

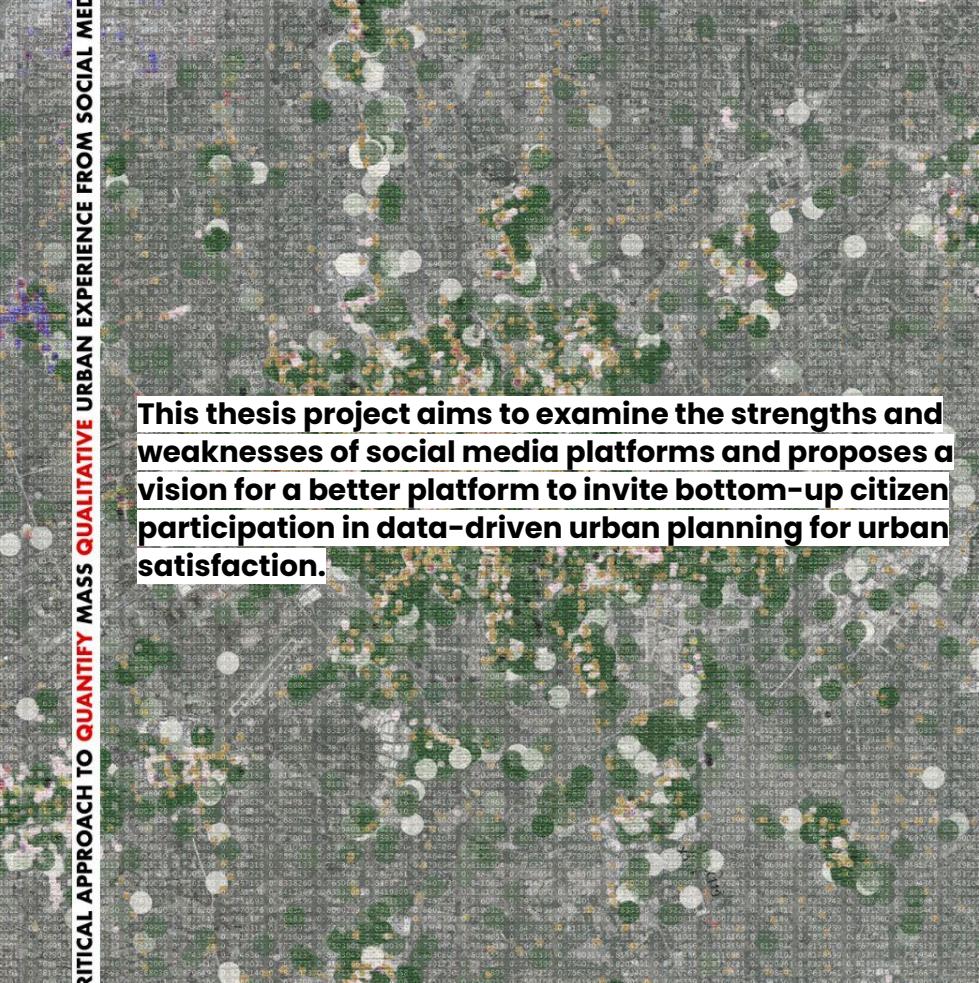
# URBAN PLANNING FOR URBAN **SATISFACTION**

YUANZHAO WANG

THESIS PRESENTATION  
MDES ULE 2022

ADVISOR: PROF. CAROLE TURLEY VOULGARIS





This thesis project aims to examine the strengths and weaknesses of social media platforms and proposes a vision for a better platform to invite bottom-up citizen participation in data-driven urban planning for urban satisfaction.

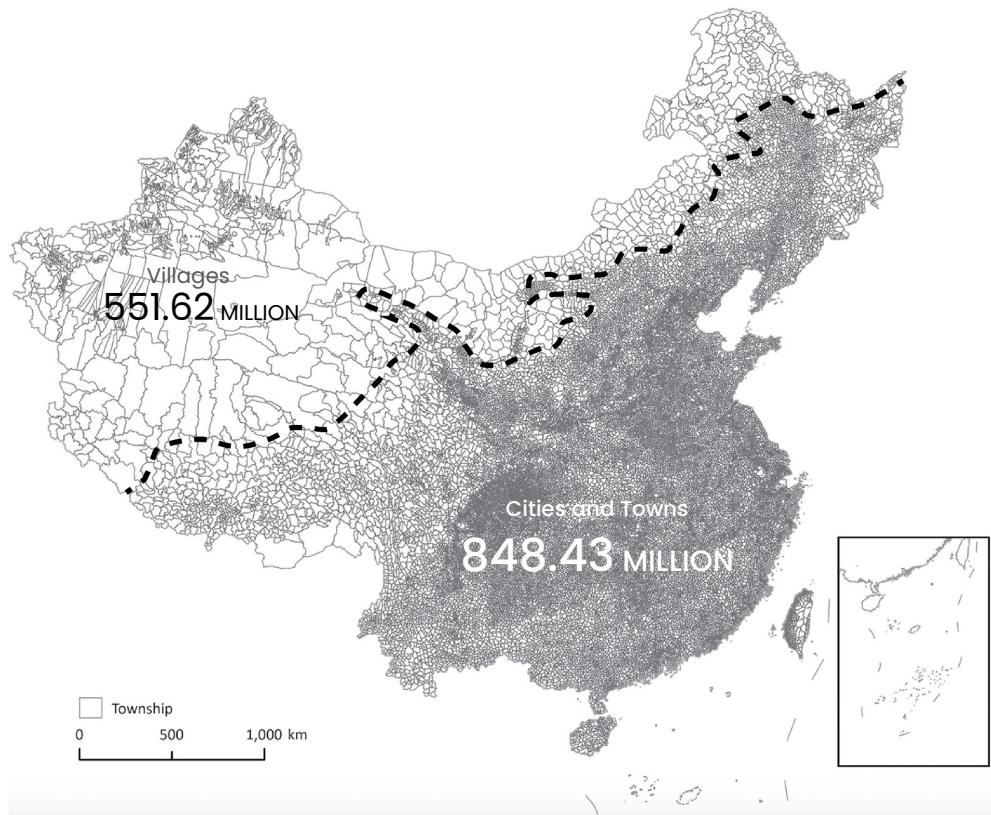
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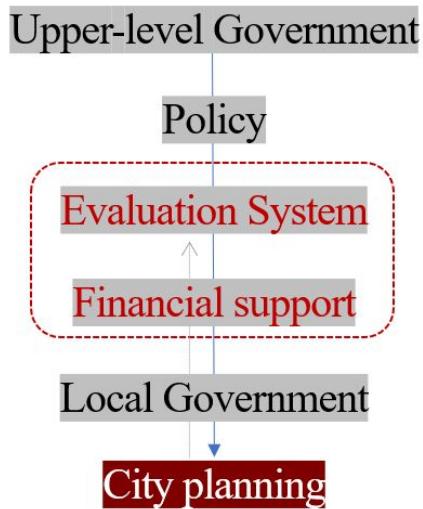
## TOWNSHIPS & INTERNET POPULATION IN CHINA



In 2022, there are more than **1.02 billion** people have access to mobile internet, while **68%** of them frequently use *social media platform*.

**663 Cities VS. 41636 Towns and Villages**

## MAJOR URBAN ISSUES AND SHIFTS IN CHINA

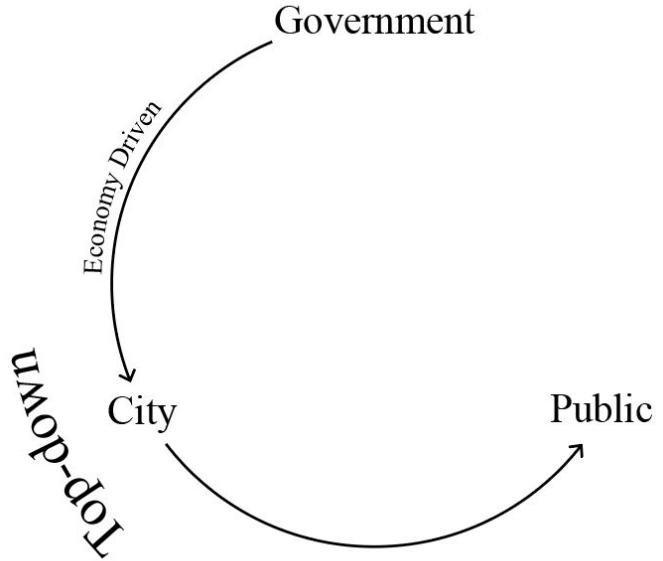


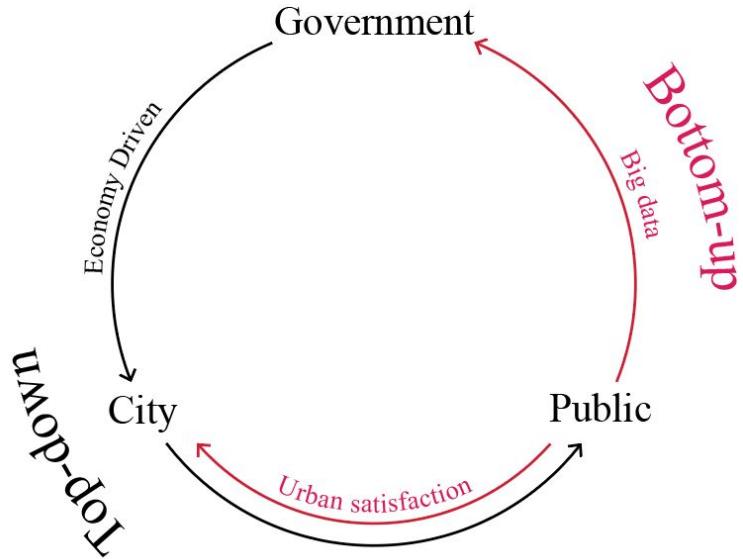
**TOP-DOWN**



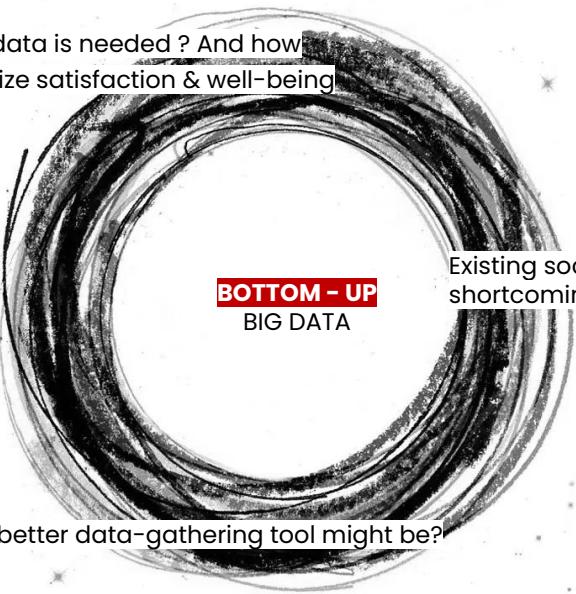
1. Shift of Planning focus: **People-Oriented**
2. Lack of public participation: **Public satisfaction**
3. Growing internet population: **Urban big data**
4. Emerging concept: **Smart City & Technology**

## RESEARCH PROPOSAL



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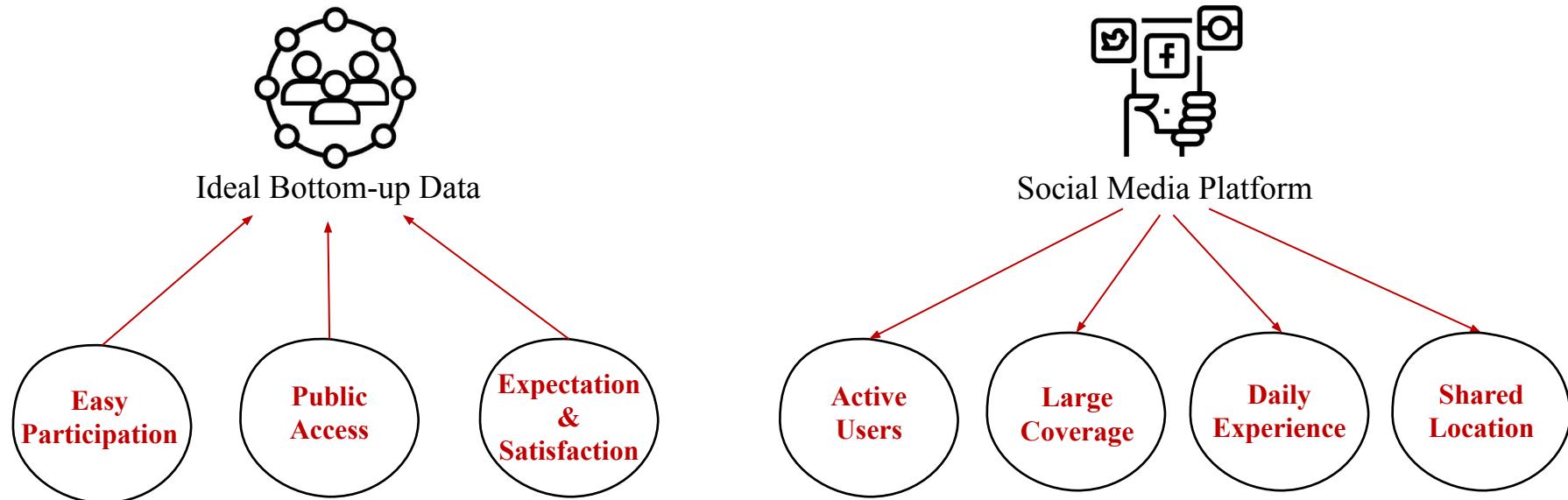


What data is needed ? And how  
to optimize satisfaction & well-being

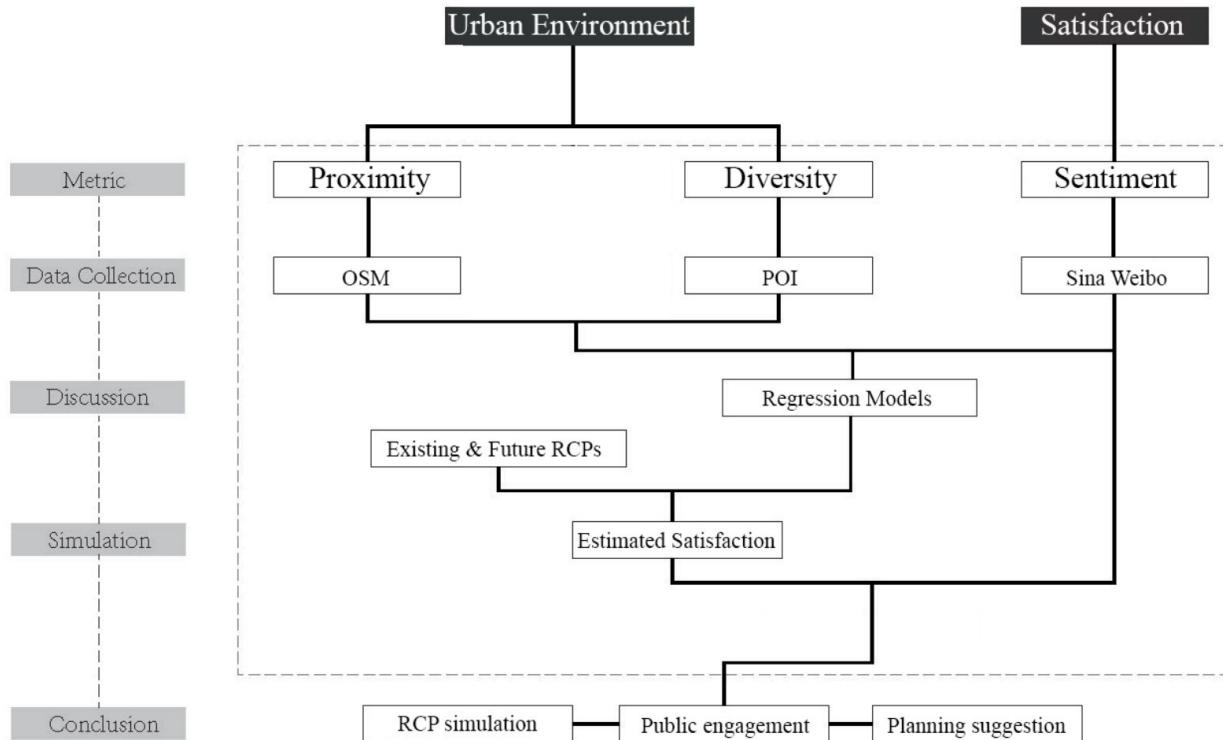
Existing social media data is not enough, what are the  
shortcomings?

What better data-gathering tool might be?

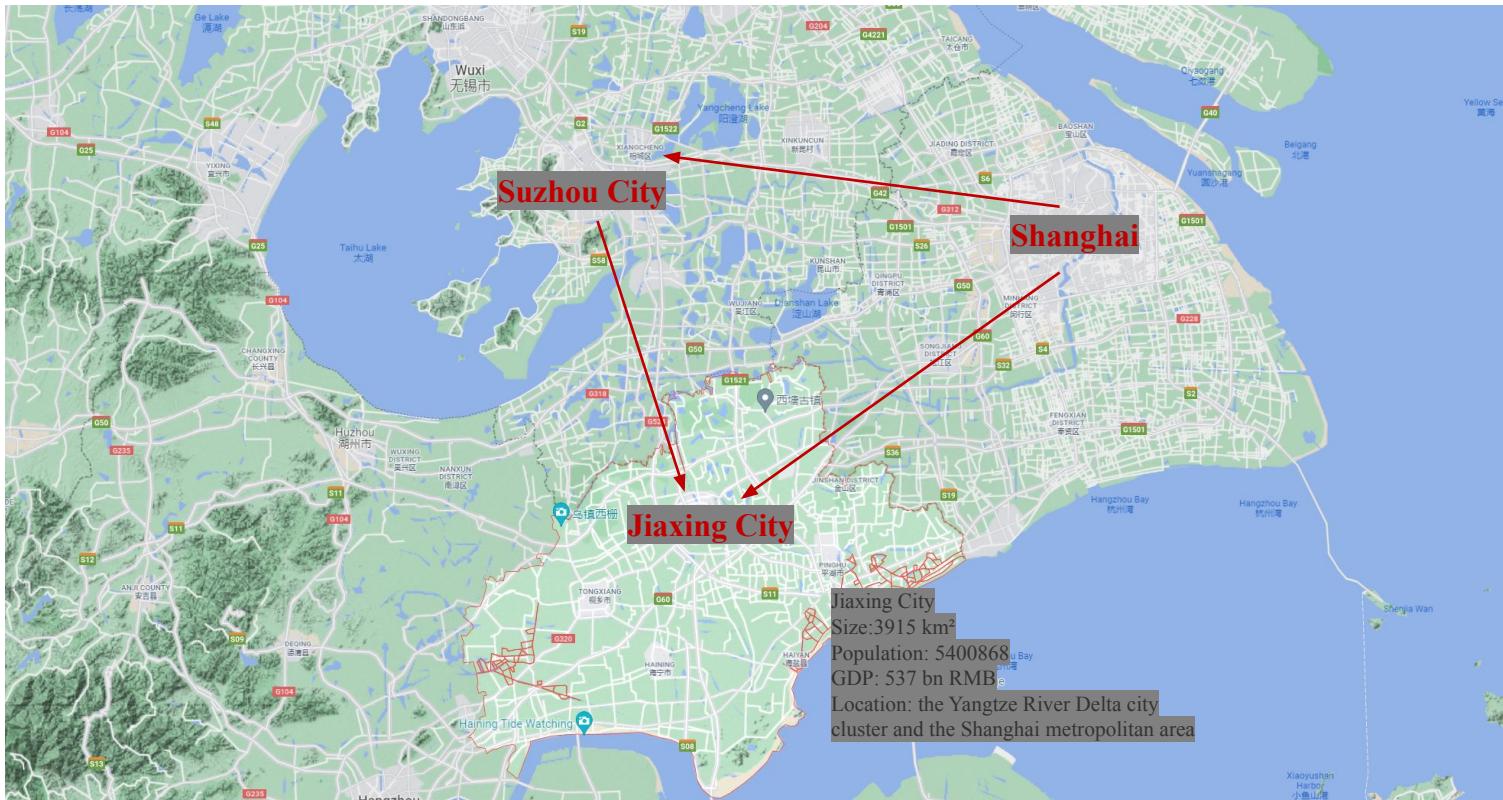
## CAPABILITY OF SOCIAL MEDIA PLATFORM



## METHODOLOGY



## SITE



## SENTIMENT ANALYSIS OF SOCIAL MEDIA POST

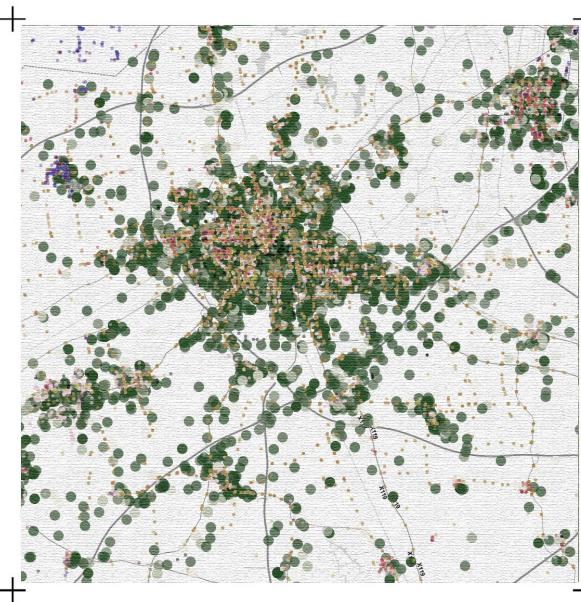


**12000+ Weibo Posts**

#Jiaxing# #2018#

**Sentiment classification**  
**Positive probability**  
**Negative probability**  
Sentiment analysis

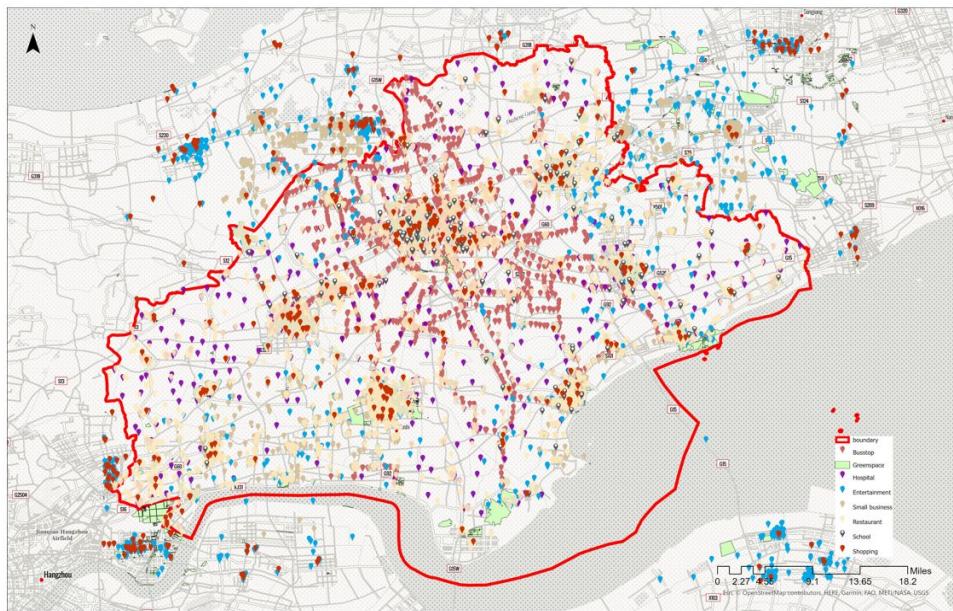
2018-10-11 18:53:40 I never dreamed that it was the first time in my life that I came to Jiaxing because of a temporary decision to get off the bus early. Although this city is unfamiliar, it feels very friendly. 0.999739  
 2018-08-29 19:00:04 Coordinated with Auchan, Nanhu, Jiaxing, and found a cute little white cat. I took care of her, applied the potion, and cried when she ate cat food. So sad, have you adopted any? Please. 0.986276  
 2018-08-01 01:15:59 As a Jiaxing person, I can actually eat a few bites of Chengdu's spicy roasted rabbit. It seems that after staying in Hangzhou for a long time, the ability to eat spicy food has improved. 0.986541  
 2018-09-14 10:45:12 I am still here in Jiaxing, and I am still here in Jiaxing. 0.999512  
 2018-10-21 18:24:48 I didn't sleep until one o'clock in the morning after chatting last night. In the morning, I watched the whole Jiaxing in the revolving restaurant on the 25th floor. Go shopping! 0.999707  
 2018-10-04 06:47:16 Yesterday was really too tired. I woke up from Shanghai at 4:00 and made a rough trip to Zhejiang and Jiaxing. In the afternoon, I went to Hangzhou and West Lake. I returned to the ... 0.997525  
 2018-10-13 10:45:14 I forgot to post the pictures of my trip to Jiaxing. Yesterday. Here he is. Every day is a red update, and I am still here in Jiaxing. The atmosphere in Shanghai is a bit depressing. McDonald's, everyone! 0.999506  
 2018-09-14 09:15:59 I am still here in Jiaxing. I am still here in Jiaxing. The atmosphere in Shanghai is a bit depressing. McDonald's, everyone! 0.999437  
 2018-10-15 15:15:11 Yesterday from Xian to Hangzhou, today Hangzhou to Jiaxing, Jiaxing to Taicang in the evening. I can't take it anymore!! 0.976217  
 2018-08-23 11:04:38 On the way to eat Mala Tang, I came across a rice noodle shop. This small bowl was brought to me by the store owner's daughter. It was delicious, but the price was a bit high. 0.987528  
 2018-09-14 10:45:11 I am still here in Jiaxing, and I am still here in Jiaxing. I am very convinced that I have eaten in Jiaxing for food, and I can still take the 92 road from Yuxi to the first hospital in the wrong direction. 0.997075  
 2018-09-14 16:16:20 I finally got the car I wanted, and I am very convinced that I have eaten in Jiaxing for food, and I can still take the 92 road from Yuxi to the first hospital in the wrong direction. 0.941564  
 2018-09-11 15:59:51 New! 7 new electronic police are added in Nanchong City, and these behaviors will be caught and punished! It was learned from the Publicity Network Section of the Traffic Police D... 0.180399  
 2018-02-19 14:52:53 Finally came to try xibei [ha]The noodle wows is not as delicious as I imagined, and the taste is so-so, so I am very disappointed. The yellow rice cold cake is not sticky to the teeth. Goodness! 0.985035  
 2018-07-26 00:19:02 At noon, I went out to eat with classmate Xiao Wang in the sun, and I really wanted to die. I received part of my salary in the afternoon, and I was very happy. In the evening, my mother... 0.979551  
 2018-07-26 00:19:02 At noon, I went out to eat with classmate Xiao Wang in the sun, and I really wanted to die. I received part of my salary in the afternoon, and I was very happy. In the evening, my mother... 0.999008  
 2018-11-29 22:26:11 At noon in Jiaxing Hospital of Traditional Chinese Medicine, I saw an old grandfather with a trembling hand holding a grandmother with one finger trembling and slowly moving forward. 0.99627  
 2018-10-06 21:39:05 South Lake, Jiaxing, where the site of the First Congress of the Communist Party of China is located, could hardly be identified as a 5A-level scenic spot. It just is a big park with lake. 0.996021



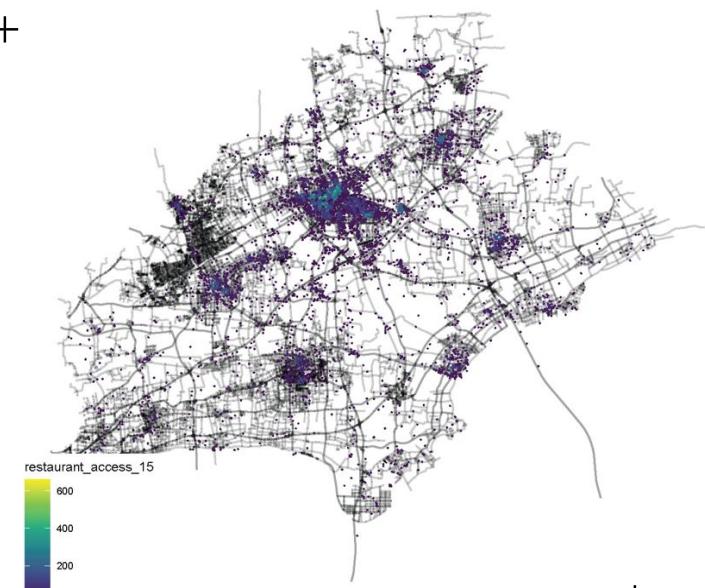
This restaurant is really a great deal. The taste is good, the servings are plentiful, and the owner is nicer. It's delicious!  
Morning, Get up and work. 0.999  
Oops, I'm going to be scolded again at work tomorrow 0.974  
Really angry, exposing this car and its owners, crushing our family's food, they ignored it when my grandma went to talk about it. 0.985  
Really angry, exposing this car and its owners, crushing our family's food, they ignored it when my grandma went to talk about it. 0.000

## PROXIMITY TO URBAN AMENITIES

Density of facilities (bus stop, small business, hospital, restaurant, school, green space, shopping and entertainment)



+

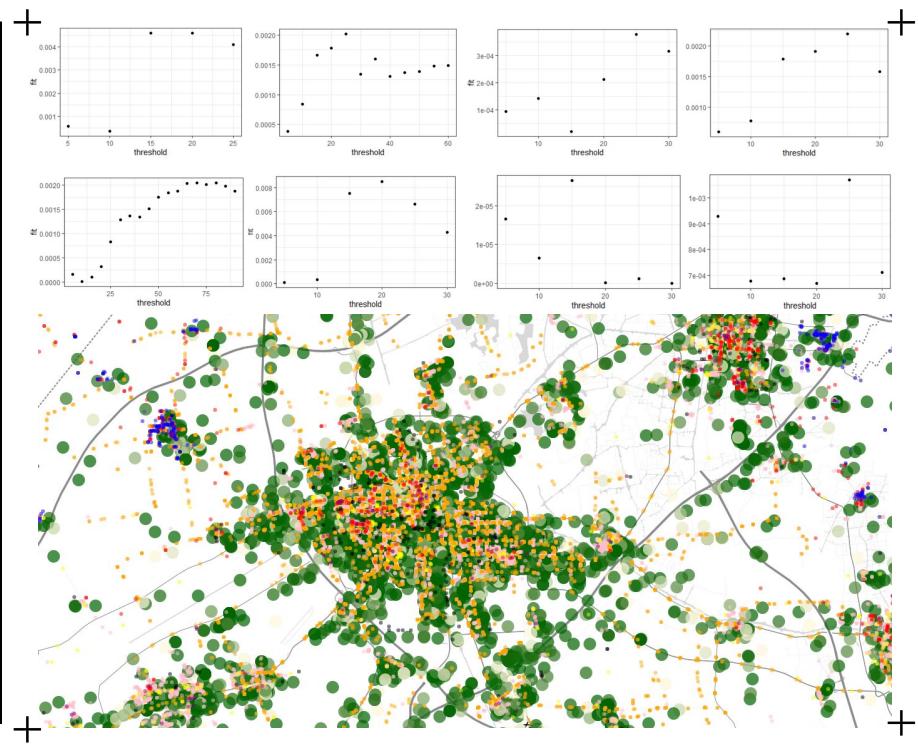


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Proximity to restaurant within 15 minutes

## CORRELATION BETWEEN INDIVIDUAL SENTIMENT & BUILT ENVIRONMENT

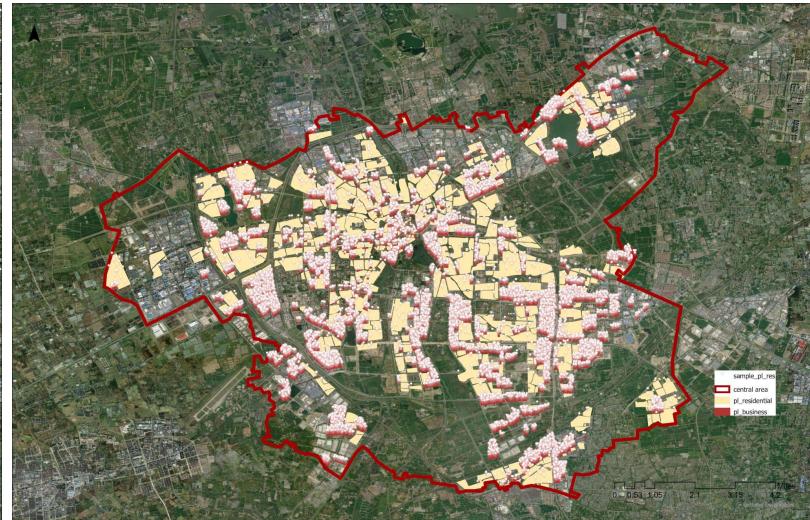
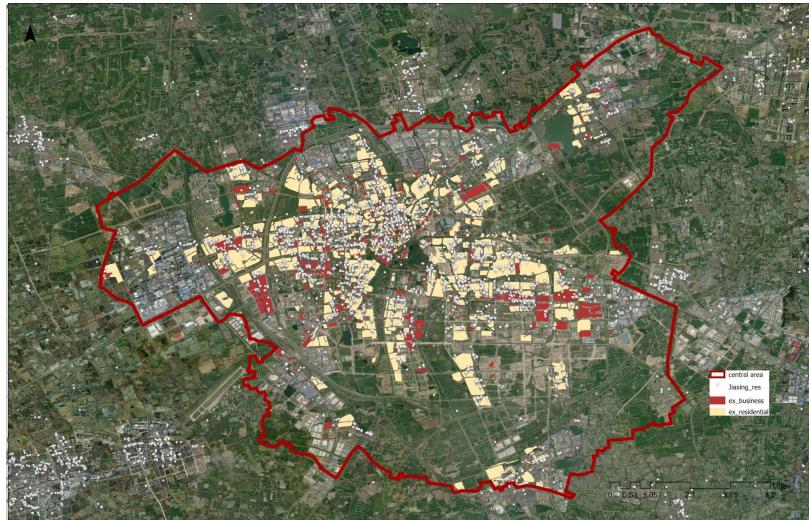
Variables	Initial model	Model 2	Model 3
	(15mins_proximity)	(Best proximity)	(Added weather, time, type)
(Intercept)	0.83(p=0.00)	0.81(p=0.00)	0.83(p=0.00)
15min_proximity to Restaurant	0.00(p=0.00)	0.00(p=0.04)	0.00(p=0.05)
15min_proximity to School	-0.00(p=0.70)		
15min_proximity to Hospital	-0.00(p=0.48)		
15min_proximity to Busstops	-0.00(p=0.01)		
15min_proximity to Greenspace	0.00(p=0.00)		
15min_proximity to Leisure space	0.00(p=0.00)		
15min_proximity to Small business	-0.00(p=0.01)	-0.00(p=0.01)	-0.00(p=0.01)
15min_proximity to Shopping centers	-0.00(p=0.04)		
25min_proximity to School	-0.00(p=0.03)	-0.00(p=0.02)	
25min_proximity to Hospital	-0.00(p=0.19)	-0.00(p=0.17)	
70min_proximity to Busstops	0.00(p=0.00)	0.00(p=0.00)	
25min_proximity to Greenspace	0.00(p=0.01)	0.00(p=0.01)	
20min_proximity to Leisure space	0.00(p=0.00)	0.00(p=0.00)	
25min_proximity to Shopping centers	-0.00(p=0.07)	-0.00(p=0.08)	
Type: Holiday		0.01(p=0.45)	
Type: Weekend		0.00(p=0.94)	
Time: Afternoon		-0.02(p=0.03)	
Time: Early morning		-0.02(p=0.01)	
Time: Midnight		-0.01(p=0.22)	
Time: Morning		-0.03(p=0.00)	
Time: Sunset		-0.01(p=0.07)	
Weather: Rainy		-0.01(p=0.07)	
Weather: Smog		-0.01(p=0.95)	
Weather: Snow		-0.00(p=0.99)	
Weather: Sunny		-0.00(p=0.49)	
N	13692	13692	13692
R2	0.01	0.01	0.02



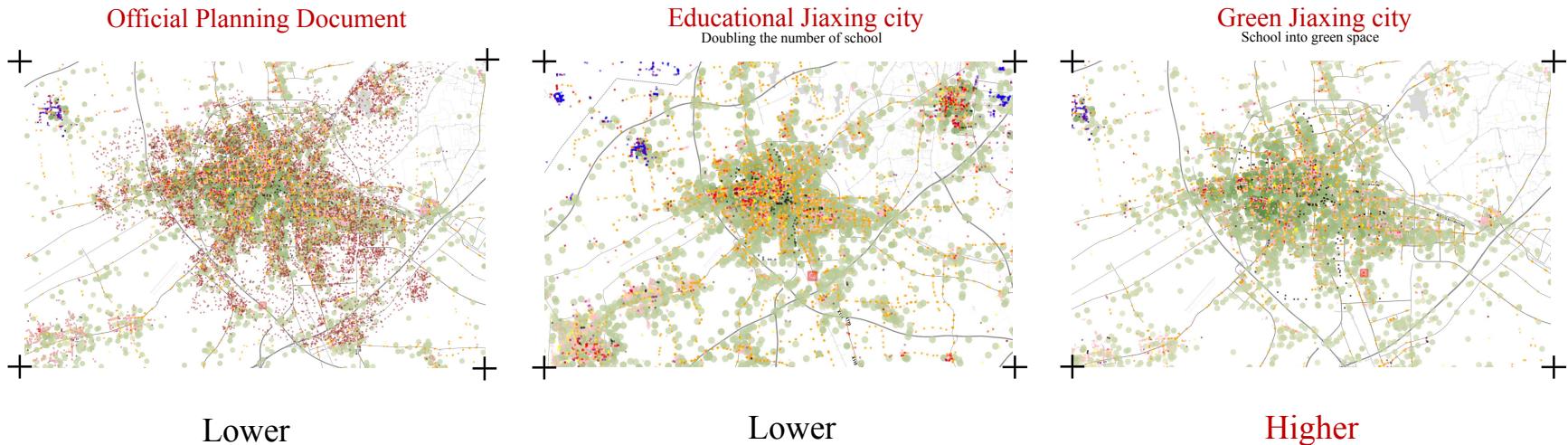
## PREDICTION OF SENTIMENT CHANGES BASED ON THE REGRESSION MODEL



Prediction of restaurant locations (existing vs planned) (Take restaurant for example)



## SCENARIOS

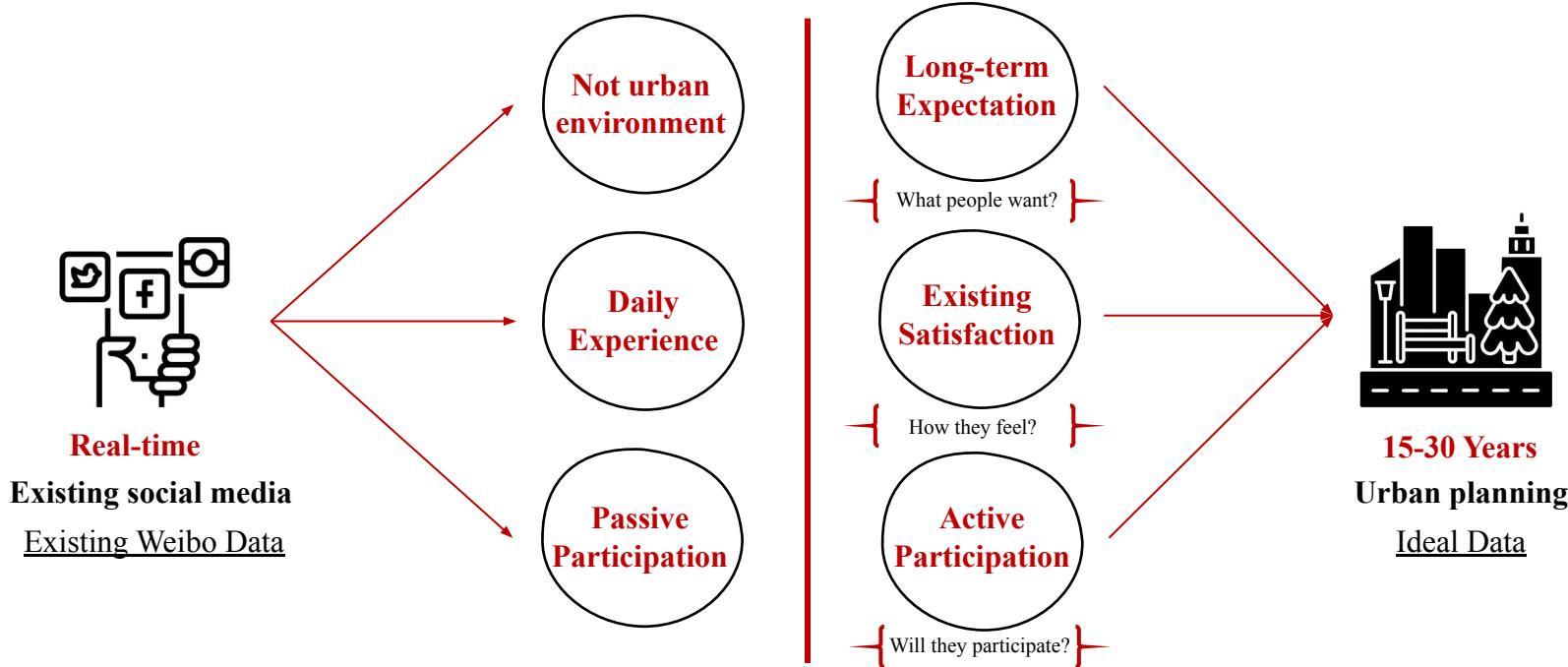


It suggests that the future Jiaxing might not improve residents' satisfaction in social media.

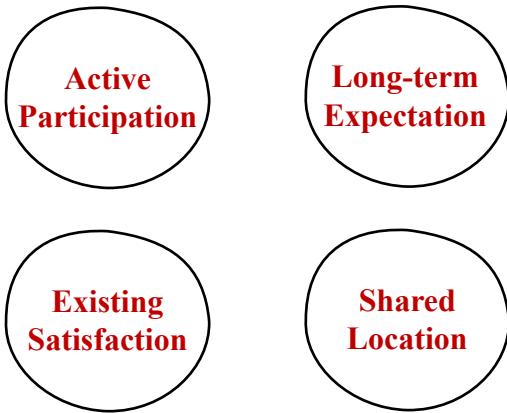
People might not be happy to stay at school, however, it should play an important role in long-term wellbeing.

It “**optimizes**” satisfaction by 1 percent even it does not make sense as an urban planning strategy.

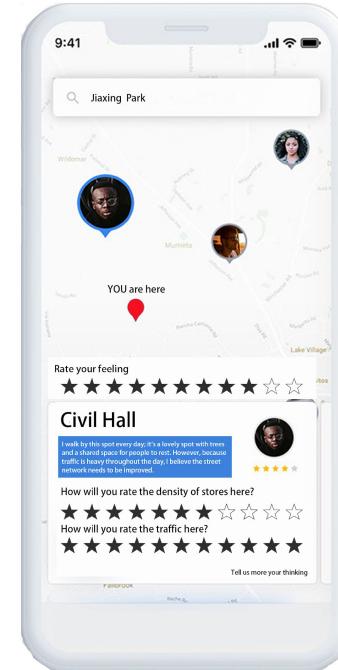
## INHERENT CONFLICT BETWEEN SHORT-TERM FEELING VS. LONG-TERM URBAN PLANNING PROCESS



## A PROPOSED SOCIAL MEDIA PLATFORM



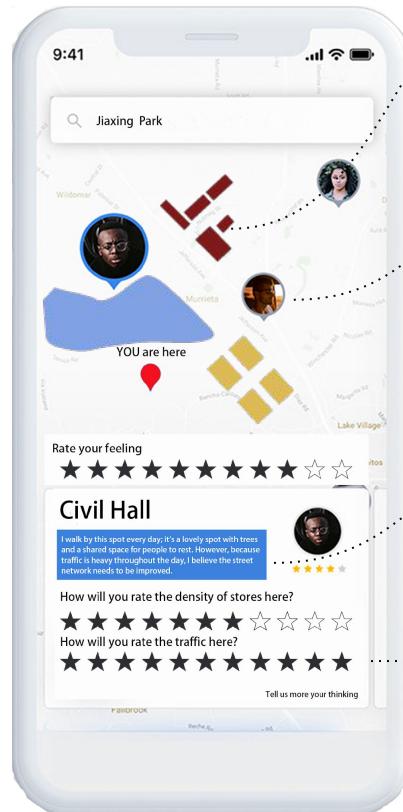
Social media platform serves as a new form of infrastructure of urban life, which is embedded in daily experience. The strengths of social media platform can provide a mass bottom-up data that traditional approaches can not provide. To address the shortcomings of existing social media data, the new social media platform should be capable of providing particular data on short-term satisfaction related to the built environment and long-term visions of urban planning from citizens living in that city.



## A PROPOSED SOCIAL MEDIA PLATFORM

Active  
Participation

Daily  
Experience



Existing Map  
Or  
Future

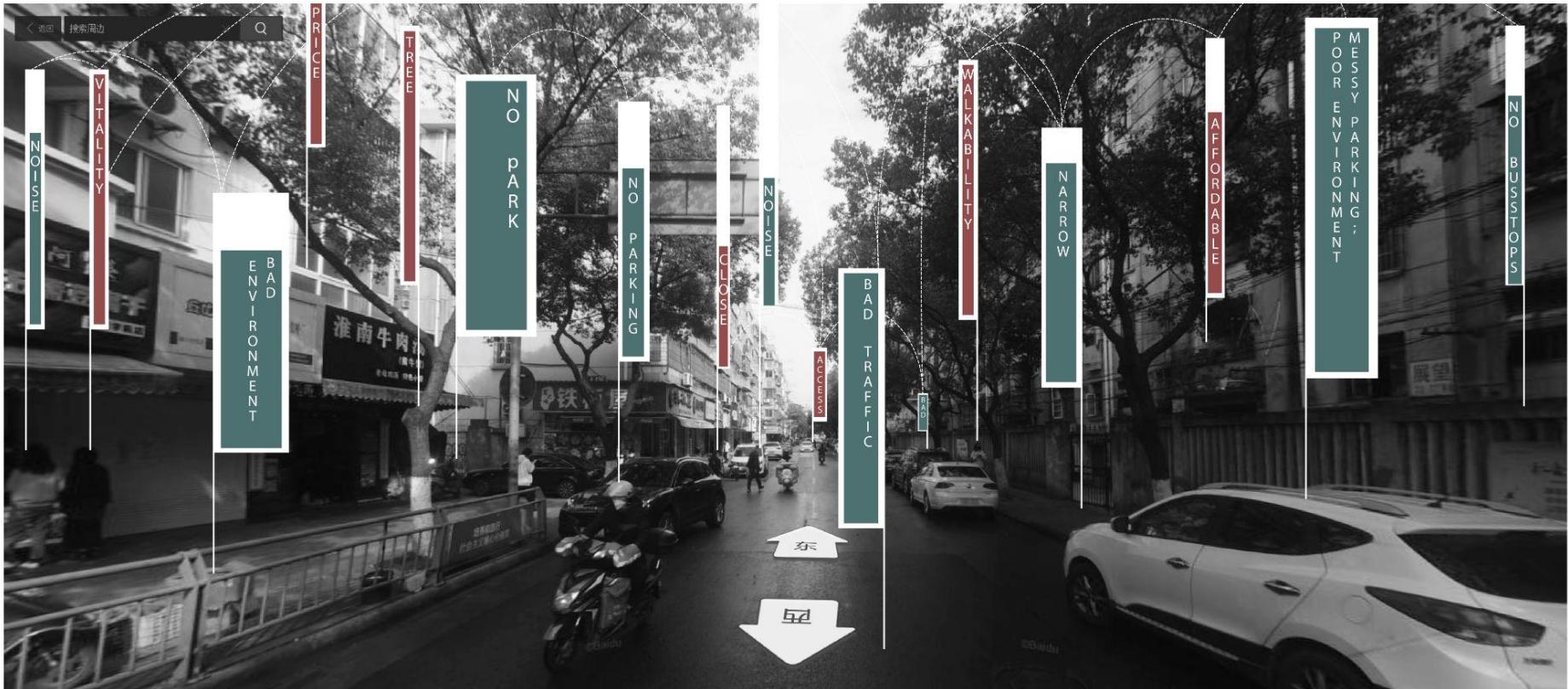
Shared  
Comments

Comment  
Bar

Quantitative  
Questions

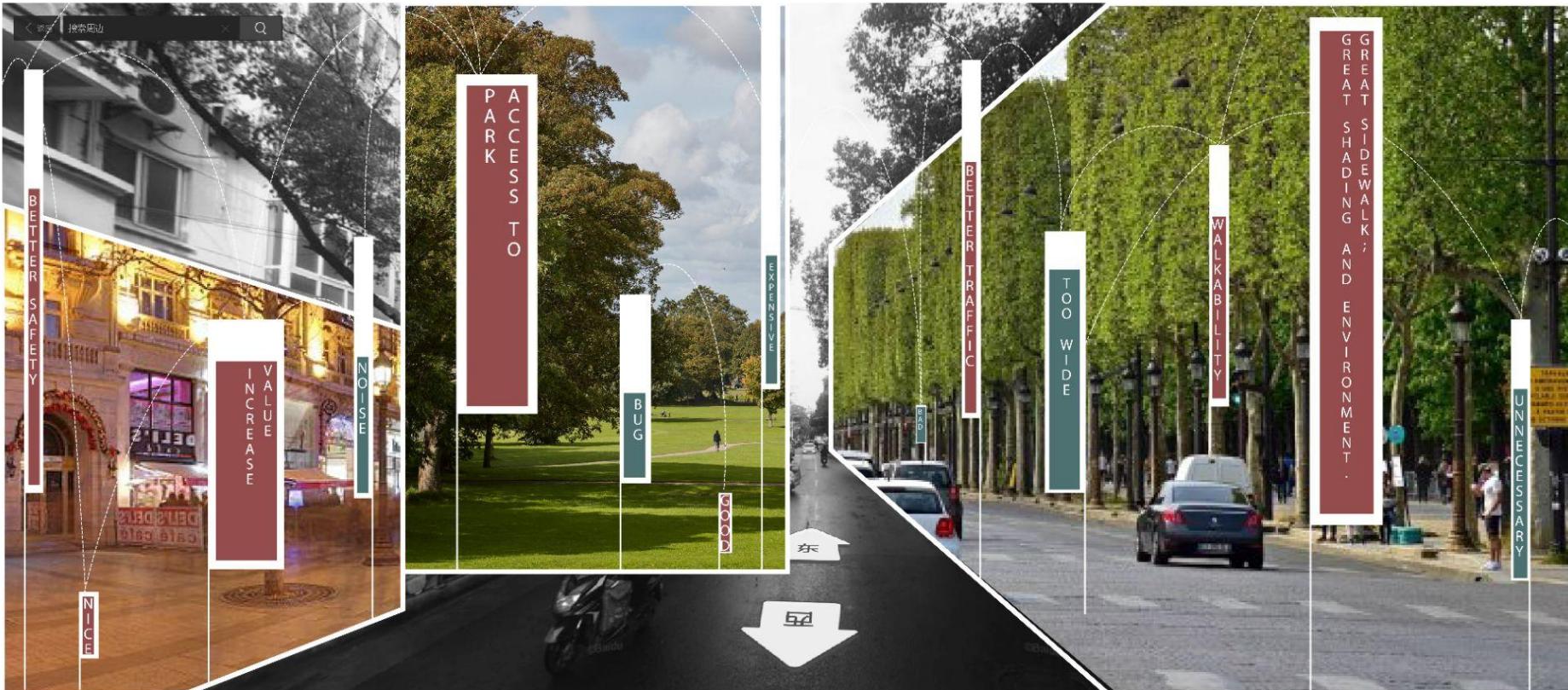
# A PROPOSED SOCIAL MEDIA PLATFORM

Satisfaction & Expectation

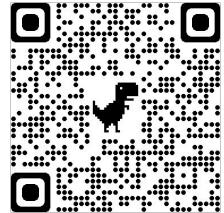


## A PROPOSED SOCIAL MEDIA PLATFORM

Announced future planning



## CONCLUSION & CONTRIBUTION



This research shows:

- Γ
- 1) Serious **limitations** of existing social media data for data-driven planning.
- 2) Statistic significant **relationships** between public sentiment and the proximity to amenities.
- 3) Which **characteristics** of the built environment may improve residents' satisfaction.
- 4) A **framework** to quantify urban experience from text-based urban data and build a simulation model.
- 5) New social media platform to invite **mass public participation** and **data-driven urban planning**.
- 6) New social media platform as a new form of **infrastructure of urban life**, which might bring a great potential to design a more people-oriented city or a new urban form.