Intermodal Bike Transit in Germany

Survey results on satisfaction, parking types and usage effects of improved bicycle parking at railway stations

ECEEE Summer Study 2026

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Bike Transit: one system, three use cases

Bike Transit = rail users combine their rail journey with an (e-) bike for the first and / or the last mile

Bicycle parking at stations

focus of this presentation



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Sharing + train

not covered here



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Bike on board

not covered here



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Project: Potential and market study BikeTransit

Duration: June 2024 – March 2027

Objectives

- gain a deeper understanding—qualitative and, above all, quantitative and economic—of the usage patterns, needs and potential of current and potential BikeTransit passengers
- assess the effects: on traffic, the economy and the environment
- analyse the need for infrastructure investment and financing

Partners

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Technische Hochschule Wildau
Technical University of Applied Sciences
WILDAU

sinus:

BRANCHENINITIATIVE FAHRRAD & BAHNEN

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aufgrund eines Beschlusses des Deutschen Bundestages

Modellvorhaben
NICHT-INVESTIV
Radverkehrsförderung des Bundes

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Project structure

International Benchmark

Comparison
Germany, Netherlands, Denmark, Austria, Switzerland

https://wupperinst.org/p/wi/p/s/pd/2408/

Qualitative Interviews

with experts and stakeholders for good practice selection and evaluation

Quantitative Surveys: Bike Transit Use and Valuation

Germany-wide population survey
representative sample (n ≈ 3,900)
Focus sample in regions w good Bike Transit conditions (n ≈ 3.000)

Regional user surveys
- Fahrradparken am Bahnhof
- Kombination von Bike-/ E-Tretrollersharing und Bahn
- Fahrradmitnahme im Zug
- Park+Ride

Estimation of impact and potentials for use of Bike Transit

Impact analysis of good practices, Germany-wide extrapolation

Needs for expansion, extension and optimisation; willingness to pay; recommendations for action

Comparison with the recommendations of the ‘Bicycles and Railways’ industry initiative; communication with relevant policy-makers

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Why station bicycle parking matters

1 km
typical walking catchment around a station

3–5 km
catchment with a conventional bicycle

7–10 km
potential catchment with e-bikes

0.5%
current share of bike–rail combinations in Germany

Research gap addressed in the paper:

How do users at improved bicycle parking facilities evaluate these infrastructures?
How do facility types, protection levels and bicycle values relate to user satisfaction?
Do improvements trigger more frequent Bike+Ride use or modal substitution?

Sources cited in paper: Midenet et al. (2018); Allianz pro Schiene (2022)

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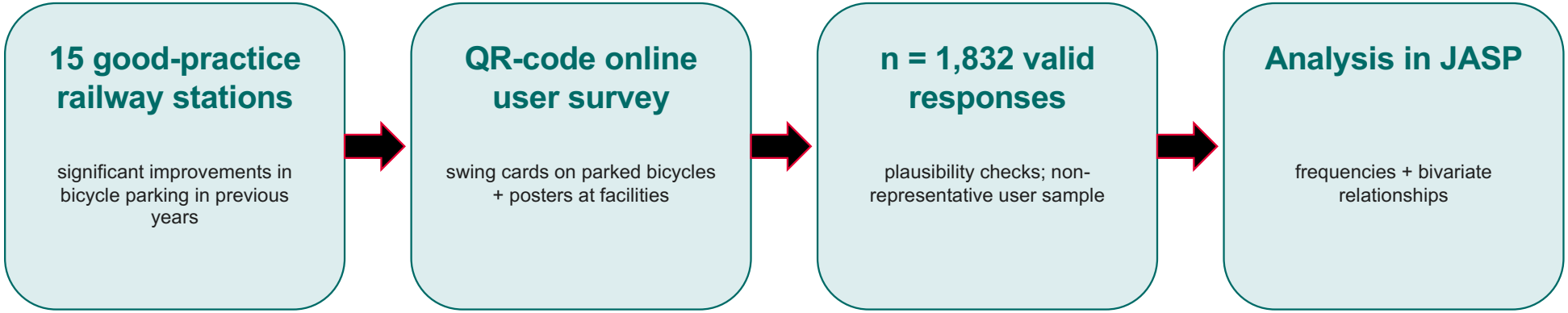
Research design: user surveys at improved stations



Focus of the survey: before/after perception of improved parking facilities, satisfaction, bicycle type and value, specific trip characteristics, changes in use, general mobility behaviour and sociodemographics.

Source: ECEEE paper, Methods section

Study locations: 15 good-practice stations across Germany

Niebüll	Treysa
Hamburg-Neugraben	Nürnberg Hbf
Eberswalde Hbf	Freising
Oranienburg	Rosenheim
Coesfeld (Westf)	Murnau
Dülmen	Tübingen Hbf
Köln-Süd	Heitersheim
Koblenz Hbf	

Selection covers

- different spatial categories
- station types and
- Bike parking facility types – from unprotected racks to access-controlled garages.



Source: ECEEE paper and BikeTransit Ringvorlesung method slide

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Sample of Bike + Ride users

n = 1,832
valid Bike+Ride parking users surveyed

5 - 375
responses per station

QR codes
attached to parked bicycles / empty racks

bias
frequent users more likely to respond

- Findings describe users of improved bicycle parking facilities under favourable conditions
- High use frequencies and commuter orientation may partly reflect self-selection
- Behavioural effects are interpreted as reported changes, not as experimental causal effects

Source: ECEEE paper, Methods section

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Who uses improved Bike + Ride parking?

57%
male respondents

79%
employed full-time or part-time

70%
tertiary education

38%
with children under 18 in household

Sample dominated by commuters: economically active, highly educated and regular travellers with a high use frequency and the strong work-trip orientation.

Source: Wuppertal Institute BikeTransit user survey, 2025/2026; n = 1,832 unless stated otherwise

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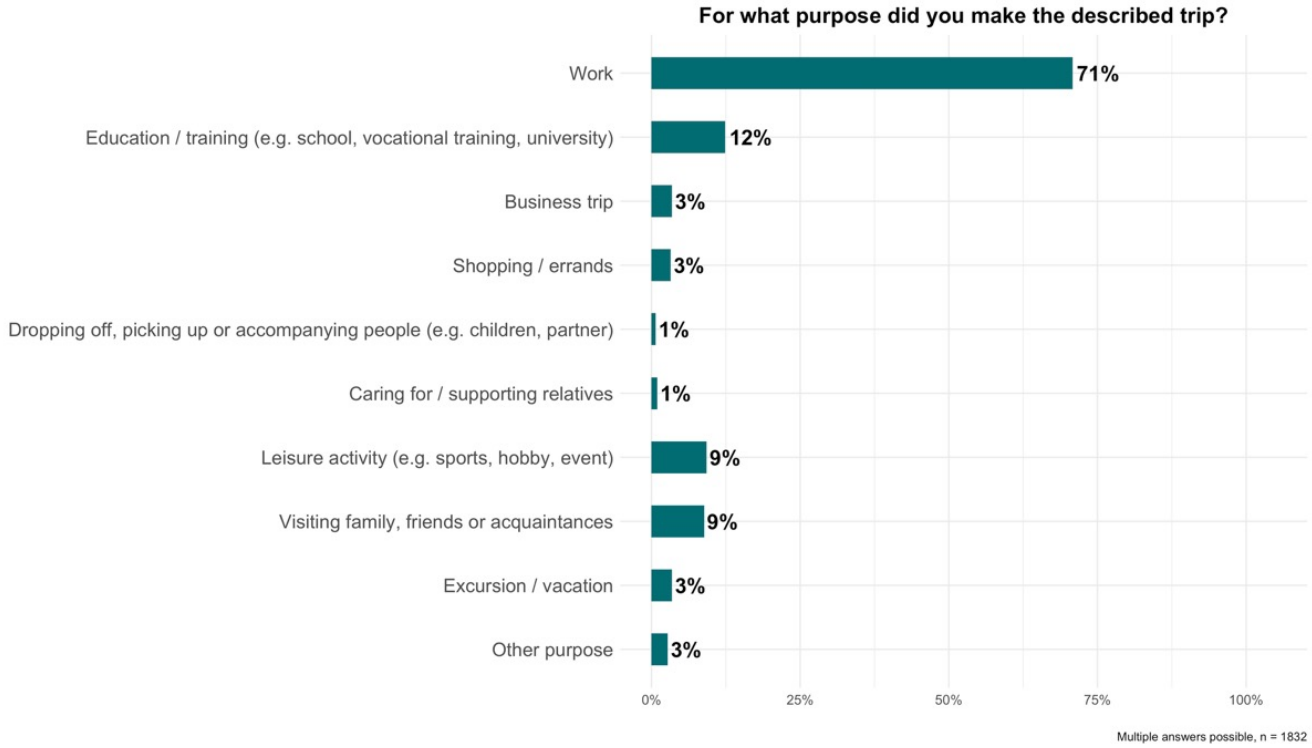
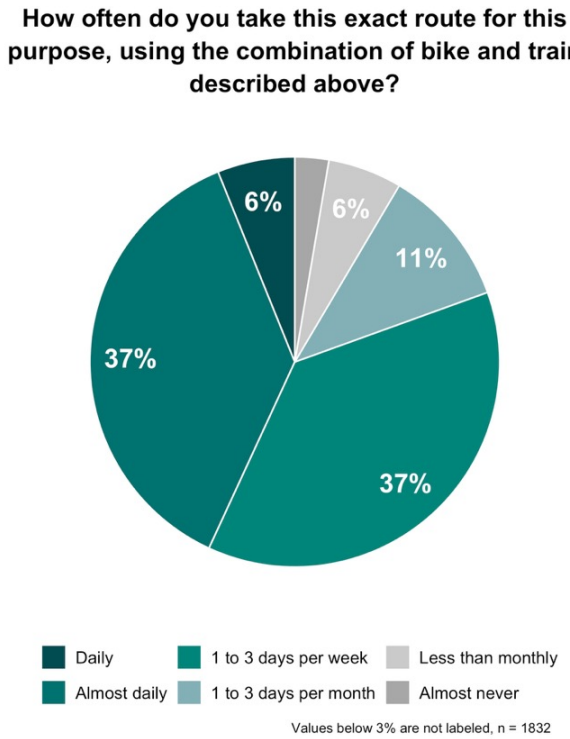
Trip purpose: Bike+Ride parking is strongly work-related



Work and education together account for more than four out of five reported trip purposes

Source: Wuppertal Institute BikeTransit user survey, 2025/2026; n = 1,832 unless stated otherwise

Bike + Ride parking is mostly routine mobility



80.5%
use the infrastructure at least weekly

Routine use is central for interpreting the rest of the results: the facilities are not mainly used for occasional leisure trips, but as part of repeated everyday mobility.

Source: Wuppertal Institute BikeTransit user survey, 2025/2026; n = 1,832 unless stated otherwise

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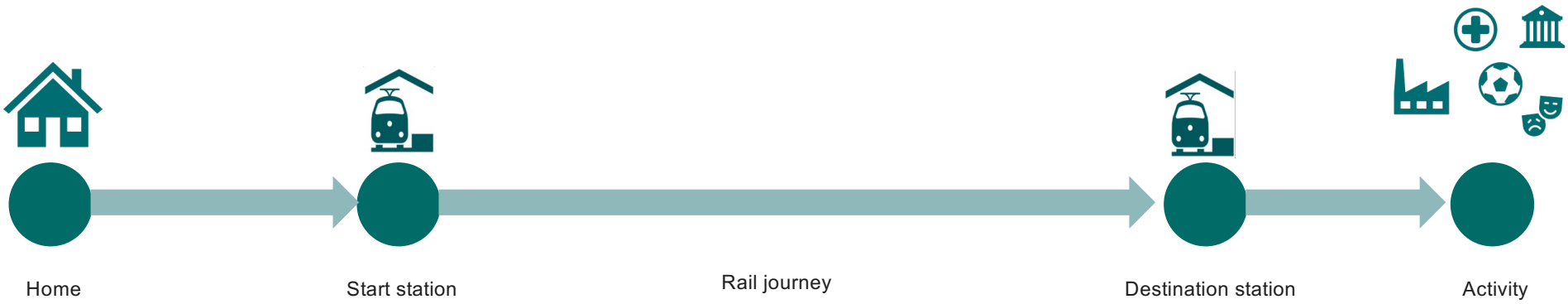
The bicycle mainly serves the first mile



61.6%
first mile only

25.4%
first and last mile

13.0%
last mile only

Survey design matters: bike-on-board users without parking at the station were not part of this survey.

Source: Wuppertal Institute BikeTransit user survey, 2025/2026; n = 1,832 unless stated otherwise

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Spatial pattern: suburban/rural origins, more urban destinations

83.6%
live in suburban, village or rural contexts

41.1%
activity locations in urban or highly urban areas

92.8%
use regional rail only

89.9%
use the Deutschlandticket

Improved bicycle parking supports a typical suburban / rural-to-urban commuting pattern by bridging the first-mile accessibility gap to regional rail.

Source: Wuppertal Institute BikeTransit user survey, 2025/2026; n = 1,832 unless stated otherwise

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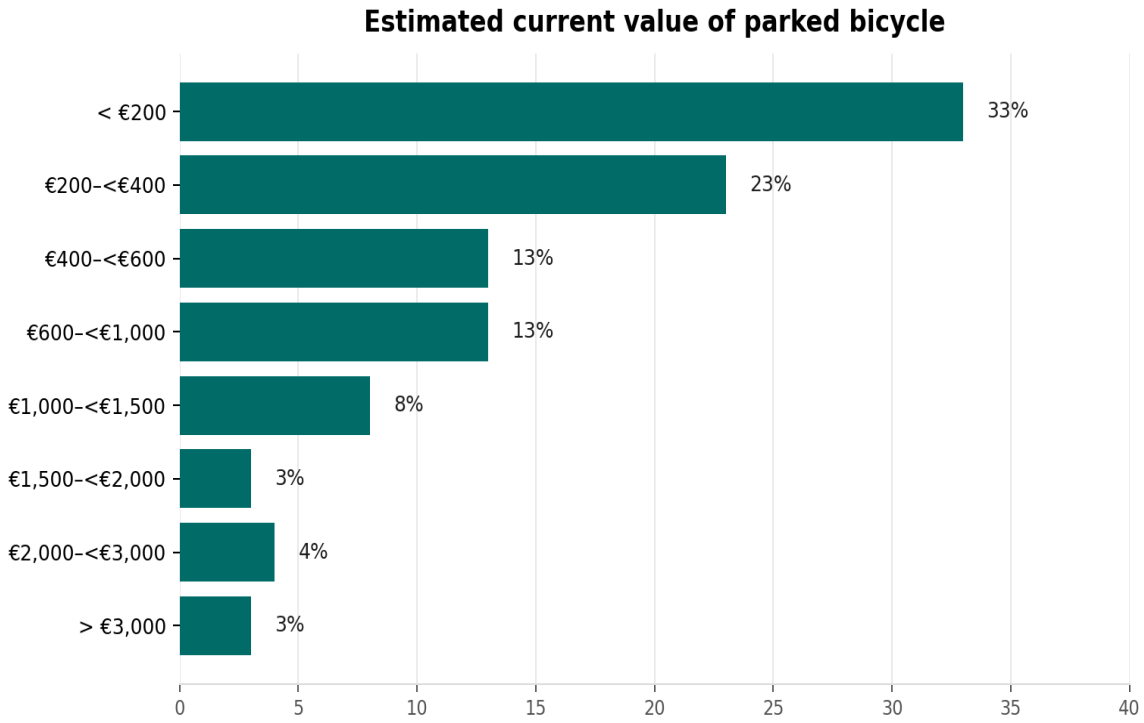
Parked bicycles are not only low-value



88.7%
conventional bicycles

10.2%
e-bikes / pedelecs

17.4%
bicycles > €1,000

Security, weather protection and damage prevention are not marginal comfort features - they are prerequisites for parking higher-value bikes.

Source: Wuppertal Institute BikeTransit user survey, 2025/2026; n = 1,832 unless stated otherwise

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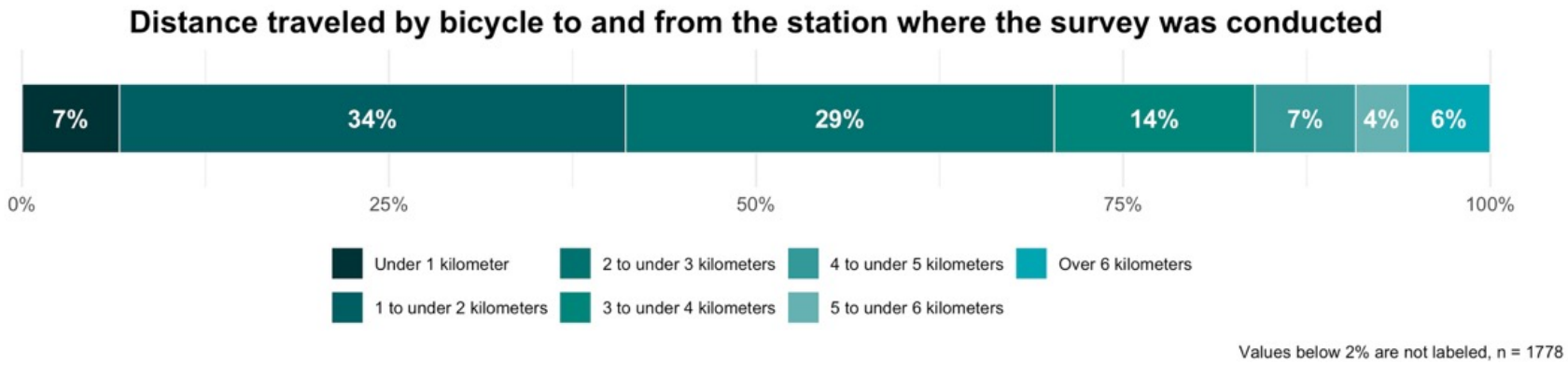
Access distances are short enough for cycling, but beyond walking range



83.9%
cycle less than 4 km

90.8%
cycle less than 5 km

confirms Bike+Ride logic: bicycle extends the effective station catchment beyond walking distance while keeping access trips short.

Source: Wuppertal Institute BikeTransit user survey, 2025/2026; n = 1,832 unless stated otherwise

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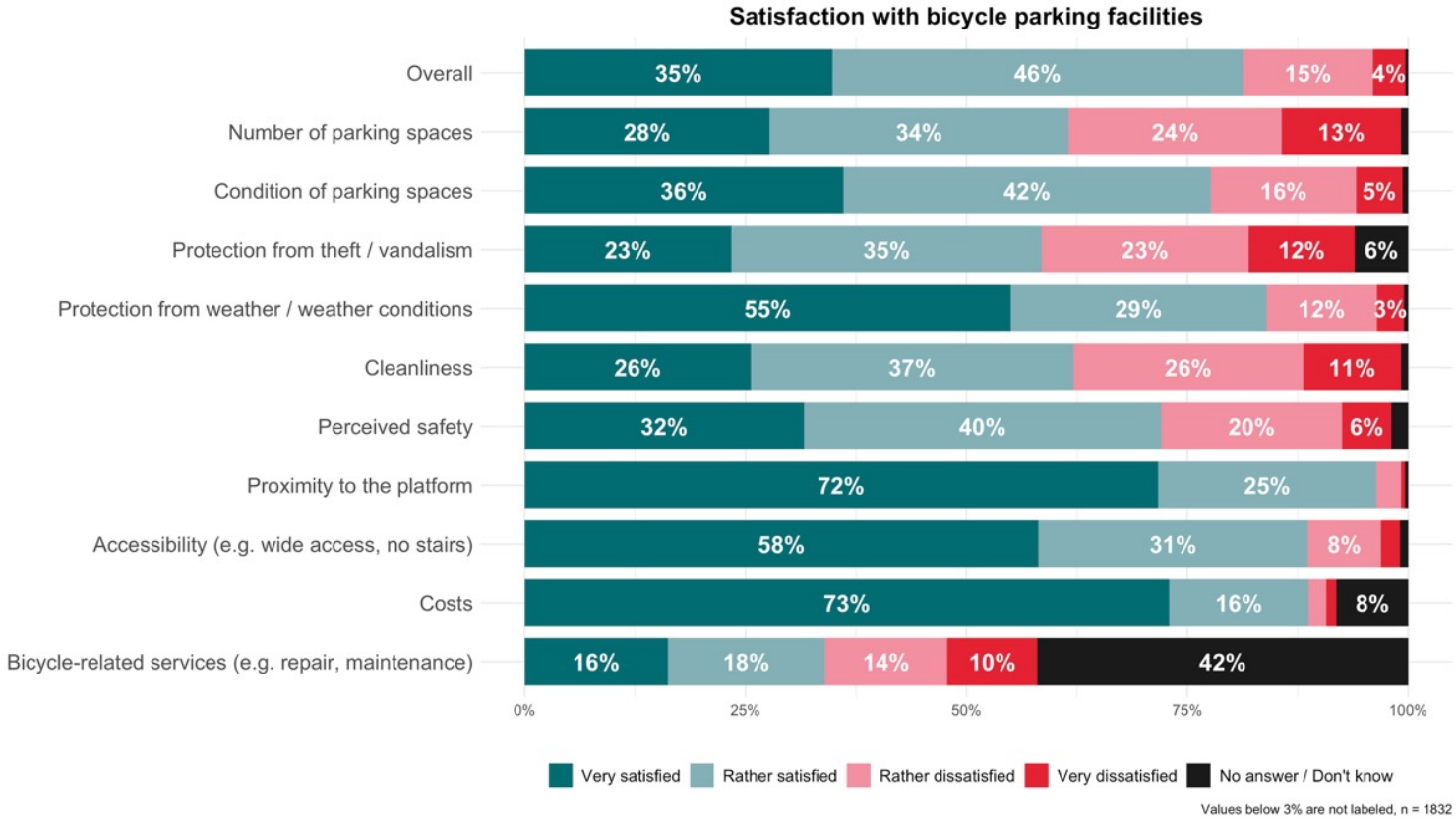
Assessment of improved parking: high satisfaction



81.5%
satisfied overall

Source: Wuppertal Institute BikeTransit user survey, 2025/2026; n = 1,832 unless stated otherwise

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Improved sites solve convenience better than security

Strong dimensions

97%
Proximity to platform

89%
Accessibility

84%
Weather protection

Remaining quality gaps

59%
Theft / vandalism protection

62%
Cleanliness

72%
Perceived safety

Even good-practice locations still show improvement potential from user perspective

Source: Wuppertal Institute BikeTransit user survey, 2025/2026; n = 1,832 unless stated otherwise

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Two thirds noticed the infrastructure improvements

66.0%
noticed the improvements

10.9%
did not notice improvements

23.1%
were unsure

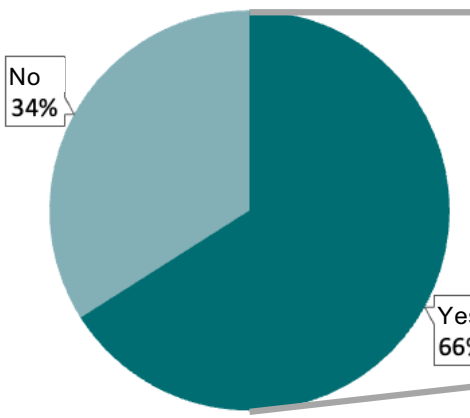
Interpretation

Perceived infrastructure change is relevant because the behavioural questions are about reported changes after the upgrade. Not all respondents were exposed to or aware of the full before–after situation.

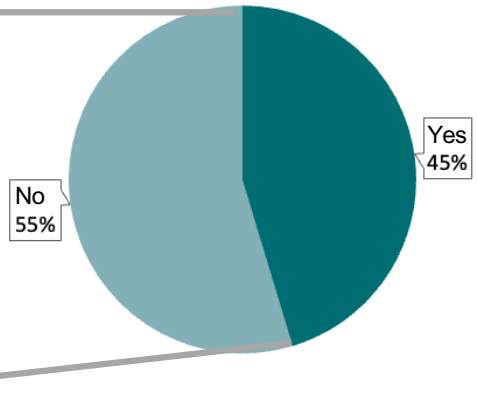
Source: Wuppertal Institute BikeTransit user survey, 2025/2026; n = 1,832 unless stated otherwise

Behavioural effects are differentiated

Improvements noticed



Influence on mobility behaviour



Which kind of change?

(multiple answers)

More frequent Bike + Ride (77% / 421 respondents)

Use of higher value bicycle (already owned before) (43% / 238 respondents)

Higher value bicycle (new) (17% / 91 respondents)

Among respondents who had **already made the same trip** before the infrastructure upgrade (n = 857):

- Most report unchanged Bike+Ride frequency
- A relevant minority of **17% of reports more frequent use**

Source: Wuppertal Institute BikeTransit user survey, 2025/2026; subsample n = 857

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Why did some users increase Bike+Ride use?



Parking quality and capacity explicitly mentioned as drivers among those reporting increased use

Source: Wuppertal Institute BikeTransit user survey; reasons among subgroup reporting increased use; previous modes n = 146

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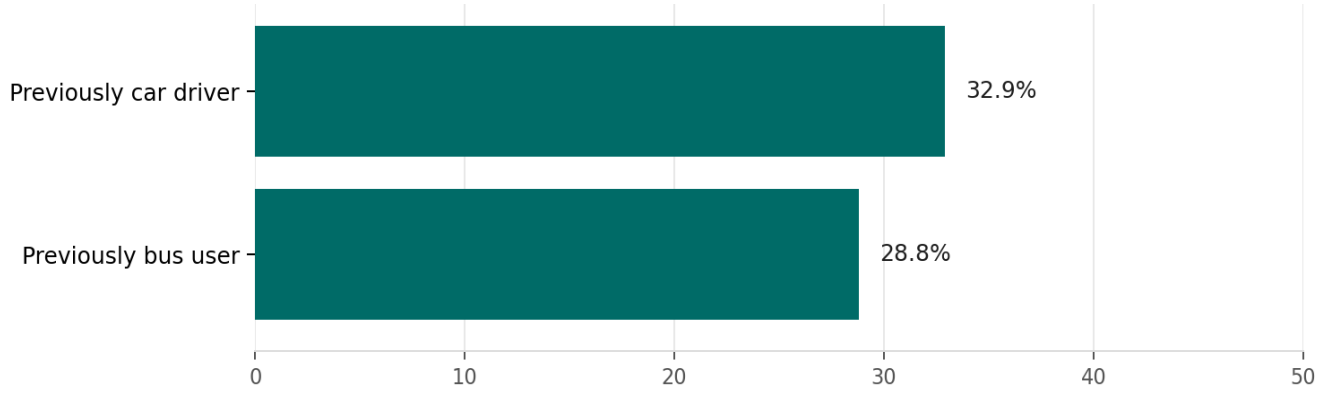
Modal Shift from car use



- Indications of substitution from car and bus access modes
- among those respondents who indicated to have made the same way before the infrastructure change and responded to use bike+ride more often (n = 146)

Source: Wuppertal Institute BikeTransit user survey; reasons among subgroup reporting increased use; previous modes n = 146

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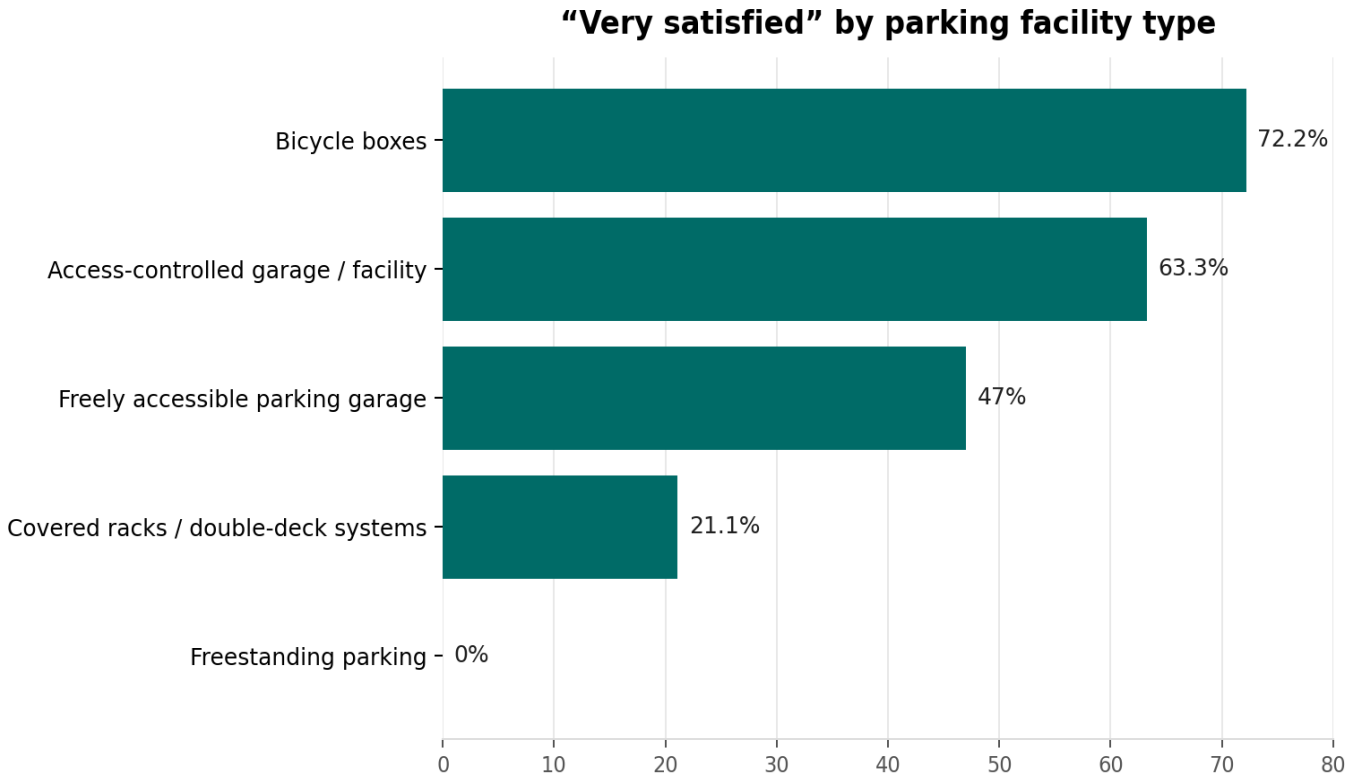
Parking type matters: not all additional parking is equal



$\chi^2 = 384.0$

df = 18, p < .001

$\tau b = 0.371$

satisfaction decreases as protection decreases

Security and enclosure are systematically related to user acceptance.

Source: Wuppertal Institute BikeTransit user survey, 2025/2026; N = 1,781

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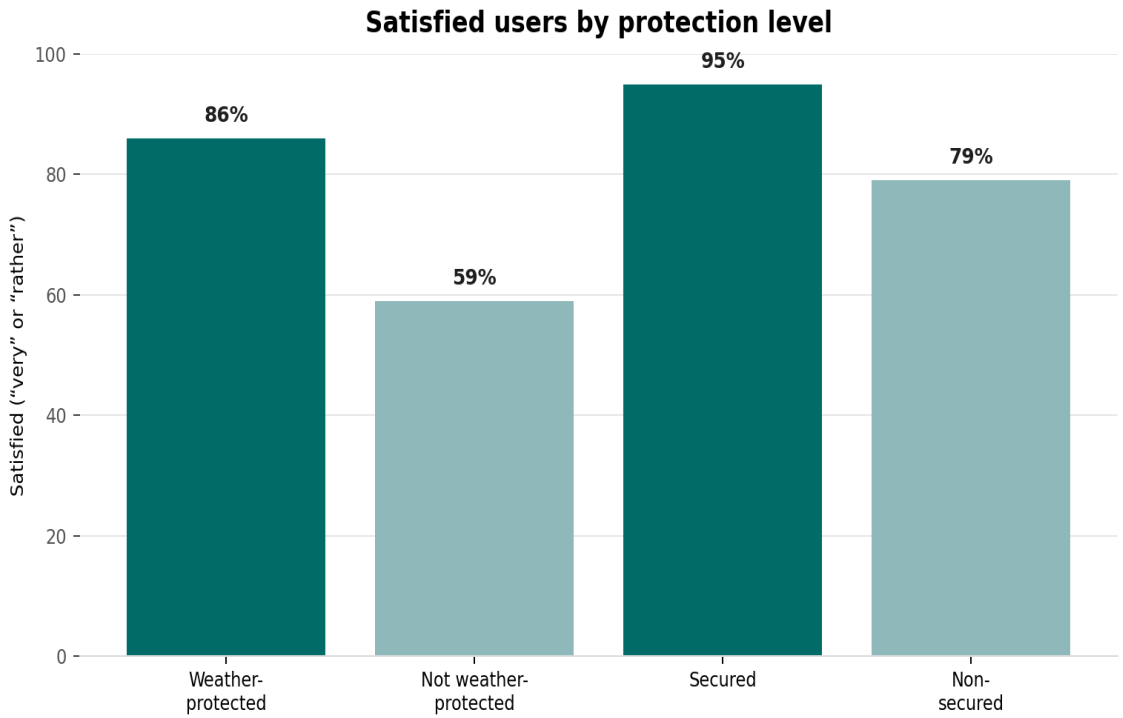
Weather protection and access control are associated with satisfaction



Dichotomised comparisons

Weather-protected parking: 86% satisfied vs. 59% without weather protection.

Secured parking: 95% satisfied vs. 79% for non-secured parking.

Dissatisfaction is far higher where protection is missing.

p < .001
for both relationships

Source: Wuppertal Institute BikeTransit user survey, 2025/2026; n = 1,832 unless stated otherwise

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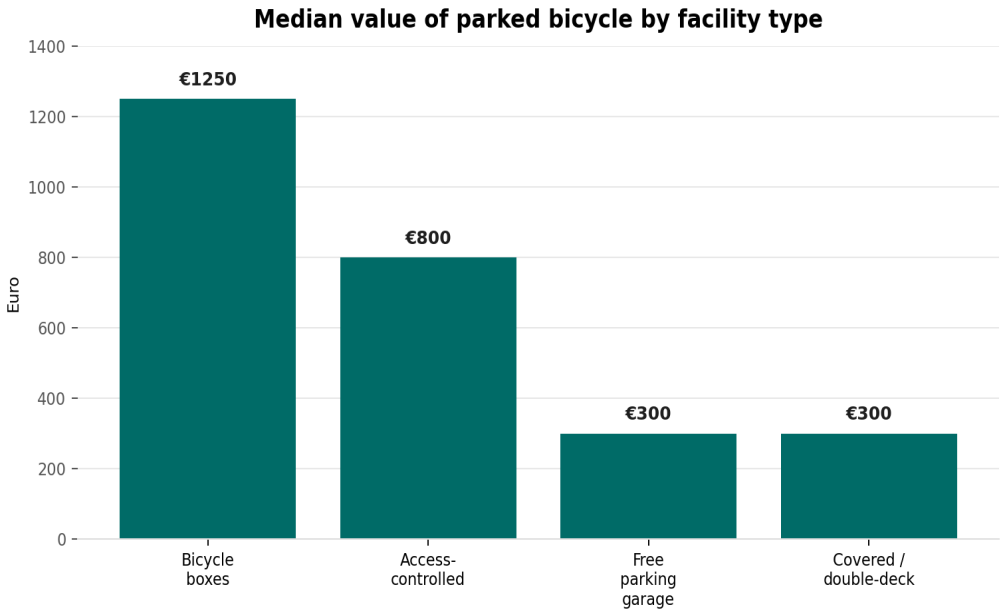
Higher-quality facilities are linked to higher-value bicycles



Share of respondents „very satisfied“ with parking facilities by parked bicycle type

51.3%
e-bikes / pedelecs

32.9%
conventional bicycles

Patterns suggest a sorting effect: users of higher-value bicycles tend to use – or can only confidently use – higher-quality facilities.

Source: Wuppertal Institute BikeTransit user survey, 2025/2026; n = 1,832 unless stated otherwise

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A central tension: demand for security, low willingness to pay

51%
of non-users of secure paid facilities do not want to pay

19%
consider the service too expensive

34%
are satisfied with the free alternatives

Implication

If high-quality facilities are priced as a premium product, they may fail to attract precisely those users who need security but perceive bike parking as part of public transport access

Source: Wuppertal Institute BikeTransit user survey, 2025/2026; n = 1,832 unless stated otherwise

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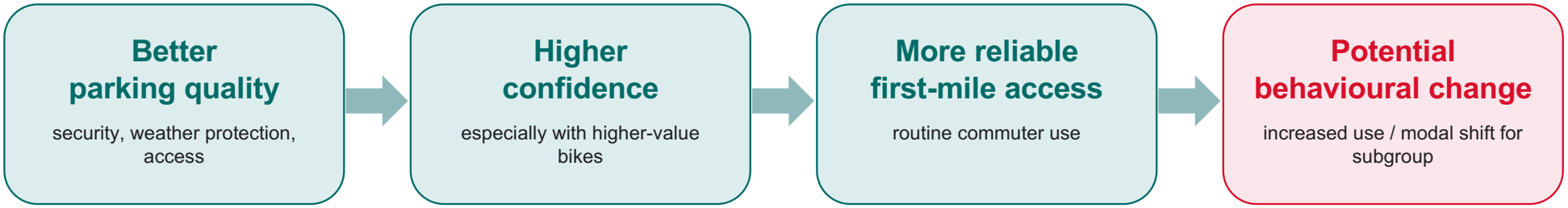
Interpretation: quality enables reach and reliability



Improved bicycle parking is not merely a parking supply issue. It is an intervention in multimodal accessibility, especially for routine commuters in suburban and rural contexts.

Source: Wuppertal Institute BikeTransit user survey, 2025/2026; n = 1,832 unless stated otherwise

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Key findings

80%
use bicycle parking at least weekly

71%
make the surveyed trip for work

62%
use the bicycle on the first mile only

82%
are satisfied overall with the current parking situation

Improved bicycle parking could strengthen an existing commuter practice by contributing to high satisfaction – but can also trigger additional use and limited modal shifts for a relevant subgroup

Security is the critical quality gap: satisfaction with theft/vandalism protection reaches only 59%, despite high overall satisfaction.

Source: Wuppertal Institute BikeTransit user survey, 2025/2026; n = 1,832 unless stated otherwise

Next Step: Potential Analyses

User Surveys	Population Survey B	Population Survey A
In 15 selected Bike Transit stations	in sub-sample of German regions with good Bike Transit conditions	In all German regions in bikable distance to stations

Potential estimation 1:
weighed extrapolation of Bike-Transit behaviour change from user surveys → general mobility and BT use patterns from Population Surveys A and B

Potential estimation 2:
Difference of mobility behaviour in Bike-Transit-Regions (comparison Population Surveys A and B)

Potential estimation 3
Population Surveys A and B
readiness of use if Bike Transit infrastructures and services were extended

Potential estimation 4:
3 regular destinations of relevant trip length→ theoretical potential of trips eligible for a shift to Bike Transit

Conclusions for expanding Bike+Ride in Germany

- Quantity matters, but quality and security are decisive for user acceptance
- Improved facilities enable increased use for a relevant subgroup
- Access-controlled and weather-protected parking should be treated as part of public transport access, not as a luxury add-on.
- Next step: compare good-practice locations with Germany-wide survey data to assess transferability and modal-shift potential.

Thank you for your attention!

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