



Philips connected city experience

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Philips – Making a difference in lighting

#1

In LED lighting*

Presence in

60

countries

Hue

sold in **30 countries**,
used in **150**,
with more than **300**
third party apps

Largest

lighting company in the world

#1

in
connected lighting**

55%

of world's top footballs stadiums
use Philips Lighting

262 Philips CityTouch

street
lighting implementations in **31 countries**

5% of sales in R&D,
32% more than
the nearest competitor

* Source: Internal analysis

** Source: Markets and Markets, Global smart lighting market (2013–18)

Philips Lighting- Iconic Projects

Empire State Building



The state-of-the-art dynamic lighting system from Philips unique to Empire State Building –allowing customized light capabilities from a palette of over 16 million colors in limitless combinations.



Times Square New Year's Eve Ball

12 feet in diameter and contains 32,256 Philips LEDs

San Francisco–Oakland Bay Bridge



This iconic light sculpture shines from dusk until dawn on the San Francisco–Oakland Bay Bridge. The State of California, through a long-term plan brought back on January 30 2016 and will remain forever brilliant.

MEGA TRENDS-wireless industry



Golden Tale

- “Not in my backyard syndrome”
- Technology changing
- Capital Intense
- Carriers have limited access
- Fee Ridden
- Is there a better way ?

5G

PyeongChang Olympics - 2018
Field Trials - 2017
Industrial Standards being
developed



In-building
solutions

Connected





**Los Angeles:
Mayor Garcetti
Unveils
Nation's First
SmartPole
Street Lights
With Small Cell
Technology**



Philips Connected City Experience SmartPole Pilot

“All too often we hear complaints about local government acting slow to innovate and adapt to the realities of today's **super-connected, global world**.

We can change this perception. **Philips and Ericsson's initiative** provides the City of San Jose with a unique **win-win-win**: more energy conservation, reduced expenditures on energy and maintenance, implementation of LED lighting on dark city streets, and an enhanced **broadband experience for our residents**.

At little capital cost, and by leveraging the innovation for which this Valley has become globally renowned, we can implement a solution that leaves **San Jose wealthier, better connected, and safer.**”

Mayor Sam Liccardo, Vice-Mayor Rose Herrera and Councilmember Ash Kalra – Recommendation to Council – February 20, 2015

City Benefit:

Connected City Experience

- **Increase Cellular Coverage:** Increasing the cellular coverage and connectivity for the businesses, visitors & residents that work, live in the
- **Accelerate LED Conversion:** For every SmartPole installed we replace 15 additional existing luminaires
- **Spur Economic Development:** Superior mobile data communication capability and speed that will encourage visitor activity, patronage and driving economic growth.
- **Encourage Innovation:** project will create conditions to drive innovation and deliver a platform of new ideas and concepts that will continue to build on the City's reputation as an early adopter and true innovator.
- **Create Jobs:** The installation of the SmartPole and the corresponding telecommunications equipment will create jobs.
- **Enhanced User Experiences:** Increased mobile capacity will enhance user's experience.

ALL AT NO COST ...

The Vision ...



Integrated **smart light pole**

- Accommodates the latest Digital wireless technology currently being deployed
- Future ability to host multiple telecom providers
- All designs follow FCC regulations and permitting
- Builds out Mobile Network operators network enabling smart city functions and Internet of Things

Partnering with



- PG&E team traveled to Texas to test meter
- Integrated into the top section of the Smartpoles
- First installation of new wireless two way communicating meter
- Measures amount of electricity used by the telecom equipment
 - Transmits information to billing system
- Reduces clutter in the Cityscape



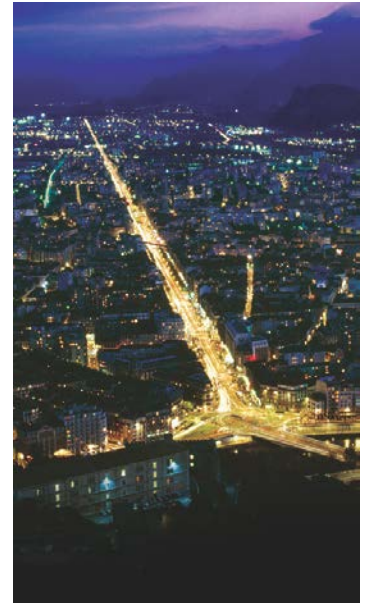
2005...



...2013...



Problems being solved for Modern Cities



The connected city

cellular data coverage for your citizens

City scape

enhanced aesthetics
de-cluttered streets

Multi use infrastructure

smart city enabler:
connectivity beyond telecom
and lighting

Infrastructure operations

optimization of
operational cost for
lighting

Infrastructure investments

advanced lighting at
lower investments

Urbanization

Connectivity

Livability

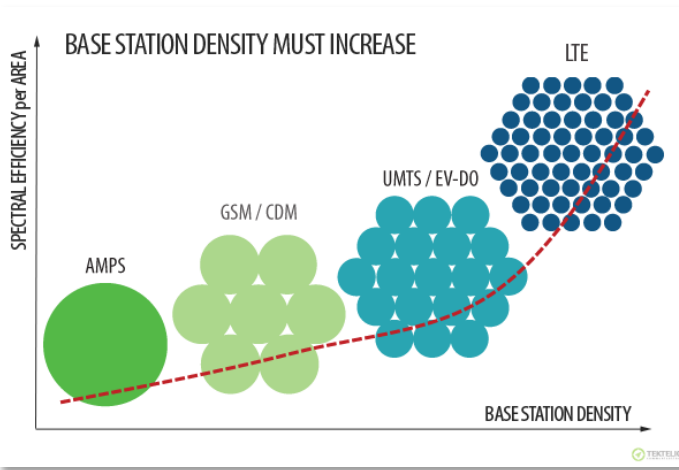
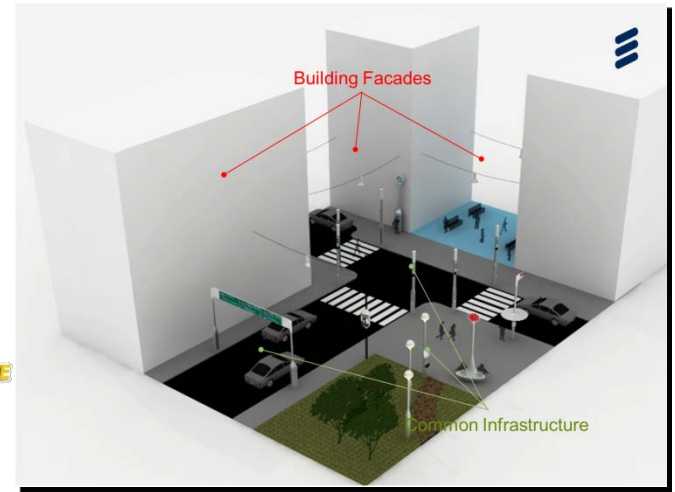
Sustainability

Evolution in cellular communication creates major challenge for MNO's and cities



Global mobile traffic will grow **12-15 fold** between 2012 and 2018

Small cells: number of base stations in cities will **triple** in next 5 years



Cells and base station become smaller, requiring installation at street level and becoming available for **integration** with street furniture

City Needs and Operator Challenges

Cities

benefit from improved broadband penetration, want to enhance/**de-clutter** the city scape

- State-of-the-art connectivity to citizens/tax payers → **Enhanced Livability**
- Accelerated Networked Society vision → **GDP Impact**
- Harmonized street furniture → **Improved City Scape**
- Speeding LED upgrades → **Energy Savings**



Mobile Operators

building out wireless broadband network **capacity** in dense **urban** areas

- Capture incremental data **Traffic/Revenue** at micro layer
- **Deployment Speed**: reduce zoning and permitting time
- Access to **Prime Locations** for small cells
- **Variety** of deployment options/use cases



Modernization, Simplification, AND Cost-reduction

From “boxes on poles”

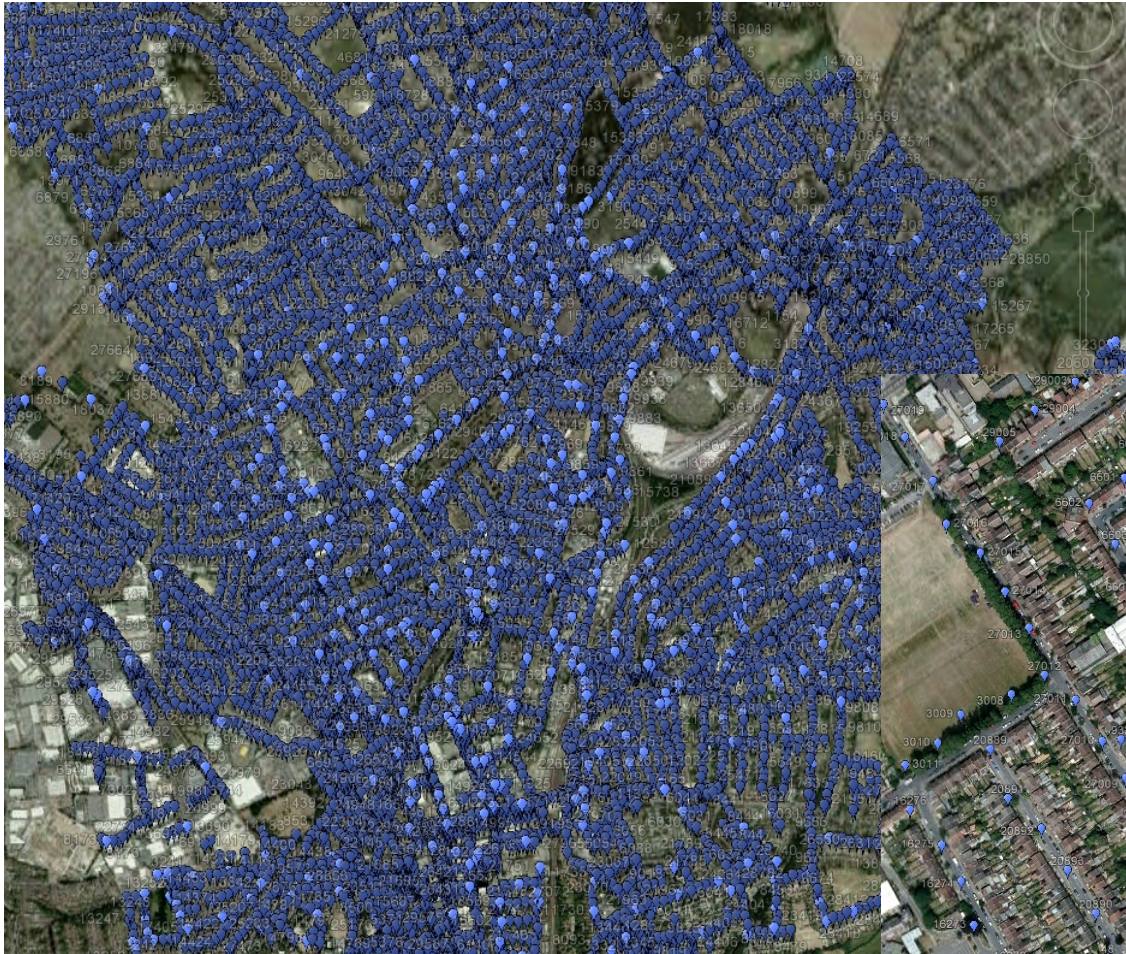
to sustainable multi-use
infrastructure as a service



From 100s of transactions to 1 future proof process

...and **potentially** state-of-the-art street lighting for free

Street lighting becomes digital real estate



Light poles offer

- *Elevation*
- *Power*
- *Connectivity*
- ***Location***

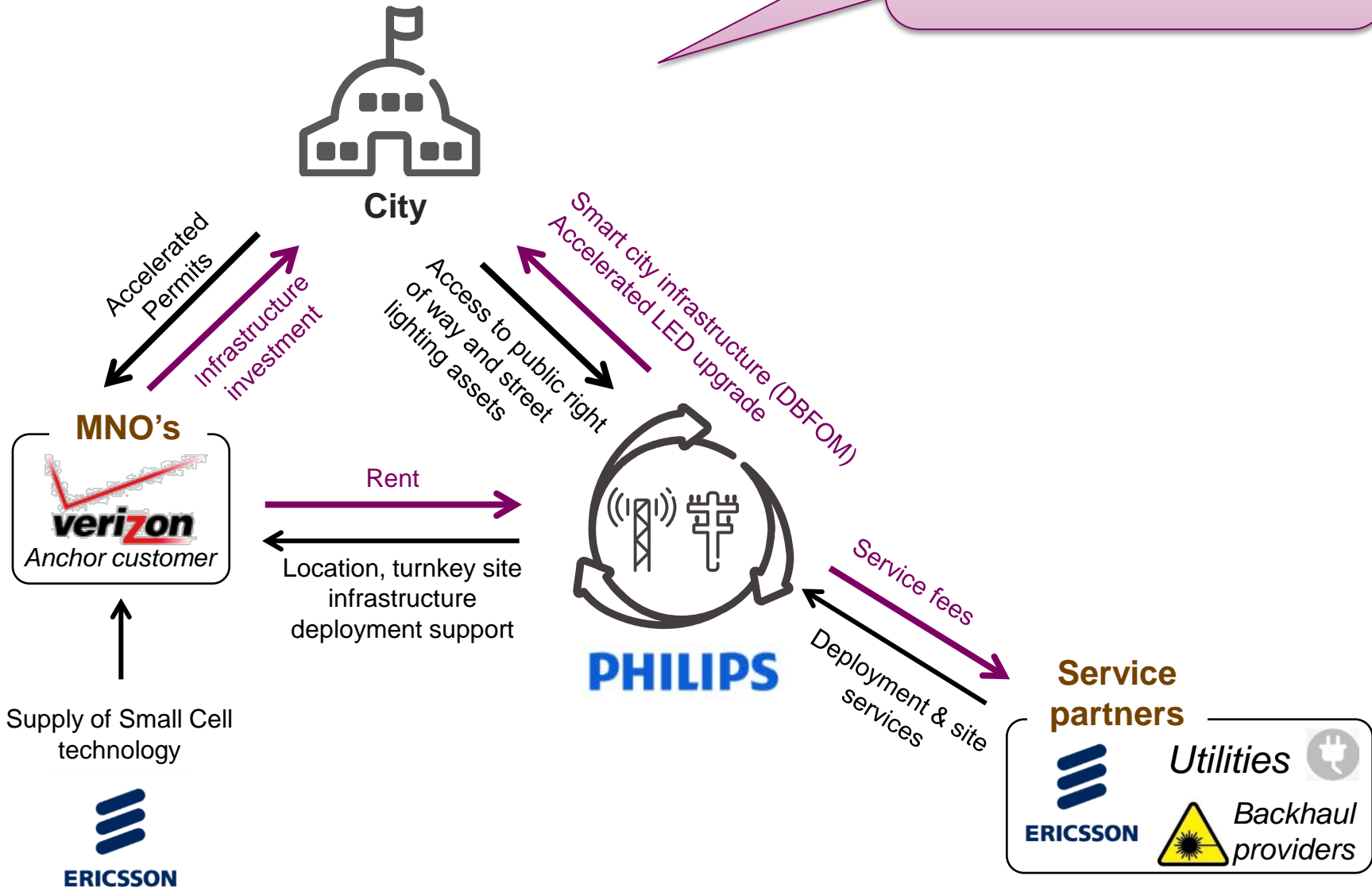


How to make it work

Public Private Partnership (PPP)

City benefits

- Improved Livability
- Smarter city infrastructure
- Technology leadership





PHILIPS



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Philips Connected City Experience

- Accelerate the digital transformation while de-cluttering cityscape
- Partnering to implementing new value creation strategies, leveraging infrastructure assets
- Facilitate roll out of mobile networks in urban areas combined with lighting upgrades and street furniture



- Create digital real estate based on existing and new infrastructure assets in the public right of way

