Philips connected city experience

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Philips – Making a difference in lighting

#1 in LED lighting*

Presence in 60 countries

55% of world's top footballs stadiums use Philips Lighting

262 Philips CityTouch street lighting implementations in 31 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**

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)
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

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

Connected
In-building solutions
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
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 cityscape

- State-of-the-art connectivity to citizens/taxpayers → 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

City

Accelerated Permits
Infrastructure investment

MNO’s
Anchor customer
Supply of Small Cell technology

Rent
Location, turnkey site infrastructure deployment support

PHILIPS
Deployment & site services

Service partners
Utilities
ERICSSON
Backhaul providers

Service fees

Utilities
Backhaul providers

Ericsson
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