Automated **Shared** Electric Taxis

mobi

VUB VRIJE UNIVERSITEIT BRUSSEL

Sharing

mobility as a service: any time, any place

2017

future

fully automated private luxury

Ownership

In Brussels

cars: 450.000 = 41 per 100 inhabitants

35 minutes of actual driving

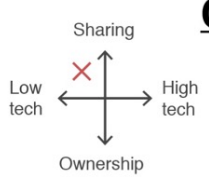
+ 130.000 cars of commuters/day

on-street parking: 250.000 = 1 per 5 inhabitants

Research by design

Sharing/low tech scenario

Current situation

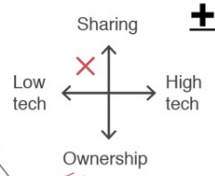


Herrmann-Debroux

Sharing/low tech scenario

Projection
+ Spatial measures

Herrmann-Debroux



Shared office,
Co-working spaces,
Move to a PT acces-
sible location

Promote carpooling
by providing free
parking spaces reser-
ved for car-poolers (at
the entrance, clearly
identifiable)

Improve the
existing means to
cover the
distance between
the establishment
and the stop -
Promote intermo-
dality

Organize shuttles
between the
facility and the
station, on lunch-
time for shopping
in activity areas

Shared

Table 1: STEPS to Transportation Equity

Transportation Barriers	Definition	Shared Mobility Opportunities	Shared Mobility Challenges
Spatial	Spatial factors that compromise daily travel needs (e.g., excessively long distances between destinations, lack of public transit within walking distance)	• Public transit operators and ridesourcing first- and last-mile partnerships • Microtransit for lower-density areas	• Higher operating costs in lower-density exurban and rural settings • Limited curb space for increasing variety of mobility services
Temporal	Travel time barriers that inhibit a user from completing time-sensitive trips, such as arriving to work (e.g. public transit reliability issues, limited operating hours, traffic congestion)	• Dynamic microtransit • Late-night ridesourcing and shuttle services • Commuter carpooling services	• Wait-time and travel-time volatility on congested roadways • Unpredictable wait times due to supply fluctuations
Economic	Direct costs (e.g., fares, tolls, vehicle ownership costs) and indirect costs (e.g., smartphone, Internet, credit card access) that create economic hardship or preclude users from completing basic travel	• Shared mobility subsidies for low-income users • Multiple payment options for shared mobility services • Multi-modal hubs with Wi-Fi access	• Credit/Debit Card payment • High cost for longer distance and peak-demand trips • Maintaining affordability, while providing livable wages
Physiological	Physical and cognitive limitations that make using standard transportation modes difficult or impossible (e.g., infants, older adults, and disabled)	• Older adult-focused shared mobility services • Voice activated mobility app features	• Maintaining legacy technology access • Ensuring adequate driver training
Social	Social, cultural, safety, and language barriers that inhibit a user's comfort with using transportation (e.g. neighborhood crime, poorly targeted marketing, lack of multi-language information)	• Ridesourcing app interface that minimizes sociodemographic profiling • Targeted outreach to low-income and minorities • App information in user's native language	• Attracting marginalized groups • Driver prejudice against riders • Providing security at un-manned vehicle stations

(Travel Behavior: Shared Mobility and Transportation Equity. Susan Shaheen, Corwin Bell, Adam Cohen, Balaji Yelchuru, 2017)

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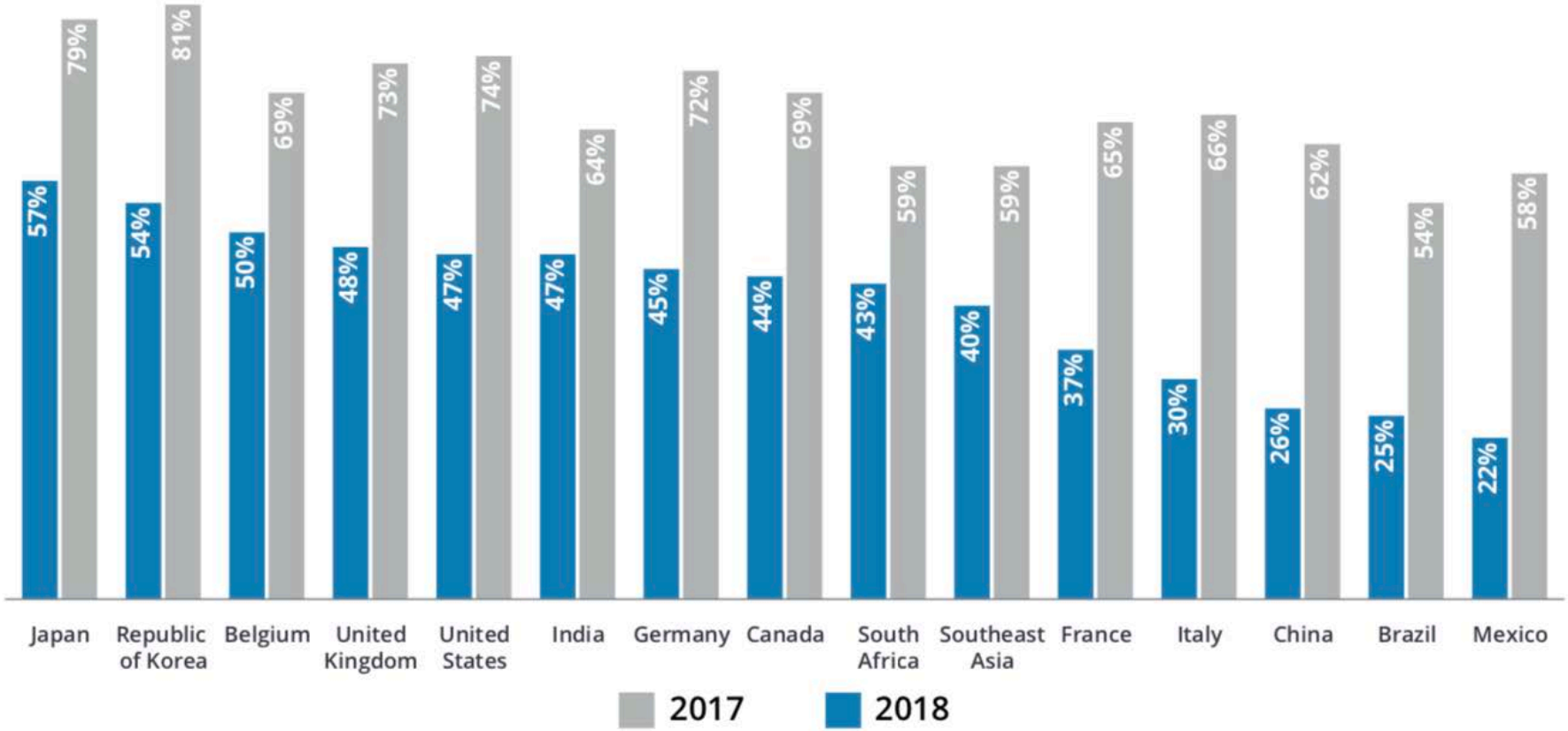
Figure 1. Percentage of consumers who think fully self-driving vehicles will not be safe (2017 vs. 2018)



Source: *2017 and 2018 Deloitte global automotive consumer studies.*

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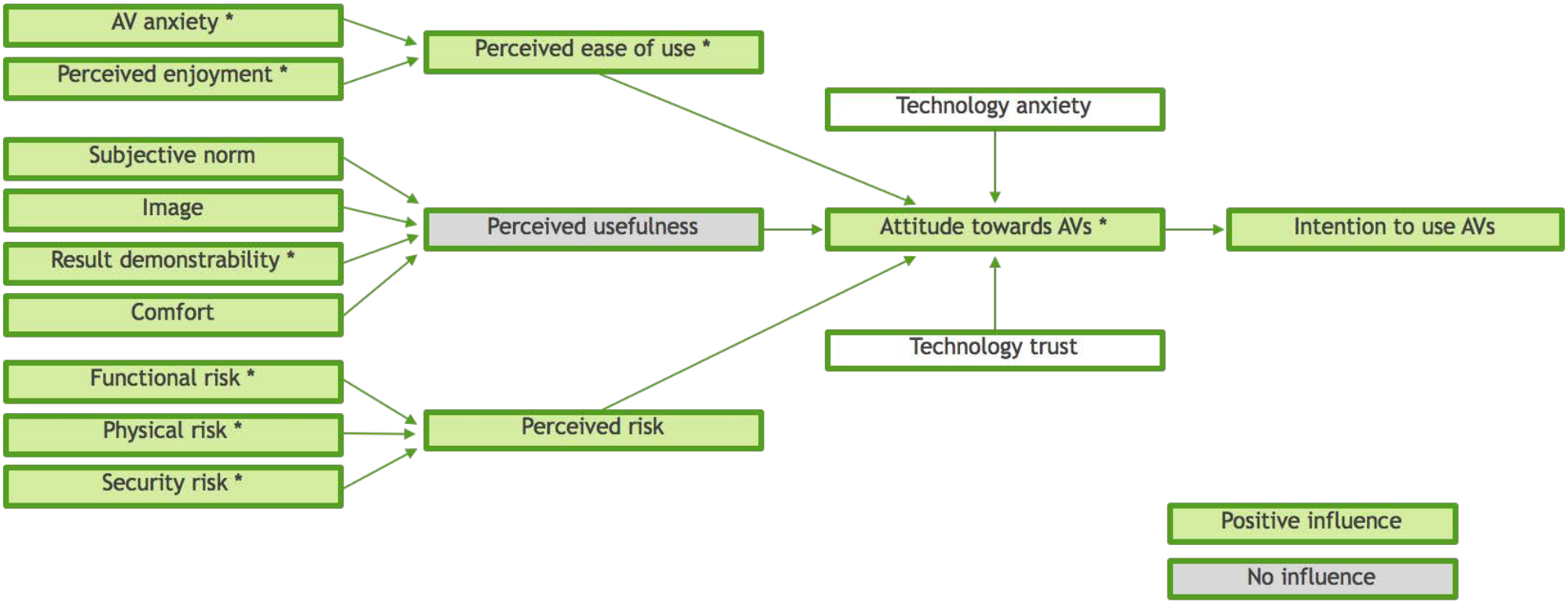
Automated: User acceptance

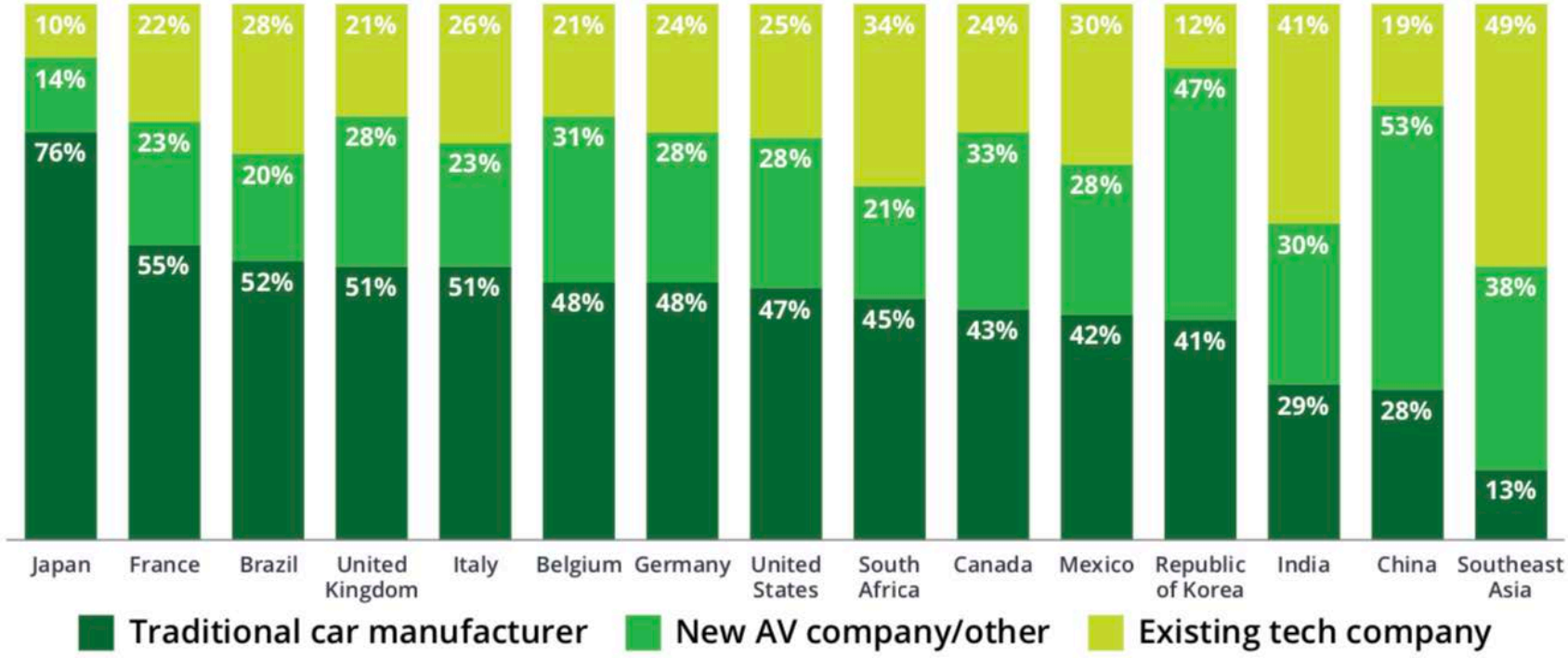


(Consumer Acceptance of Autonomous Vehicles: A Pilot Project Feys, M. & Vanhaverbeke, L. 12 Jul 2017. Proceedings Automated Vehicle Symposium 2017.)

* Signifincant difference in mean pre-and posttest

Automated

Figure 3. Types of companies consumers trust most to bring fully autonomous vehicle technology to market (2018)



Source: *2018 Deloitte global automotive consumer study.*

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