

# ITI presentation Shri. V. S. Sridhar

August 2016

<http://tatacommunications-newworld.com> | [www.youtube.com/user/tatacomms](http://www.youtube.com/user/tatacomms)


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# Wireless Connectivity Solutions for IoT...

<p>Home automation, electronics, informatic, utilities, industrial</p>	<p>Mobile Operators &amp; satellite</p>
<p><b>Short Range</b></p> <p><b>Bluetooth™ 4.0</b></p>  <ul style="list-style-type: none"> <li>▪ Short Range</li> <li>▪ Low cost</li> <li>▪ Energy sobriety</li> <li>▪ Private network</li> </ul>	<p><b>Long Range</b></p> <p><b>3G+ / H+ 4G</b></p> <p>Long Range</p> <p>cost</p> <p>gy hungry</p> <p>public networks</p>

**Build a Radio network**

- Long range, deep indoor coverage
- Public, out-of-the-box connectivity
- Ultra low energy
- Low cost Hardware, low cost connectivity

*Trade-offs: Operational complexity?  
Scalability? Larger scale coverage?*

*Trade-offs: Battery lifetime?  
Quality, indoor coverage?*

**Possible today: Tata Communications to deploy  
LPWAN (Low Power Wide Area Networks)**

# LoRA : advantages

**ADDRESSABLE:  
80% of IoT devices**



- Dedicated IoT network
  - *No voice, no data on that network, hassle free of any traffic priority rules, QoS*
- Outdoor to deep indoor, deep in ground & in water, harsh environments, good network coverage
- Robust communication, quality for critical messages
  - *Coverage ruled by Tx of devices and sensitivity (SNR)*
  - *work in negative SNR, pick up message in highly degraded environment, ACK of critical msg is standard*
- Connect battery operated low cost assets
  - *Long lifetime without manual operation, small battery size, enable RoI of IoT business case*
- Low cost communication, Low cost RF module (5 US\$)
  - *Enable volume, enable RoI of IoT Business case*
- Plug and play connectivity
  - *low cost to operate for customers and operators, enable RoI of IoT business case*
- Permits mobility
  - *Enable large number of uses case, not sensitive to Doppler effect*

# LoRA : Others points

- Power consumption : *average 2500 less than GSM*
- Sensitivity: *10 000 more sensitive than Bluetooth / Zigbee*  
*35 more sensitive than GSM 900*
- Works in ISM Band;
- Fully compliant with International standards: *Europe : EN300-220, US : FCC part15.247*  
*India: IND44. IP V6 compliant*
- Supported by a international, multi industry consortium: *LoRA Alliance – 250 members*
- Open standards, available to everyone, certification process  
<https://www.lora-alliance.org/>
- **Creating a complete new ecosystem**, generating investments & jobs in India
- **Complementing** the GSM ecosystem
- Full potential achieved with extension of ISM bands like Europe/US regulators

**The challenge: have India taking a significant part of the global IoT value-add** (*unlike what has happen on Internet*)

# Working with Customers: Proof of Concept..

## Completed 35 PoCs...

- 21 PoCs not possible with SIM cards technology
- 10 PoCs in Asset Management
- 9 PoCs in Asset tracking
- 3 PoCs in Human Safety / Emergency services
- 5 PoCs in Energy Management / Metering / Telecoms
- Rest in Smart Cities / specific Applications

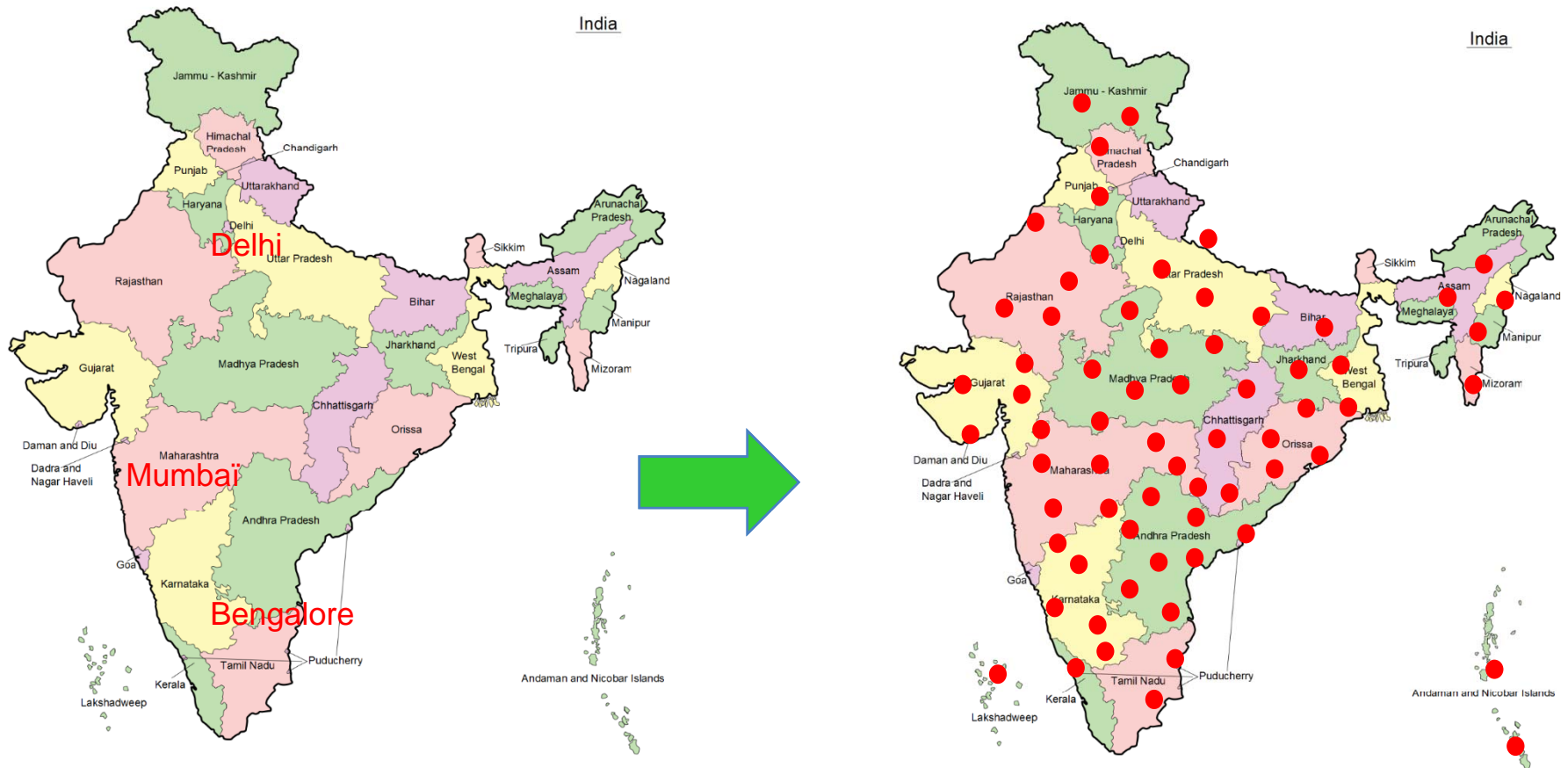


## Potential volume (estd.)

- 100 000 devices to several million
- one case up to 200 million .....



# Tata Communications LoRA Plans....



- Bangalore, Mumbai, Delhi covered  
45 million people coverage. huge critical mass of people for testing IoT PoC

400 million people coverage,  
1900+ Cities,  
Within the next 2 years  
Go international. → Export

## LoRA : Our Partnership with ITI Possibilities...

*While Tata Communications takes care of Network/Upstream Services...*

- 1. MANUFACTURE** – under licence - *LoRA enabled devices, LoRA RF Modules for selected Enterprises / markets : Smart Cities, Women Safety....*
- 2. CREATE & MANUFACTURE** - Tata Communications LoRA Network equipment:  
*Femto Gateways, specific hardware for harsh environment...*
- 3. CUSTOMIZE & MANUFACTURE** – *ITI's own LoRA devices suited for Indian & Emerging markets specificities. For ex a low cost LoRA tracker (< 1000 INR)*
- 4. BUILDING ECO-SYSTEMS for INNOVATION:** *Being in Bangalore for Start-Ups – ITI's as an innovation center / Lab / Eco-System enabler ....*



## In Summary.....

- **LoRa – An open standards system / Embracing and enabling Innovation**  
**ATAL INNOVATION MISSION**
- **IOT manufacturing in India**  
**MAKE IN INDIA**
- **Eco-System Development**  
**START UP INDIA**

....in line with PM's mission!!!

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Thank You