Smart Australian Communities

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2016 Summer Study Energy Efficiency

Australia's per capita emissions are the highest in the OECD & among the highest in the world due to our reliance on coal for energy (Garnaut Report)

New energy economy

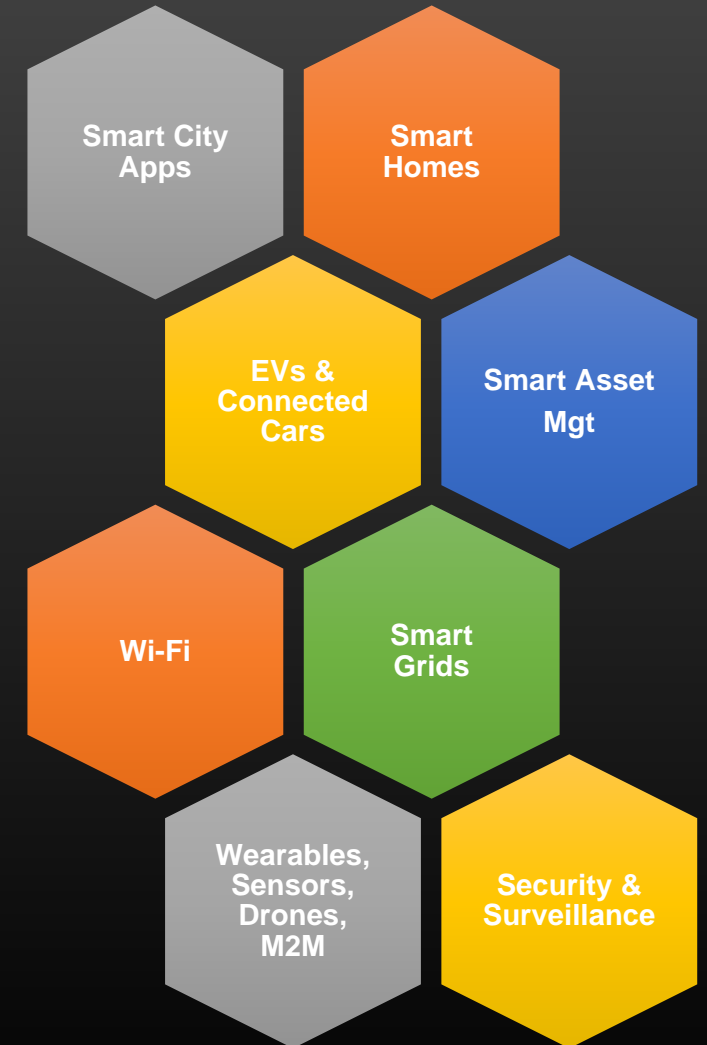# Smart Cities $408 billion

market (Arup)

15% of telco carrier revenue globally by 2020

Market Opportunities for Global Wireless Carriers in Smart Cities, Homes, and Solutions
Mind Commerce 2015

IoT 12.5 billion connected devices

Cisco ISBG 2011

Smart City Apps

Smart Homes

EVs & Connected Cars

Smart Asset Mgt

Wi-Fi

Smart Grids

Wearables, Sensors, Drones, M2M

Security & Surveillance

the city is the new platform

Global & connected citizen

A global citizen is being part of a digitally connected world community & whose actions contribute to building this community's values & practices.
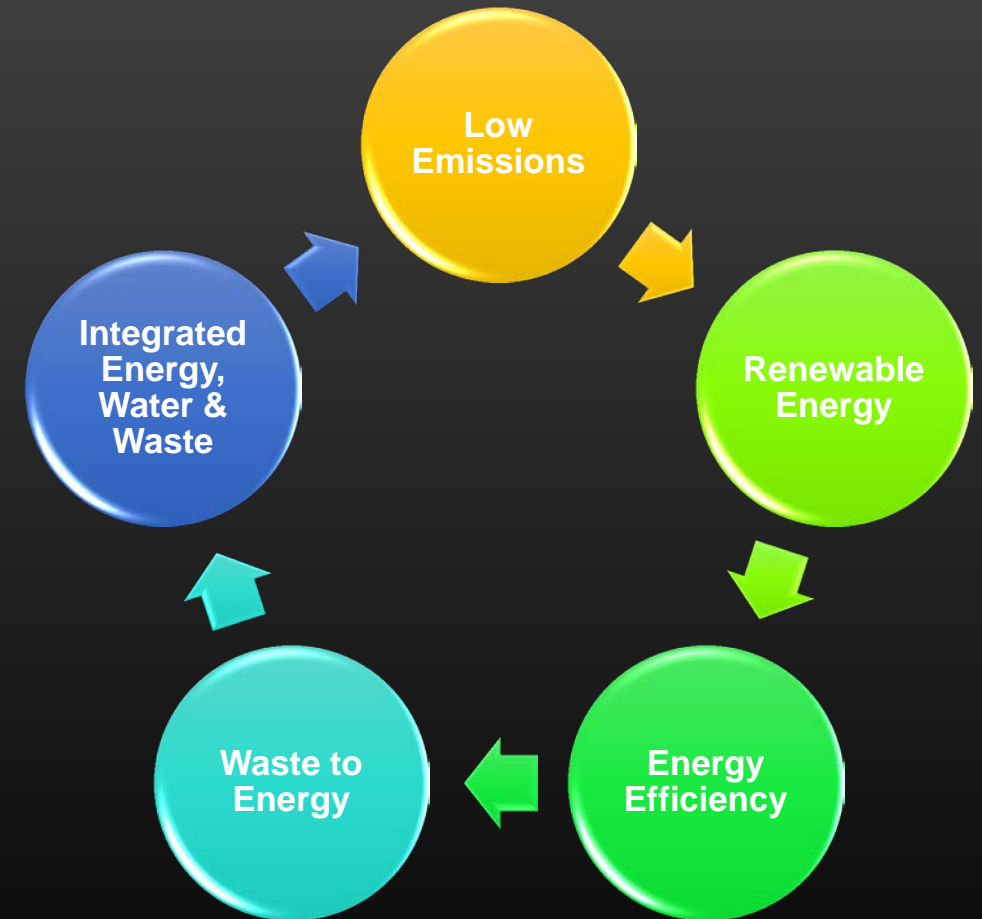
Uber-ization…the Sharing Economy

19% of the total US adult population have tried the sharing economy

Sharing economy will be replaced by **on-demand** economy, where everything will be immediately consumed including B2B services

Ideas to make our communities smart!

Shift from climate dumb…..

To climate smart.....

We need a lot more of this!

One Central Park Sydney - Winner
Best Tall Building in the World by the
Council on Tall Buildings & Urban
Habitat (CTBUH) 2014

Climate smart precincts….

- Integrated energy, water & waste
    - Tri-generation (heating, cooling, solar energy generation)
    - Analytics for network operators
    - Resident smart apps
- Onsite water harvesting & management
- Solar, wind, cool roofs
- EV charging stations
- Vertical gardens & urban farming
- Buildings code re-design to suit climate conditions
- Greenfield &urban infill communities
- University & hospital campuses, technology precincts, airports, sporting facilities
- **Size does not matter!**

Green Square - Sydney

Sustainable Townsville

Solar Public Buildings

**EVs&
Battery Charging**

Sustainable Buildings

Waste to Energy

LGI (QLD based)

- $10million in CEFC finance for 6MW green electricity generation for 6 biogas-fired generators in QLD.

- Surf Coast (Vic), Gladstone, Bundaberg, Moreton Bay, Fraser Coast, Kingborough (QLD), Dubbo (NSW)

- 80,000 tons of carbon abatement per annum

- 4,500 homes powered by systems

Veolia – Woodlawn Bioreactor

- Takes around 20% of Sydney's putrescible waste from kerbside recycling& converts to green electricity

- Since opening in 2004, over 3.8 million tonnes of waste has been used to generate green electricity

- Powers over 2,500 households.

Sydney LED Street Lighting

- City is committed to reducing its greenhouse gas emissions by **70%**

- Installed 6,604 energy efficient LED lights across Sydney, Glebe, Darlinghurst, Zetland, Pyrmont, Kings Cross, Newtown & Redfern.

- **$800,000** in savings

- Reduced energy use more than 48% per year

Smart Poles

- LED Lighting
- Connectivity
  - 4G/LTE
  - 5G/LTE-M
  - Wireless Broadband
  - WiFi
  - LPWAN (IoT)
- CCTV/Security
- BEACON
- EV Charging
- Solar PVs
- Wind Turbines

Tesla Supercharger…..

Energising regional
communities….
    Goulburn, Gundagai,
    Wodonga, Euroa)
with many more to come

Tesla Supercharger Station – Wodonga NSW

Car sharing + smart parking = less congestion!

- **Goal:** To make transport more efficient.

- **Divvy's** platform matches drivers with unused parking spots in Queensland, Victoria & New South Wales.

- **GoGet** users share a fleet of over 2000 cars, which are parked in locations across Adelaide, Brisbane, Melbourne & Sydney.
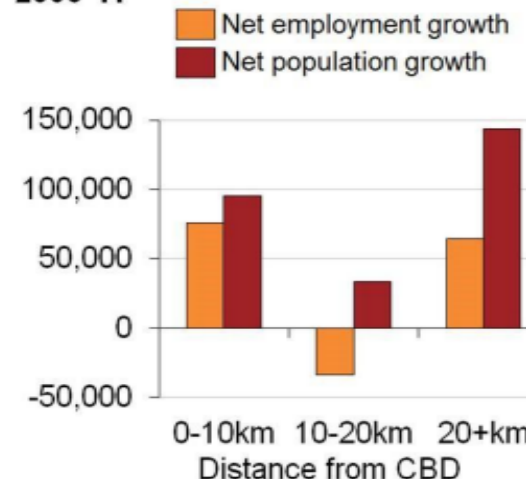
The urban challenge….

- **Business is re-urbanising** to CBDs where knowledge workers are and want to be
  - 42 major tenants moved from suburban locations to Melbourne CBD between 2008 and 2013 (JLL).
  - Fintech & Global Infrastructure Hub (Sydney)
- Despite smart work technology & practices enabling greater flexibility, knowledge workers are still required to be in the office most of the time (Government, Retail & Finance sectors)

- **Inequities of the city** – those that live in the most affordable areas travel the longest distances to place of work.
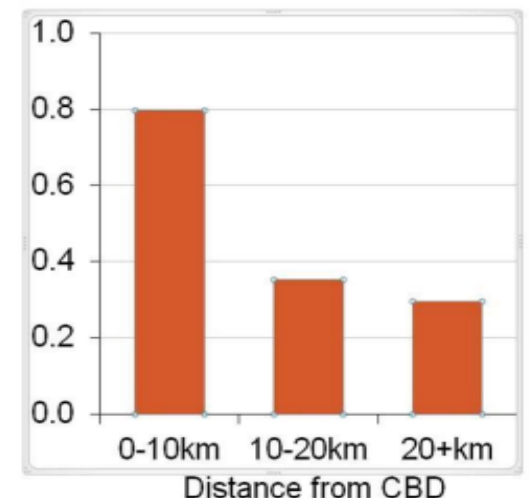

Homes are not being built where jobs are being created — GRATTAN Institute

Employment and population growth, 2006-11
- Net employment growth
- Net population growth

Jobs per resident, Sydney, 2011

Rooftop Solar

- QLD

- Has nearly 1.5GW of rooftop solar – Energex: 1,044MW on homes & business in Brisbane

- Ergon: 432MW on 115,000 premises for rest of the state

- At this rate, the capacity of rooftop solar in Queensland could overtake the the 1,650MW Gladstone coal-fired generator.

- Labor government intends to double the amount of rooftop solar to 3,000MW by 2020

- Renewable energy generation target 50 %by 2030.