The economic value of transport investment

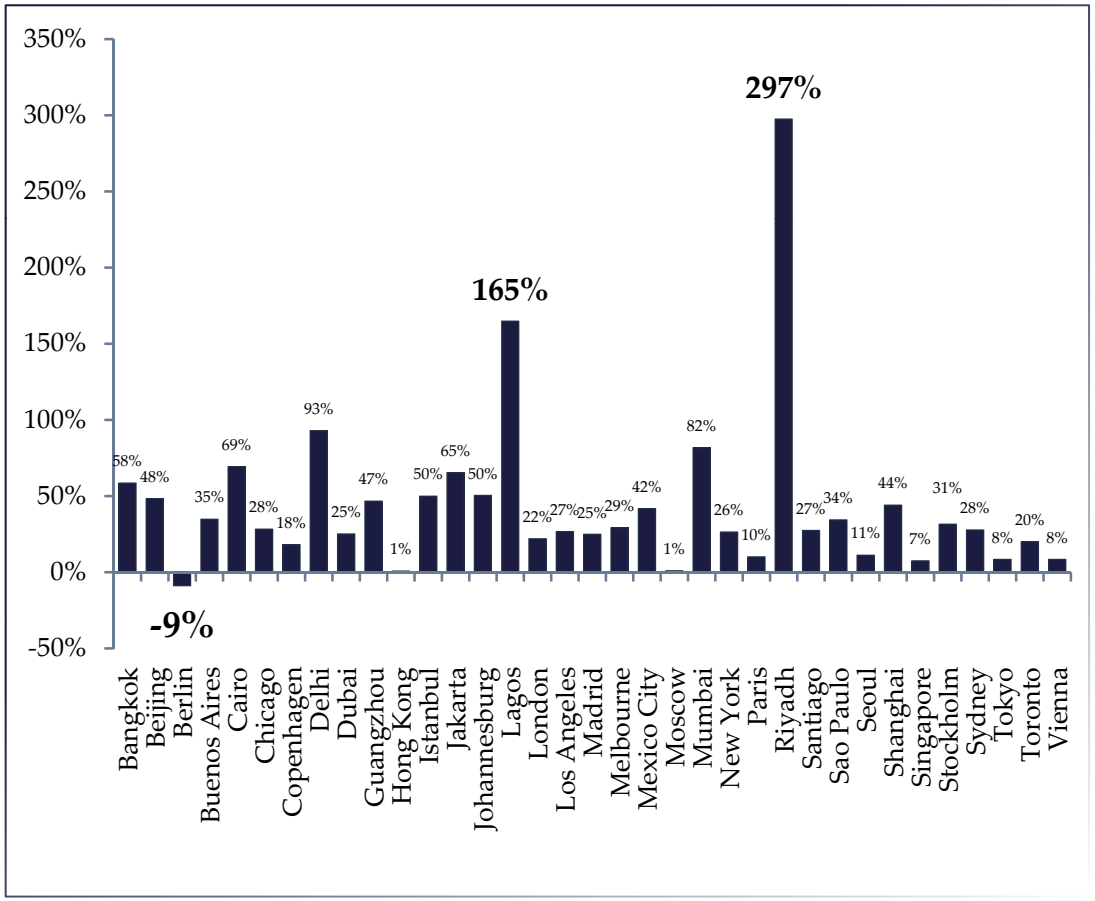
June 2014

Transport networks are essential to cities but increasingly under pressure from growth in demand

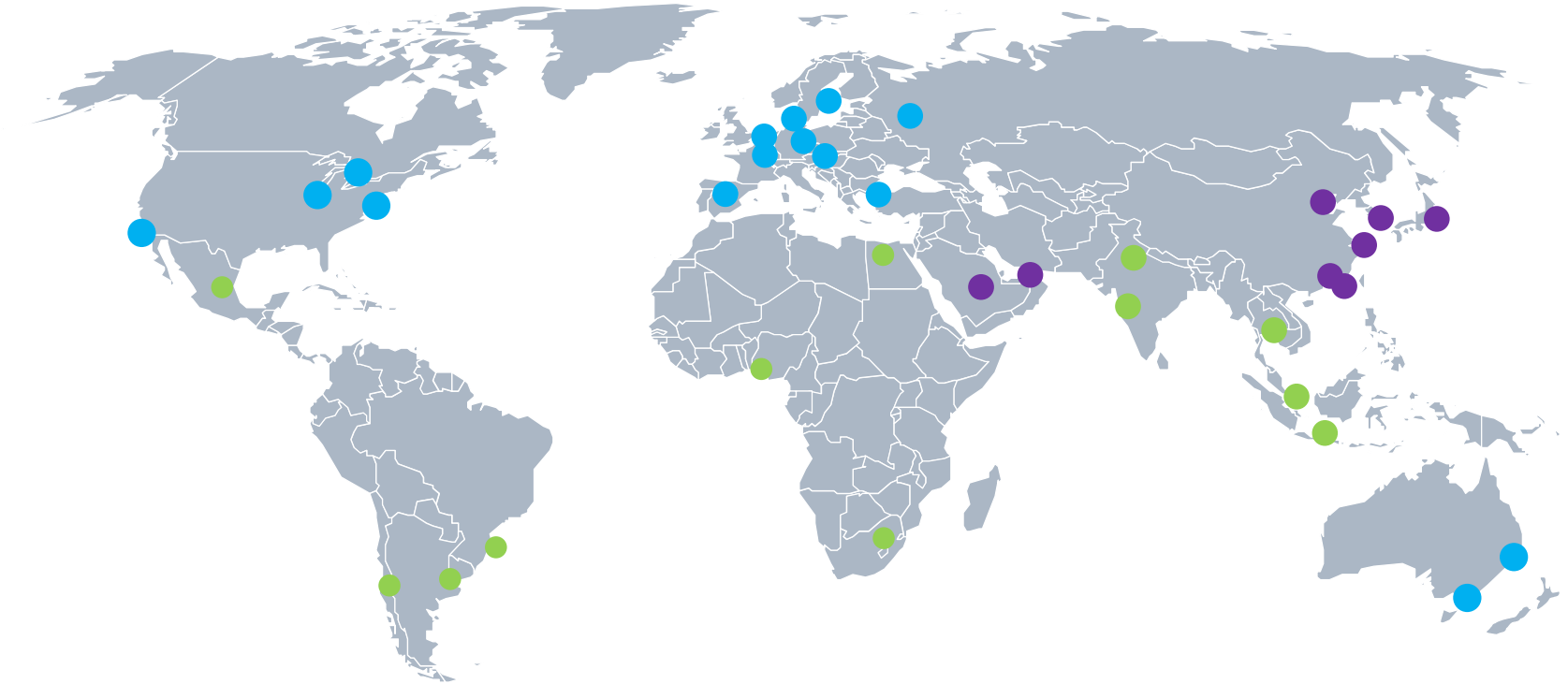
- Cities are the engines of the global economy
- Transport is essential to economic activity and competitiveness
- Transport networks are under increasing pressure
- This study focuses only on **public transport**

This study evaluates the economic benefit of transport investment to cities

Growth in commuter volumes for public transport to 2030



We have assessed 35 key commercial centres globally, grouped to enable comparison



Well-established cities

- Berlin
- Chicago
- Copenhagen
- Istanbul
- London
- Los Angeles
- Madrid
- Melbourne
- Moscow
- New York
- Paris
- Stockholm
- Sydney
- Toronto
- Vienna

High density compact centres

- Beijing
- Dubai
- Guangzhou
- Hong Kong
- Riyadh
- Seoul
- Shanghai
- Singapore
- Tokyo

Emerging cities

- Bangkok
- Buenos Aires
- Cairo
- Delhi
- Jakarta
- Johannesburg
- Lagos
- Mexico City
- Mumbai
- Santiago
- Sao Paulo

Unique study: Establishing economic opportunity of transport investment across whole cities using a comparative approach

Evaluate networks

- All forms of mass transit in a city: **Bus, rail, light rail**
- 12 metrics based on 10,000 data points[1)]
- Metrics cover:
  - Capacity and crowding
  - Service reliability
  - User functionality
  - Network density
  - Technology
  - Commuting times

Economic cost of transport

- Transport economics best practice methods
- **Generalised Journey Time**
- Value of time and cost of fares applied
- **Annual cost to a commuter as % GDP per capita**
  - Allows comparison across cities
- Most cost efficient cities *equals* best in class

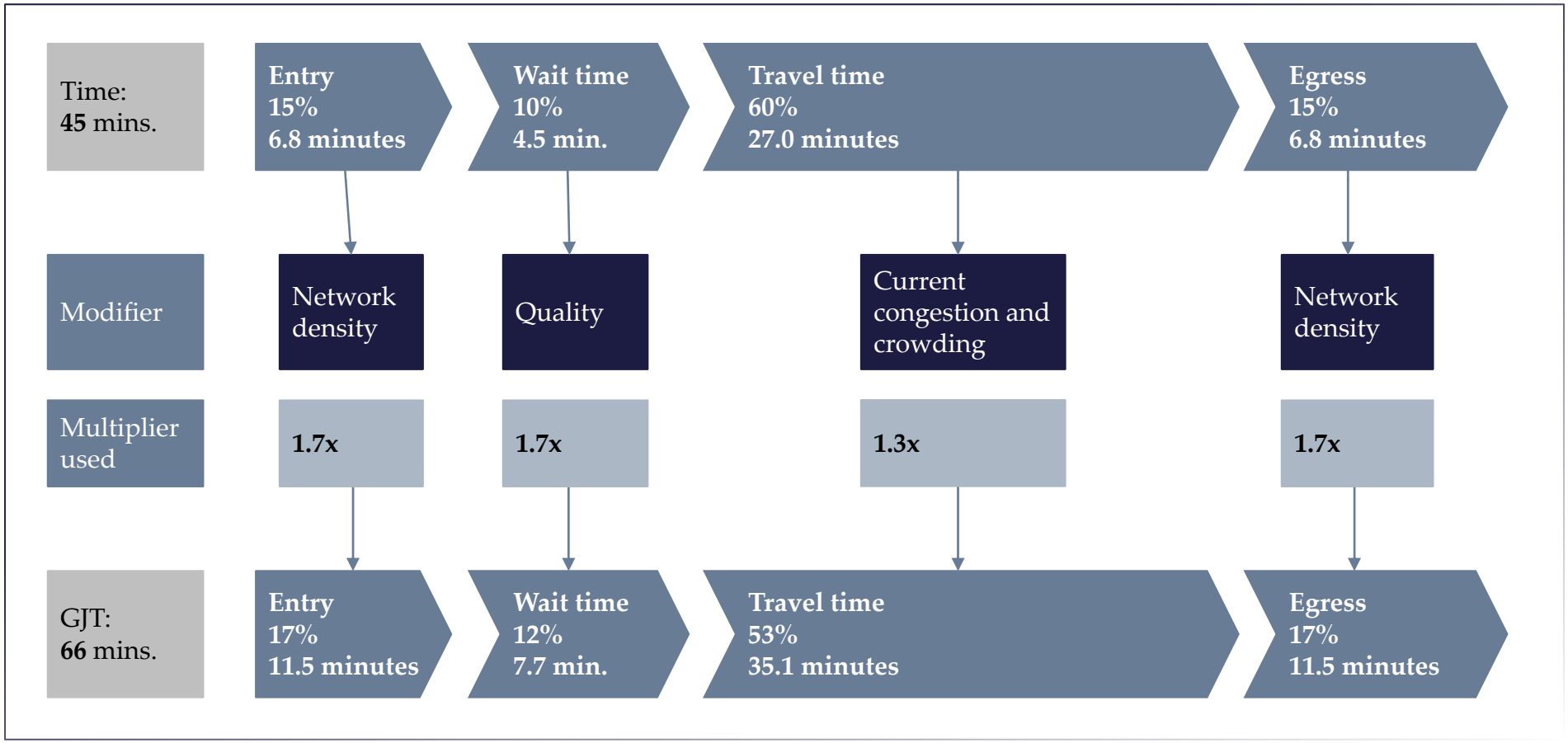
Economic opportunity

- Economic opportunity:
  - Benefits to commuters
  - Plus benefits to other transport users
  - Plus wider economic impacts
- Recommendations for realising the economic opportunity
- Key pointers for successful investment strategies

1) Compiled using publicly available data and where unavailable then using proprietary research

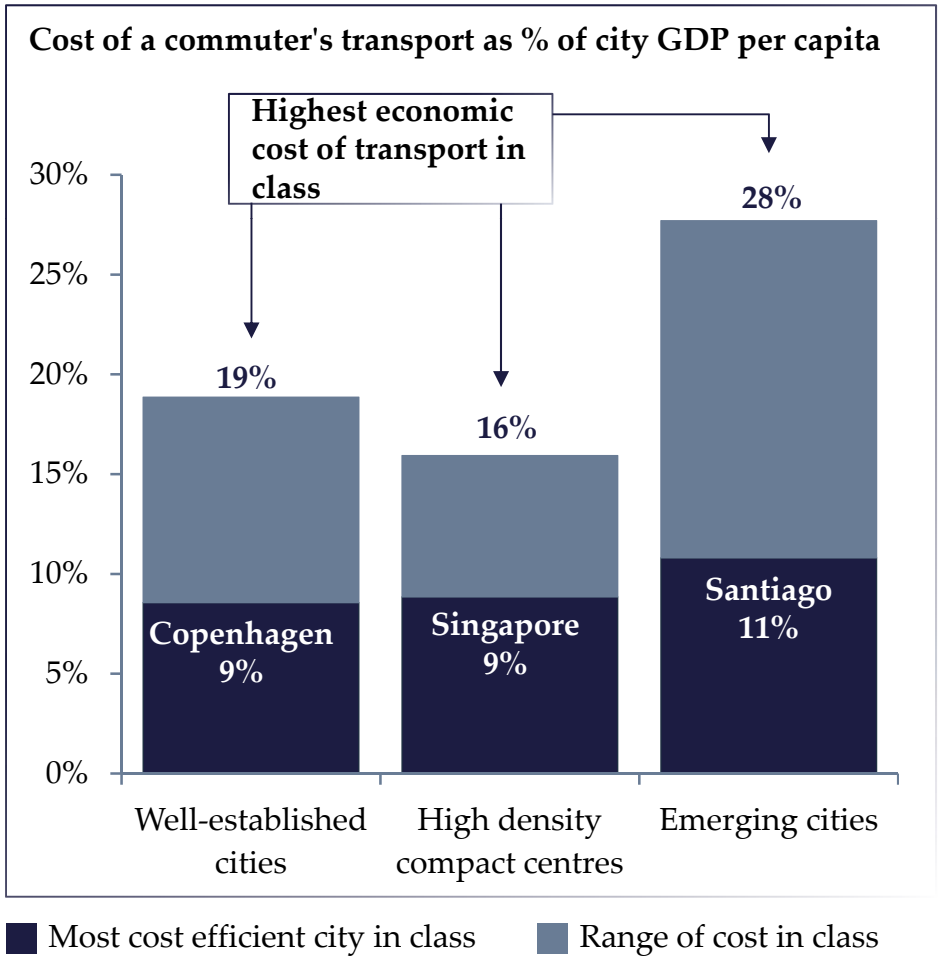
Generalised journey time: A true picture of the length of journeys

Generalised journey time worked example: London, current assessment



The most cost efficient transport networks are in Copenhagen, Singapore and Santiago

The most cost efficient transport networks

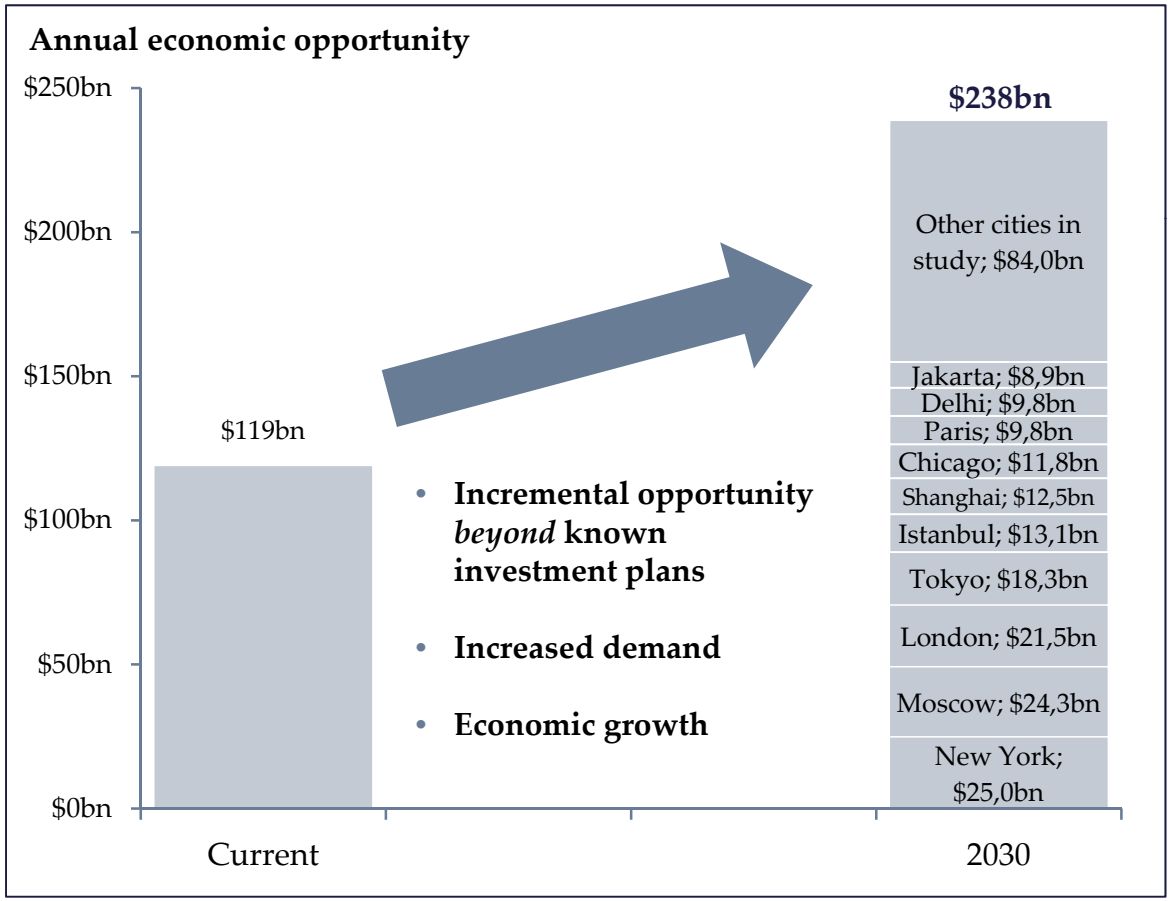


What makes them category leaders?

- Copenhagen
  - Investment in capacity, use of automated trains, high level of user functionality
  - Encouragement of model shift to bicycles to take pressure off peak public transport
- Singapore:
  - High capacity system and high levels of user functionality
  - Integrated long term planning and governance
- Santiago
  - Capacity and coverage of metro system developed in line with city growth
  - Bip! payment card system integrates bus and metro

Within these 35 cities, the potential annual benefit from investment will be nearly $240bn by 2030

Total economic opportunity through investment



NOTE: Calculations beyond *known investments*

- Current annual economic benefit: **$119bn**
- Potential benefit for 2030 based on growth in demand, economic growth, and opportunity beyond planned network investments
- By 2030, economic benefit rises to **$238bn**
- Large, wealthy cities stand to gain the most from investment, but all cities can benefit

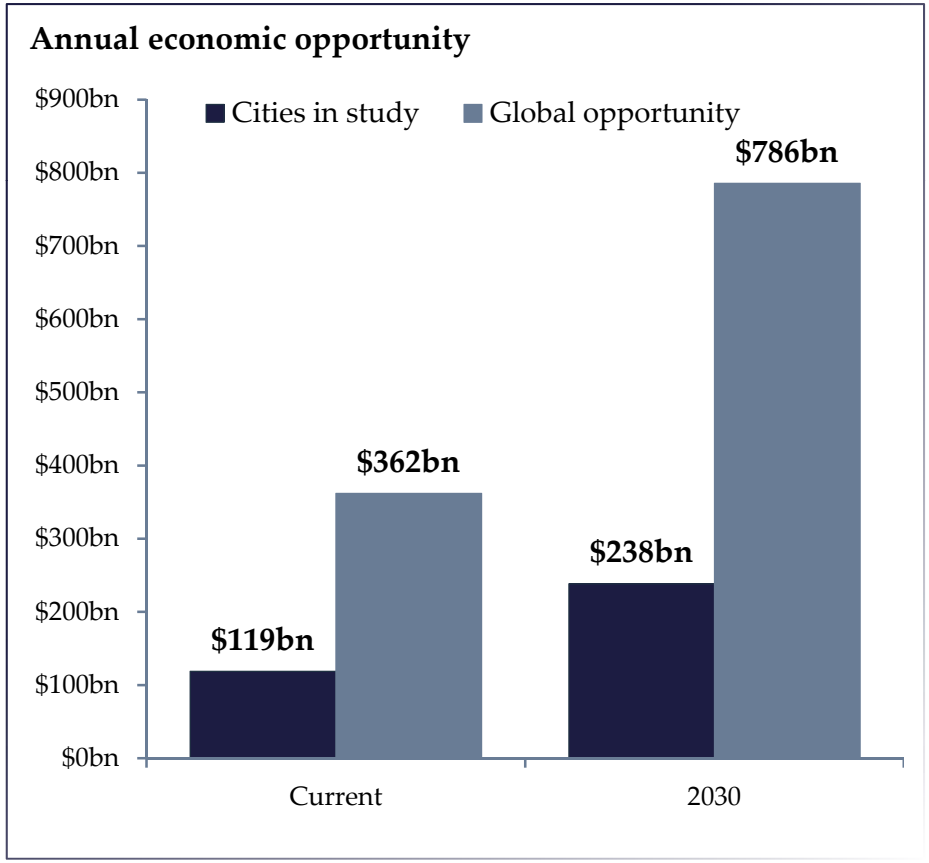
When these annual benefits are considered over the lifespan of a typical transport project, the case for investment is compelling

The opportunity globally will grow even more by 2030

- Extrapolating from 35 cities in the study to 470 cities with over 750,000 residents
- The benefit globally will be worth nearly **$800bn** by 2030
- The largest opportunities will be in **emerging countries**, and particularly China – where the potential benefit will be over $300bn
- Population growth in other cities currently under 750k inhabitants will offer further opportunities

Over a thirty year timescale, the global benefits will be over $15trn

Total economic opportunity through investment, all cities over 750k population



NOTE: Calculations include *known* and *potential* investments

Whilst the investment strategy best suited to each city will be different, we have created a set of high level recommendations for investment

1. The scale of investment	• Every city can realise economic benefits, but the value of benefits varies • Cities must match investment plans to benefits available • Major investment can be justified – e.g. Paris
2. Technology improvements may be best route to economic uplift	• Technology can optimise existing infrastructure • Likely to be lower cost than capacity additions • Can drive reliability and improve service quality • Most efficient systems use wide range of solutions – e.g. Copenhagen
3. The advantages of rail capacity	• Rail appears most effective method of adding capacity • All leading cities feature material rail capacity – e.g. Singapore, Santiago • High cost of initial investment often justified by benefits
4. Cities must plan now for the challenges in 2030	• Lead times for transport projects can be lengthy • To meet the challenge of 2030, and unlock the benefits, cities must invest now • Investing can now can reduce the cost of transport by 2030 – e.g. Paris

Large scale investment in Paris's ageing network is expect to enable it to meet future demand challenges and realise economic benefits

City	**Paris**
Current GDP	$630bn[1]
Population	10.6m[1]
City Type	Well-established

STRENGTHS

- Clear plans to expand capacity by investing €27bn to add 200km of orbital metro lines and modernising existing network
- Highly useable network featuring integrated Navigo payment system, journey planning and real time travel information apps
- Extensive use of bus priority measures
- Punctuality levels are high (99%) on metro system
- Autolib and Velib schemes help to discourage use of private cars

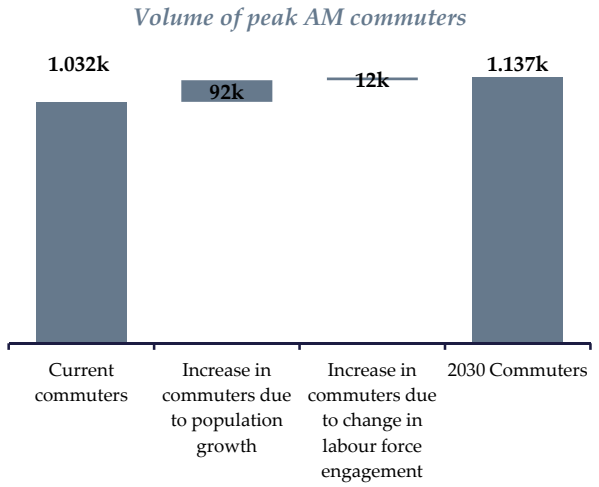
CHALLENGES

- Majority of network – both in terms of infrastructure and fleet – is ageing and in need of investment
- Current capacity is under pressure, particularly on bus network, and roads are typically congested
- Cost to use public transport is relatively high
- WiFi availability is limited to 48 stations across the whole network, and as such limits productivity during travel

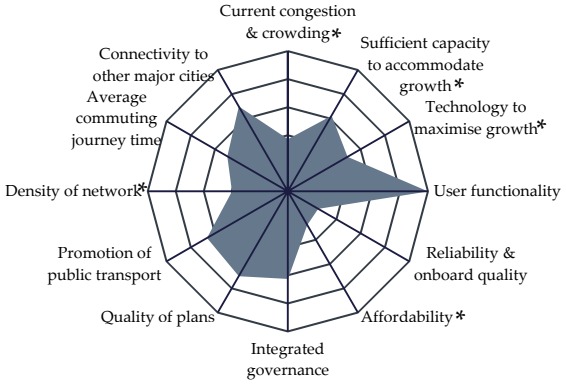
RECOMMENDATIONS

- Successful delivery of current plans will realise material economic benefit
- Beyond this, the focus should be on incremental quality improvements or increasing bus capacity

SCALE OF THE CHALLENGE

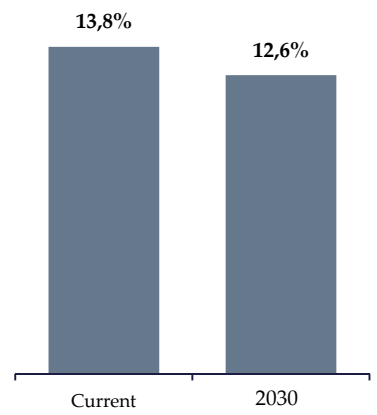


CURRENT MOBILITY PERFORMANCE



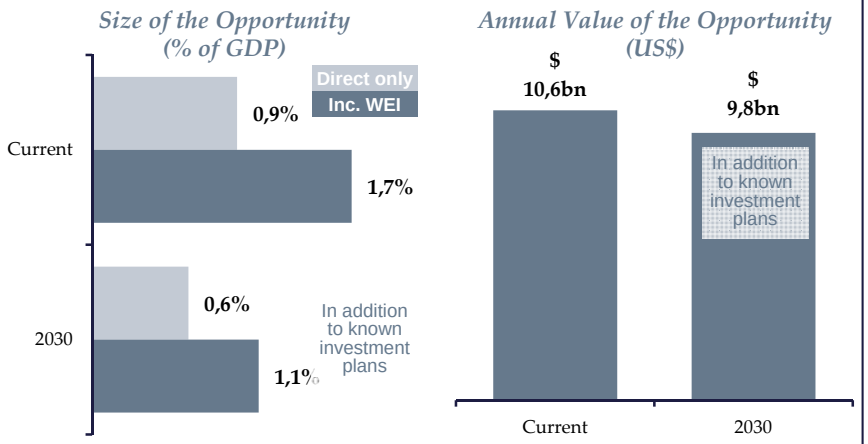
Note: Metrics scored out of ten; shading further from centre indicates higher score. *Metric indicate relative scoring; other metrics absolute

ECONOMIC COST OF TRANSPORT



Cost of transport to individual commuter as % of GDP per capita

OPPORTUNITIES



Note: The **WEI** includes the wider economic impacts of transport investment, rather than the direct impact to transport users alone

Note: [1] GDP & Population reflect urban area **Sources:** UN; Brookings Institute; Jane's Urban Transport Systems; Credo research & analysis