

Arthur D Little

Future of Urban Mobility: Results of Arthur D. Little Global Benchmarking Study

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Urban Mobility Index – our contribution to tackle the urban mobility challenge


Urban Mobility is a Burning Platform

- The future of the earth will be urban
- Urban mobility expected to triple until 2050
- Current urban mobility trends will impose a heavy toll
- Majority of cities are badly equipped to cope with the challenges
- Root cause for poor performance is the lack of innovation

The future of urban mobility is networked

- Outperforming cities establish networked, multimodal systems
- Four success factors to establish an innovative, effective system
- Three strategic imperatives for cities to develop towards networked, multimodal urban mobility systems
- Three long term sustainable business models for mobility suppliers

In 2011 Arthur D. Little benchmarked 66 cities globally to identify good practices

	Americas	Europe, Middle East & Africa	Asia
<p>World's largest cities determined by GDP share of region and population</p> 	<p>North America</p> <ul style="list-style-type: none"> New York Los Angeles Chicago Miami Philadelphia Washington, D.C. <p>Latin America</p> <ul style="list-style-type: none"> Mexico City Buenos Aires Dallas Atlanta Houston Boston Toronto São Paulo 	<p>Europe</p> <ul style="list-style-type: none"> Istanbul Moscow Paris London Madrid St. Petersburg Barcelona Ankara Berlin Athens Lisbon <p>Africa</p> <ul style="list-style-type: none"> Kinshasa Lagos <p>Middle East</p> <ul style="list-style-type: none"> Tehran Baghdad 	<p>Asia</p> <ul style="list-style-type: none"> Guangzhou Osaka-Kobe Lahore Shenzhen Chennai Seoul Bangalore Wuhan Tianjin Hyderabad Bangkok Manila Beijing Jakarta
<p>Additional good practice focus cities</p>		<ul style="list-style-type: none"> Amsterdam Brussels Stockholm Vienna Zurich Rome Dubai 	<ul style="list-style-type: none"> Frankfurt Cambridge Goteborg Milan Prague Munich Hong Kong Kuala Lumpur Singapore

Source: Arthur D. Little

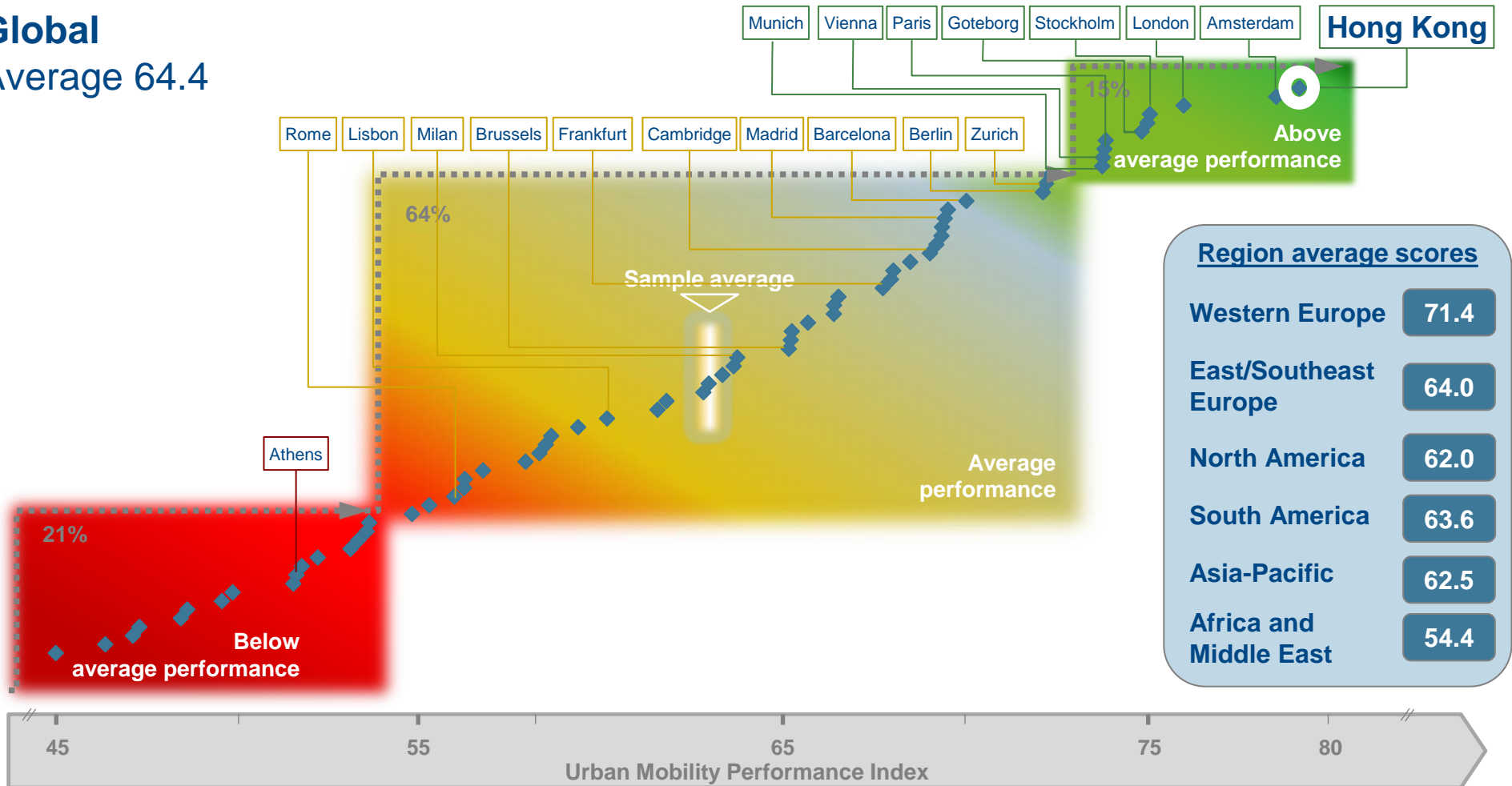
Mobility maturity and performance were measured along the set of 11 indicators

Urban Mobility Index Indicator Definition – Max. 100 Points										
Mobility maturity <i>max 32.5 points</i>					Mobility performance <i>max 67.5 points</i>					
MAX 7.5 POINTS	MAX 10 POINTS	MAX 5 POINTS	MAX 5 POINTS	MAX 5 POINTS	MAX 15 POINTS	MAX 15 POINTS	MAX 7.5 POINTS	MAX 7.5 POINTS	MAX 15 POINTS	MAX 7.5 POINTS
Share of walking/cycling in modal split	Mobility Strategy/Vision	Number of shared cars per citizen	Number of shared bikes per citizen	Penetration rate of smart cards	Fatalities per citizen	Mobility related CO ₂ per capita	Vehicles registered per citizen	Average travel speed	Satisfaction with transport	Mean travel time to work
<ul style="list-style-type: none"> Best (7.5) Worst (0) 	<ul style="list-style-type: none"> <i>cumulative</i> Alternative engines 2 Sustainability 2 Multi-modality 2 Infrastructure 2 Restrictions 2 	<ul style="list-style-type: none"> No sharing program (0) Planned 2011 (1) < 50 vehicles/ capita (2) 50-100 vehicles/ capita (3) 100-200 vehicles/ capita (4) > 200 vehicles/ capita (5) 	<ul style="list-style-type: none"> 0 = nothing 1 = 0-0.1 2 = 0.1-0.25 3 = 0.25-0.5 4 = 0.5-1 5 = > 1 cards/capita 	<ul style="list-style-type: none"> Lowest (15) Highest (0) 	<ul style="list-style-type: none"> Lowest (7.5) Highest (0) 	<ul style="list-style-type: none"> Lowest (7.5) Highest (0) 	<ul style="list-style-type: none"> Best (7.5) Worst (0) 	<ul style="list-style-type: none"> Average of 3 expert opinions 	<ul style="list-style-type: none"> Shortest (7.5) Longest (0) 	

Source: Arthur D. Little Mobility Index

Majority of cities are badly equipped to cope with the challenges ahead

Global
Average 64.4

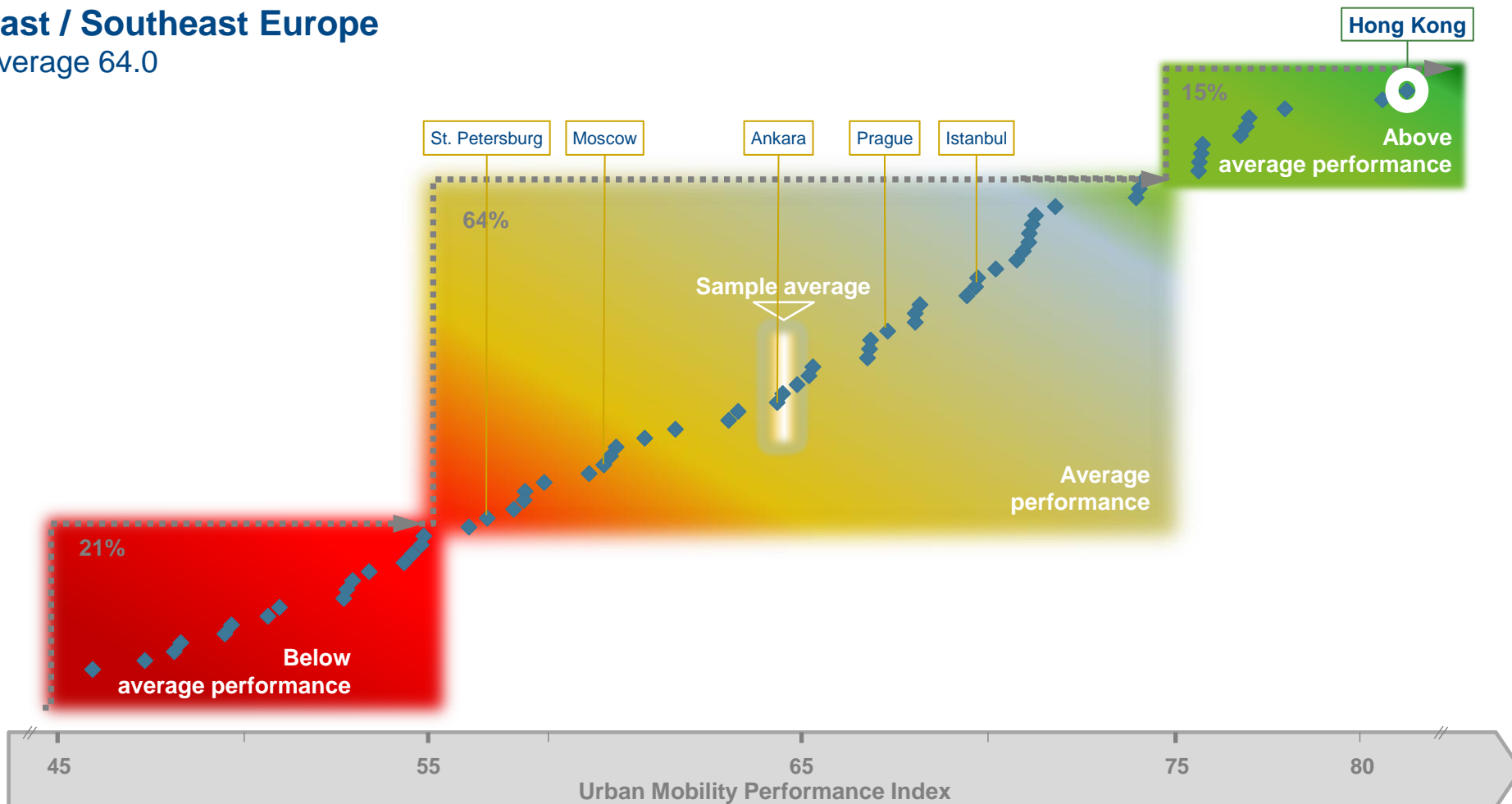


Source: Arthur D. Little Mobility Index; xx% : share of cities in this performance cluster; 100 index points for city that would achieve best performance which is achieved today on each performance criteria

Majority of cities are badly equipped to cope with the challenges ahead

East / Southeast Europe

Average 64.0

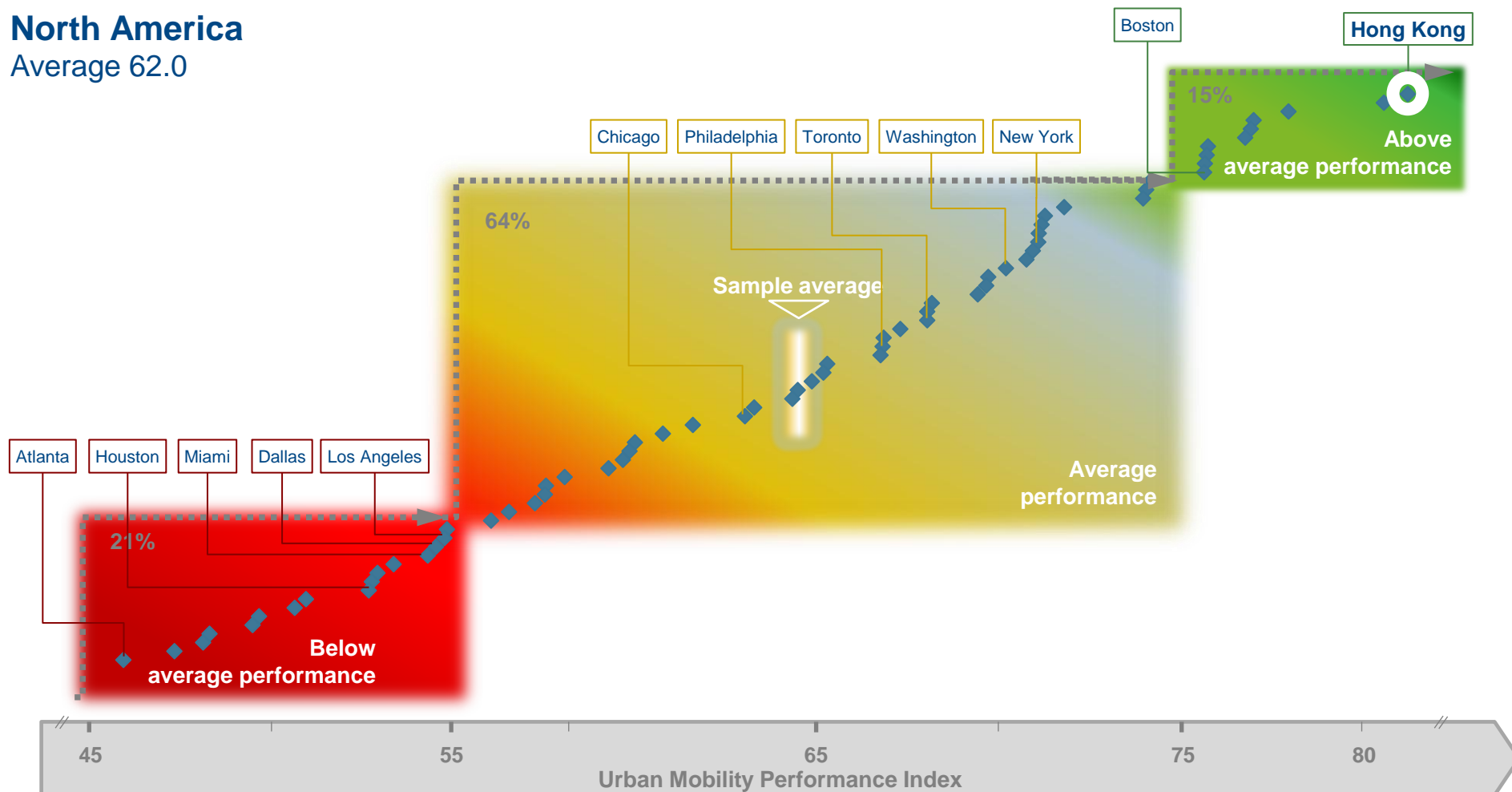


Source: Arthur D. Little Mobility Index; xx% : share of cities in this performance cluster; 100 index points for city that would achieve best performance which is achieved today on each performance criteria

Majority of cities are badly equipped to cope with the challenges ahead

North America

Average 62.0

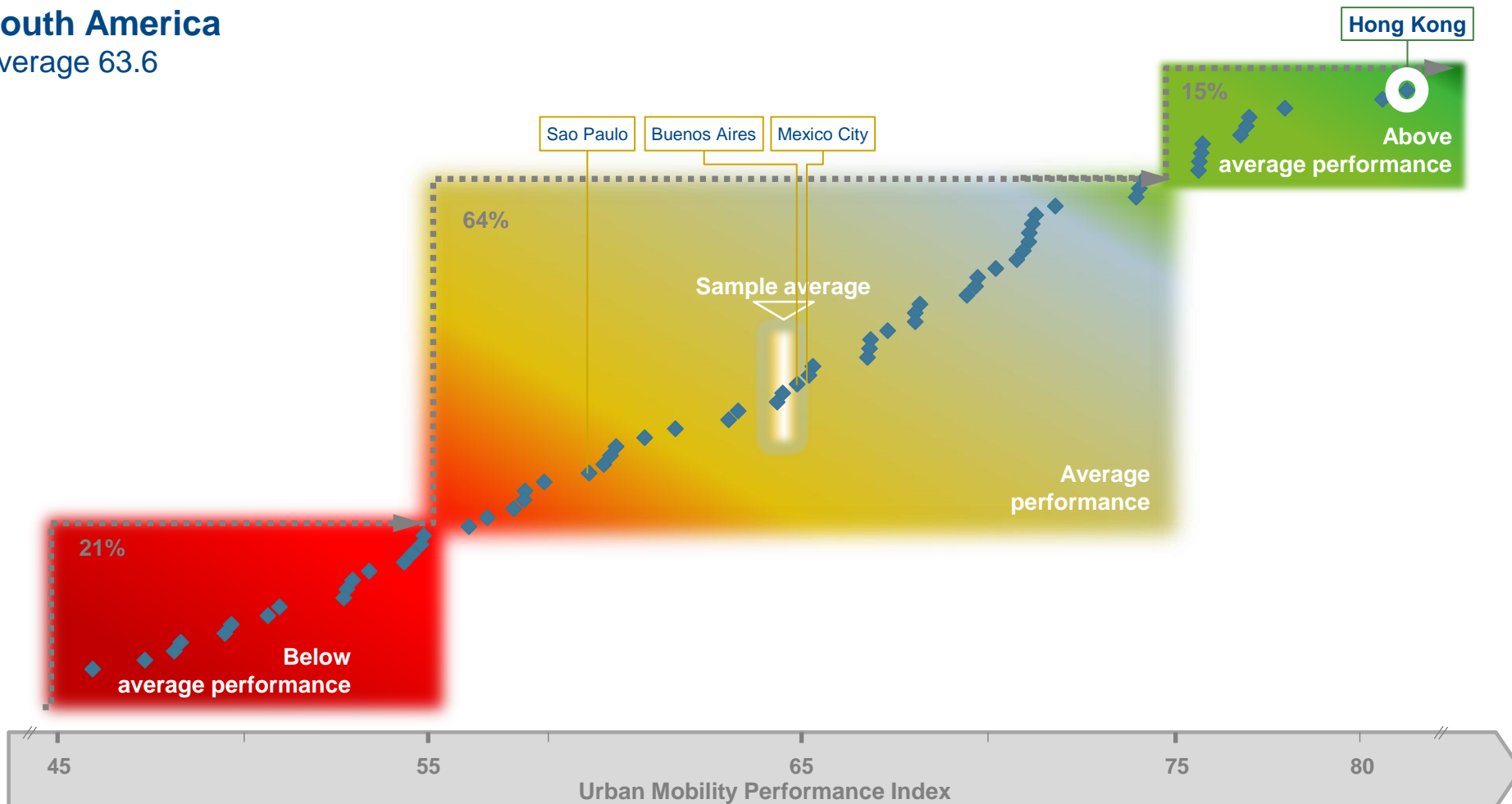


Source: Arthur D. Little Mobility Index; xx% : share of cities in this performance cluster; 100 index points for city that would achieve best performance which is achieved today on each performance criteria

Majority of cities are badly equipped to cope with the challenges ahead

South America

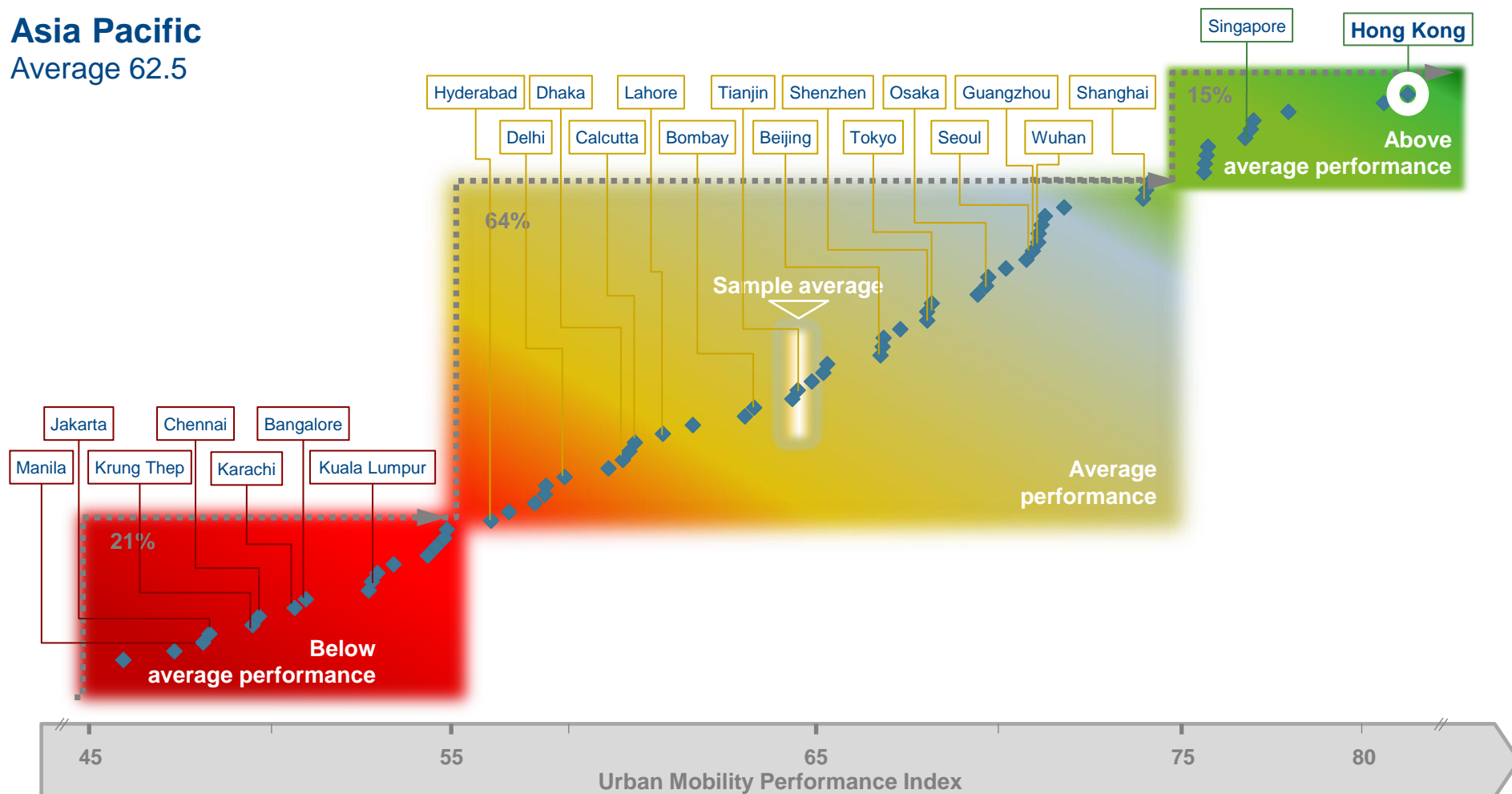
Average 63.6



Source: Arthur D. Little Mobility Index; xx% : share of cities in this performance cluster; 100 index points for city that would achieve best performance which is achieved today on each performance criteria

Majority of cities are badly equipped to cope with the challenges ahead

Asia Pacific
Average 62.5

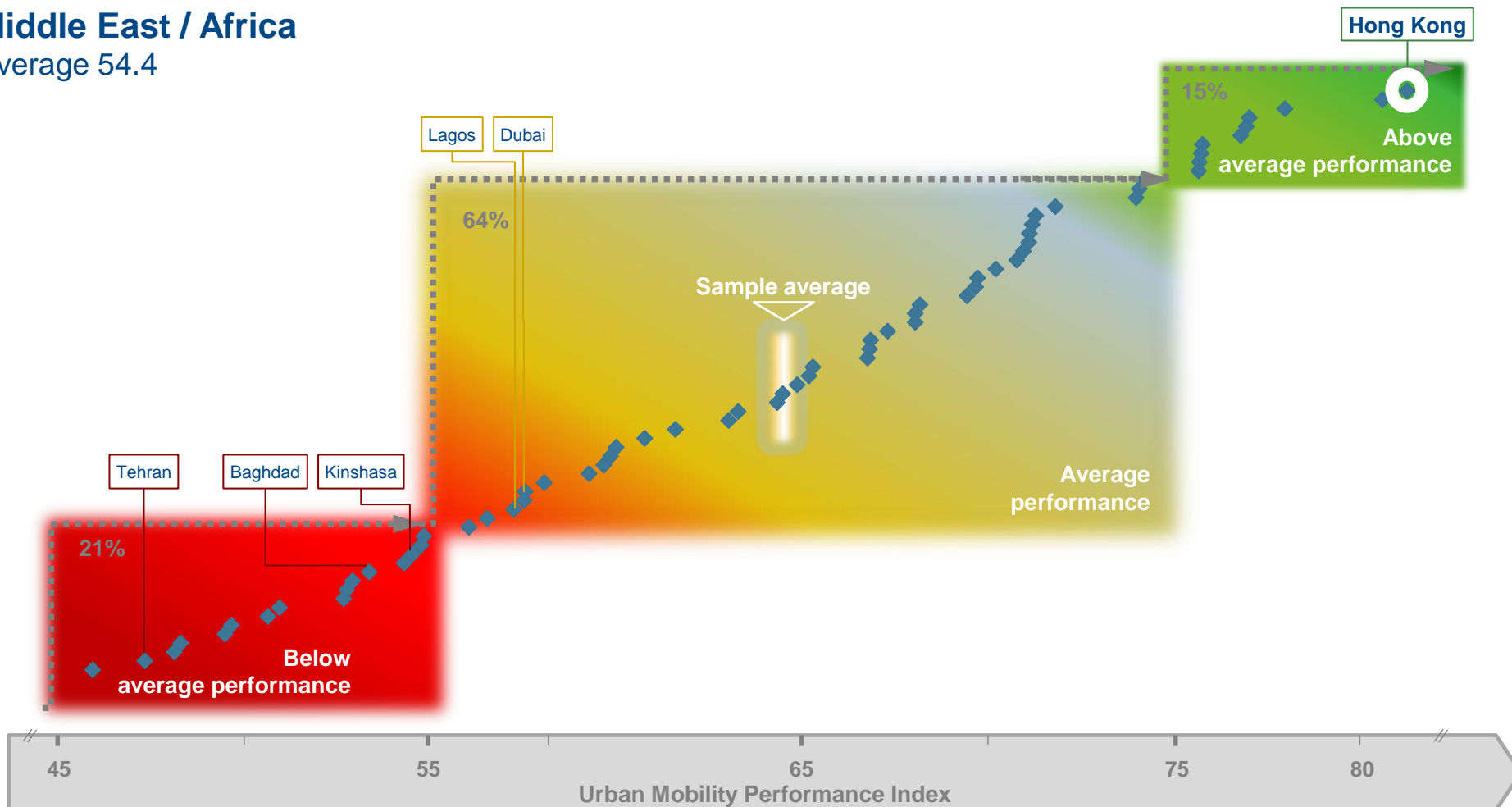


Source: Arthur D. Little Mobility Index; xx% : share of cities in this performance cluster; 100 index points for city that would achieve best performance which is achieved today on each performance criteria

Majority of cities are badly equipped to cope with the challenges ahead

Middle East / Africa

Average 54.4



Source: Arthur D. Little Mobility Index; xx% : share of cities in this performance cluster; 100 index points for city that would achieve best performance which is achieved today on each performance criteria

Outperforming cities establish networked, multimodal systems: Example Hong Kong

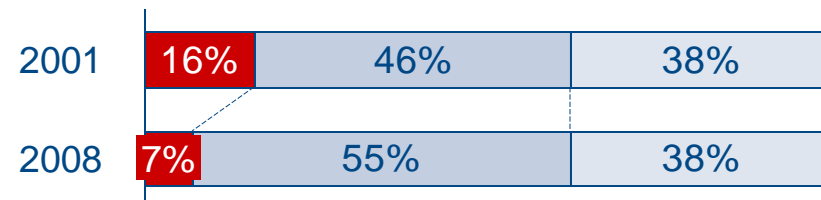
Top 5 Challenges

- 1 No geographic extension potential
- 2 Drastic increase of cross border traffic
- 3 Traffic accidents (CAGR 4%)
- 4 Air pollution (33% of PM₁₀ and 20% of NO₂ emissions from urban mobility)
- 5 Jammed mobility infrastructure

Top 5 Initiatives

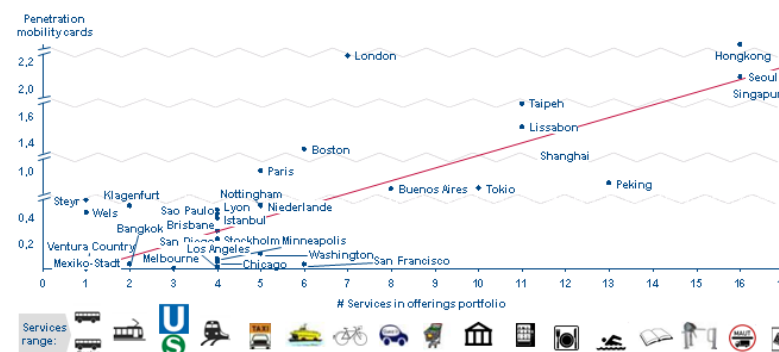
- 1 Octopus – multimodal mobility card (penetration rate of 3,1 cards per inhabitant)
- 2 Extensive system of free of charge escalators
- 3 High taxes for cars (35-100% of car value)
- 4 High taxes for gasoline
- 5 Aggressive extension of subway network

Modal Split

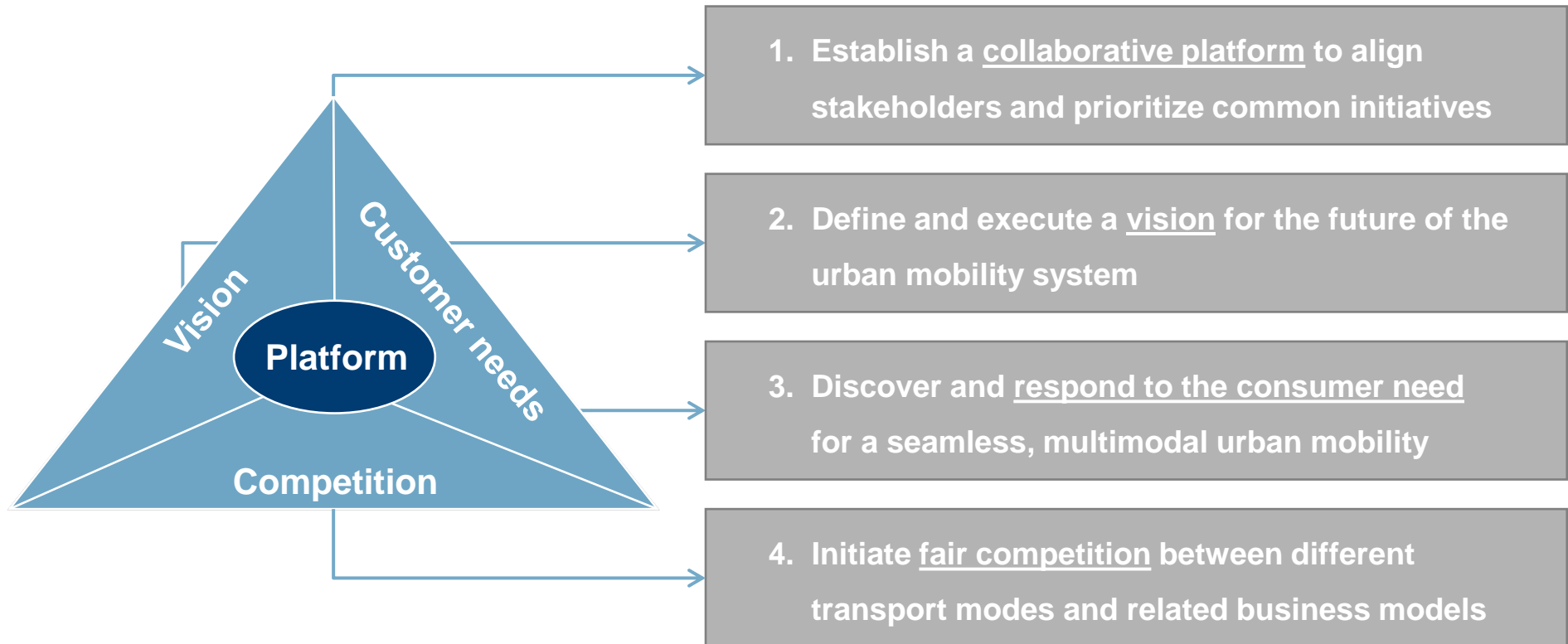


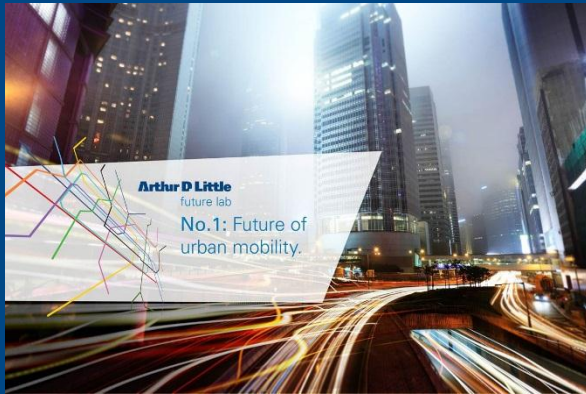
■ Motorized individual
 Public
 Bike and foot

Mobility Card Acceptance



Four success factors to establish an innovative and effective urban mobility system





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