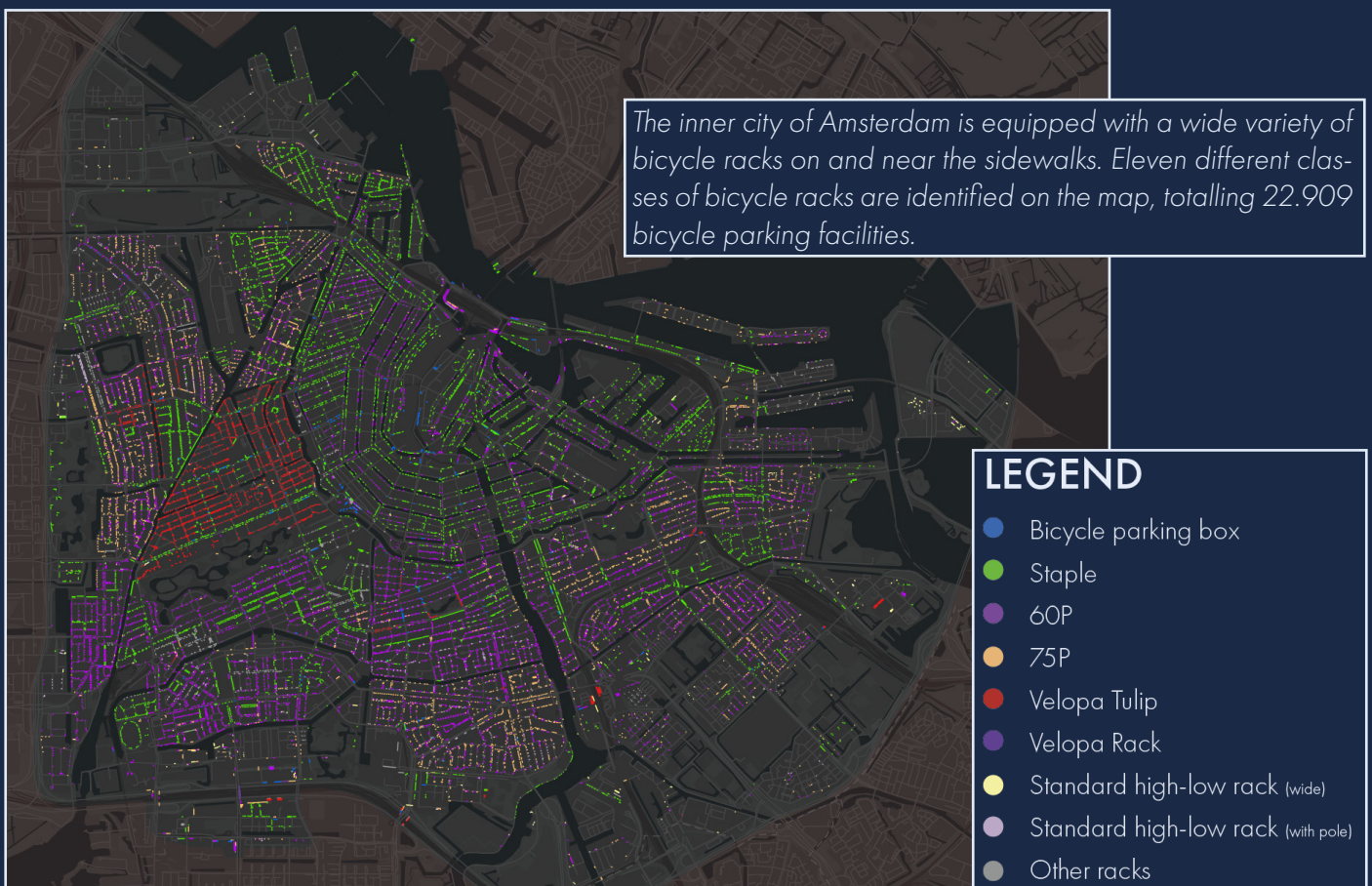


Public bicycle racks as future e-scooter hubs

THE POTENTIAL OF BICYCLE RACKS AS STANDING E-SCOOTER HUBS IN AMSTERDAM A MARINETERREIN LIVING LAB

In the near future, e-scooters are likely to become allowed on the Dutch roads. Such e-scooters can potentially foster a modal shift from fossil fueled transport modes towards small scaled electric alternatives. Abroad, the outroll of these e-scooters already took place, which led to many problems due to it not being regulated. With e-scooters blocking sidewalks, increased cluttering of the public space and dangerous traffic situations, many problems arose. Especially in the cramped inner city of Amsterdam, there is no room for additional vehicles like e-scooters to be randomly parked on the sidewalks. Therefore, an alternative to free-floating e-scooters is researched. In this research, the potential of using existing bicycle racks in the Amsterdam city centre as e-scooter hubs is investigated.



Willingness to walk



216 meter



A total of 124 people told us the maximum extra distance they would be willing to walk from parking an e-scooter in a designated parking space to their final destination. On average, this distance is 216 meters, which equals roughly 2 to 3 minutes walking.

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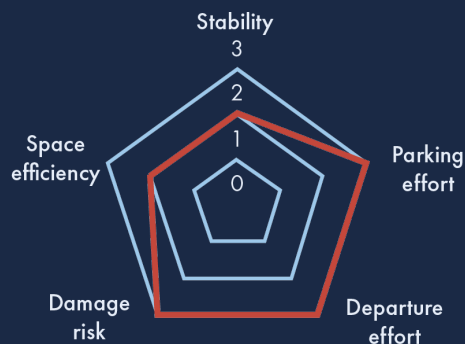


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Rack assessment

During the first phase of the experiment, a total of 11 Dutch bicycle racks were assessed.

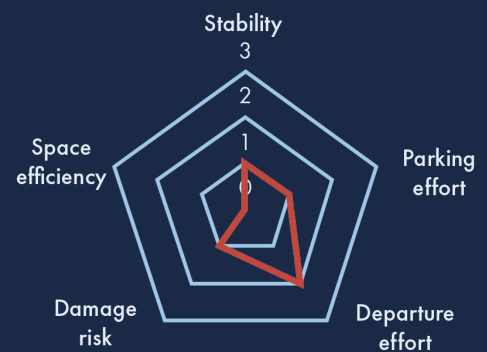
The highest scoring methods of parking an e-scooter turned out to be in front of the 60P or Standard high-low rack (wide), with its wheel outside the slot.



Either forwards or backwards, this method of parking scored 13 points for the two racks used during the experiment.

This method did not score 15 points due to the fact that the e-scooter was not parked with its wheel in a slot and because it took the parking spot of a bicycle.

The lowest scoring method of parking an e-scooter turned out to be backwards in the slot of the bicycle racks at the central station.

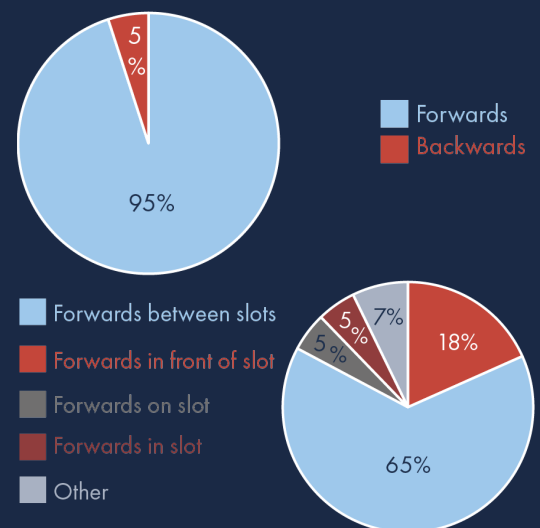


In this bicycle rack (Velopa Rack), it is only possible to park backwards into the slot.

Parking backwards in this scored 5 points. In this rack it is hard to park, hard to depart and instability and reduced space efficiency caused the parking act to be scored low.

User experiment

After having done the technical assessment, the two best scoring racks (see pictures below) were picked for the user-experiment (phase 2). The pie charts on the right show the results from 180 intuitive parking actions.



Recommendations

This research showed that the most optimal way to use bicycle racks for e-scooters is not to use them as physical objects but to utilize the unique fact that they are located almost everywhere in the city. Making use of the locations and not of the slots themselves creates a coverage that is almost 100% for the inner city of Amsterdam. E-scooters parking should be focussed on parking in close vicinity of bicycle racks in front of the slots.

To promote users to park their e-scooters in the most optimal way, visual or written guidance is needed. This can be provided through the application needed to lock the e-scooter or by adjusting the bicycle racks themselves.

More information?

For more detailed outcomes of this research and to get access to the scientific report, visit the website through the QR-code on the right.



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