



Internet of Things

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Tech Mahindra Limited | Co-author of Book on “Enterprise IoT”

Agenda

IoT- our Experience

Challenges in IoT

Way Forward



2nd Indo-European Dialogue on
ICT Standards & Emerging Technologies

4th November 2015 • Shangri-La's - Eros Hotel, New Delhi, INDIA

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Aerospace



Automotive



Components



Defense



Farm Equipment

THE MAHINDRA GROUP

6 decades
of Excellence

\$16.9 bn
Revenue

200,000
Associates

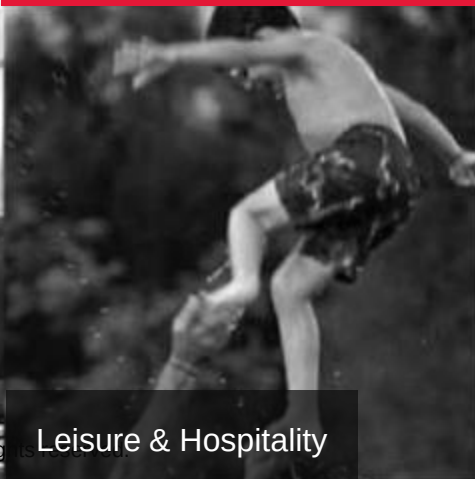
100+
Countries



Financial Services



Information
Technology



Leisure & Hospitality



Real Estate



Retail

Tech Mahindra: Overview

30 years | **\$3.7 bn** revenue | **103,000** Associates | **51** Countries

1986 – 95 **FOUNDATION**

\$10 million

10

450

3 countries

1996 – 2005 **EXPANSION**

\$280 million

35

10,450

11 countries

2006 – Till now **GROWTH**

\$3.7 billion

727

103,000

51 countries

Telecom

Manufacturing

Banking & Financial
Services

Energy & Utilities

Public Services

Technology, Media
& Entertainment

Retail

Travel & Logistics

Healthcare &
Life Sciences

Aerospace &
Defense

REVENUE

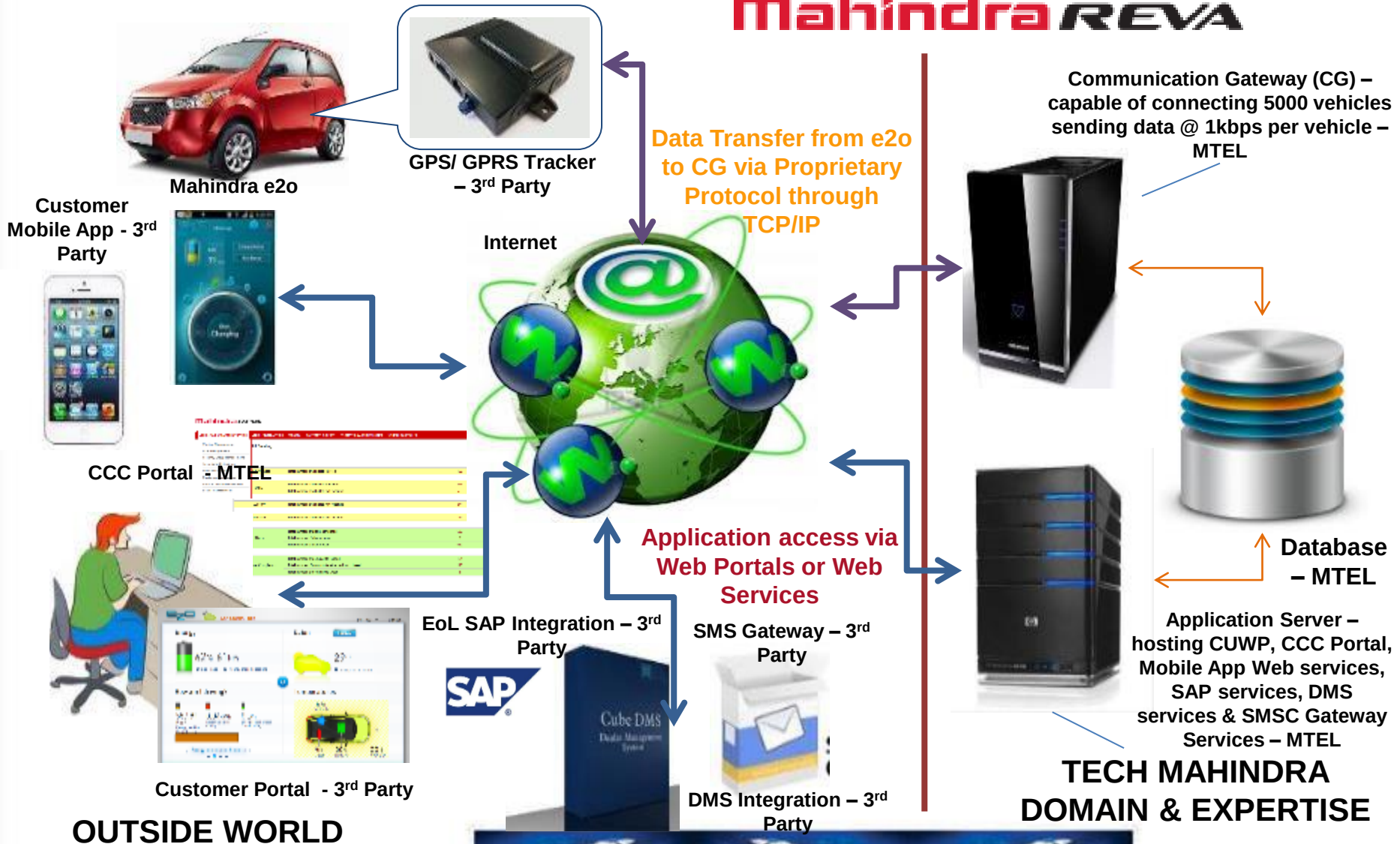
CLIENTS

ASSOCIATES

PRESENCE

Connected Cars - e2o

Mahindra REVA



Benefits Delivered



 All e2o's:



PETROL SAVED BY ALL E2OS
(CUMULATIVE)



2,56,879

Liters

CO₂ SAVED BY ALL E2OS
(CUMULATIVE)



1,28,439 KG

FREE KMS GAINED BY REGEN BY ALL E2OS



73,237

wh/km

ECOPOINTS RANKING
AMONG ALL E2O DRIVERS.
(ECOPOINTS RANKING)



 Offers, info, etc



- The e2o Revive feature makes sure you can recharge your car anytime, anywhere.
- The e2o Quick2Charge feature ensures you are ever road-ready.



- No New Messages



'A car that actually costs you less when driving in the ghats'

-Kamlesh Mallick, Pune



'Takes a step into the future'

-the SAP Labs, Bangalore



'This car resonates my belief in a clean life'

-Amit Gupta, Mumbai

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Tech
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Smart Factory : Track & Trace Testbed



BOSCH

**Tech
Mahindra**



Source: Bosch



« Smart City » Mahindra World City, Jaipur

Centralized Demo Command Center, for 24*7 Monitoring & Controlling of Facilities.



Smart Parameters

- Threshold alerts for Voltage, Load & Frequency
- PF Factor calculations
- Remote ON / OFF
- Water & Fuel Level Monitoring
- Authorized Vehicle entry with Alerts

On Map



Smart Boom
Barrier
Management

Smart Parking

Smart Building
Energy
Management
Systems

Smart Light
(street & interior)

Smart Bin

Security
Surveillance

Automated Meter
Reading solution
for energy, gas &
water utilities

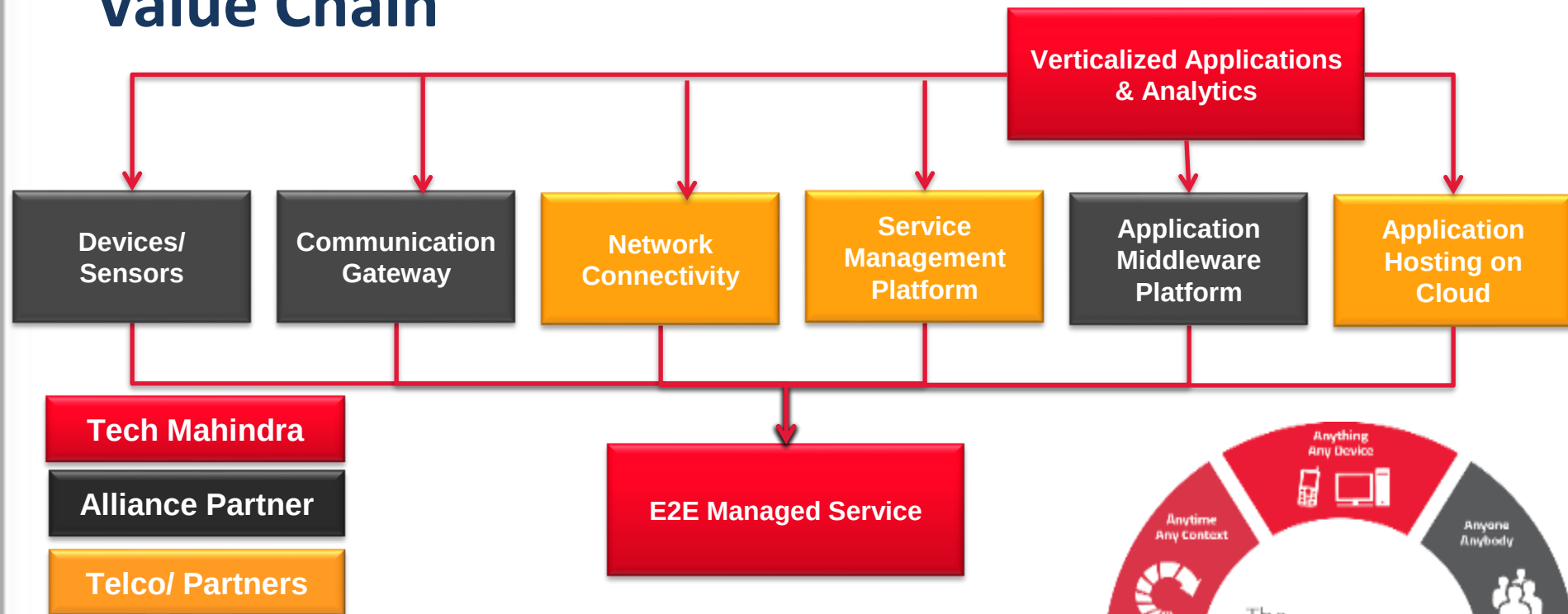


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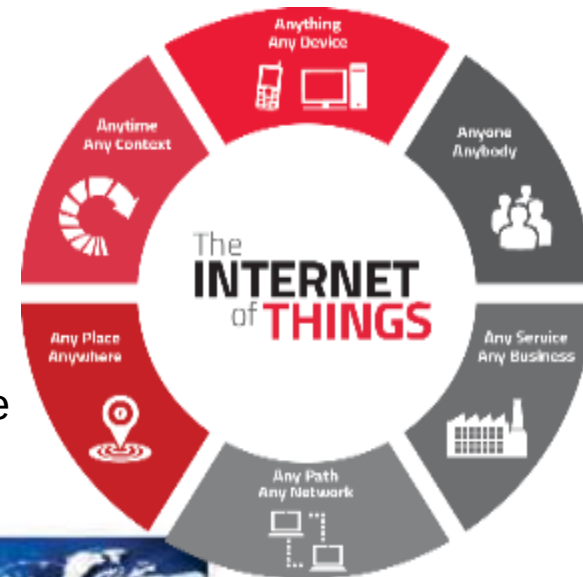


Tech
Mahindra

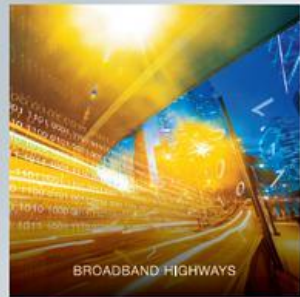
Enabling E2E Managed Services along the IoT Value Chain



- Partner ecosystem in place for IoT Solutions for all verticals including Telecom, Manufacturing, BFSI, Retail, Healthcare & Life Sciences, among others



Digital India: The Paradigm shift



Nine Pillars of Digital India



Digital India: Three core objectives & 9 Pillars

Digital infrastructure as a utility to every citizen



Broadband Highways



Universal Access to Phones



Public Internet Access Programme



Electronic Manufacturing
Target NET ZERO Import

Governance & services on demand



E-Governance

Reforming Government through Technology



eKranti

Electronic Delivery of Services



Information for everyone

Digital empowerment of citizens



IT for Jobs

Electronic Delivery of Services



Early Harvest Programmes

Overall Investment

~ Rs 100,000 Cr (\$16 billion) in ongoing schemes (DeitY and DOT, not including other Ministries)

~ Rs 13,000 Cr (\$2 billion) for new schemes & activities



Financial Inclusion



Saral Dhan: MoboMoney



Saral Krishi: Farm 2 Fork

Agriculture



Healthcare

Saral Swasthya: RadioTouch



Saral Rozga
1st mobile job market place in India

Employment



Mahindra World City - Jaipur

Global India: Smart Cities



Saral Suraksha FightBack

Security

CITIZEN

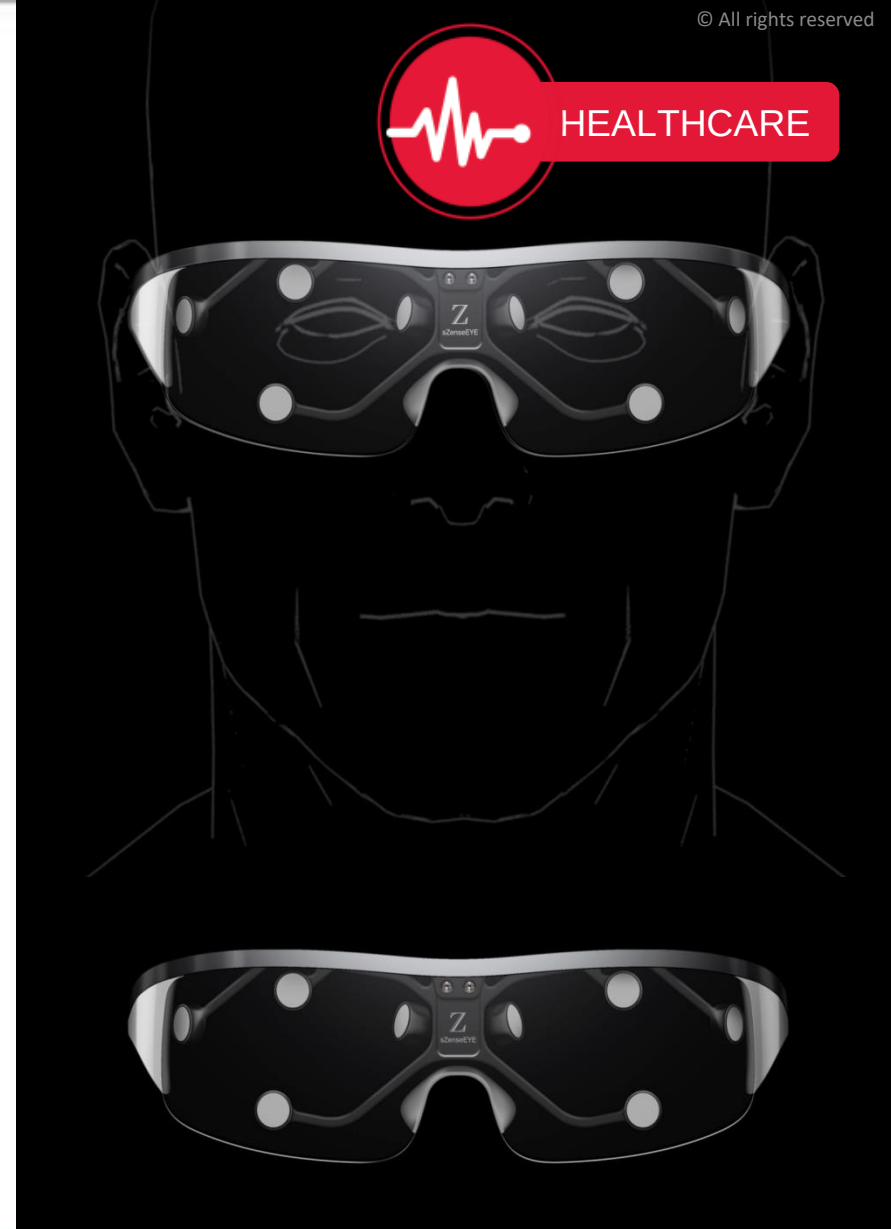
SOCIAL



Saral Drishti: sZenseEYE

Smart Goggles for the Visually Impaired:
Aids the Visually Challenged in Navigating Hands-free, effectively and intuitively using its Sensory feedback technology and smart Computer Vision Algorithms.

- Interfaces with the Smart phone camera
- Intuitive Sensory Feedback Around Eyes
- Portable, small sized solution
- Uses commonly available components
- Cost-effective and can easily be manufactured



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Challenges in IoT

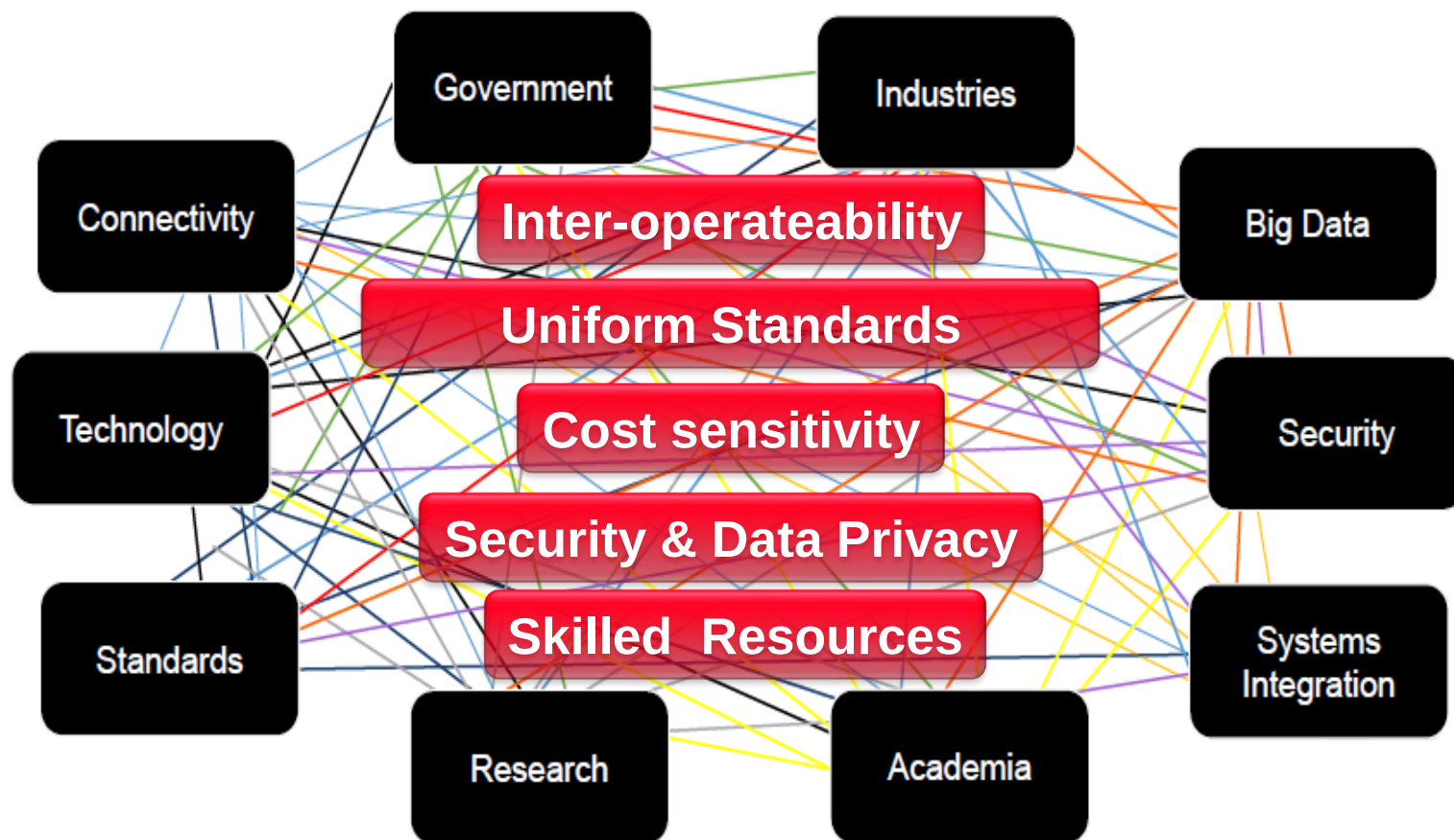
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Current Roadblocks to widespread Adoption of IoT



Too many cooks...

Need One Master Chef

Generic Application layer



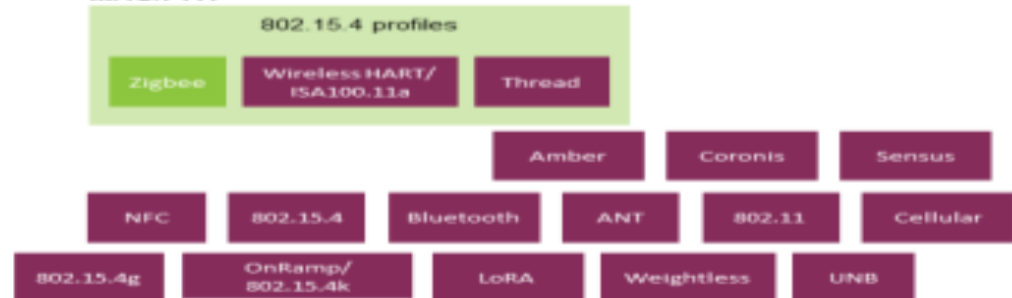
Device/app protocols



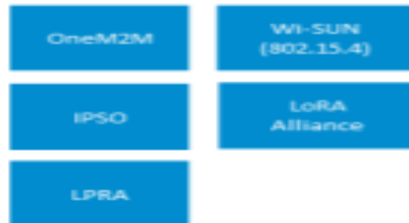
Networking



MAC/PHY



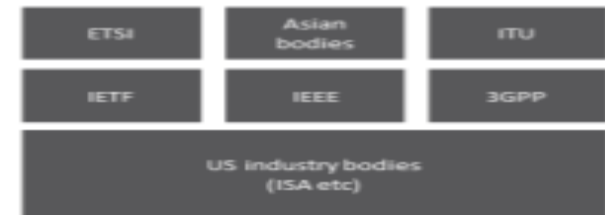
Alliances



Alliances that set standards



Standards bodies



Smart Lighting as a Service

Opportunity Statement

- We are getting multiple RFI/ RFPs on Smart Lighting in India and Worldwide.
- Faster RoI
- Smart Lighting (Outdoor) infrastructure offers a huge opportunity for getting “re-used” for few other business use cases and can act as a “**Multi Service Platform (MSP)**”

Solution Features

Monitoring and Control

- Real time monitoring of streetlights – energy consumption, status
- Light on/off functionality of the group and individual lights
- Brightness control for LED/ HPS lights
- Auto dimming schedule based on geo location for LED/ HPS lights

Reporting

- Total burn hours calculation of streetlights
- Predictive maintenance alerts
- Fault detection and alerts on map
- Automatic SMS/ Email alerts to the maintenance team
- Trend analysis on energy pattern consumption

Dashboard

- Dashboard showing the location of lights on the map
- Status of the lights (On/off) by color indication
- Control of light operation

Street Light Infrastructure as MSP: Use Case



Street Light Infrastructure as MSP: Use Case



Configuration page

- Configuring the light points (Location on the map)
- Naming of the light point

Light Controls

- 1/2, 1/3 Light On/Off
- Dimness Control
- Scheduling

Launching
Coffee
machine as
a Service
with a leading
FMCG Player



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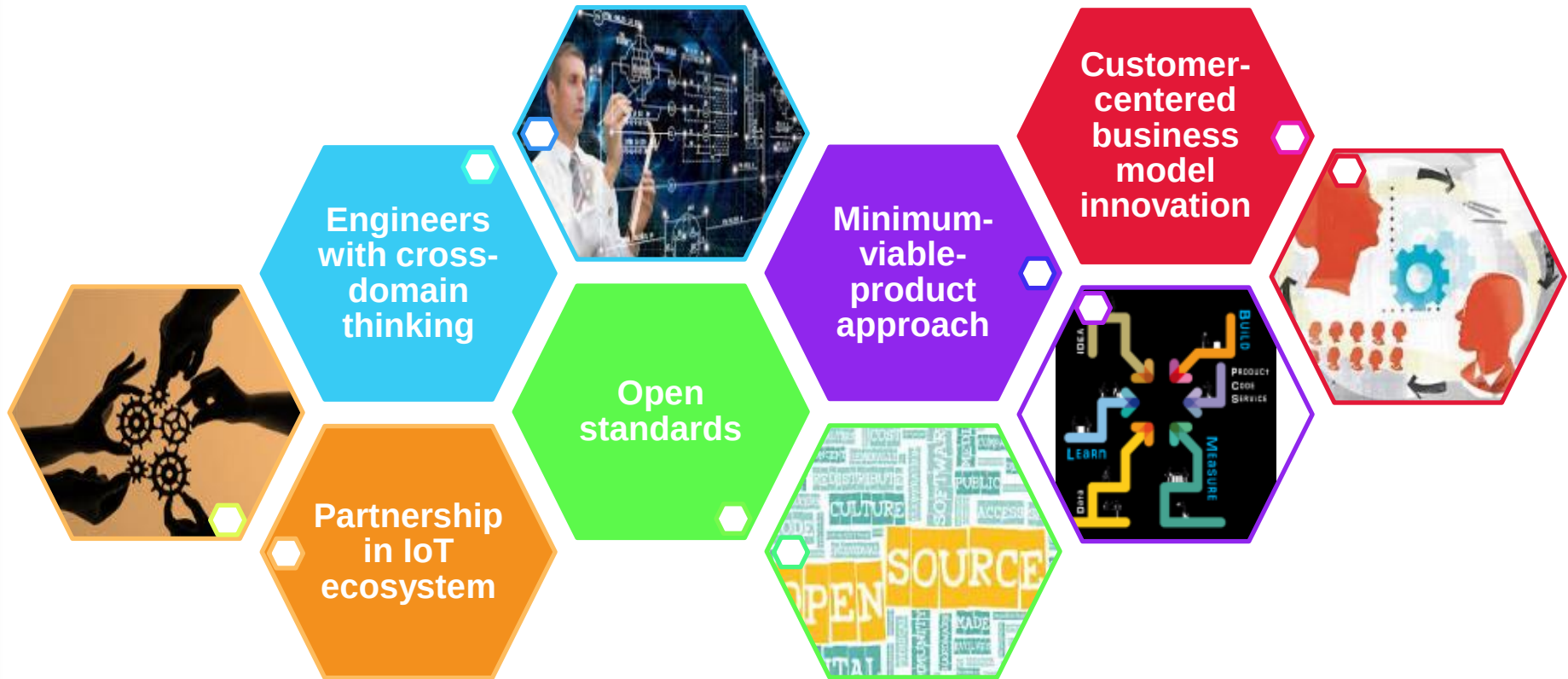
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What could be the Way Forward...



Thank you

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