

# It's the end of "the light" as we know it

Changing value streams in commercial markets

*Patrick van der Meulen  
Business Development Manager*

**XICATO®**

**Change before you  
have to...**

**If the rate of change on  
the outside exceeds  
the rate of change on  
the inside, the end is  
near.**

***Jack Welch (GE)***



# What trends are changing the lighting market?



- 1. Solid State Lighting**
- 2. Smartphones**
- 3. Internet of Things**
- 4. Cloud services & Apps**

## Trend #1:

# Solid State Lighting Revolution

## Extreme cost reduction & efficacy improvement

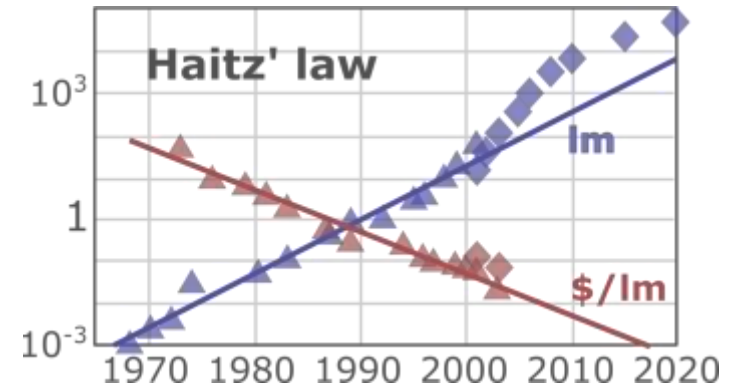
- outperforming Haitz law
- LED source and retrofit lamp markets commoditizing quickly
- scale or differentiate survival strategy

## Differentiation through Integration

- reduces solution cost, adds value through features
- smart fixtures
- smart retrofit lamps (*thermal limitations*)
- smart sub-assemblies (*modules/engines, benefit of scale!*)

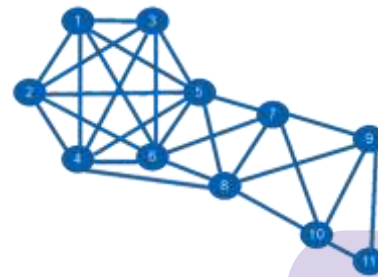
## Integration of:

- LED chip
- microcontroller(s)
- power management & dimming control
- sensors
- communication chips



**XICATO®**

# Xicato's Intelligent Integrated Module



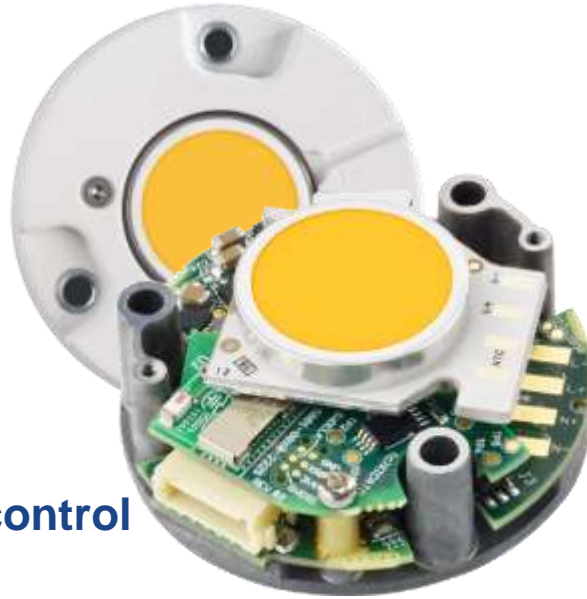
## IoT & DATA HUB

Relay for low power sensors, controls and tags

- Bluetooth Mesh ready
- Bluetooth Smart Core Spec

## Integrated LED driver

- Constant Voltage
- 0.1% Dimming
- No/low risk flicker



## Integrated light control

- DALI/1-10V
- Bluetooth
- Sensor based rules engine

## LOCATION SERVICES

### Integrated radio beacons

- Eddystone
- iBeacon



Eddystone



iBeacon

## Integrated Diagnostics Engine

- Temperature history
- Overtemp protection
- Run-time hours



# XICATO®



## *Trend #2:*

# **Smartphone Technologies & Apps “Explosion”**

## **Disruptive Impact on Existing Industries**

- Car navigation & maps (GPS)
- Point & shoot cameras
- ...

## **Threat or Opportunity for Lighting?**

- Availability of small & low cost sensors
- Low cost & reliable wireless capabilities
- Extensive (open) software infrastructure

## **Explore Synergies**

- Light control?
- Location services
- Commissioning & Configuration!
- ...



# Simplified Light Control Installation & Commissioning

## Wireless Bluetooth Mesh Connected

- light modules
- sensors
- switches

## No Gateway/Control box required

- direct communication between devices and smartphone
- control rules shared within light group

## Commissioning & Configuration

- easy to use Apps
- standard mobile phones/tablets



**XICATO**<sup>®</sup>

 **Bluetooth**<sup>®</sup>  
SMART

## Trend #3: Internet of Things “Hype”

Estimated \$4 - \$ 11 trillion dollar<sup>1</sup>

### Key enablers

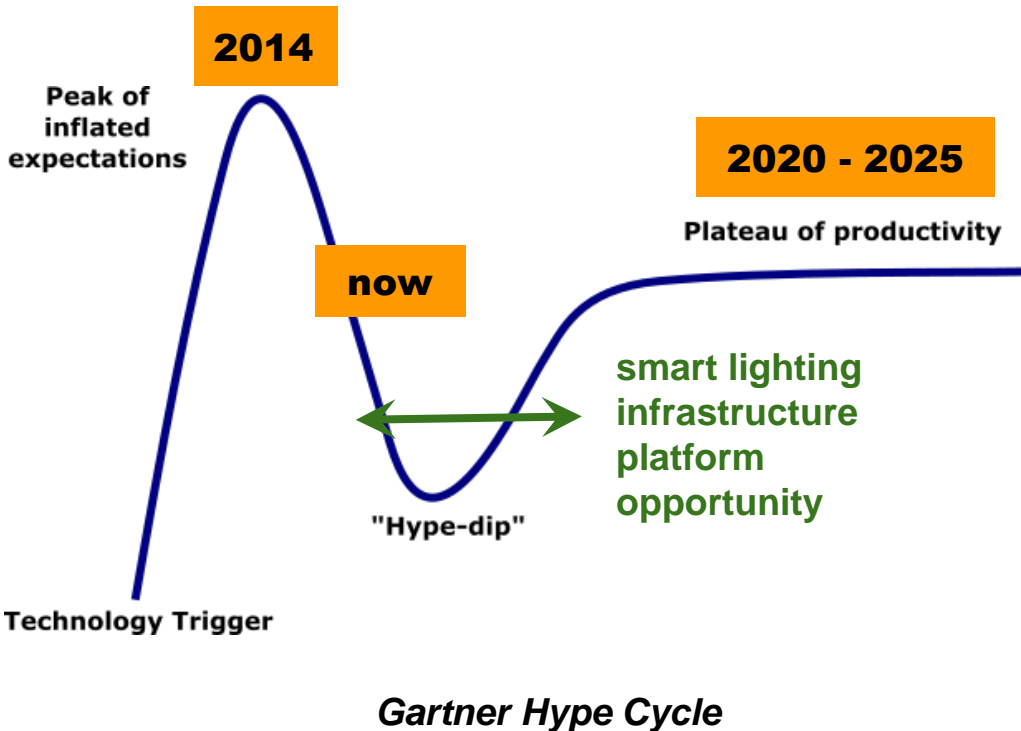
- Connectivity - *low power wireless*
- Interoperability
- Development of services

### Connectivity

- Wifi HaLow (802.11ah, < 1 GHz, 2018)
- Zigbee 3
- Thread
- Low Power Bluetooth Mesh (2016)

### Interoperability

- Internet of Things Protocol frameworks: Brillo (Google), AllJoyn (Qualcomm), Homekit (Apple)
- Bluetooth Mesh: *Bluetooth SIG good track record with interoperability of consumer devices, extending to IoT and Lights with Mesh*





# The internet of things: mapping the value beyond the hype

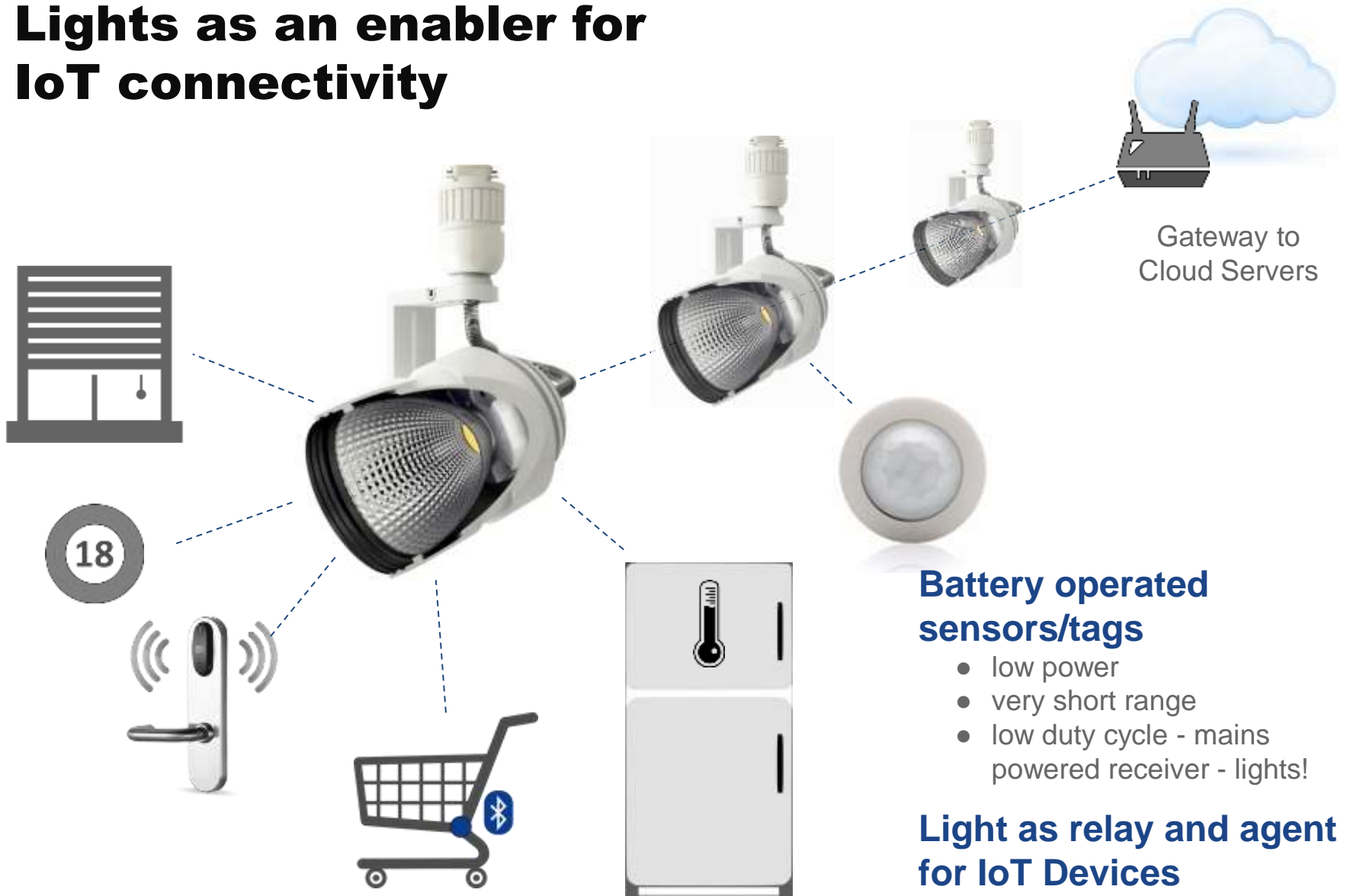
**\$3.9 - \$11.1 TRILLION 2025**

src. McKinsey Global Institute Analysis  
[http://www.mckinsey.com/insights/business\\_technology/the\\_internet\\_of\\_things\\_the\\_value\\_of\\_digitizing\\_the\\_physical\\_world](http://www.mckinsey.com/insights/business_technology/the_internet_of_things_the_value_of_digitizing_the_physical_world)

environments / settings	size	application / use cases
Human	<b>PERSONAL</b>	Monitoring and managing illness, improving wellness
Home	200–350	<b>INDOOR</b>
Retail environments	410–1,160	
Offices	70–150	
Factories	1,210–3,700	
Worksites	160–930	
Vehicles	210–740	Condition-based maintenance, reduced insurance
Cities	930–1,660	Public safety and health, traffic control, resource management
Outside	560–850	Logistics routing, autonomous cars and trucks, navigation

Is a light just a Thing?  
 Or is a light an enabler for the Internet of Things?

# Lights as an enabler for IoT connectivity



**XICATO®**



# “Use Case / Experience” Examples

- Simplified light control installation & commissioning
- Indoor museum mapping (Google project Tango)
- Tracking mobile carts (patients/MDs) in medical facilities by light based asset tracking
- Automated check-in, way-finding, and security in hotels
- ....



**XICATO<sup>®</sup>**

# Enabling and Accelerating the Market

## Need Standards!

- Open
- Quick & pragmatic standardization process
- Ensure interoperability on network and application layers

## “Friends of Bluetooth Mesh” initiative

- Create confidence with specifiers and customers in professional lighting applications
- Participate in informal and formal Interoperability tests of the Bluetooth SIG
- Real field trials
- Rapid & flexible response to interoperability issues in commercial installations



**XICATO®**

# It's the End of The Light as we Know it...



**Integration** helps to create value & reduce solution cost

Big market opportunities with smart lighting-aware **Smartphones**

Smart lights enabling **Internet of Things**

Focus on **end user experiences** enabled by industry cooperation

For more information:  
[Patrick.vandermeulen@xicato.com](mailto:Patrick.vandermeulen@xicato.com)

**XICATO<sup>®</sup>**