4G's role in the Internet of Things

…in the Indian Market Context

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VP & Head of Sales Engineering & Customer Success at Aeris-India
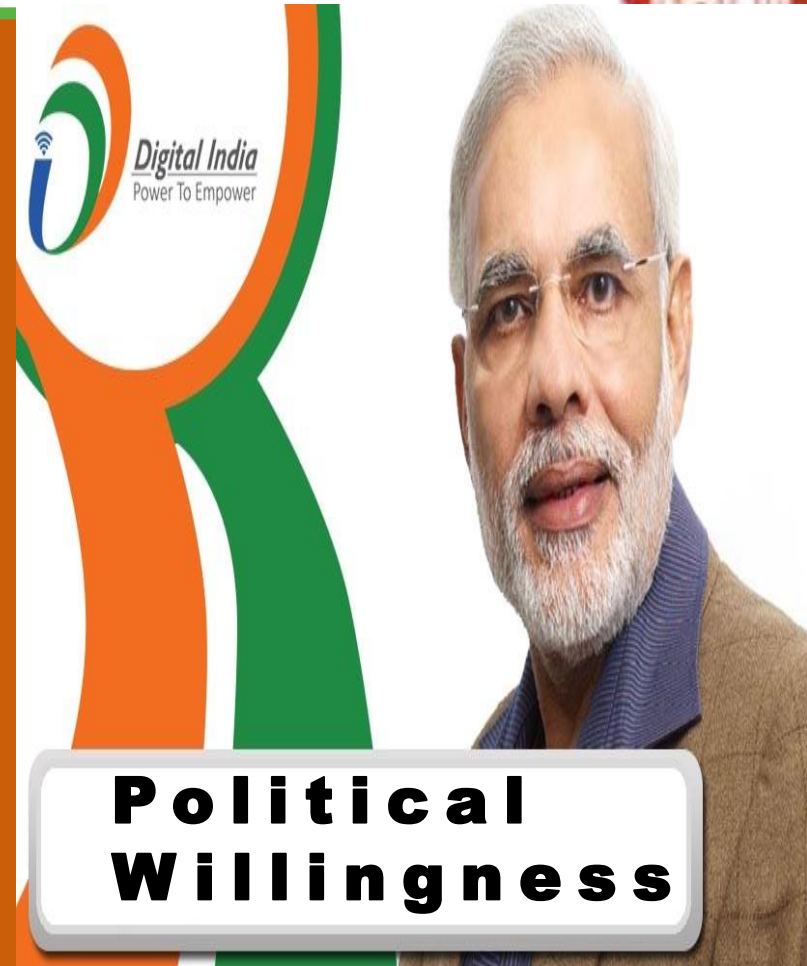
The 'New India' is 'Digital India'

"I dream of a digital India where High-speed Digital Highways unite the Nation;

1.2 billion connected Indians drive innovation;

Technology ensures the citizen-government interface is incorruptible"

- Shri Narendra Modi, Prime Minister of India

Digital India
Power To Empower

Political Willingness

The Paradigm shift…
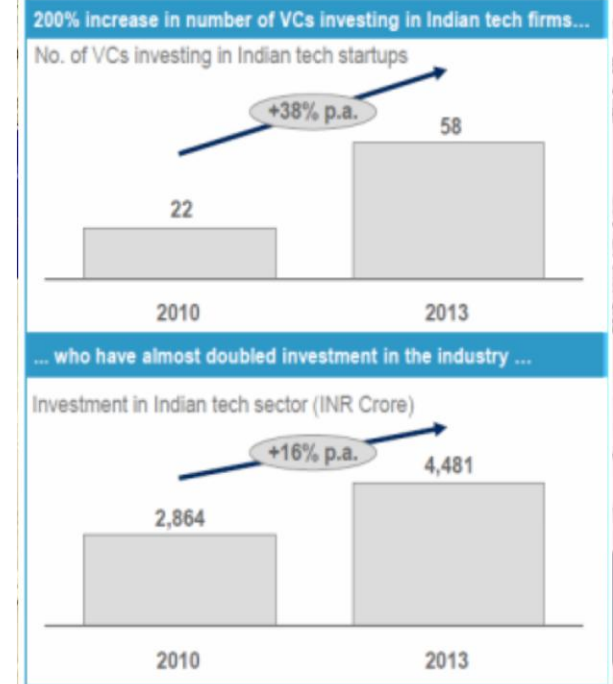
Digital India Mission

A program to transform India into digital empowered society and knowledge economy

100 Smart Cities

Recasting the urban landscape of India by making cities more livable and inclusive, besides driving the economic growth

The last 5 years has seen an explosion of startups in the industry

200% increase in number of VCs investing in Indian tech firms…

No. of VCs investing in Indian tech startups

+38% p.a.

22   58

2010   2013

… who have almost doubled investment in the industry …

Investment in Indian tech sector (INR Crore)

+16% p.a.

2,864   4,481

2010   2013

… leading to 2pp increase in share of funding for the industry

Digital India investing in Internet of Things…
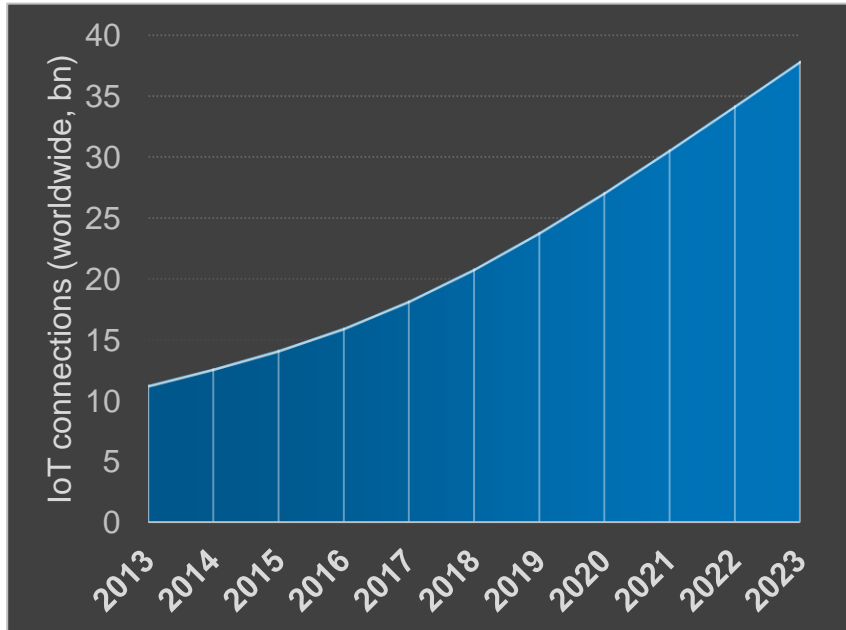
IoT to boost Indian GDP by up to $1 trillion by 2025

Source: McKinsey

Government of India announced plans to create a $15 billion IoT market in the country by next five years, i.e. 5-6% of global IoT industry.
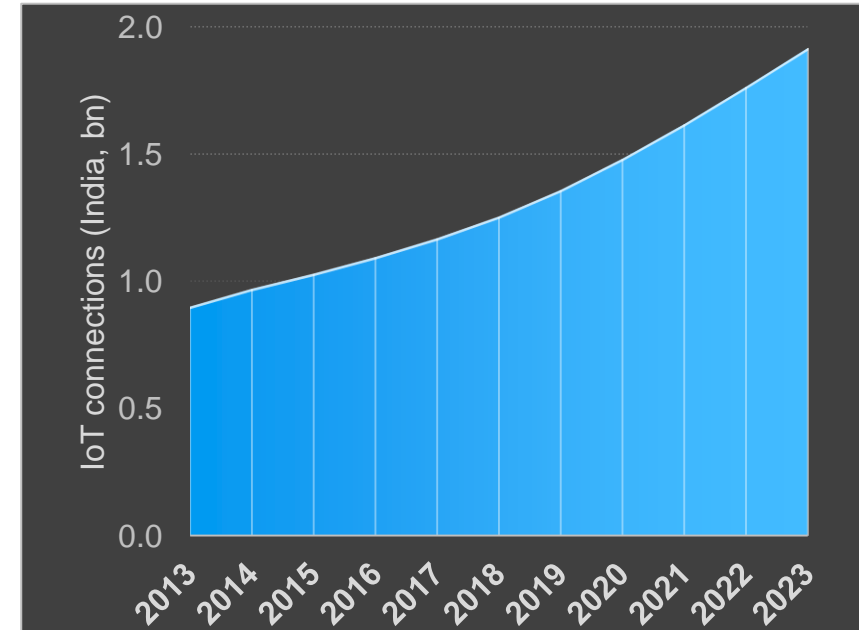
Source: DEITY:http://deity.gov.in/content/internet-things

IoT Connections, worldwide, 2013-23
Source: Machina Research, 2014

IoT Connections, India, 2013-23
Source: Machina Research, 2014

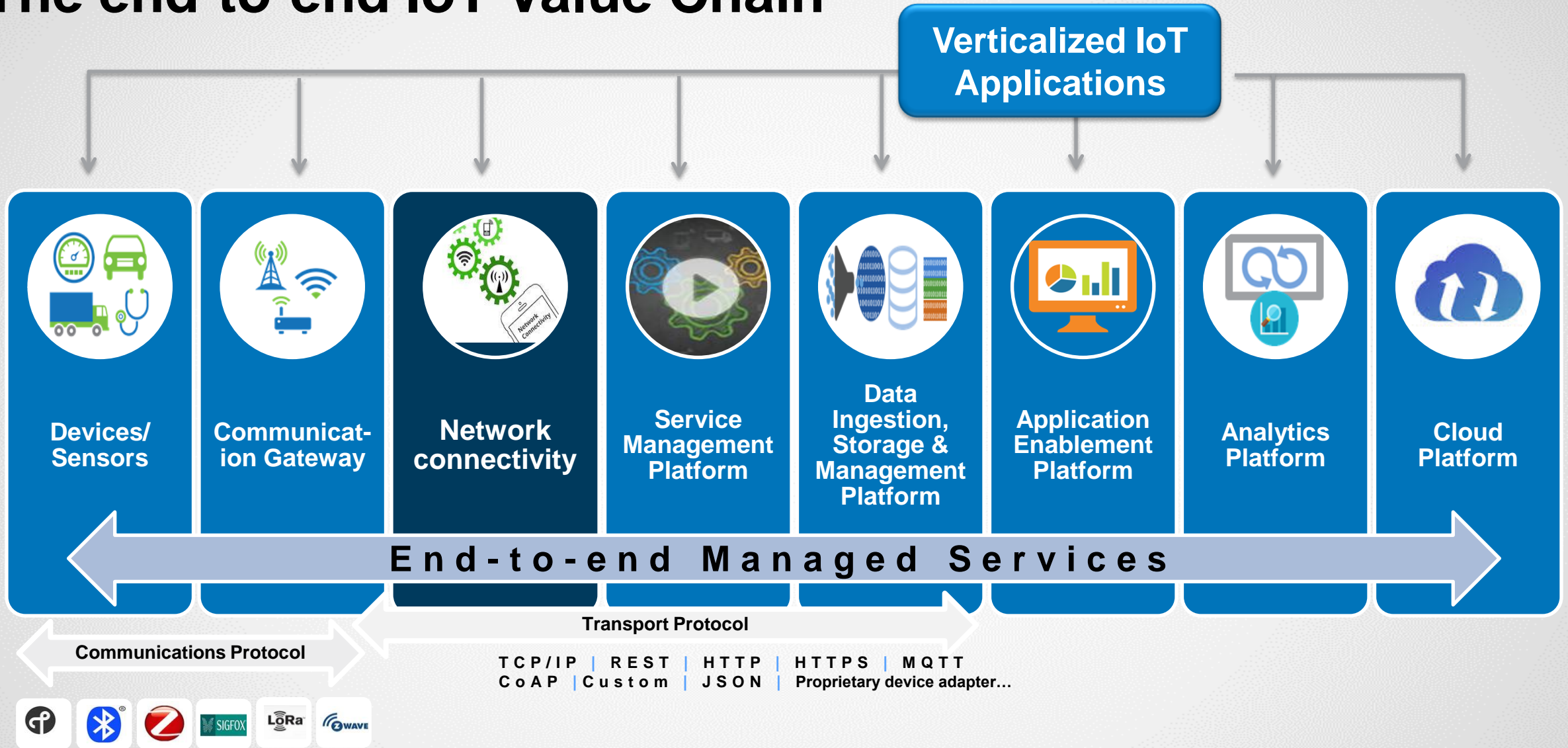**Connectivity** is the Key to successful **Internet of Things** & **Telecom** is the Key to successful **Connectivity!**

IoT is a new stream of revenue and revenue enabled services for the Telecom Service Providers

The end-to-end IoT Value Chain

Verticalized IoT Applications

| Devices/ Sensors | Communicat- ion Gateway | Network connectivity | Service Management Platform | Data Ingestion, Storage & Management Platform | Application Enablement Platform | Analytics Platform | Cloud Platform |

E n d - t o - e n d   M a n a g e d   S e r v i c e s

Communications Protocol

Transport Protocol

T C P / I P | R E S T | H T T P | H T T P S | M Q T T
C o A P | C u s t o m | J S O N | Proprietary device adapter…

LTE will enable Long Term & High Volume Data enabled Connectivity & IoT Application Services

'India is expected to have 9 crore 4G subscribers and 18 crore 4G smartphones by 2018'

— Bank of America Merrill Lynch

Market Opportunity for 4G Players (1/2)

Energy and Utilities
Organizations to reduce power theft and line losses

Automotive Industry
for Connected Car and analyzing the driving pattern

Manufacturing Industry
to track and monitor the high cost assets

India to invest US$21 bn in smart grid infrastructure in the next decade in a bid to curb rampant electricity theft, making it the largest long-term smart grid opportunity in the world

-Metering & Smart Energy International

Internet-enabled cars now a $30 bn market in India. By 2020, this market is poised to grow nearly six times.
- (IBEF-AC Nielsen)

Opportunity Size for Players
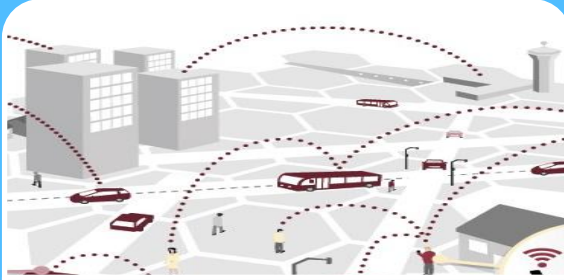Auto parts firms: $30 bn | Telecom firms: $30 bn | Insurance firms: $15 bn | Chipmakers: $40 bn

Revenue from IoT technology and services for discrete and process manufacturing in India will grow from $1.3 bn in 2014 to **$3.9 bn in 2020** at a CAGR of **20.1%.**

- IDC's forecast

Market Opportunity for 4G Players (2/2)

Municipal councils for Smart Cities | Builder Segment

Smart Cities a $45-50 Bn opportunity over the next 5 years
Potential business opportunity in India -
Smart water management - $14.4 bn
Smart energy - $23.4 bn
Smart transportation - $6.3-11.6 bn
Smart waste management - $0.9 bn

-Sustainability Outlook : Smart Cities market in India - a $45- $50 bn opportunity: SCOAM Framework

Agriculture Sector for water, waste water, water quality & assets monitoring

Mobile internet-based farm extension and market information services alone could help create more than half the **$45-80 bn** a year in additional value by 2025 in India.

-McKinsey Global Institute

Healthcare Sector for telemedicine, assisted care and remote coverage

India ranked 2nd highest in adopting mobile healthcare with **60%** adoption rate. The growth of the mHealth market will lead to a **revenue opportunity worth Rs. 3000 crores (US $ 0.6 bn) for India in 2017**

-PwC Report 'Touching Lives through Mobile Health'

We put the **Internet** into the **Internet of Things**

Global Reach

Exceptional support, all over the world

People

175 people

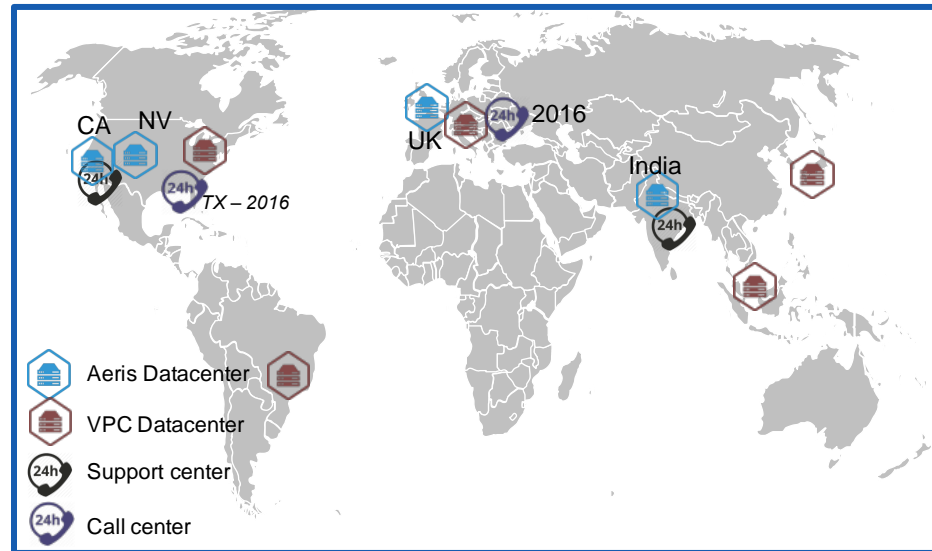>50% in engineering
and operations

Privately held

Presence

Headquarters in Silicon Valley *(Santa Clara)*

Operations in the UK, India, Japan *(in development)*

NOCs in Santa Clara, Las Vegas and London; Delhi
(under construction)

CA NV
UK 2016
India
TX – 2016

Aeris Datacenter

VPC Datacenter

Support center

Call center

Aeris In Numbers

A robust history of growth, stability and industry advances

100%
annual unit growth
(last 4 years)

6+ million
devices on network

Over **4 million**
vehicles on network

Operational connectivity
reach in
180 countries

Top 10
worldwide in units
under management

1 billion
IoT messages
per day

Aeris Communications: Who Are We?

Our Company

- Founded in 1992
- Headquartered in Silicon Valley
- Privately held and profitable
- 100% CAGR (last 4 years)
- 4 Data centers, 2 in US 1 in EU and 1 in India

Our Value

- Ability to leverage multiple carriers on a single platform
- Real-time Visibility & Control of devices
- M2M solution optimized for Lifecycle Management

Our Solution

- Purpose built M2M core network
- Single platform to manage all cellular connectivity across LTE, GSM and CDMA
- Designed for scale, reliability

6.5+ million Devices

Operational Reach in 190 Countries

400+ million M2M messages per day

Aeris in Numbers

A robust history of growth, stability and industry advances

50
industry patents

100%
annual growth
(last 4 years)

99.995%
infrastructure reliability

Operational reach
in **190** countries

1 in 4
new cars sold in U.S.
built by Aeris customers

200+ million
M2M messages
per day

Thank You