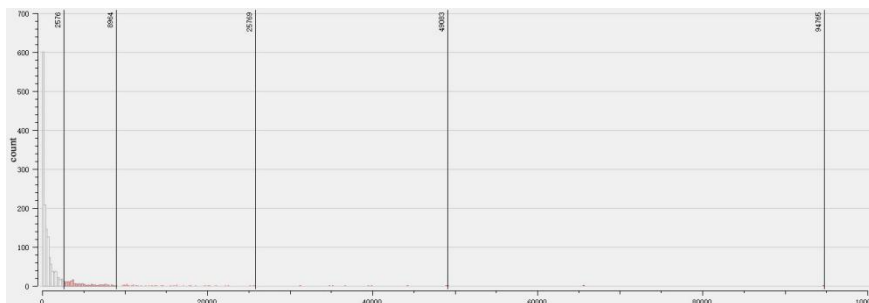


Figure 6. Distribution map of the number of Microblog check-in users in each plot

From the perspective of distribution type, in these two statistics, the locations with a large number of check-in are mostly shopping malls, transportation stations and residential areas. This type of POI points of interest are closely related to residents' daily life and travel, so more people participate in it for discussion and sharing.



**Figure 7.** Microblog check-in quantity and distribution histogram of each plot



**Figure 8.** Number of Microblog check-in users and distribution histogram of each plot

It can be seen from the statistical results that "Distribution map of microblog check-in number in each plot" are basically consistent with "Distribution map of the number of microblog check-in users in each plot". The vast majority of people in each grid only sign in once in a POI interest point, and the situation of the same person signing in multiple times in a POI interest point hardly affects the overall distribution form[v].

It can be seen from the "Distribution map of microblog check-in number in each plot" and "Distribution map of the number of microblog check-in users in each plot" that the area of the white area representing less sign-in quantity is significantly larger than that of the red area representing more sign-in quantity. From the statistical results of the total number of microblog attendance and the distribution of the number of participants, many places in the old urban area of Beijing are in a state where microblogs are rarely mentioned or even never involved. It can be seen that the vast majority of plots in the old urban area still lack network exposure, need to be paid more attention to by social media, and the activity of online social media in the region needs to be improved.

### 3.4 Per capita microblog check-in

#### 3.4.1 Introduction to related concepts

In order to further accurately locate which areas attract multiple check-in, the statistics of the distribution of per capita check-in number are made within the scope of the study(Algorithm 5).

$$PCM_{niep} = \frac{MCN_{niep}}{MCU_{niep}}$$

**PCM<sub>niep</sub> : number of per capita Microblog check-in**

**Algorithm 5**



3.4.2 Interpretation of data statistics

The map shows that the location with the highest multiple check-in index is "the residential area on the south side of Chuiyangliu campus of the middle school affiliated to Beijing University of technology"(The grids with values between 9.6-20.03 in Figure 9 ). The secondary dense areas are "urban highlights of Minzhu North Street, Chongwen District", "courtyard 3, Sanlihe District 1", "yingchunli community, nancai yuan Street", "Jingshan East Street bus station", "poly rose garden on the east side of Huiwen Middle School, Peixin street, south of guangqumennei street, Chongwen District", "residential area near xuanwulu long street, Qianmen Street", "zuo'anxi garden, southeast corner of Longtan Zhonghu Park", "zone 2, zifangyuan, East District, Fengtai Fangzhuang district", "Courtyard 1, youanmennei West Street, Xuanwu District", "Caiyuan street, guanganmennei, Xuanwu District, east of Zaolin Xili", "zone 3, Yulin Dongli, youanmenwai street, Fengtai District"(The grids with values between 9.6-20.03 other positions after the above positions in Figure 9 ).

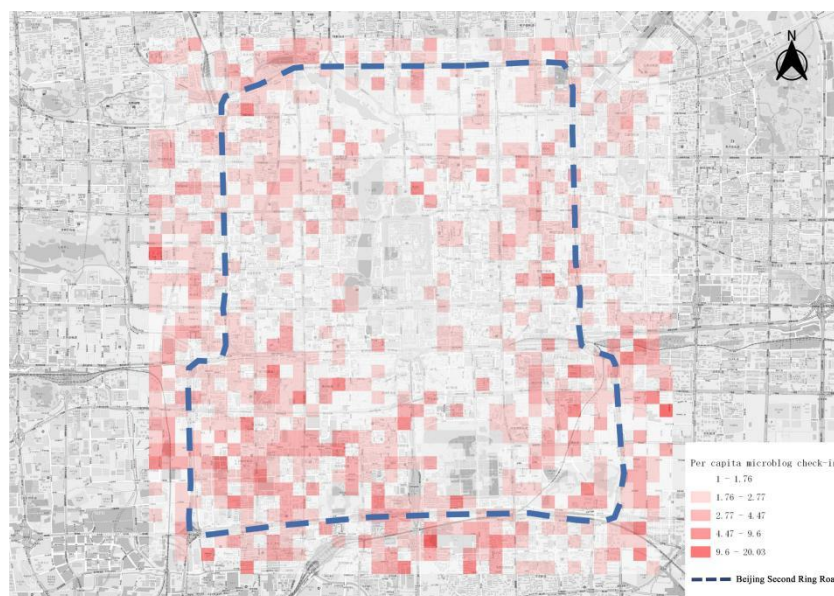


Figure 9. Per capita Microblog check-in

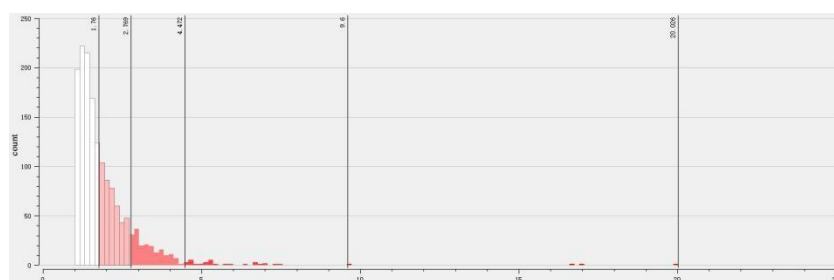


Figure 10. Microblog per capita attendance histogram

From the arrangement of "Per capita microblog check-in"(Figure 9), the number of sign ins around the edge of the old urban area is higher, the middle position index is low and the south is low, which is just the opposite to the distribution characteristics of "Distribution map of microblog check-in number in each plot" and "Distribution map of the number of microblog check-in users in each plot".

From the overall "Microblog per capita attendance histogram"(Figure 10), the locations with high per capita sign in number of microblogs basically focus on residential areas that meet the basic needs of life. In contrast, the following mentioned "Number of each POI interest point signed in on Microblog"(Figure 11) and "Number of users signed in on Microblog for each POI interest point"(Figure 12) ranked the highest in the cultural symbol of the country's important buildings and

venues, the data on "microblog multiple sign in per capita" is no longer prominent. It can be seen that individuals frequently sign in at one point and publish microblog information, and pay more attention to the topic of housing supply related to basic living security.

Through the analysis, it can be seen that the functional layout in the south of the old urban area of Beijing tends to be closer to people's daily life, and there is a lack of large-scale commercial and cultural interest points that can become landmarks. In order to promote the coordinated development between regions, the layout of large shopping malls and cultural POI interest points can be added in the south of the old urban area in the future.

### 3.5 "Average number of each POI interest point signed in on Microblog" and "Average number of users signed in on Microblog for each POI interest point"

#### 3.5.1 Introduction to related concepts

Whether it is topic traffic or audience traffic, its density distribution is directly related to the number of POIs in each grid. In some areas, the number of POI interest points is set densely, and the traffic acquisition can be accumulated by virtue of the number advantage. In some areas, the number of POI interest points is set sparsely, and the traffic acquisition has no quantitative blessing. Therefore, it is also necessary to pay attention to the intensity of POI interest points attracting traffic in each spatial location. For the convenience of calculation, assuming that the flow attraction capacity of POI interest points in each grid is the same, the total flow can be averaged to each POI, so as to obtain the distribution map of the flow attraction intensity of a single POI interest point in each grid, and then lock out the POI interest points with high individual appeal.

For this reason, two statistical analyses have been made within the scope of the study: "Average number of each POI interest point signed in on Microblog(Algorithm 6)" and "Average number of users signed in on Microblog for each POI interest point(Algorithm 7)". The former can reflect the total amount of microblog topic traffic caused by a certain point of interest, but can not reflect the number of users affected by the point of interest. The latter can reflect the number of users affected by a certain point of interest, that is, the number of audiences, but it can not reflect the number of multiple check-in, that is, it can not reflect the multiple check-in of individuals at some POI points of interest[vi].

**APOI : Average number of each POI interest point signed in on Microblog**

$$APOI = \frac{MCN_{niep}}{POI_{niep}}$$

**Algorithm 6**

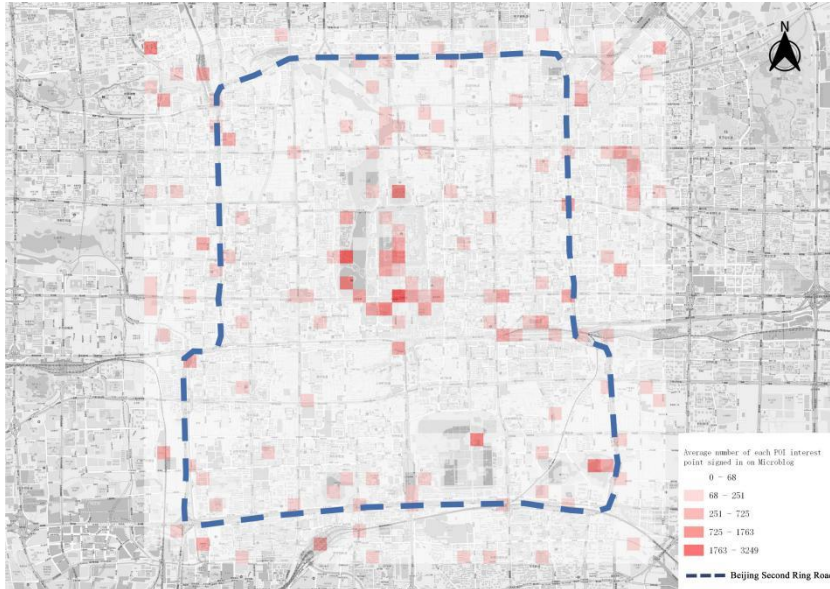
**AUPOI : Average number of Users for each POI Interest Point Signed In on Microblog**

$$AUPOI = \frac{MCU_{niep}}{POI_{niep}}$$

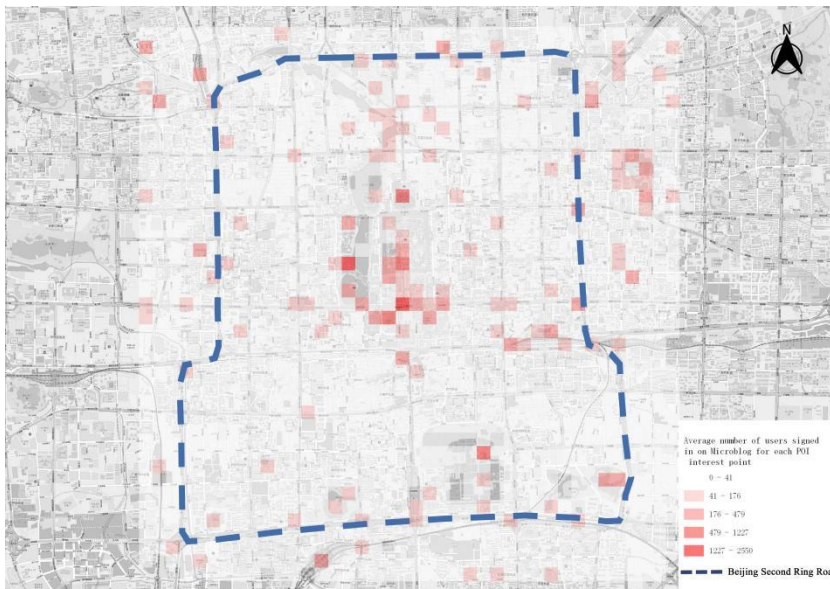
**Algorithm 7**

#### 3.5.2 Interpretation of data statistics.

It can be seen from the two figures of "Average number of each POI interest point signed in on Microblog" (Figure 11) and "Average number of users signed in on Microblog for each POI interest point"(Figure 12). There are two places with the highest sign in numbers: "viewing platform on the west side of Tiananmen Square" and "Beijing Book Building"(The grids with values between 1763-3249 in Figure 11.The grids with values between 1227-2550 in Figure 12). The second highest are "taihemmen square of the Forbidden City", "Great Hall of the people", "Jingshan Park", "around the prayer hall of the temple of Heaven Park", "Longtan Park" and "Siyuan lawn of Beijing Jiaotong University "(The grids with values between 725-1763 in Figure 11.The grids with values between 479-1227 in Figure 12).

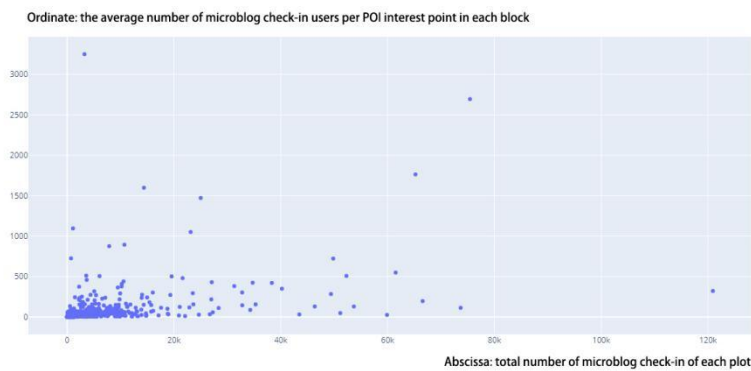


**Figure 11.** Average number of each POI interest point signed in on Microblog

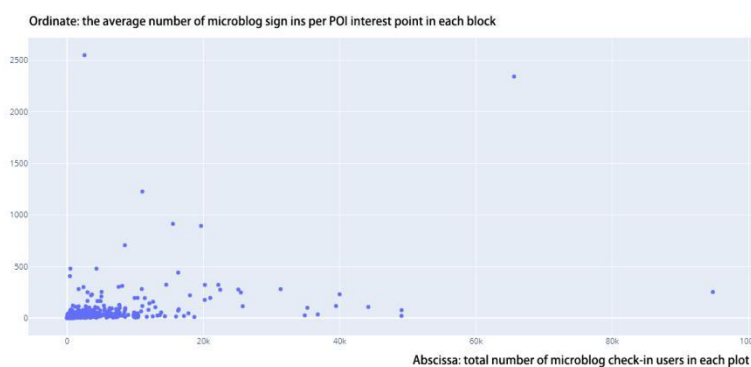


**Figure 12.** Average number of users signed in on Microblog for each POI interest point

"POI points attract the high number of microblog check-in" to gather around the Forbidden City. From this point, it can be reflected that in the whole city of Beijing, the IP with the most individual charm and traffic attraction is the architectural complex of the Forbidden City, Tiananmen Square and the important artifacts of surrounding countries, which symbolizes Chinese traditional culture and national image.



**Figure 13.** Average number of each POI interest point signed in on Microblog scatter diagram



**Figure 14.** Average number of users signed in on Microblog for each POI interest point scatter diagram

The distribution of "Average number of each POI interest point signed in on Microblog" and "Average number of users signed in on Microblog for each POI interest point" are basically the same. The largest number of people signing in at a single point are still the Forbidden City, Tiananmen Square and the important buildings of surrounding countries, which symbolize Chinese traditional culture and national image. These venues can be called the "Top traffic attractor" in the new media era, and have won a lot of attention and traffic on their own. However, from the "Average number of each POI interest point signed in on Microblog scatter diagram"(Figure 13) and "Average number of users signed in on Microblog for each POI interest point scatter diagram"(Figure 14), the vast majority of points are concentrated in the lower left corner where "the total number of sign ins in the grid" and "the average number of sign ins per point in the grid" or "the average number of sign in users per point in the grid" are the smallest, However, no point is located in the upper left corner indicating that "total number of check-in in the grid" and "average number of check-in users attracted by each point in the grid" or "average number of check-in users attracted by each point in the grid" are the largest. It can be seen that most of the POI interest points with top flow potential in the old city of Beijing are in a state of fighting alone. There are still some POI interest point communities with relatively dense arrangement in the old city of Beijing, which can attract a large amount of traffic and have greater influence at the macro level. In order to further promote the POI interest points with greater social influence in the region, the development of the old urban area of Beijing should focus on cultivating a number of POI interest point community areas with similar geographical location and the same cultural atmosphere, so as to drive the regional cultural and economic development.

### **3.6 The current situation and development suggestions of the old urban area of Beijing reflected in the microblog check-in data statistics**

Through the visual analysis of data visualization, it can be seen that the pedestrian business districts represented by Xidan and Wangfujing mostly win in terms of traffic acquisition with dense POI interest points and dense flow of people. Taking Tiananmen Square, Beijing Library and the Forbidden City near the Forbidden City as examples, the most important places of the country do not focus on the dense POI interest points, but attract traffic through a strong IP appeal. The traffic acquisition route styles of the former and the latter are quite different.

In the future, locations that win by the number of POI interest points, including Xidan business district and Wangfujing business district, should build IP with strong appeal to improve the flow attraction capacity of POI interest points, in order to produce an industrial or cultural image with landmark appeal to guide the development of the area. Taking Tiananmen Square and the Forbidden City as examples, as well as major parks, due to their special functions and cultural atmosphere, it is often inappropriate to evaluate the traffic. However, in the places around the Forbidden City that lack the number of POI interest points, we can achieve more detailed and comprehensive development by activating the internal industrial and commercial layout and attracting topic traffic and audience user traffic.

Through the analysis of the old urban area of Beijing, it can be seen that in terms of traffic attraction ability, the IP of commercial function still occupies an absolute advantage in topic drainage. As the core position of the Chinese cultural center, the museums, cultural palaces and other cultural venues in the second ring road are still insufficient in the total number of topic influence. It shows that there is still a huge market potential in Beijing's cultural field.

On the whole, the vitality of the old urban area of Beijing has not been fully released, and the traffic potential of Beijing's profound historical and cultural heritage is huge. Reasonably excavating regional characteristics and mastering the key factors of obtaining traffic can not only inject new vitality into local urban development, but also provide sustainable driving force for the inheritance of local historical and cultural values[vii].

## **4. Conclusion and discussion**

Every city has its own advantages and disadvantages. In the new media era, the research on the evaluation of network traffic vitality distribution can have a keen insight into the vitality sources of various areas in the city, and mine the data from different dimensions, which provides the following four conveniences for maintaining the vitality of the city.

### **4.1 Dynamic evaluation**

As the microblog check-in data is updated all the time, the evaluation of land parcel activity using microblog check-in data has very high timeliness. At the same time, long-term and dynamic monitoring can also be carried out, and the data can be sorted out regularly, so as to obtain the latest urban development trends, judge the short board of urban vitality, and then implement the regulation policies most conducive to market development.

### **4.2 Key cultivation**

The significance of studying the spatial distribution of urban traffic attraction capacity is to identify the most attractive within the research scope, which can be developed and built as a landmark, so as to make the strong stronger and further form a brand effect. Let the most appealing places form influence, drive the core hub position, and drive the development of surrounding areas in the form of points.

### 4.3 Vacancy filling

The significance of studying the spatial distribution of urban traffic attraction capacity also lies in identifying the locations that lack the blessing of cultural or entertainment service places and the lack of surrounding supporting facilities within the research scope. Construction support should be given to weak areas according to the identified conditions, and IP points with attractive traffic in the future should be cultivated and incubated in the short board space. Thus, it helps to realize the functional allocation and influence improvement of areas with insufficient resource allocation.

### 4.4 Vulnerable support

The significance of studying the spatial distribution of urban traffic attraction capacity also lies in identifying the locations within the research scope that are equipped with cultural or entertainment service places and relatively complete surrounding facilities, but with low activity and insufficient vitality. Through data analysis, we can evaluate the effectiveness of POI interest points set in the plot, identify the location of low efficiency in urban areas, find the causes of low vitality, generate elimination mechanism, or adjust the configuration of upgrading structure. So that areas with development potential can radiate a strong influence after appropriate adjustment[viii].

In the future, the development and renewal of cities will become a dynamic and sustainable process. Urban construction and planning will be more closely linked with big data and new media. Therefore, using big data and new media to guide urban construction and planning will become a trend in the future.

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