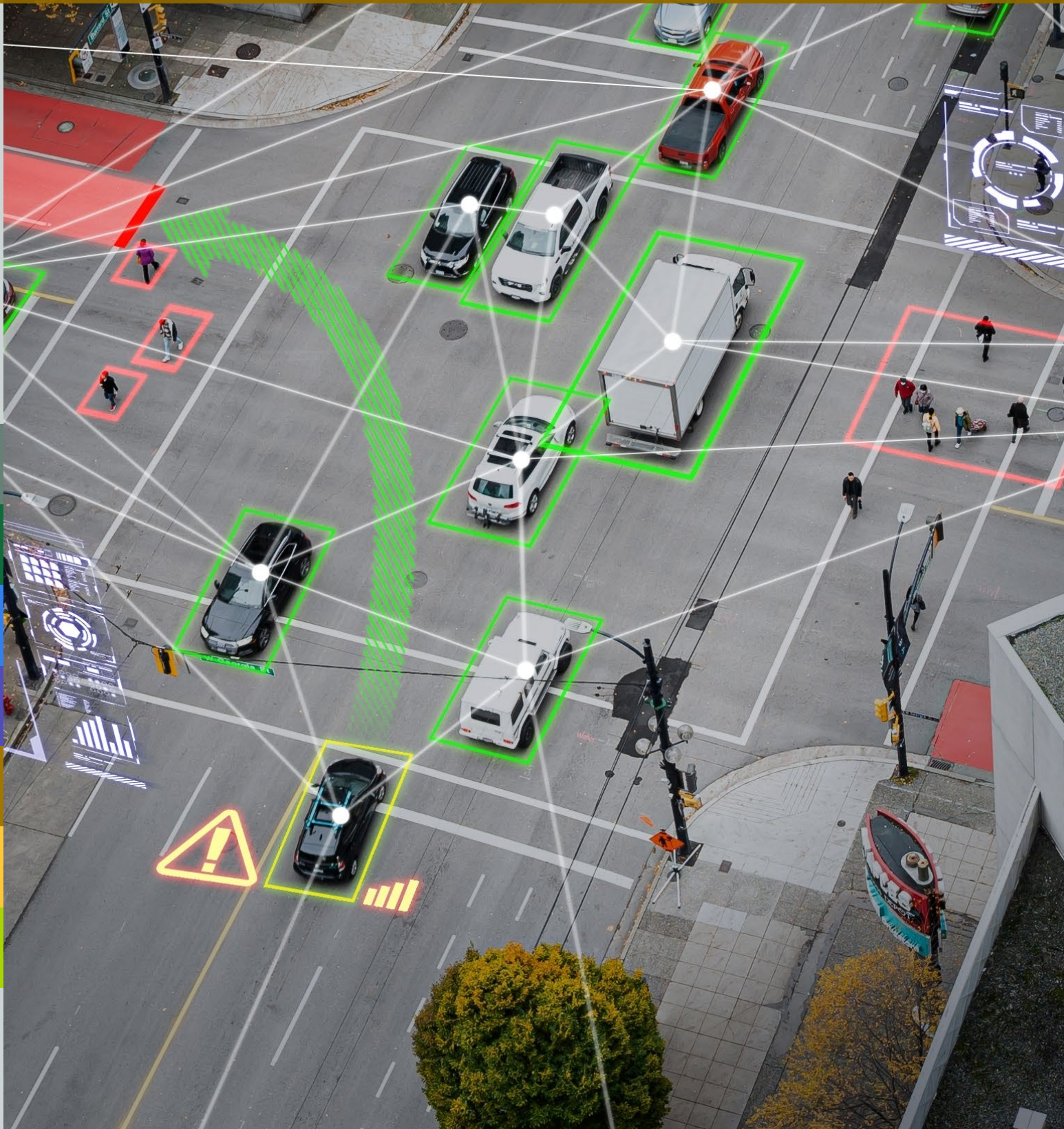


# Look Forward to a Vision for Urban Mobility in 2050

Becrom Basu, Partner





## OUTLOOKS

### L.E.K. Look Forward Into 2024

Welcome to Look Forward, L.E.K. Consulting's annual analysis of the challenges and opportunities in our sectors. In this Infographic, Partners **Becrom Basu** and **Andrew Allum** share their views on how Urban Mobility may evolve by 2050.

## Look Forward to a Vision for Urban Mobility in 2050

We explore the changing fabric of urban travel and solutions to some of the key questions posed today by operators, investors and governments:

- How will the nature and patterns of transport change?
- How can cities absorb growing populations while remaining efficient?
- What solutions are there and what implications will this have for current and future infrastructure?
- What are the barriers to adoption?

# Urban mobility in 2050 will be bigger than ever



By 2050 ...



**70%**  
of the world's population will live in cities  
(54% in 2020)



**47** MEGA CITIES  
(population >10m)  
**33** in 2023  
expected combined increase in population of 213m people



**>100tn**  
passenger-kilometres will be travelled globally on public transport systems  
(50tn in 2020)

## Future urban mobility core objectives should be



Green



Safe



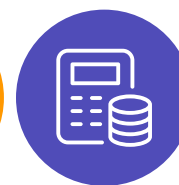
Fast



Inspiring



Reliable



Affordable



Accessible

Source: L.E.K. research and analysis

# London's urban mobility journey, 2023 to 2050

## 2023

While certain initiatives are underway to reach these core objectives, there are some clear areas for improvement

In London, only **5%** of the current car fleet and **11%** of the bus fleet are electric vehicles

Every year, there are over **4,000** incidents on the London tube, and over **3,000** serious accidents on London roads

The average peak traffic speed is only **14 km/h** in London due to congestion, slower than all other major western cities

Over **270** tube rolling stock will be **over 35 years old** by 2030

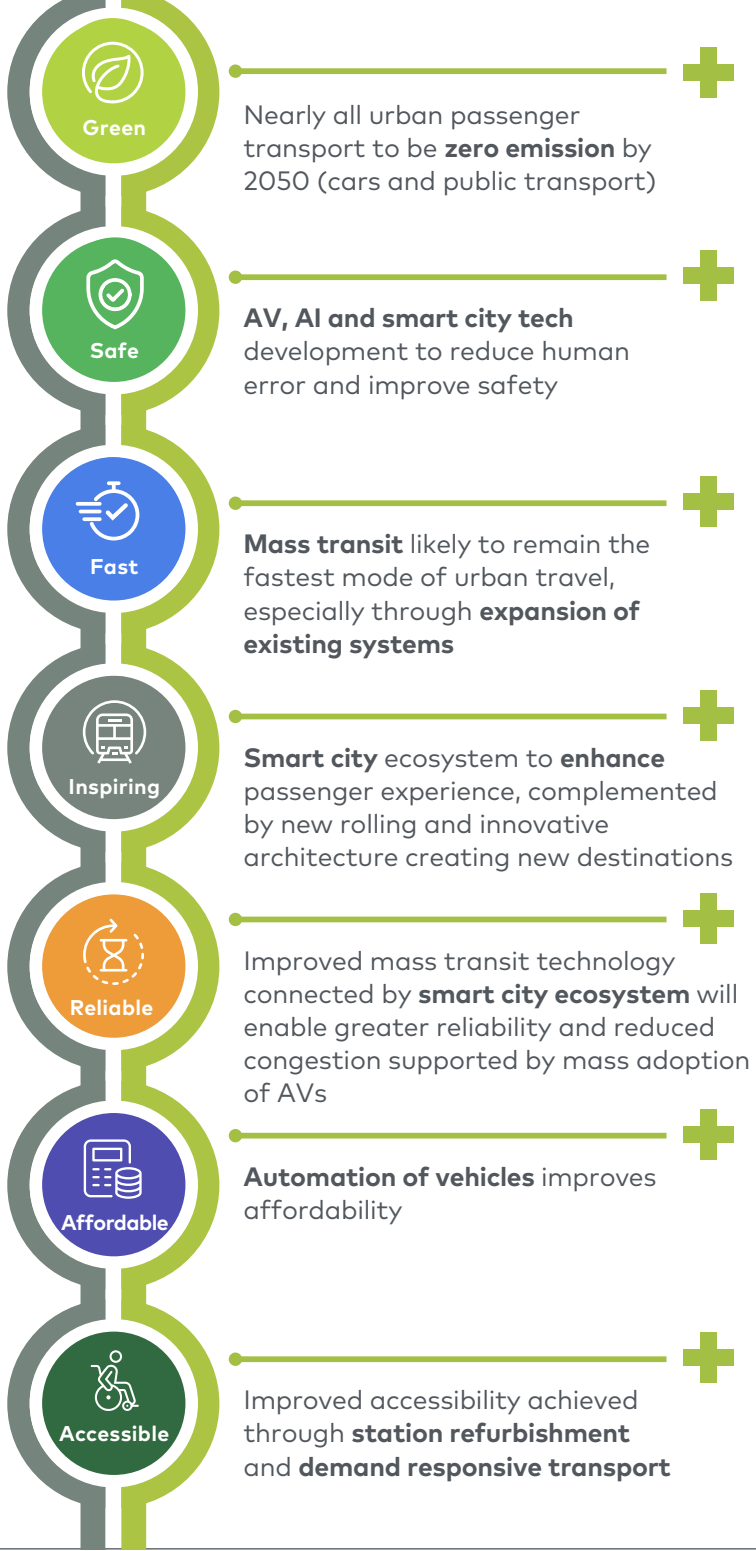
The average London driver lost **156 hours** due to congestion in 2022

Spending on transport made up **c.14%** of household spend, and UK rail received **£13.3bn** in government support in 2021-22

Only **22%** of tube stations have full step-free access, around **500k** Londoners have disabilities limiting their day-to-day activity a lot

## 2050

The core objectives of the 2050 vision for urban mobility are achievable through a combination of the solutions



# Barriers to EV adoption



### Tech/R&D

**55%**  
of UK respondents have **concerns over battery range**<sup>1</sup>

**55%**  
of respondents believe a fully electric vehicle **takes too long to charge**



### Capital requirements

**40k-60k**  
**extra public EV charging points** for LCVs needed in London by 2030

**€30bn**  
being invested in **grid upgrades** in Europe between 2022 and 2030

**£15bn**  
of investment required to **fully electrify the UK bus fleet**



### Space usage

**60%**  
of London households do **not have off-street parking**



### Social changes

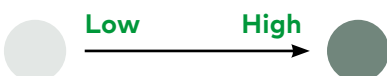
**46%**  
of car owners **do not intend to get an EV in the next 10 years**<sup>2</sup>



### Governance/politics

**£26bn**  
of money **raised by the UK government/TfL from ICEs** will need to be **alternatively sourced**<sup>3</sup>

#### Strength of barrier



<sup>1</sup> Survey question: How much do you agree/disagree with the following statements? I am worried my electric vehicle may not be able to hold enough charge in its battery for longer-distance journeys (e.g. domestic holidays)

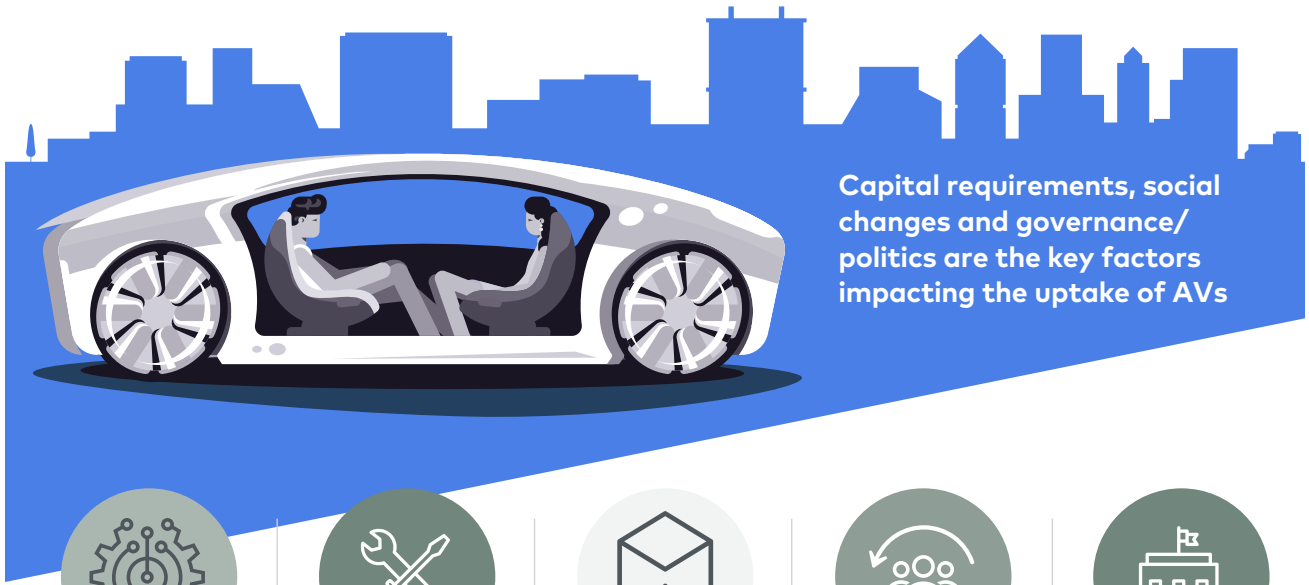
<sup>2</sup> Survey question: When are you planning to purchase a fully electric vehicle?; excludes respondents who don't own a car and do not plan to own one

<sup>3</sup> Based on money raised in FY23: £24.6bn from fuel duty, £480m from ULEZ and £358m from congestion charge

Note: EV=electric vehicle; LCV=light commercial vehicle; ULEZ=ultra low emission zone; TfL=Transport for London; ICE=internal-combustion engine

Source: L.E.K. mobility polls 2023; L.E.K. New Mobility Survey 2022; Research Whitepaper: "European EV Charging Infrastructure Masterplan"; TfL; Gov.uk; The Climate Group; PwC

# Barriers to AV adoption



### Tech/R&D

Significant difficulty for technology to work successfully with **complex environments**

Limited testing in **harsher weather conditions**

Cybersecurity threats

**\$200bn** invested globally in AV technology<sup>1</sup>



### Capital requirements

Enhanced **traffic management**

Potential requirement to **segment traffic**

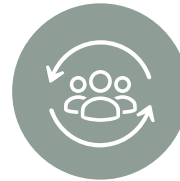
Development of **last-mile depots** to accommodate AV deliveries



### Space usage

A shift to shared vehicles would reduce the need for **dedicated parking**

**15km<sup>2</sup>** of space that **on-street parking** takes up in London (10 Hyde parks)



### Social changes

**42%** of respondents are **pessimistic** about autonomous vehicles and **worry about safety<sup>2</sup>**

**53%** of respondents state that they **will always want to own a car**, even if a mass use of self-driving cars occurs<sup>3</sup>

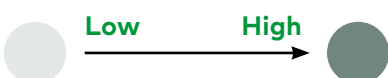


### Governance/politics

**New regulations** required

Consideration of increased charges for AV taxis to **manage congestion** should too many travelers switch from public transport usage

### Strength of barrier



<sup>1</sup> Based on data on investment up to February 2022

<sup>2</sup> Survey question: Which statement best describes how you feel about self-driving cars in cities?

<sup>3</sup> Survey question: How do you think the mass use of self-driving cars would affect your car ownership status?

Note: AV=autonomous vehicle

Source: L.E.K. mobility polls 2023; Forbes; TfL; L.E.K. research

# Barriers to Smart City deployments



## Tech/R&D

Investment required to bring **existing tech** to the level where it can support smart city concepts

**16%** of **urban areas** in the UK **do not have 4G coverage** (34% across major roads)



## Capital requirements

**\$6bn** invested **globally** in 2020 for the **deployment/integration of intelligent traffic control systems**

**c.\$1.7bn** invested in Europe



## Space usage

Space freed up from **better utilisation** (e.g. bus lanes, priority management for public transport, car parking space)



## Social changes

Potential **emotive issues** with higher intensity of surveillance, as was seen with implementation of LTNs and ULEZ

**36%** of respondents **oppose ULEZ-style schemes<sup>1</sup>**

**22%** of UK respondents said whilst they think smart cities have some benefits, they also have **concerns<sup>2</sup>**

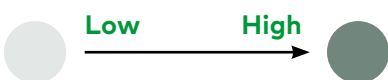


## Governance/politics

Increased need for investment in **cybersecurity**

**304 malicious cybersecurity attacks** against 'critical sectors' in 2020

### Strength of barrier



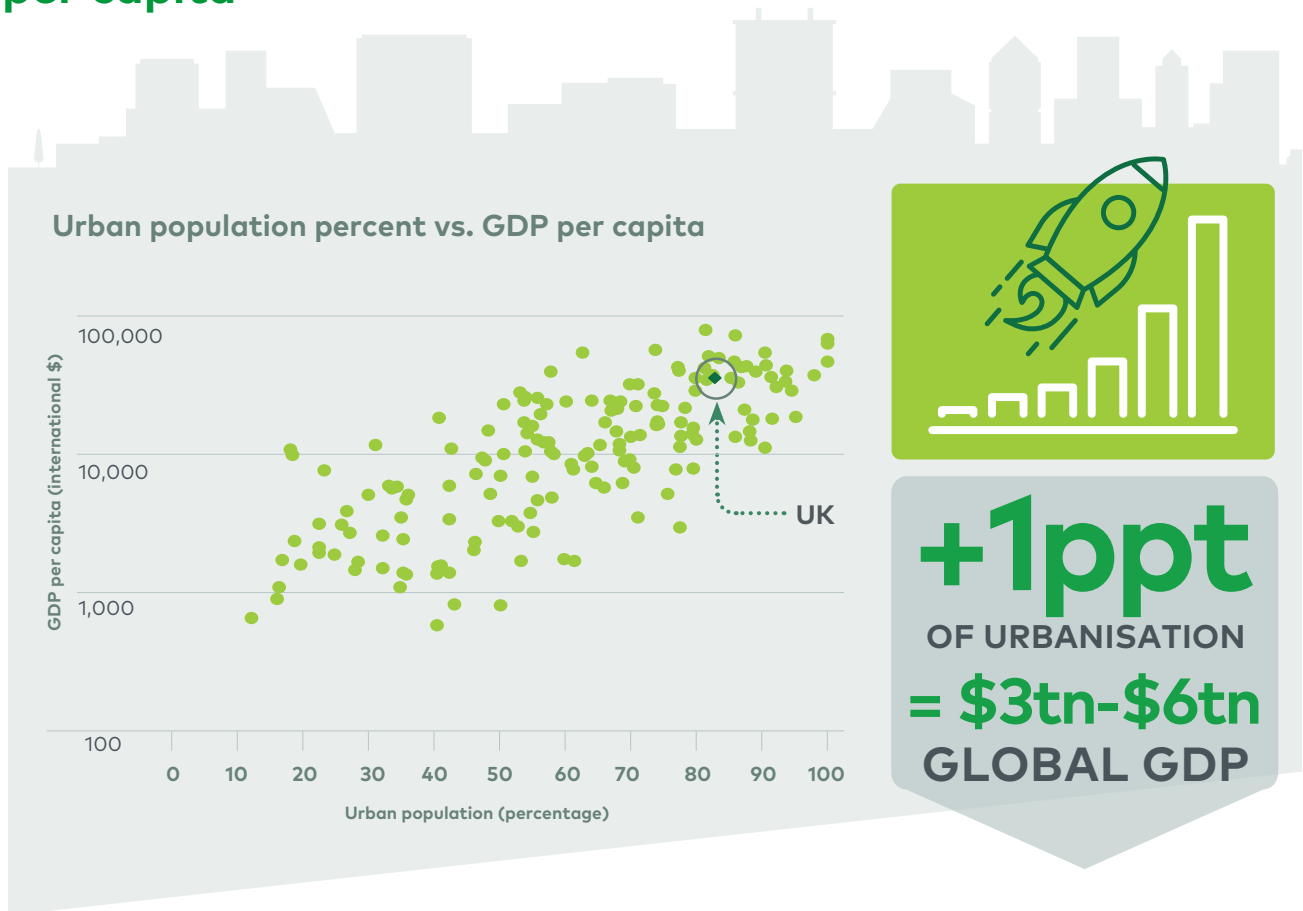
<sup>1</sup> Based on an Omnisis poll conducted on 27-28 July 2023

<sup>2</sup> Based on a survey conducted by Milestone Systems in 2020 (N=2,000)

Note: LTN=low traffic neighbourhood; ULEZ=ultra low emission zone

Source: Omnisis; UnivDatos Market Insights; HM Government; Vodafone; L.E.K. research

# Increasing urbanisation through investments in urban infrastructure leads to significant increases in GDP per capita



Note: GDP= gross domestic product

Source: Our World in Data, OWID based on UN World Urbanization Prospects (2018)



## About the authors

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Becrom Basu is a Partner in L.E.K. Consulting's London office. Becrom specialises in the transport, travel and new mobility sectors and advises a range of clients on global strategy, decision support, M&A and strategy activation projects. He has substantial experience in advising clients on transport disruption across sharing, connectivity, autonomy and electrification challenges. Becrom joined L.E.K. in 2005 after completing an MBA from INSEAD. Prior to his MBA, Becrom worked at EUROCONTROL, the European agency for air traffic management, and held managerial positions at various corporates and start-ups. He holds a first-class honours in MEng Chemical Engineering from University College London.

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Andrew Allum is a Senior Partner in L.E.K. Consulting's London office with more than 28 years of consulting experience. Andrew leads our Transport practice in Europe, which covers all modes of passenger and freight transport including air transport, shipping, public transport, new mobility, logistics and ports. Andrew also works in specific areas of business services and leads much of our work in dispute resolution and commercial claims.

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Arie Jamal is a Manager in L.E.K.'s European transport and logistics practice, based in the London office. He has over nine years' experience in strategy consulting and M&A, advising in over 50 projects across the UK, Western Europe, USA, Australia and New Zealand. Arie has advised public and private sector clients on engagements across mass transit, road, rail, bus and aviation, including assessing the impact of future developments in technology and how they would impact the transport ecosystem. Prior to joining L.E.K., Arie studied Economics & Management at Oxford University



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