Università Iuav di Venezia

POLIS ANNUAL CONFERENCE 2024
CITIES AND REGIONS FOR TRANSPORT INNOVATION

Prospects and challenges of sustainable urban mobility:

Potential and limits of cycling in Venice

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Understanding bike commuters

Biking can reduce per-capita commuter emissions by up to 84%

The use of bike for commuting is **culturally intrinsic** to certain countries, mostly in **northern Europe**

Research focuses on these contexts, and the Mediterranean area sees less academic contributions

Research question & context

Study the **alignment** of **planning documents & strategies** and the dotation of **biking infrastructure**

→ is the infrastructure able to support the expected modal shift toward active modes?

Case study: **Venice, Italy**

Why Venice?

- Ambitious plans
- Recent infrastructural developments
- Many commuters; **a single corridor**
- Low attractivity of private modes

Accessing Venice by bike

A **fully segregated cycle path** has been created between Venice and its mainland

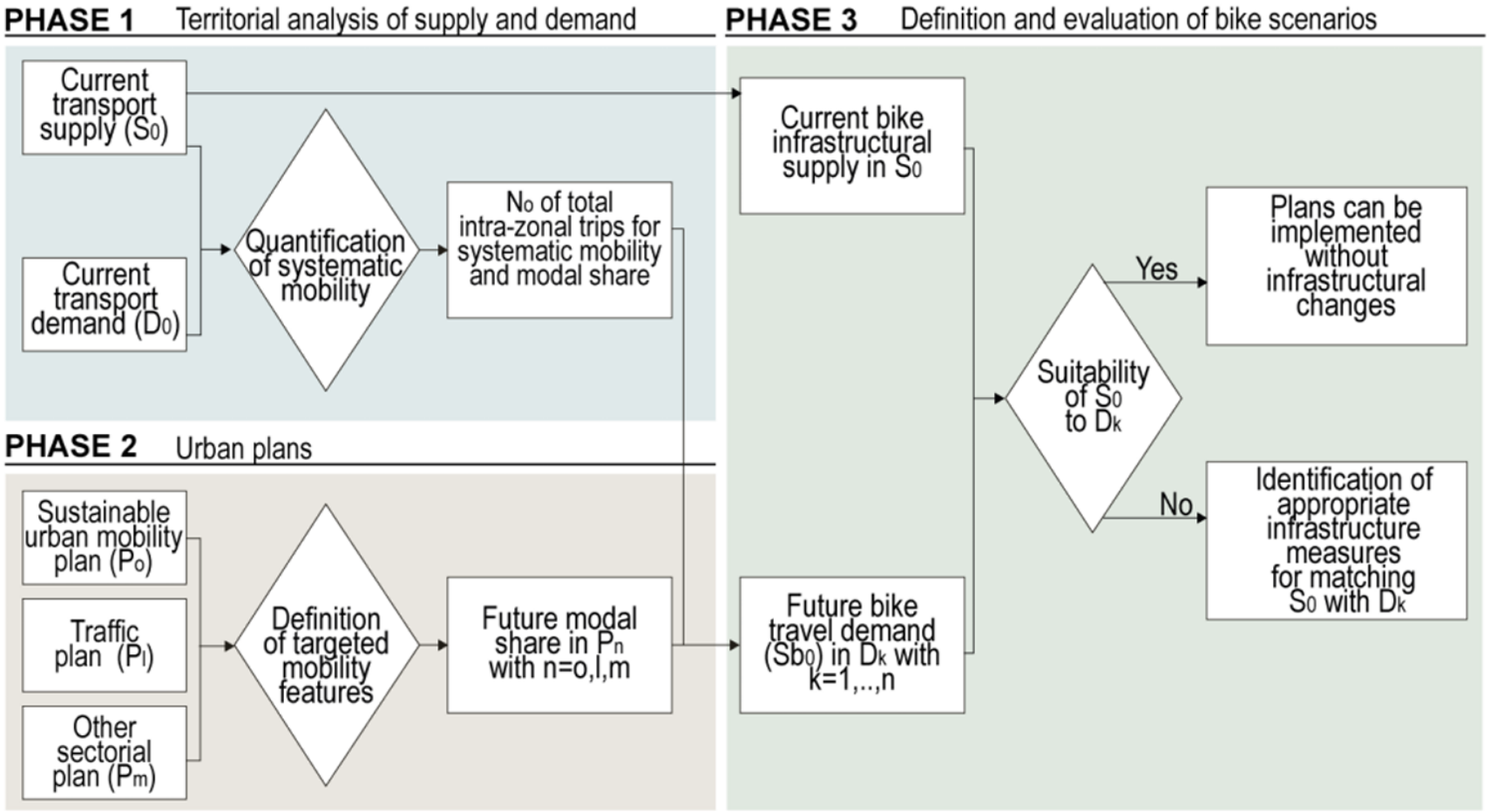
This is conceived as the **final leg of the Munich-Venice** trail, more than for local traffic

Only approx. 100 bike storage are available in Venice (and expensive)

Current modal split of active modes (biking & walking) for systematic trips to/from Venice is…

0%

Method



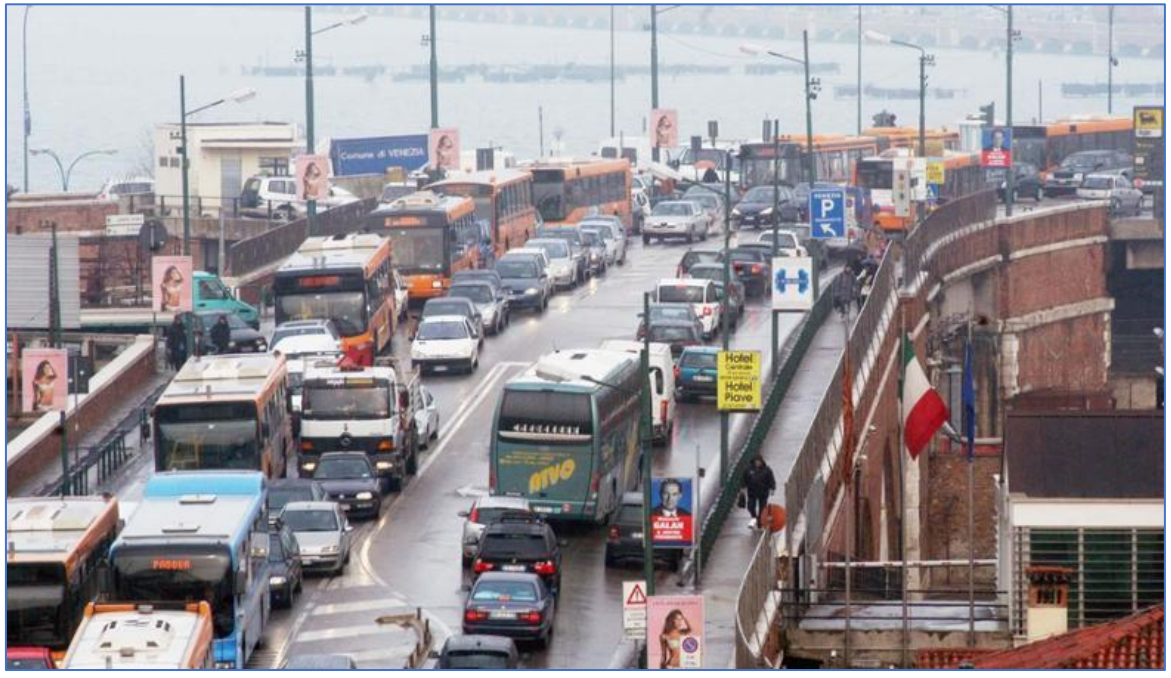
Assessing:

- future incidence of bike mobility on systematic commuting
- appropriateness of existing infrastructural equipment

Accessing Venice today

Modal share for systematic trips to/from Venice: own elaboration on data of the metropolitan city's Sustainable Urban Mobility Plan (SUMP – PUMAV)

Means of transport	%
Private motorized vehicles	41
Bus	20
Tram	6
Train	33
Bicycle	0
Total	100



Accessing Venice tomorrow

Local mobility plans included in the study

Plan	Target Area	Mode	Objectives
Biciplan (2020)	Metropolitan city	Bicycle	Expand infrastructure Reduce cyclist fatalities by 50% by 2030
SUMP-PUMAV (2020)	Metropolitan city	PT, cars, park & ride	6% car reduction Improve sustainability & safety
Venice like Boston (2022)	Historic center	PT, soft mobility	Support 30,000 more students Infrastructure upgrades

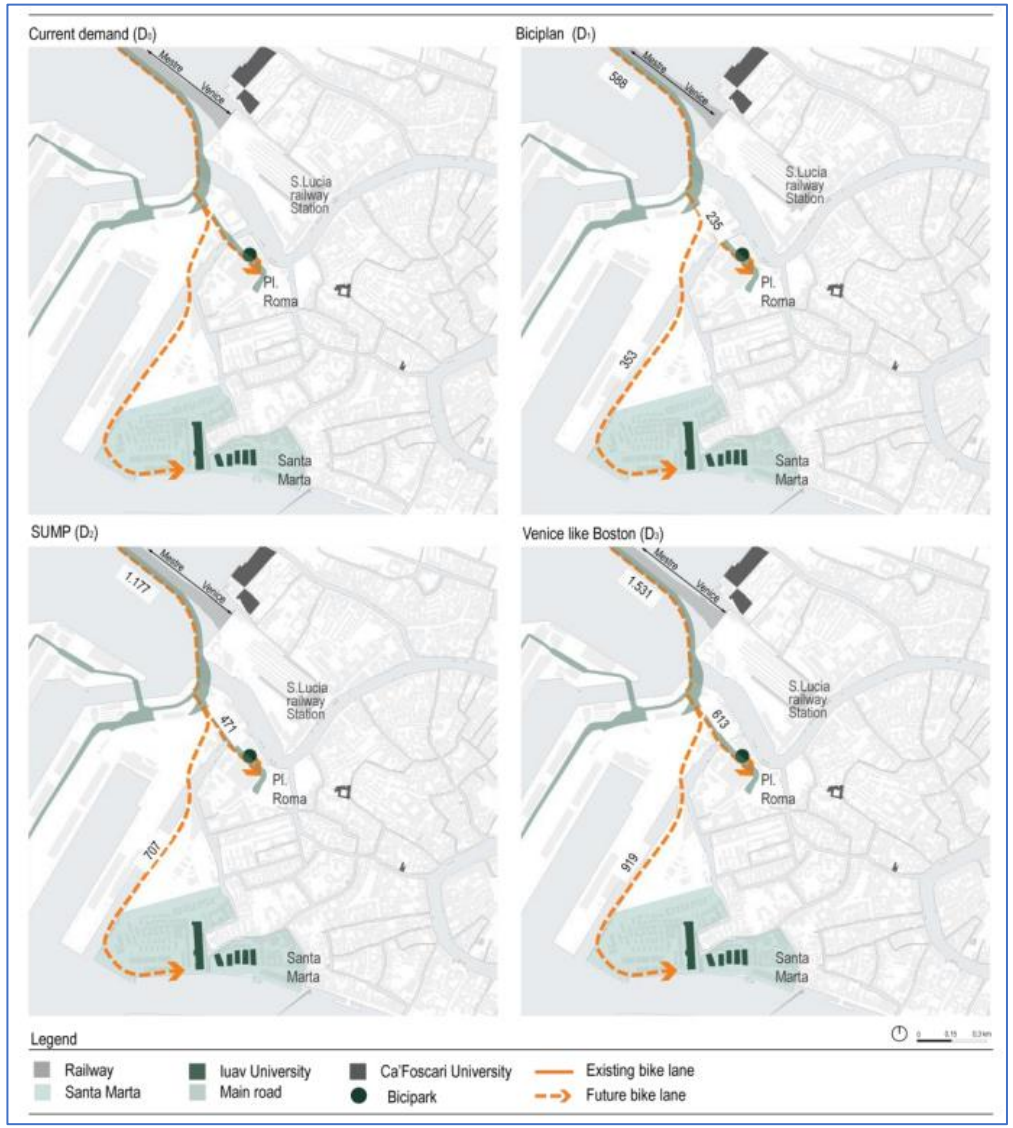
Accessing Venice tomorrow

Means of transport	Current demand (D_0)		Biciplan (D_1)		SUMP (D_2)		Venice like Boston (D_3)	
	Daily users	%	Daily users	%	Daily users	%	Daily users	%
Private motorized vehicles	7,955	41	7,563	39	7,171	37	7,060	36
Bus	4,001	20	3,805	19	3,707	19	3,622	18
Tram	1,219	6	1,219	6	1,121	6	1,053	5
Train	6,438	33	6,438	33	6,438	33	6,346	32
Bicycle	0	0	588	3	1,177	6	1,531	8

How many bikes?

Scenario	Bikes (n)	Max expected occupancy(n)
Status quo (D0 & S0)		
P.le Roma	*0*	*0*
S. Marta	*0*	*0*
Total	0	0
Biciplan (D1 & S1)		
P.le Roma	*235*	*165*
S. Marta	*353*	*247*
Total	588	**412**
SUMP (D2 & S2)		
P.le Roma	*471*	*329*
S. Marta	*706*	*494*
Total	1,177	**824**
Venice like Boston (D3 & S3)		
P.le Roma	*613*	*429*
S. Marta	*919*	*643*
Total	1,531	**1,072**

Stark contrast with the low availability!



Parking space needed

The required bike parking/storage areas are **NOT available** atm

There is a need to invest on **the infrastructure** to support the increase of bicycle commuters and **reach the targets** set by local mobility plans

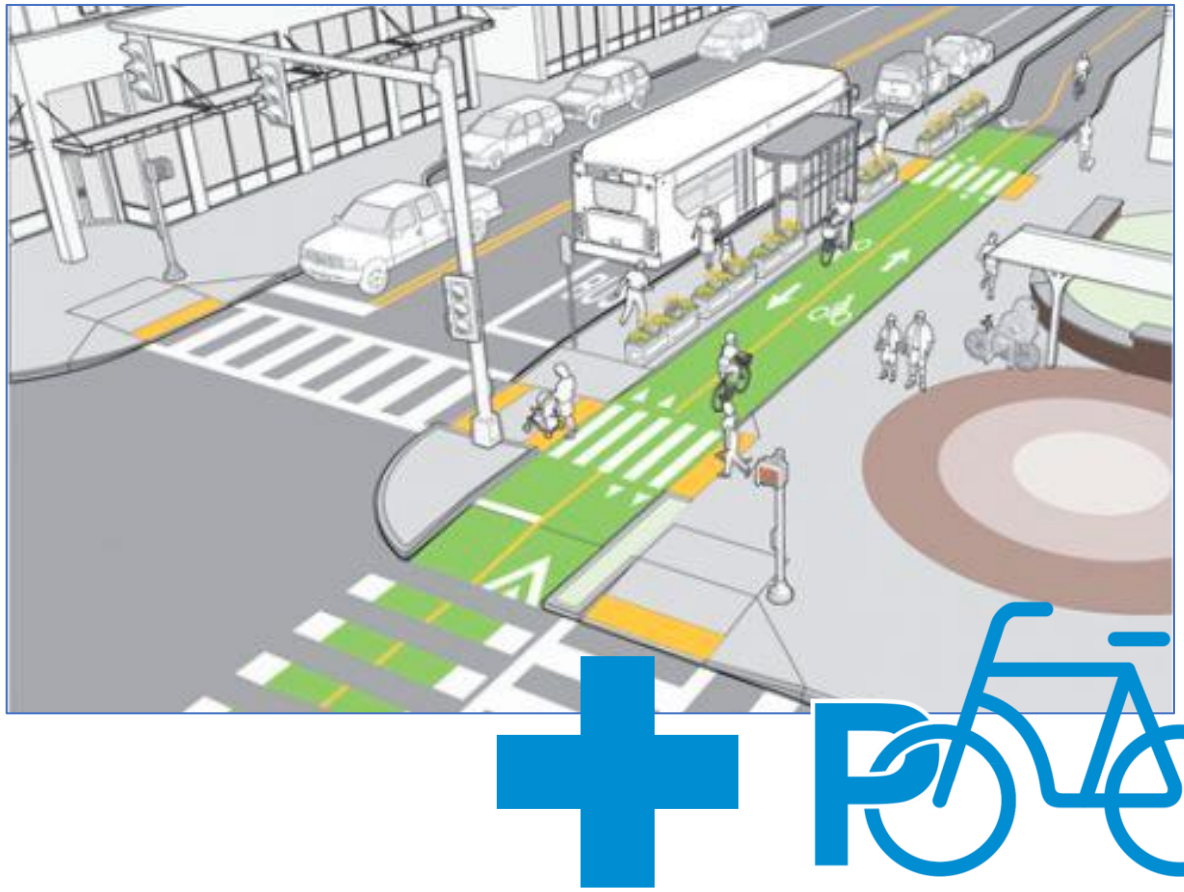
Multimodality can also be a key factor

A supportive environment

Building cycling paths alone is **not enough** to encourage the use of bikes

It is crucial to create a **supportive environment** that facilitates these activities, going beyond bike lanes

Our results align with previous literature in this sense, suggesting that **bike parking** is among the most important **determinants of the choice of commuting by bike** (e.g., Heinen & Buehler, 2019)



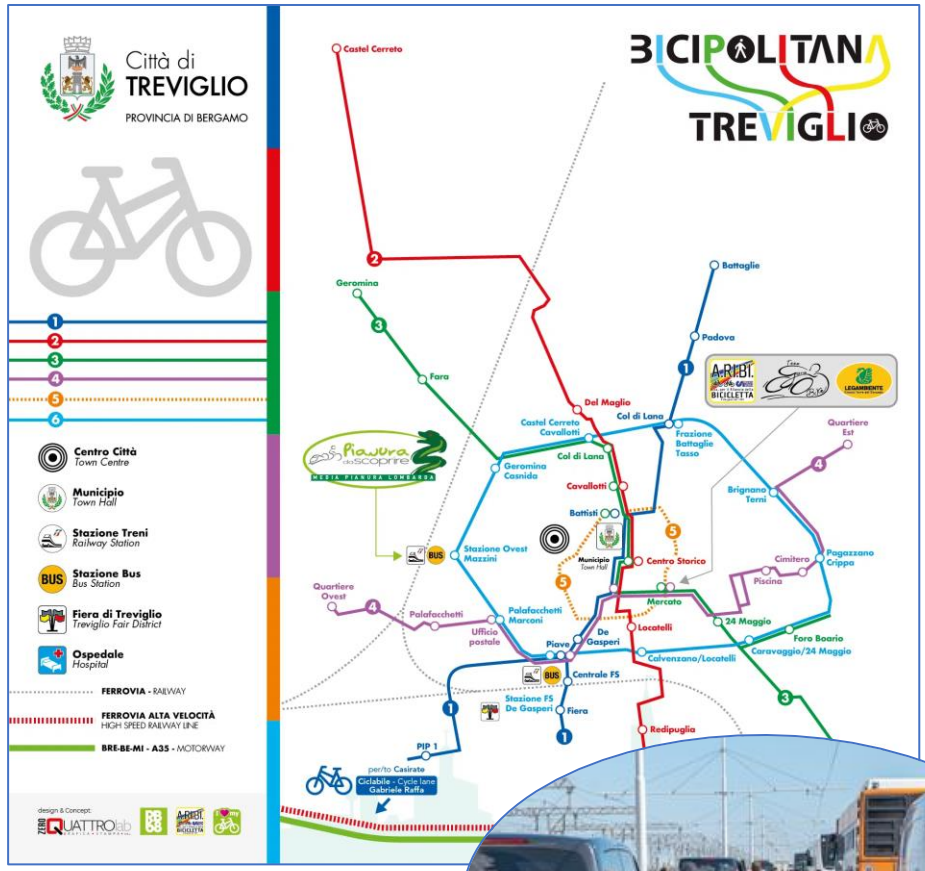
Some conclusions

While Venice's geography favors cycling, inadequate infrastructure limits its effectiveness

→ 1,000+ parking spaces needed at the main terminals & university campuses

A proper enabling environment could **reduce reliance on private motorized modes** (up to -5%)

Pressure on the PT system, a big issue in Venice, could also be relieved



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THANK YOU!

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