Harnessing new technologies for Smart Society

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URBANIZATION, RESOURCES CONSUMPTION, GDP GROWTH
THINKING CITIES SMARTLY IN APAC

CITIES ACCOUNT FOR

53%

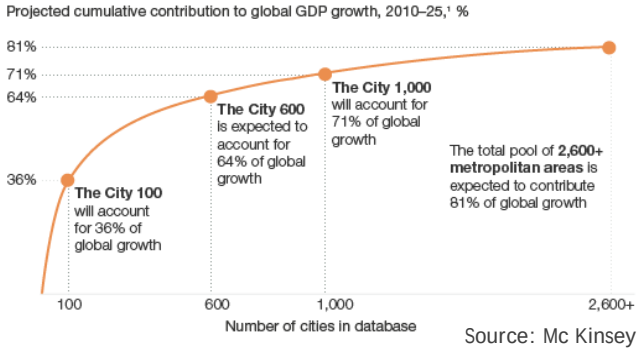
OF THE GLOBAL POPULATION (7.0 BILLION) BY 2010

70%

WILL BE URBANITES (OUT OF 9.3 BILLION) IN 2050

Source: United Nations

CITIES CONTRIBUTE THE MOST TO GDP



Source: Mc Kinsey

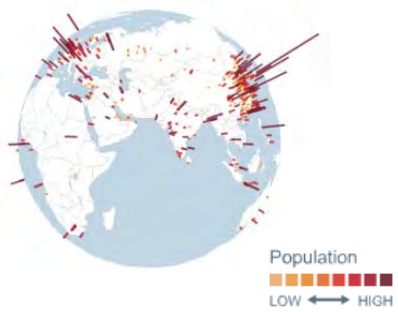
CITIES CONSUME THE MOST RESOURCES

70%

OF ENERGY CONSUMPTION AND CARBON EMISSIONS

2%

OF THE EARTH'S LAND



A SOCIO-ECONOMIC SHIFT DOUBLED BY A GEOGRAPHIC SHIFT

8,000

LARGE COMPANIES EXCEEDING $1B IN REVENUE IN2010

+ 7,000

NEW LARGE COMPANIES EXCEEDING $1B IN REVENUE IN 2025

73%

OF 8,000 LARGEST COMPANIES' HEADQUARTERS IN DEVELOPPED COUNTRIES

70%

NEW ENTRANTS LIKELY TO BE BASED IN DEVELOPING COUNTRIES

76%

OF CONSOLIDATED REVENUE OF ALL LARGE COMPANIES

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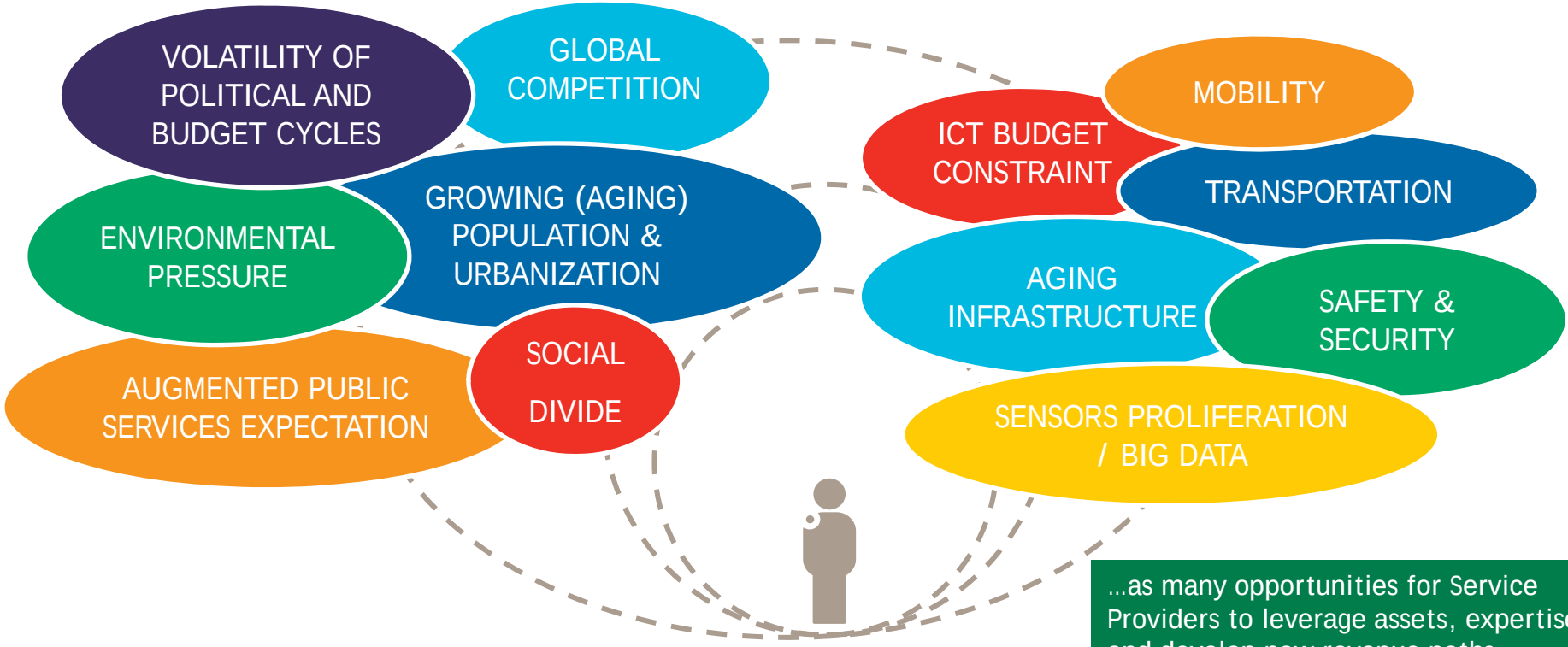
CHALLENGES FOR STATE, REGIONS AND LOCAL GOVERNMENT



...as many opportunities for Service Providers to leverage assets, expertise and develop new revenue paths

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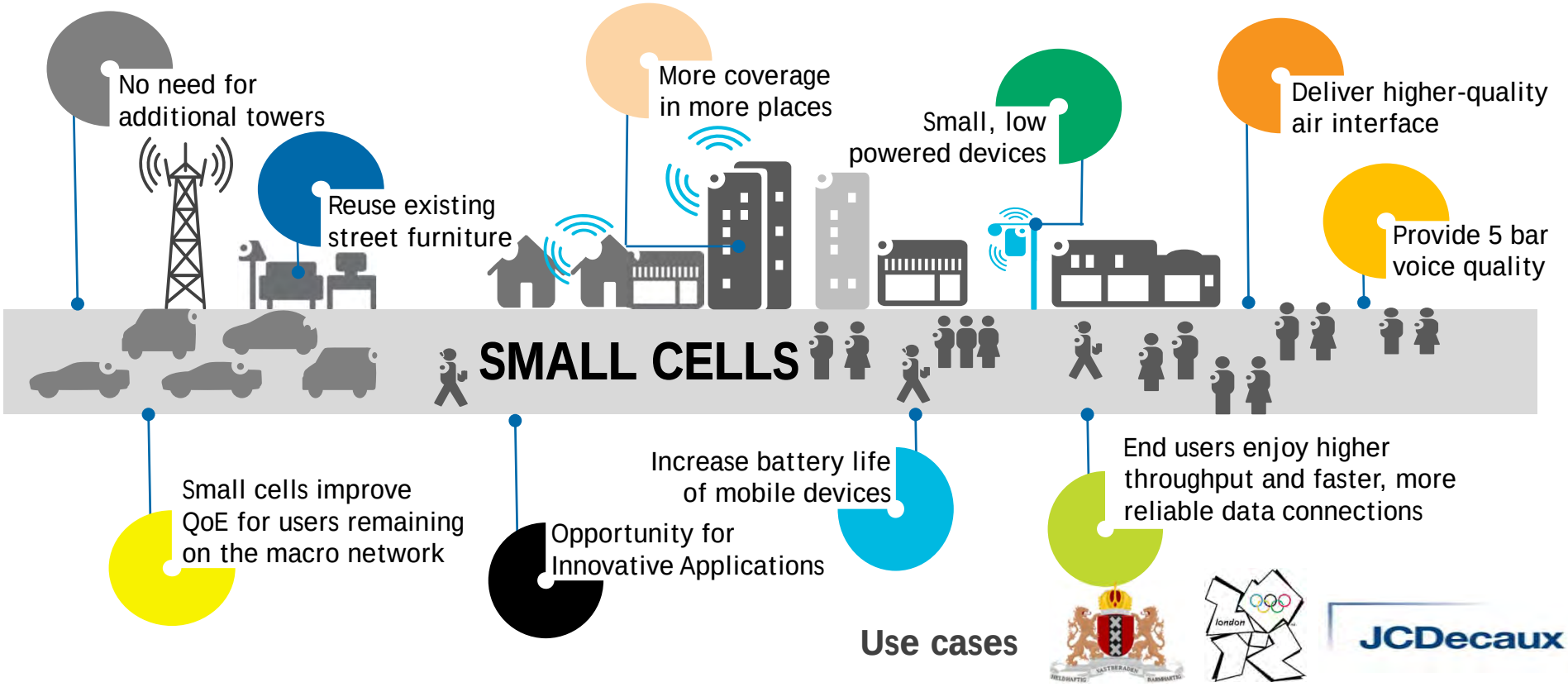
SEAMLESS WIFI, 4G CITY COVERAGE AND CAPACITY CHALLENGE



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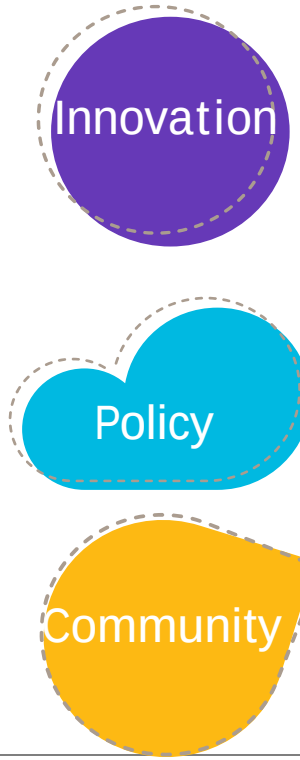
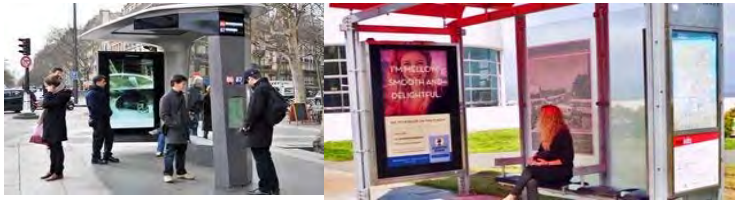
THOUGHT LEADERS
CONSIDERATIONS FOR SUCCESS



- **Boost Innovation:** Living labs embracing technology R&D (sensor, communication, IoT platforms & applications - hackathons), business ecosystems (Public Private Partnerships & SMEs) and citizens.
- **Policy** – Out of the box thinking for current regulations and ecosystem peers (e.g. Alcatel-Lucent / JCDecaux partnership)
- **Community** engagement is key for success; e.g.: citizen surveys & feedback loop; community trials ; crowd sourcing, funding & adaption, success celebration.



Source: Applications submitted for the Open Cities App Challenge 2013

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Mobile usage continues to increase

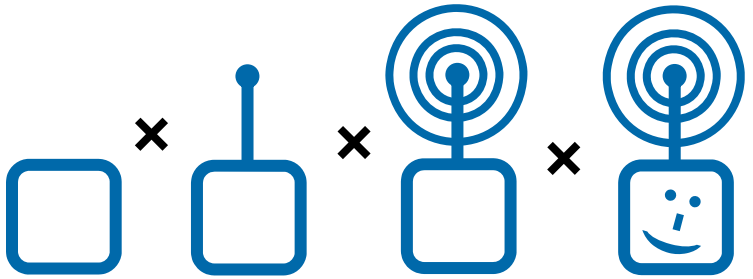
57%
More devices
by 2018

>3x
More app users
by 2018

4x
More app
downloads
by 2018

9 Billion
Users
by 2020

IoT is ready to explode



28.1 Billion
Connected devices by 2020

ON THE GO
IN THE CITY

IN THE HOME
AND BEYOND

By 2020 mobile networks will need to support
200,000 connections per square kilometer

Sources: Statista, The Radicati Group, Portio Research, IDC

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SIX REQUIREMENT DRIVERS FOR 5G

BROADBAND

Massive traffic capacity
Reduce Cost
Spectrum efficiency
Access new spectrum

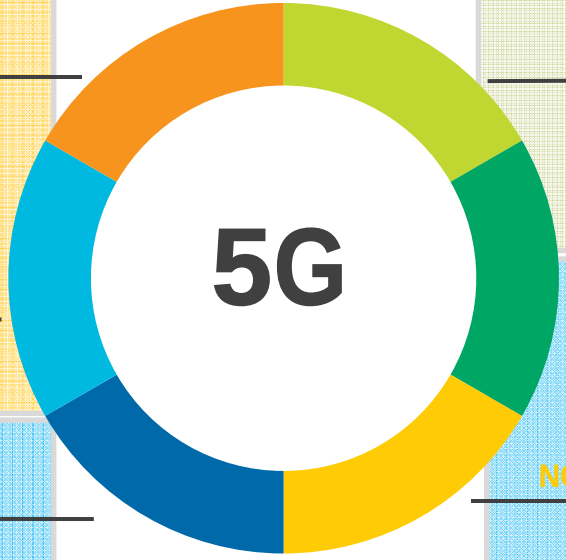
EXTREME DENSITY

Massive user density
User content

(Google)

INNOVATIVE SERVICES

Flexible bearer design
3rd party policy



MISSION CRITICAL

Very low latency
High reliability
High availability
Security

(ZDF)

BATTERY LIFE

Signaling reduction
Energy optimization

NON TRADITIONAL DEVICES

Short packet
Sporadic access
More devices and
more device types

(Univ. Southampton)

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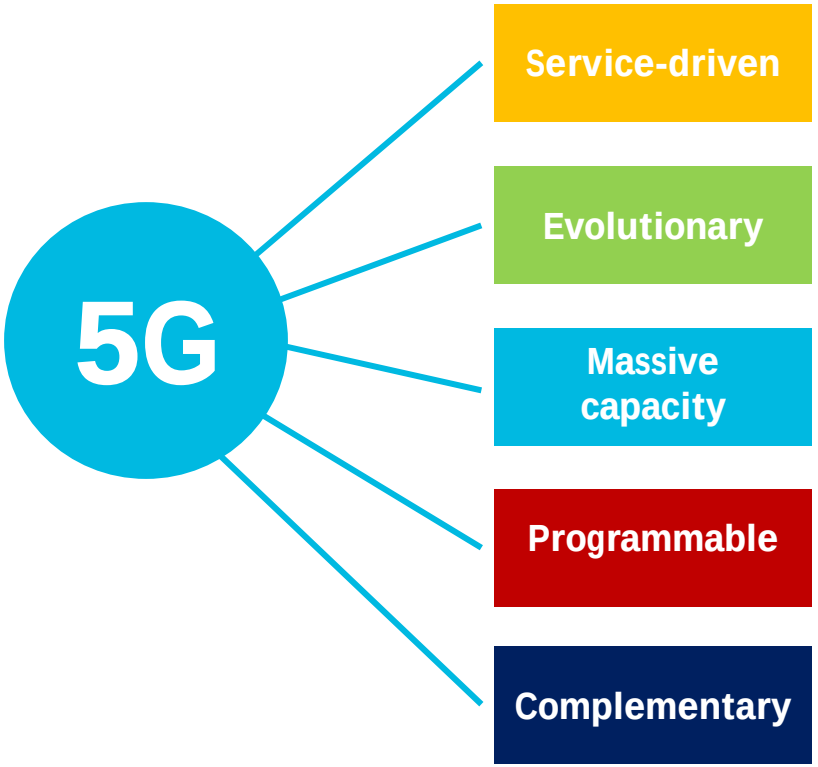
WHAT WILL A 5G NETWORK LOOK LIKE?



- Supports new use cases with requirements for different terminals, radio environments, network loads, business and pricing models.
- Reuses existing 4G infrastructure with carrier aggregation and dual connectivity between 5G and 4G carriers, minimizing the need for inter-generational handovers.
- Uses federated radio access and new configurable and flexible 5G access technology with LTE and WLAN to deliver massive capacity.
- Enables tighter coupling of wireless and networking control, and policy-based service management to allow rapid deployment of innovative services and solutions.
- Works with LTE and WLAN carriers on macro and small cell layers, as well as new higher frequency 5G carriers on small cells.

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A SMART ASIA-PACIFIC
BECOMING THE LEADING REGION OF THE 21ST CENTURY

A VIBRANT MARKETPLACE WITH STRONG POLITICAL WILLINGNESS

- 2018-2020: a race to stay at the technological and competitive edge with future networks (5G and Virtualisation in Japan, Korea)
- ASEAN 2016-2020: achieving the full connectivity/capacity at the lowest price in ASEAN. Mobile BB has the crucial technology and fixed/fiber in dense urban areas
- successful implementation of government led BB infrastructure (Australia, NZ and Singapore) but what are the next services innovation to stimulate competition and the economy (big data, M2M)?
- Some countries (India, Singapore) have launched ambitious initiative to create smart cities/nation
- Operators business services: potential growth for enterprise solution and innovation (virtualization and cloud service). Strong footprint of big operators and expansion for local operators.

DEVELOPING A MODERN REGULATORY APPROACH

- Promoting and facilitating networks investment(access to all kind of passive infrastructure, simplification of rights of way granting, mandatory fibre pre-cabling for new buildings, spectrum allocation and sharing)
- Adapting regulatory framework a horizontal layer approach: ensuring healthy and sustainable competition at each layer and avoiding gridlocks between any layers that become inter-dependant
- Operators should be allowed to monetize the data flow through service differentiation which is key to foster innovation, new services and meet demand for different levels of quality. (e.g: providing End to End QoS service delivery, in becoming Cloud and CDN providers)
- Spectrum allocation should be strongly harmonized at regional level to favor timely allocation of frequencies for LTE and prevent market fragmentation.

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