

Impact of COVID-19 on Tourists' Travel Intentions and Behaviors: A Case Study of Hong Kong, China

Xu Yang*, Peng Peng, Christophe Claramunt, Lu Feng

LREIS, Chinese Academy of Sciences

Email: xuy@lreis.ac.cn



Content



Background



Method & Data



Experiment



Conclusion



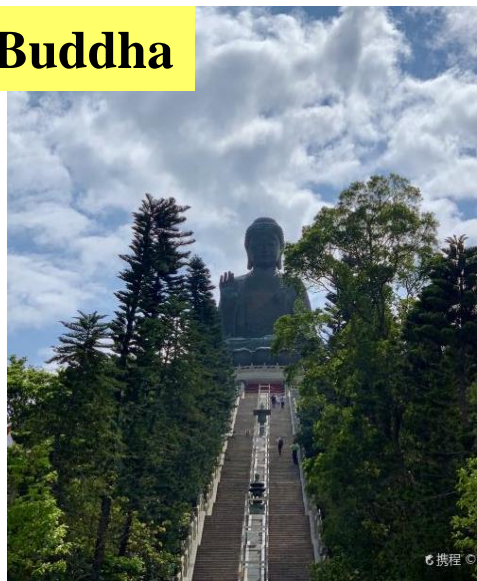
1. Background

Hong Kong tourism sector has been largely affected during COVID-19



Tian Tan Buddha

2019



2020



Disneyland

2019



2020



■ Literature review



Previous studies revealed that travelers' post-disaster travel behaviors can be influenced by their risk perceptions and motivations



Ijp. et al examined how the current health crisis affects travelers' preferences between crowded and non-crowded options

■ Why we conduct this work?



Most of the research data come from questionnaires, potential function of social media data is still not enough






Quantitatively grasping the changing characteristics of people's travel intention and behavior before and during the pandemic





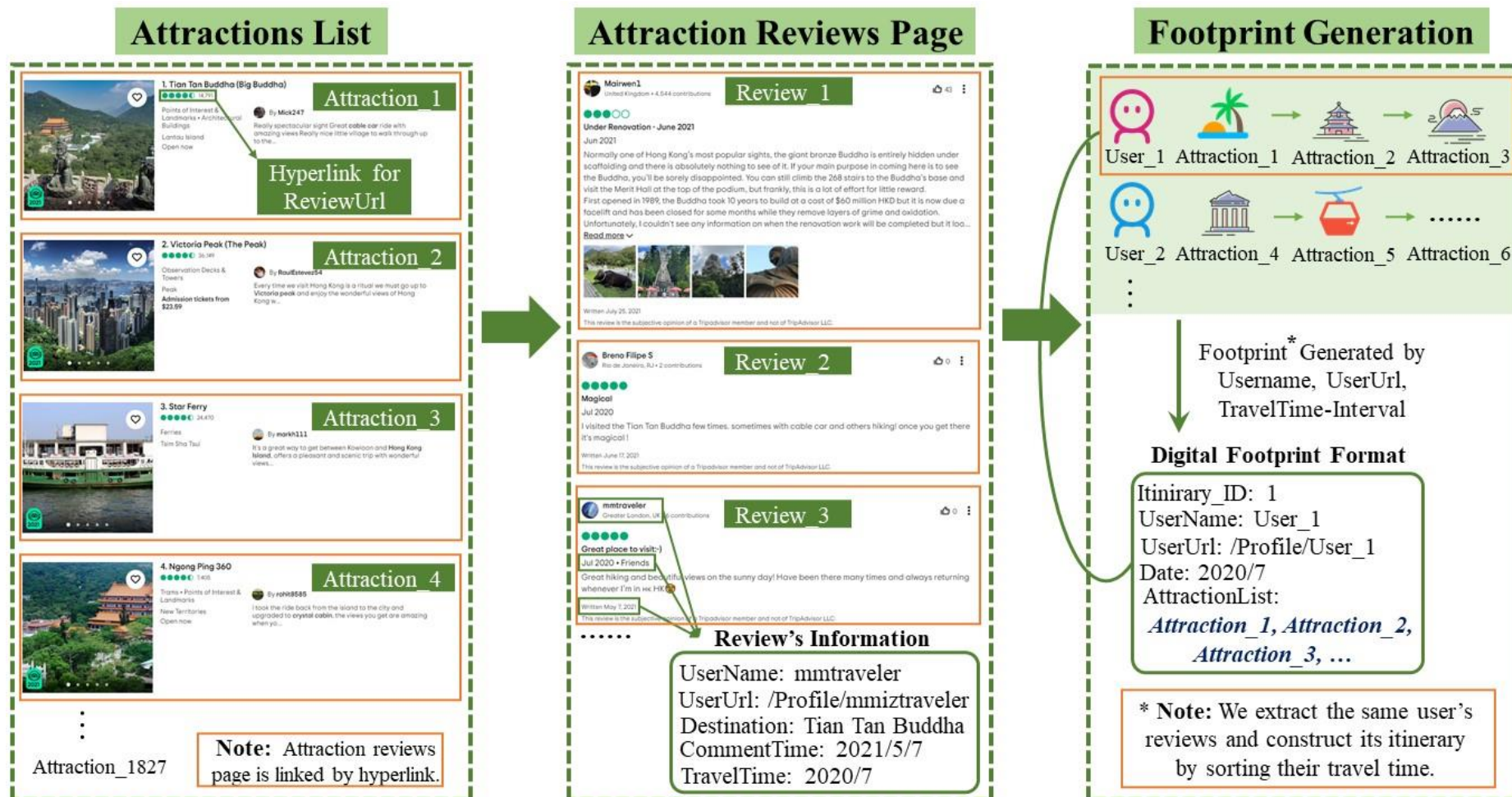
■ Research Questions

-  • How has the pandemic affected tourists' travel intentions and behaviors?
-  • How to explore the changes of tourists' behaviors based on social media data?
-  • How to use tourists' footprints to explore the Changes of tourists' travel intentions ?



2. Method & Data

■ Tourists' Footprints Generation



■ Tourists' Behavior Assessment

Tourists' footprints are sorted by month to aggregate them

An index named Intention-Index-Value (I-I-V) to evaluate tourists' travel intention

$$I-I-V = \sum_{i=1}^N \frac{Volume_{(total)}}{Volume_{(i)}} \times i$$

- $Volume_{(total)}$ denotes the total number of footprint records in one month,
- $Volume_{(i)}$ denotes the amounts of footprints which contain i attractions in one month.



Tourists prefer itineraries with rather
single attractions



$I-I-V$ Tourists prefer itineraries with rather
long sequences of attractions

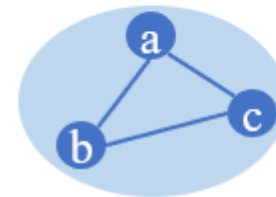
■ Tourism Network Construction

Based on the co-occurrence of different attractions in tourists' footprints

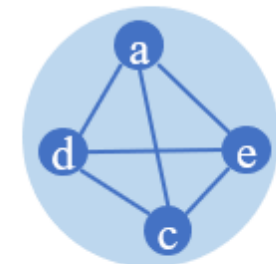
User	Attraction	Attraction ID	Travel Time
User_1	Star Ferry	a	2020.06
User_1	Disneyland	b	2020.06
User_1	Victoria Peak	c	2020.06
User_2	Star Ferry	a	2020.08
User_2	Victoria Peak	c	2020.08
User_2	Peak Tram	d	2020.08
User_2	Tian Tan Buddha	e	2020.08

a

Complete Subgraph 1

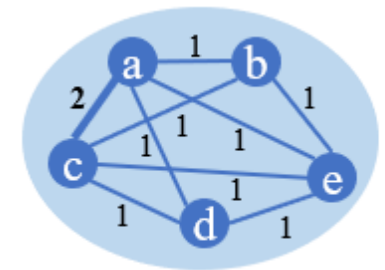


Complete Subgraph 2



b

Tourism Network Construction



c

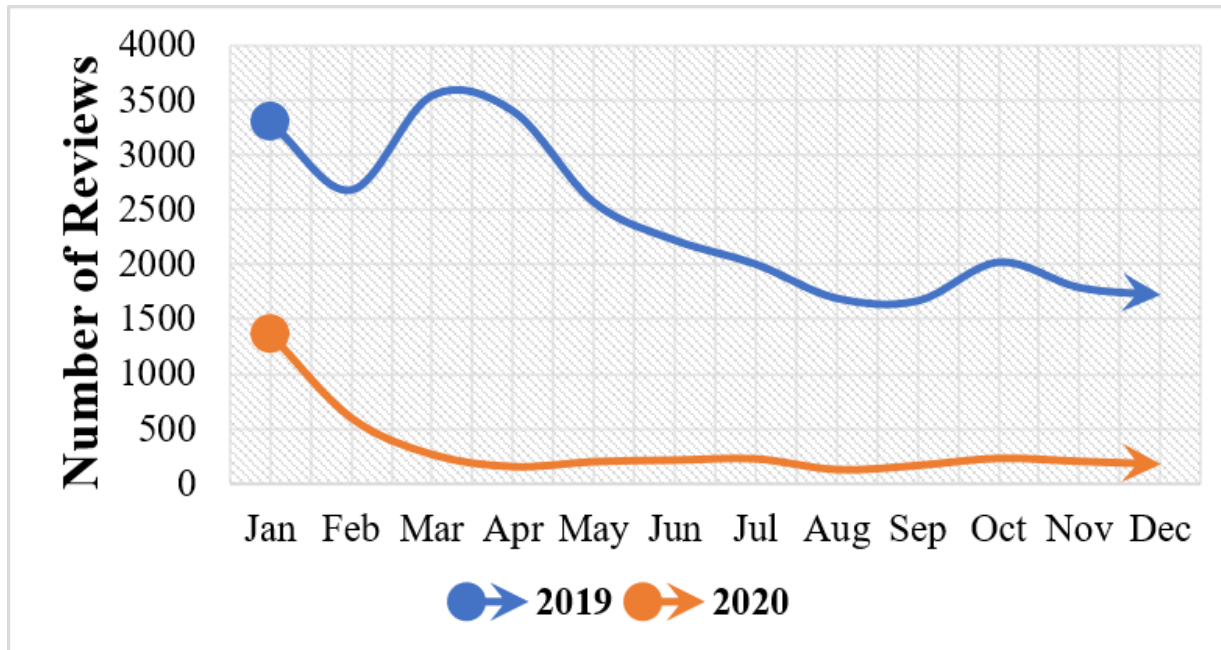
■ Network Indicators

Network Indices	Formulations	Meaning
Average degree	$AD = 2E/n$	Analyzing the changes of tourism network structure
Network density	$D = E/(n(n-1))$	Analyzing the changes of tourism network structure
Weighted degree	$WD = \sum_n E_{ij}$	Explaining the changes of popular attractions

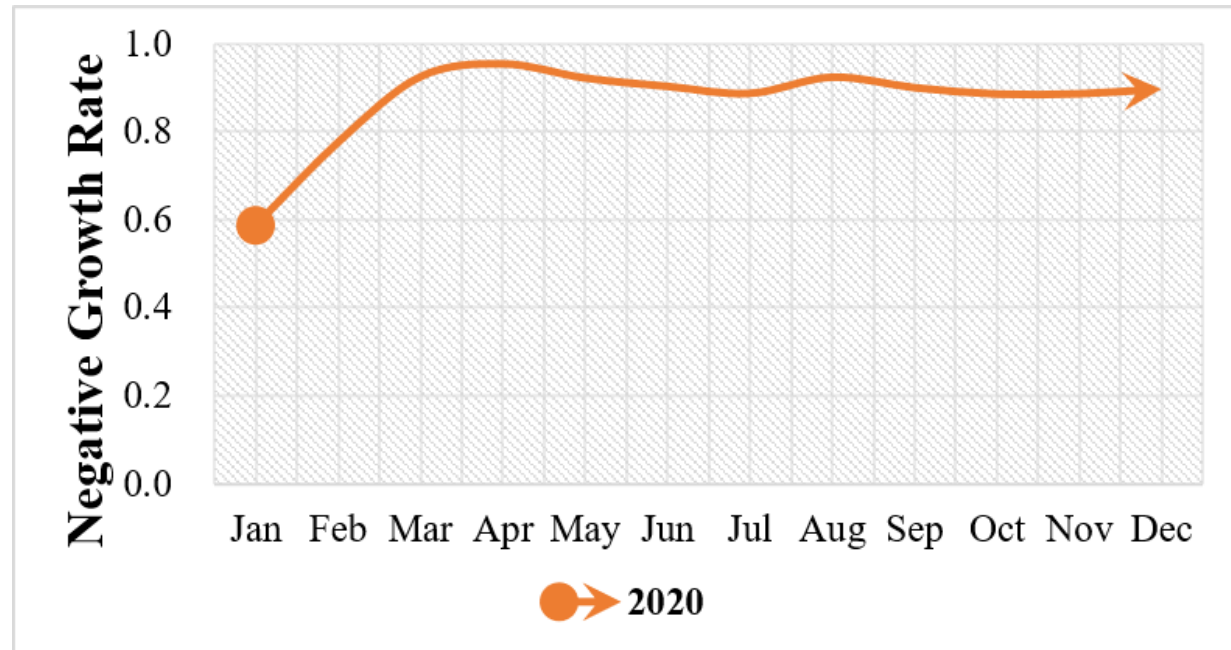


3. Experiment

■ Impact on the whole tourism market



Comparison of tourist number

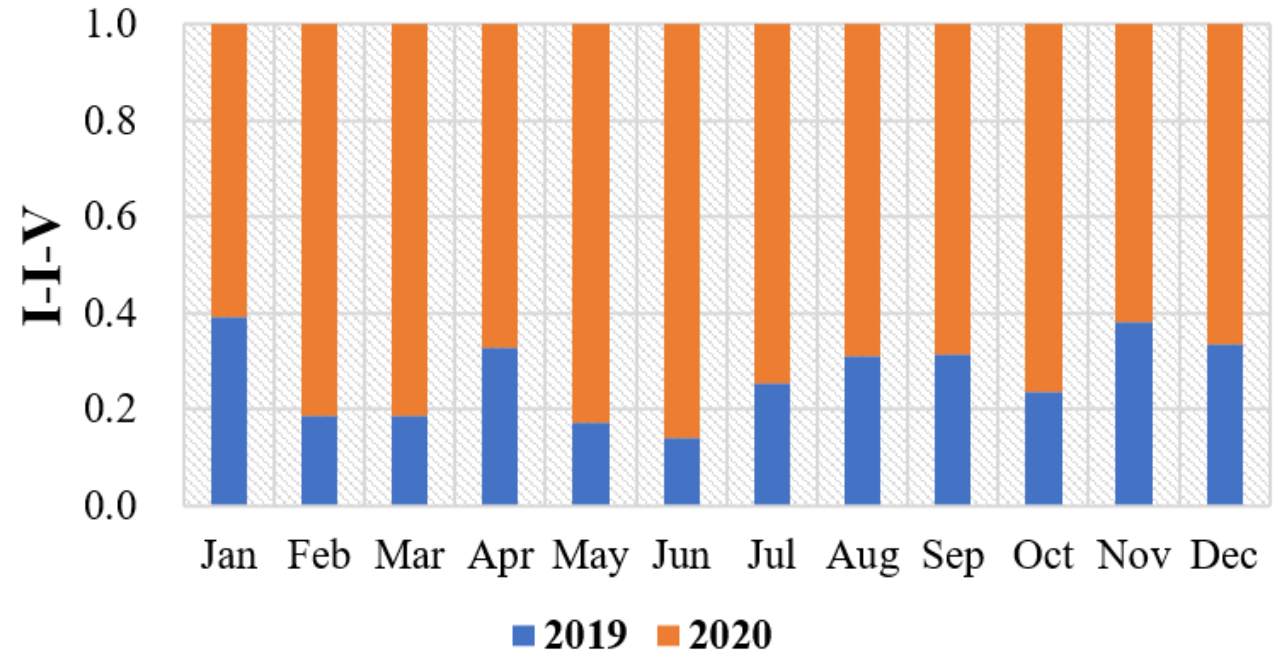
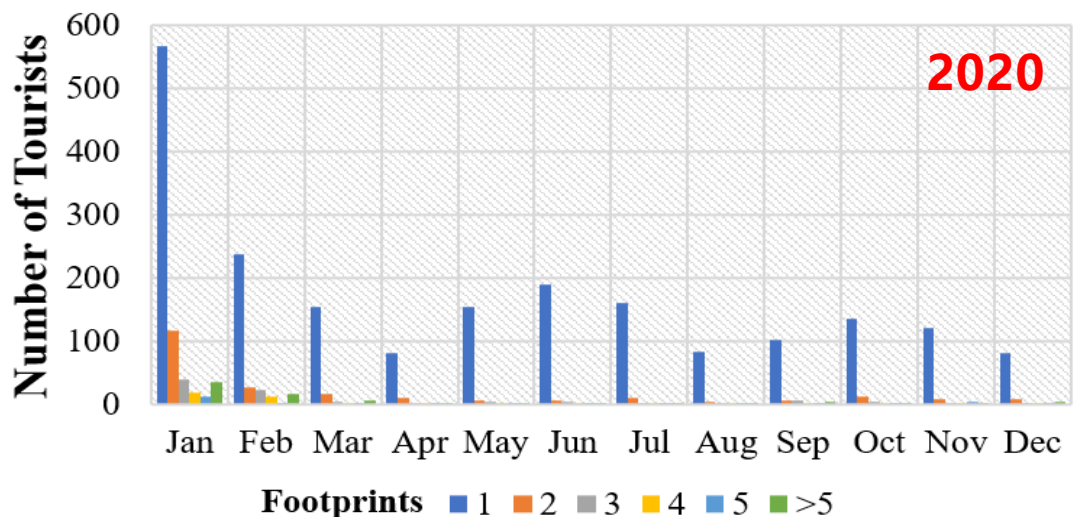
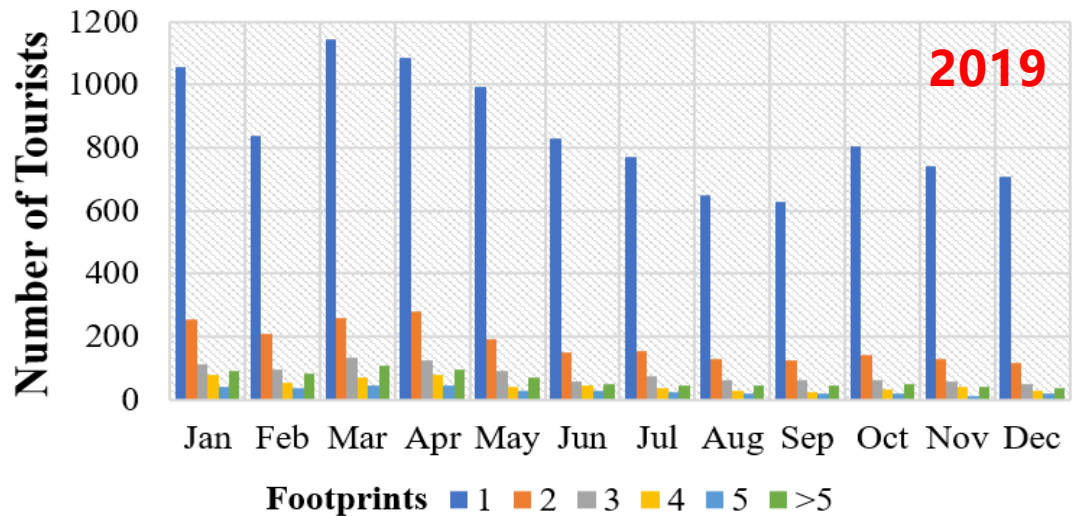


Negative growth rate during COVID-19

- Tourist number has declined sharply, with an average decrease of more than 80%



■ Travel intention has changed



- COVID-19 has an impact on multi-attractions travel in one trip,
- Tourists prefer itineraries with rather long sequences of attractions.

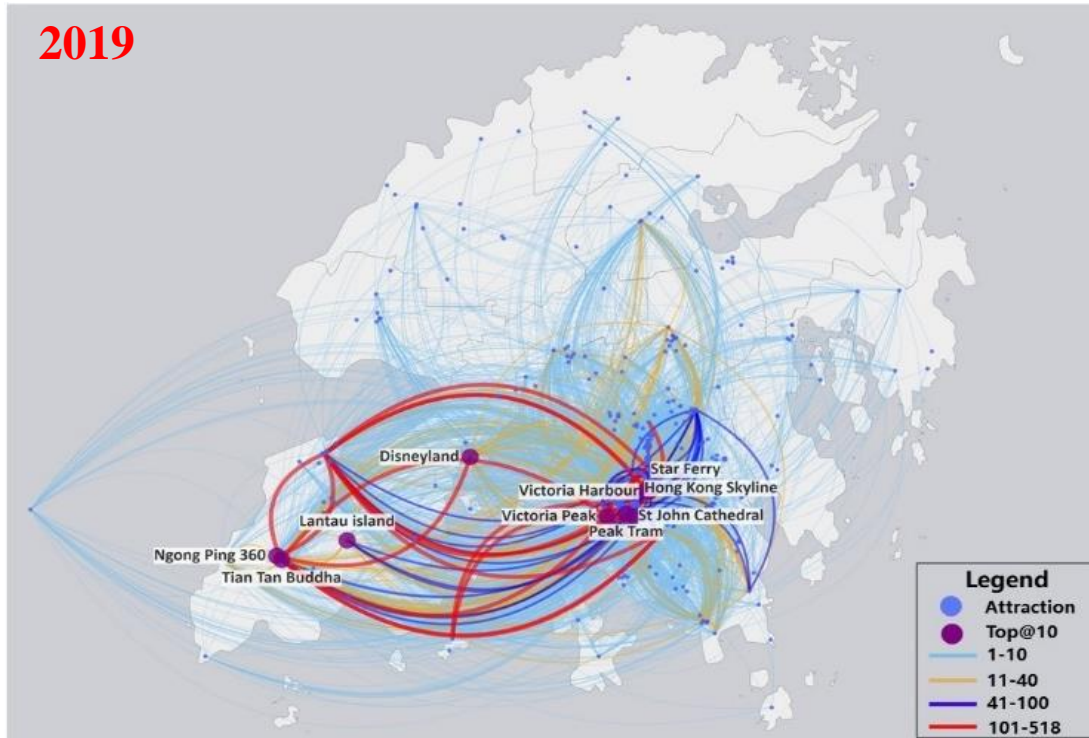


■ Overview of tourism network

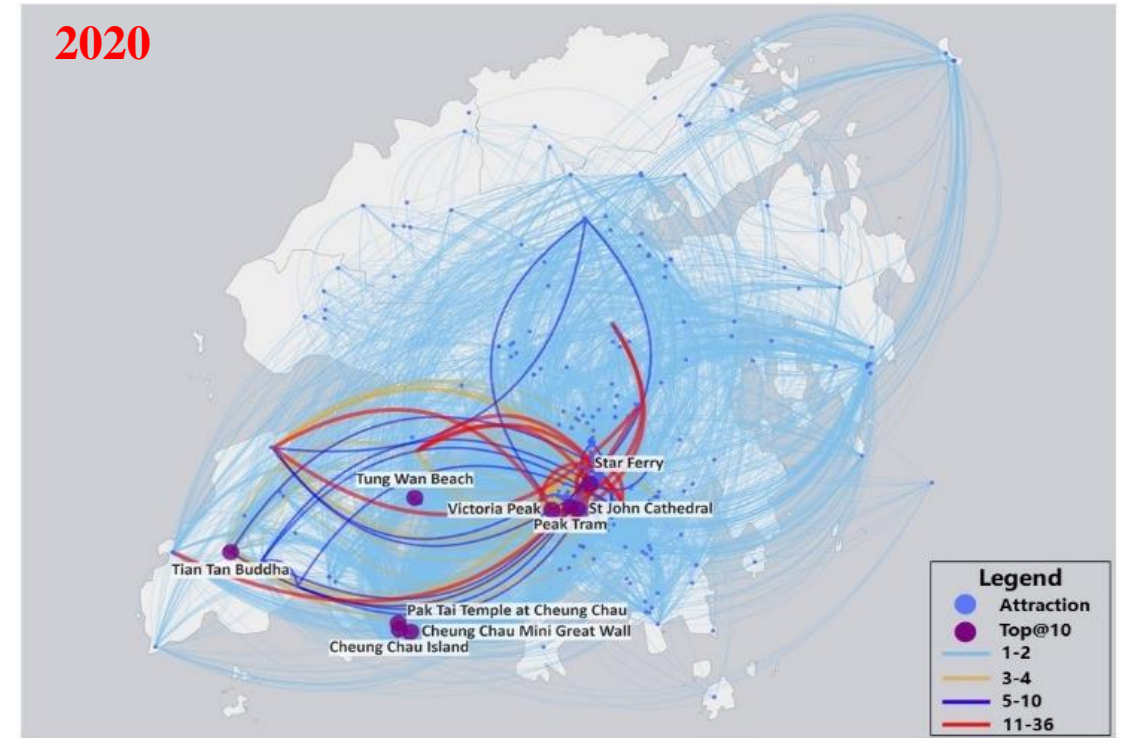
	Node	Edge	Average Degree	Network Density
2019	645	28596	88.67	0.138
2020	516	13427	52.043	0.101

- From the indicator results, we see that Average Degree in 2019 is more higher than 2020, it means connections are more dense
- Network Density indicates that connections are more likely to exist between other attractions connected to one attraction in 2019

■ Tourism network analysis



**More interactions between popular attractions, and
the connection strength is higher**



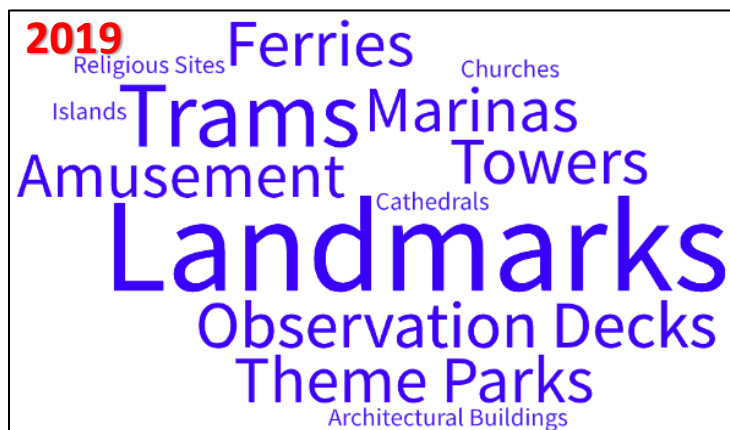
**More interactions between popular attractions and
minority attractions**



■ Word cloud analysis



Popular attractions



Attractions theme

- In 2019, tourists prefer visit those most popular attractions
- In 2020, tourists may choose minor and relaxing place to visit



4. Conclusion



The specific performance is tourists' travel intentions have changed from itinerary with long sequence of attractions to itinerary with single attraction



COVID-19 led to a decline in the strength of connections between popular attractions, but connections within minority attractions continues to increase



Tourists' behaviors have been changed, they prefer to visit more relaxing and minority attractions



*Thanks for your
listening!*

