



# Sri Lankan Economy



**Population**  
21.44 Million



**GDP Per Capita**  
USD 4060  
( Upper Middle  
Income )



## Economic Structure

- Agriculture ( 8%)
- Industry (30%)
- Service (62%)



Ageing Population –  
'We got old before  
we got rich'

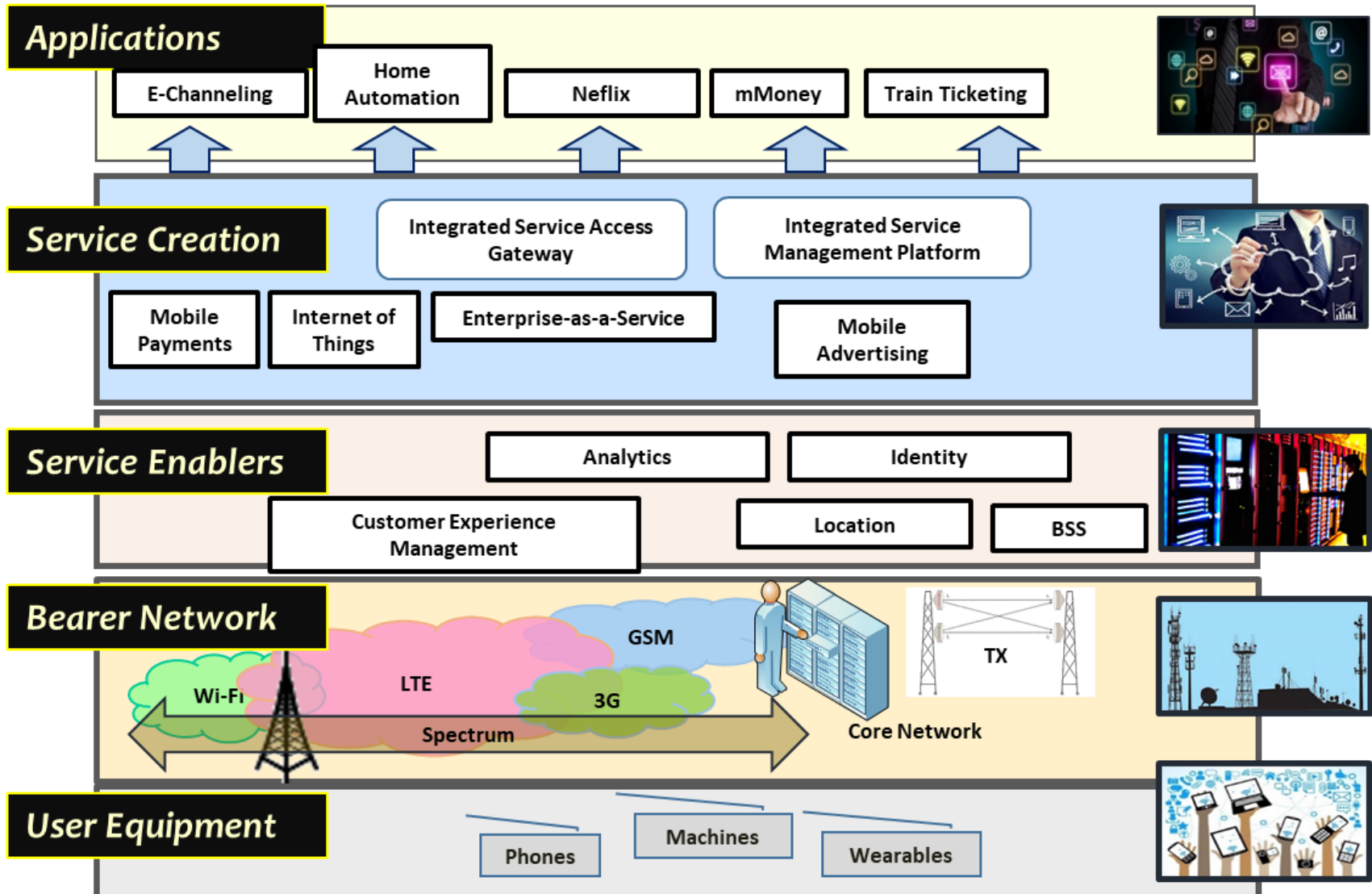
**Productivity = Technology x Labour Force**

To escape from the middle income trap and enhance GDP per capita from USD 4000 to USD 12,000

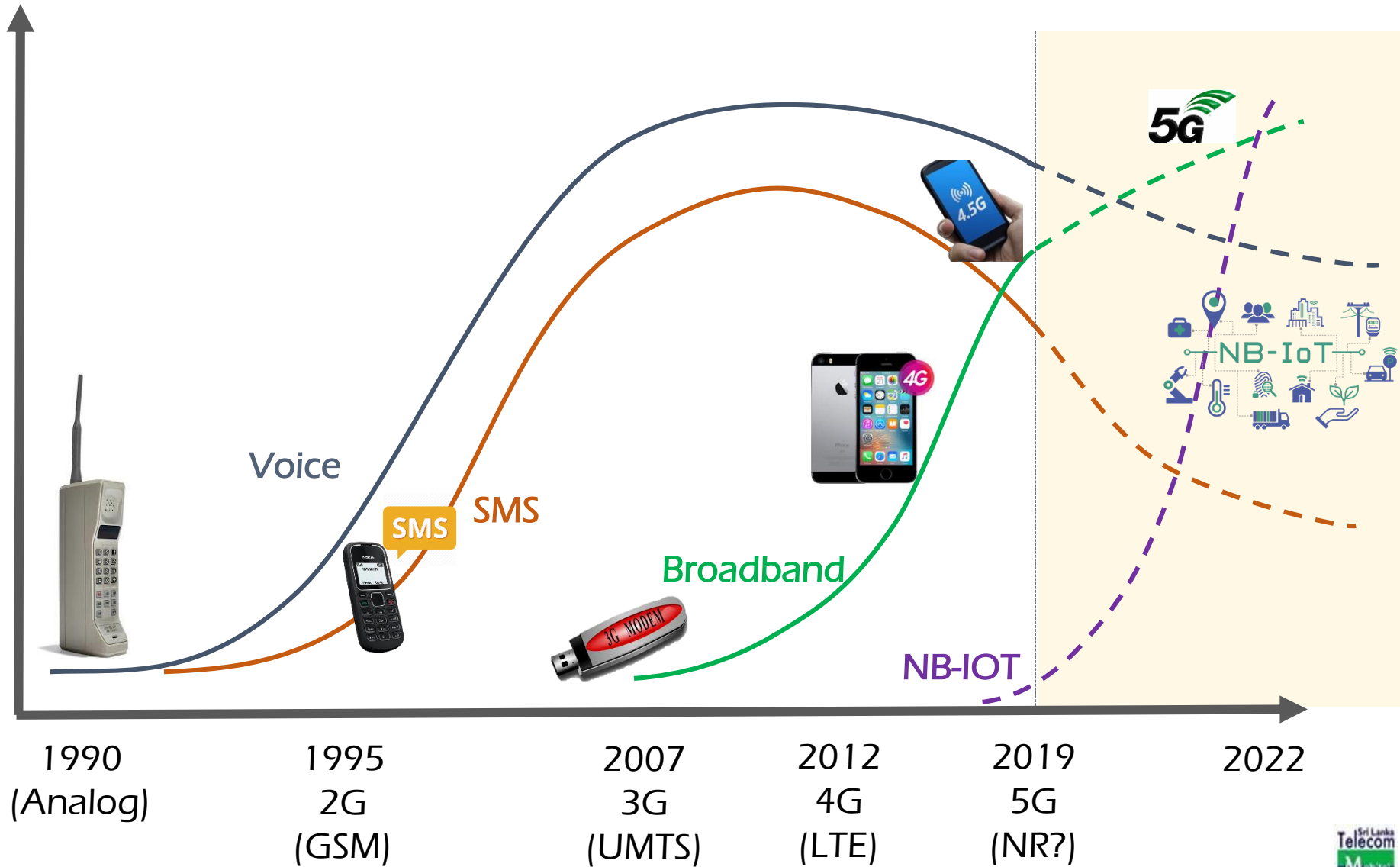
Need to increase the usage of technology and automation

**Technology is the ONLY way Sri Lanka can gain Economic Advancement**

# Technology Framework for Mobile Operators



# Sri Lanka Communication Industry Trends



# Mobitel - Sri Lanka

## Company Structure



SLT Group  
Parent Company  
(Group Revenue - LKR 85Bn)



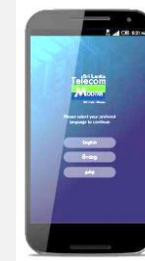
100% Owned  
Subsidiary for  
Mobile  
communication  
(Revenue LKR  
40Bn)



Mobitel  
Subsidiaries



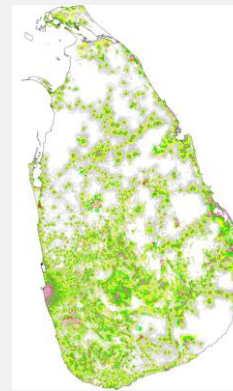
8 Million +  
Subscribers



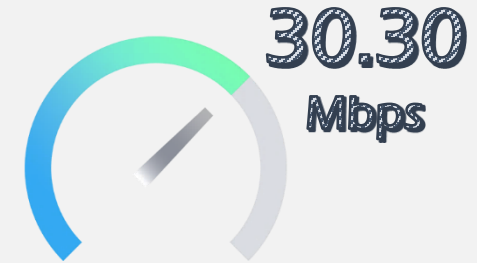
45%  
Broadband  
Penetration



60%  
Of Broadband  
users are LTE



91% LTE Coverage



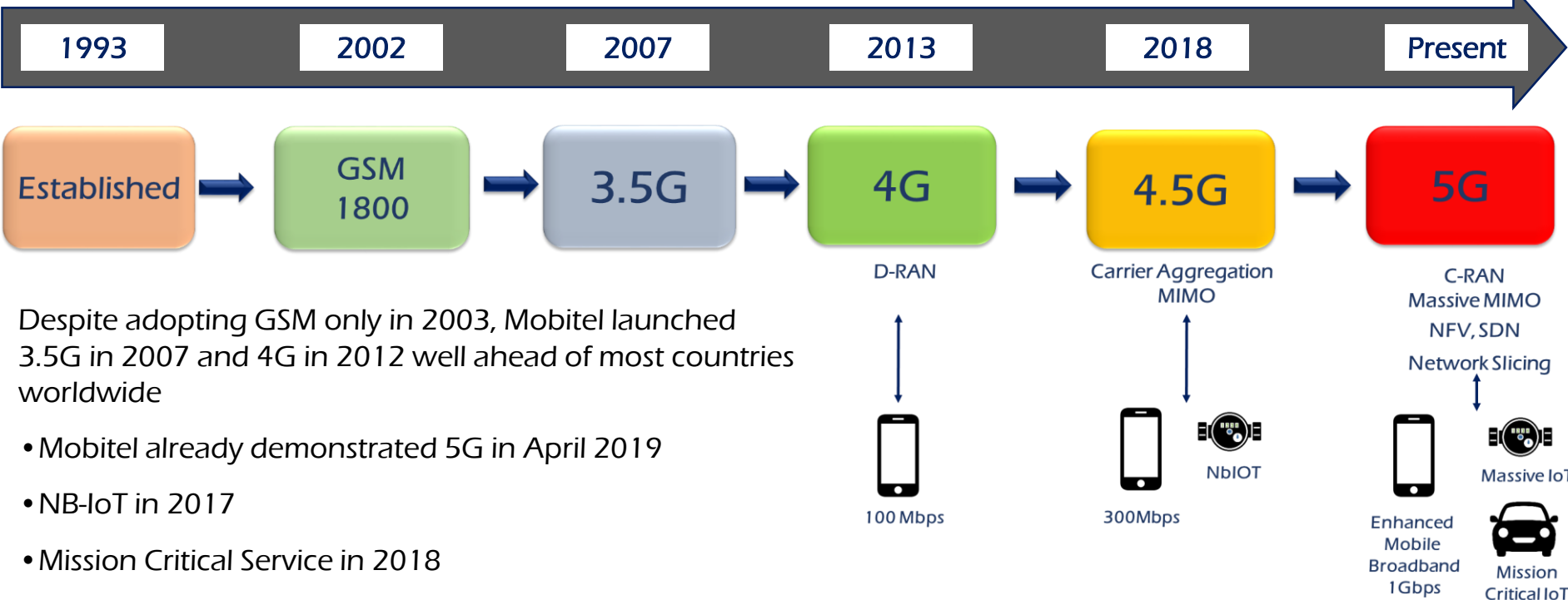
LTE Average Download  
Speeds 2019 H1  
OOKLA Statistics

Ookla has once again crowned Mobitel with the  
Speedtest Award 2019,  
for having the fastest Mobile Network in Sri Lanka.





# Mobitel's Driving Technology Adoption in Sri Lanka



Despite adopting GSM only in 2003, Mobitel launched 3.5G in 2007 and 4G in 2012 well ahead of most countries worldwide

- Mobitel already demonstrated 5G in April 2019
- NB-IoT in 2017
- Mission Critical Service in 2018



**New technologies are appearing sooner with shorter life spans so difficult to do long term planning**





# INTERNET OF THINGS

25 billion IoT devices globally in 2025

## Consumer IoT



2017 4.6bn connections

2025 11.4bn connections

## Industrial IoT



2017 2.9bn connections

2025 13.7bn connections



# The Holistic view of IoT Technology

HOW?



Sensing



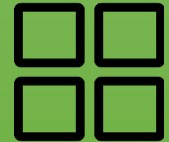
Connect



Big Data




Intelligence



Application

# Separating Fact from Hype: IoT and NB-IoT

Market Segment	Percentage of Connections by 2020 Worldwide	Requirements	Technology
<ul style="list-style-type: none"> <li>CCTV (Camera)</li> <li>In-vehicle entertainment</li> </ul>	6%	> 10 Mbps	4G-LTE 5G
<ul style="list-style-type: none"> <li>IoT Gateway Backhaul</li> <li>Wearable</li> </ul>	27%	~ 1Mbps Low power consumption	2G/3G/Cat-1 Cat-M1
<ul style="list-style-type: none"> <li>Sensors, Meters</li> <li>Asset Tracking</li> <li>Smart Parking</li> <li>Smart Agriculture</li> </ul>	67% 	< 100kbps	Short Range Tech, Sigfox, LoRa, <b>NB-IoT</b>

# What does NB-IoT deliver

Optimized Power Consumption



**10Yrs Battery Life**

Better Indoor Coverage



**+20dB  
Better than GSM**

Massive Connections



**50K Connections  
Per Cell**

Low device Costing



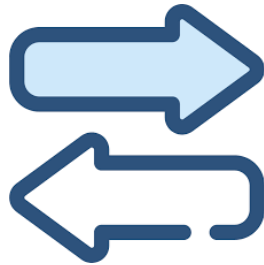
**Low Cost**

Limited Throughput



**<100 kbps**

Bi-directional Communication



Security



**Encryption  
and SIM based  
authentication**

Global Standard  
in Licensed  
Spectrum



A GLOBAL INITIATIVE

# Licensed vs proprietary (un-licensed)

## Why a 3GPP standard has been worth waiting for?



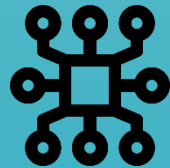
- ❑ Backed by global standards with a rich roadmap to 5G
- ❑ Based on licensed spectrum with a redundant network design
- ❑ Established/trusted security and authentication features built in
- ❑ Leverages existing and planned LTE infrastructure and spectrum
- ❑ Ability to address the wide range of IoT use cases
- ❑ Established networks serving billions of connections worldwide

# Technology Framework for IoT

HOW?



Sensing



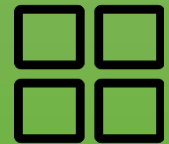
Connect



Big Data



Intelligence

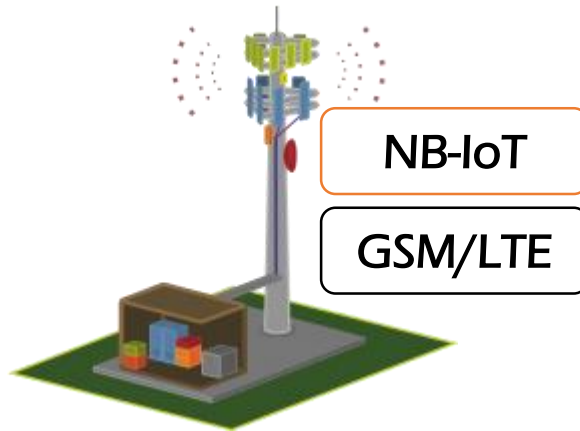


Application

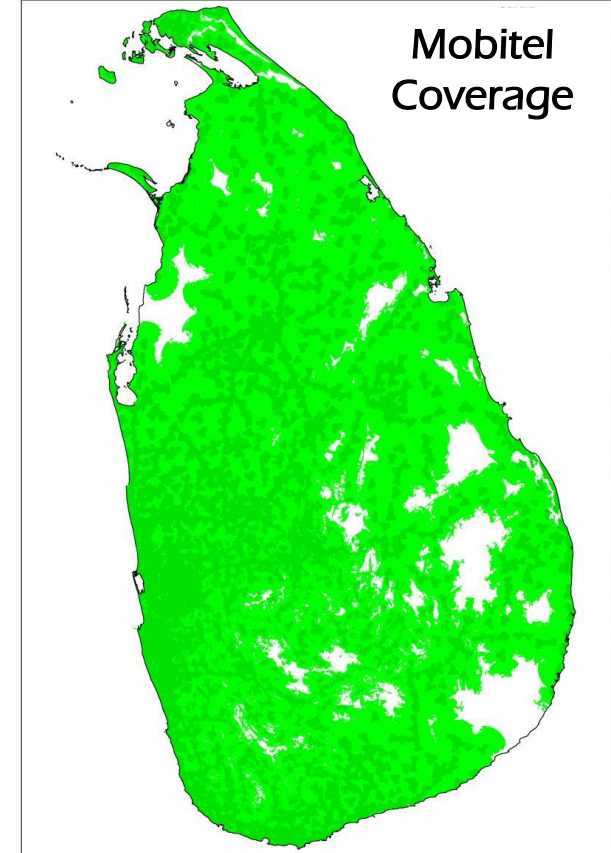
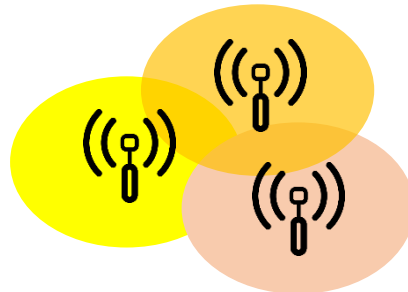


# Connectivity Achieved

- ❑ One network for Island-wide NB-IoT Coverage
- ❑ Only an operator can build this network
  - Can reuse existing network infrastructure



- Licensed spectrum utilization
  - Unlicensed spectrum are shared and susceptible to interference



# Technology Framework for IoT

HOW?



Sensing



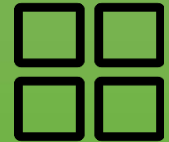
Connect



Big Data



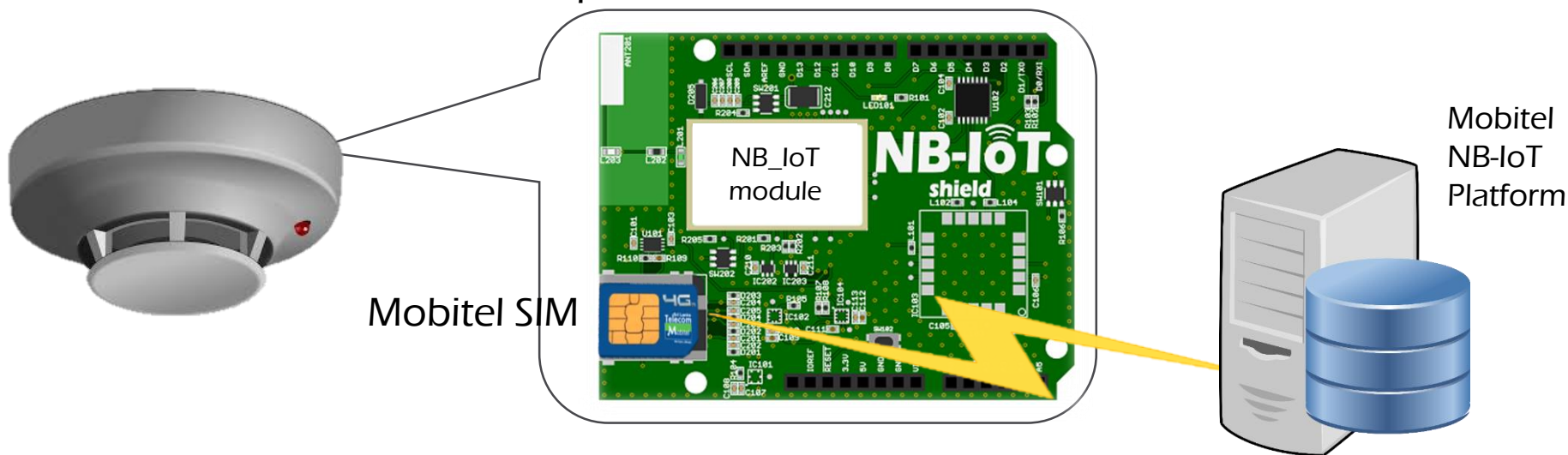
Intelligence



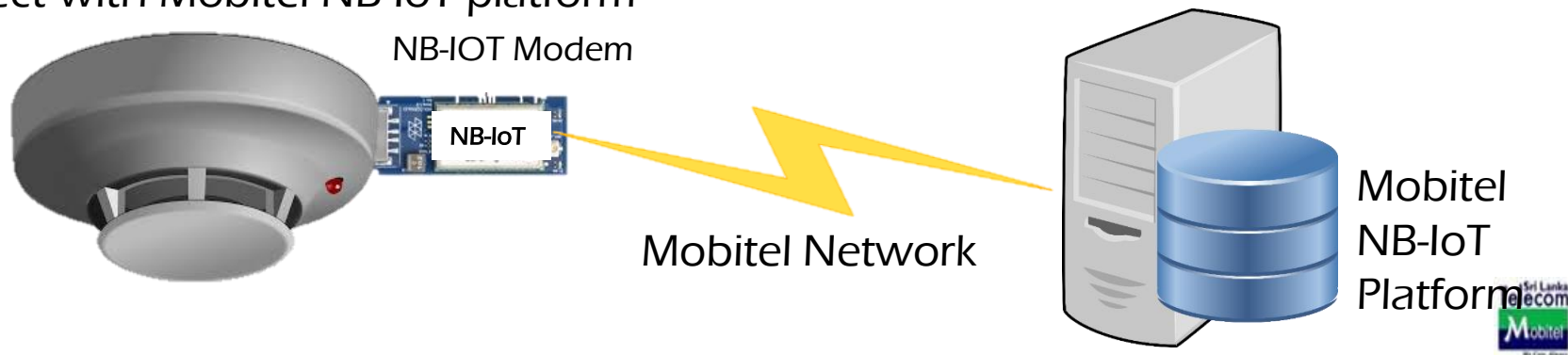
Application

# NB-IoT Devices: More work needed

- Directly purchase the operator certified NB-IoT devices from the Open Market
- Insert NB-IoT Mobitel SIM
- Connect with Mobitel NB-IoT platform



- Purchase NB-IoT compatible sensor
- Connect it with Mobitel NB-IoT Modem
- Connect with Mobitel NB-IoT platform



# Mobitel's work over the last 3 years in NB-IoT

## Many Successful PoCs

Utilities – Smart Meters

- (Water meters and Electricity meters)

Agriculture

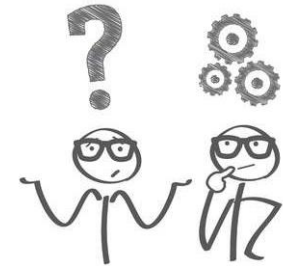
Disaster Management - Landslides

Logistics



Despite Successful PoCs,

**Challenge** has been to get **Scale**



## Challenges to Scale

- ❑ Enterprise trying to build their own connectivity for IOT
- ❑ Competing technologies on unlicensed band – WiFi, LoRA, Sigfox etc..

# What is the 'killer' feature for NB-IoT?

**SPEED** was the "killer" feature for 4G



**“BUT”**



**LONG BATTERY LIFE**  
is the "killer" feature for NB-IoT



Just "Plug & Forget"!



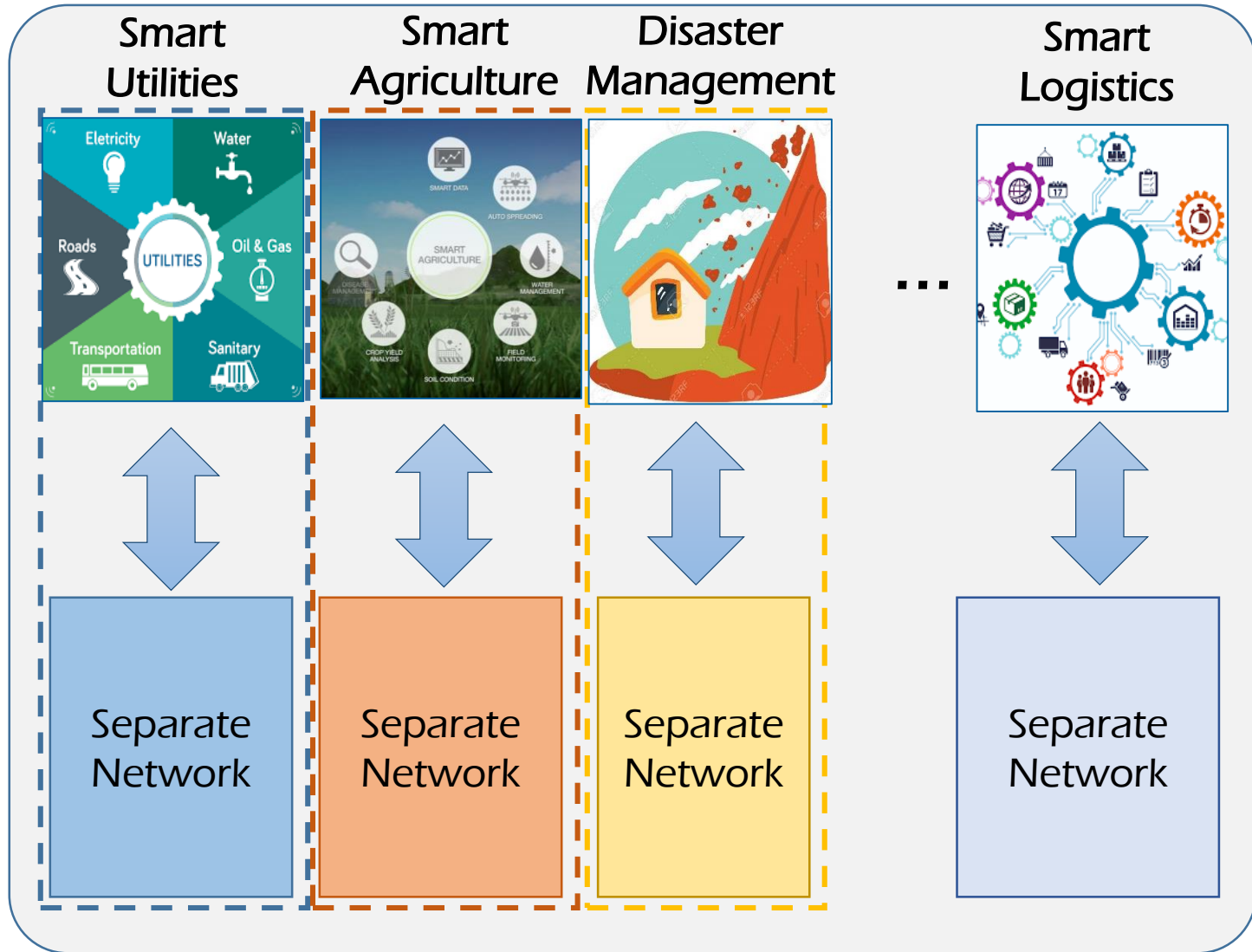


# Today: Each Industry is attempting to build its own IoT Network

Individual companies

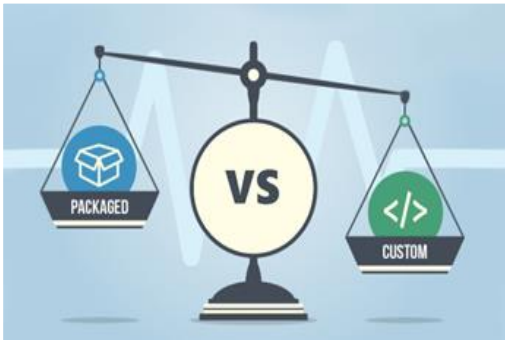


- Devices
- Application
- Network Infrastructure
- Network Operation



**More effort on Non-Core Business Operations**

# Some Painful lessons learnt



Watch out for off-the-shelf solutions



Every company as its own experience which must be harnessed



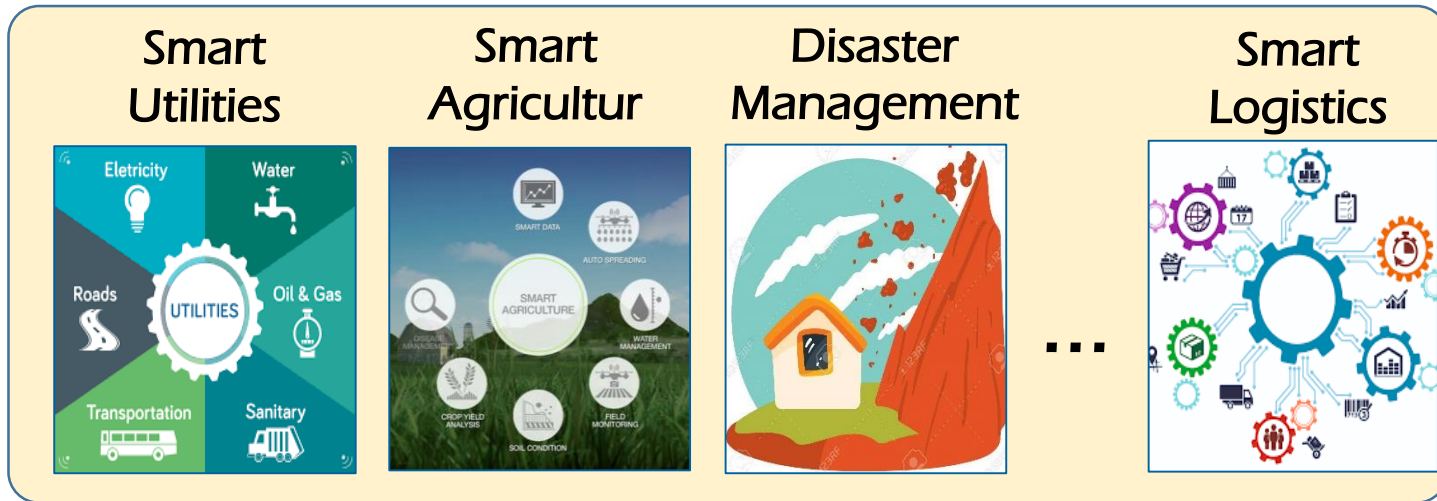
Start small and celebrate each milestone

# IoT: Network-as-a-Service

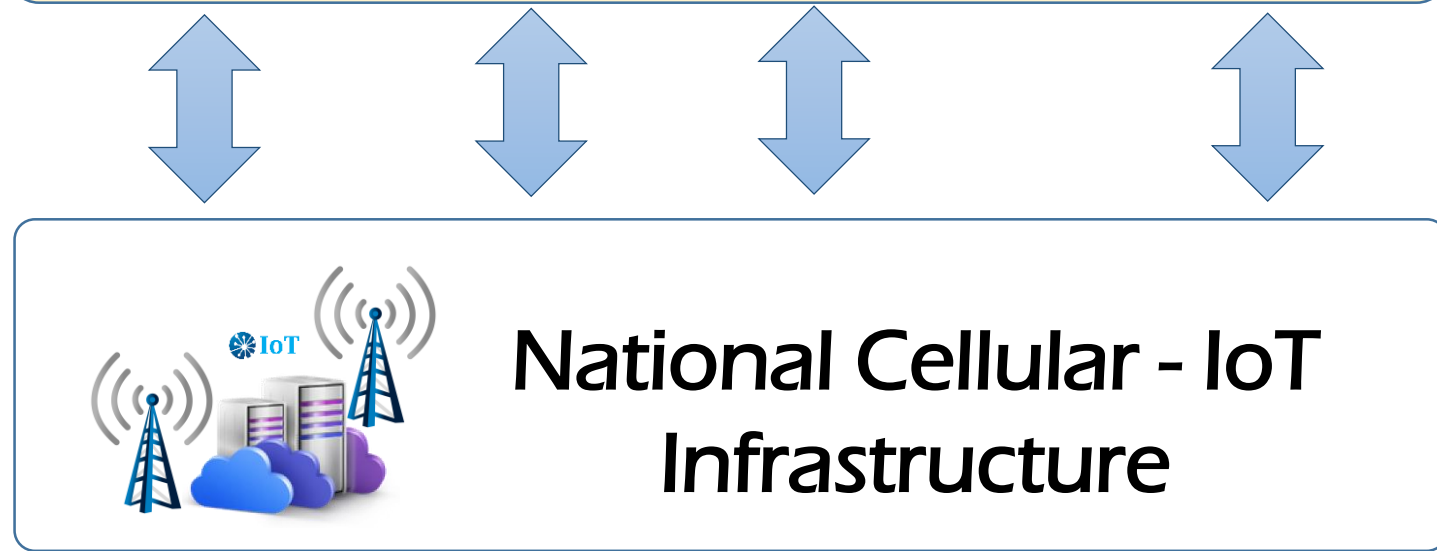
Individual companies



- Devices
- Application



- Communication Network
- Network Operation



**More Focus on Core Business Operations**

# IoT: Techno-economics

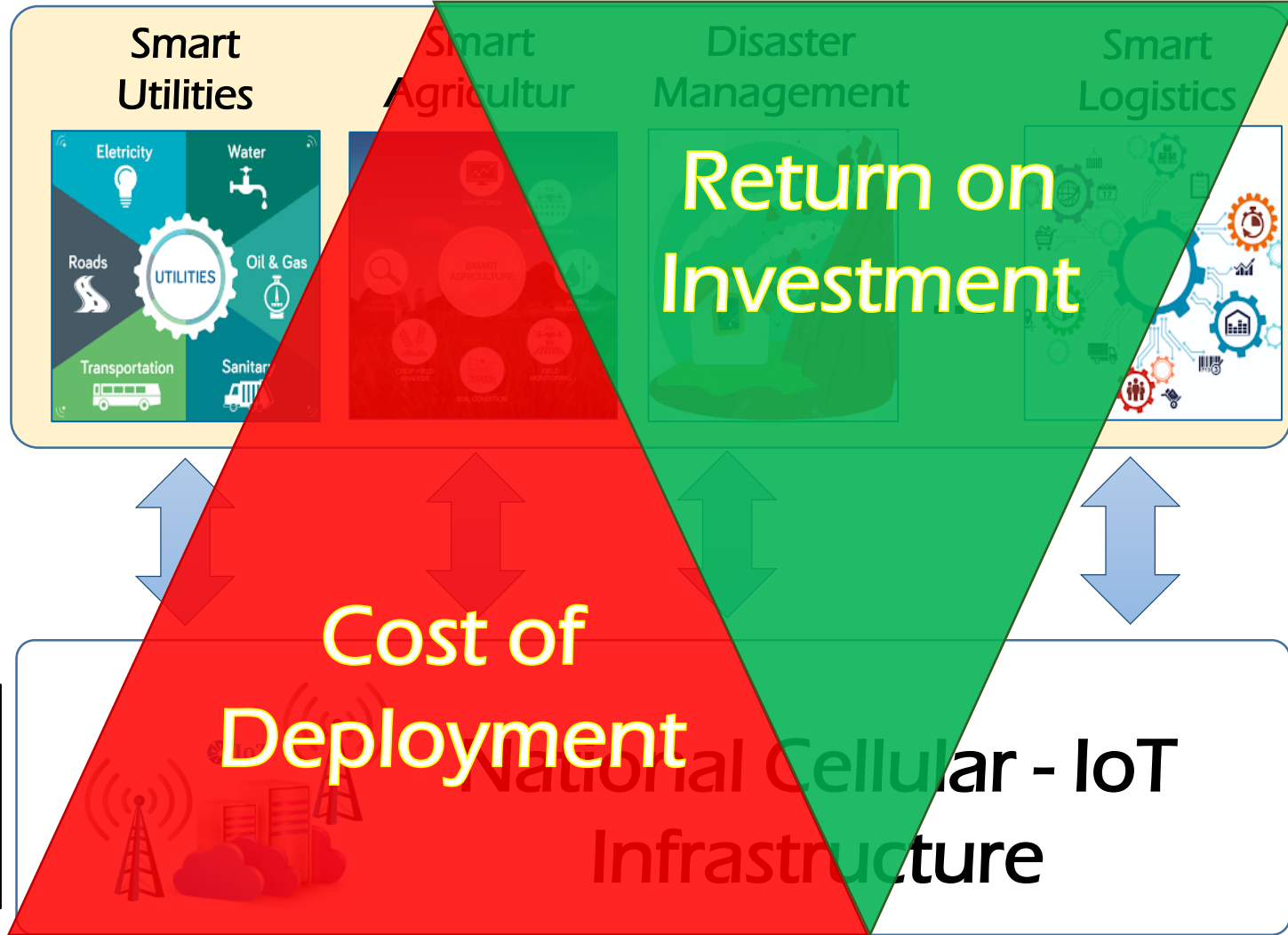
Individual companies



- Devices
- Application



- Communication Network
- Network Operation



# Technology Framework for IoT

HOW?



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Connect



Big Data



Intelligence

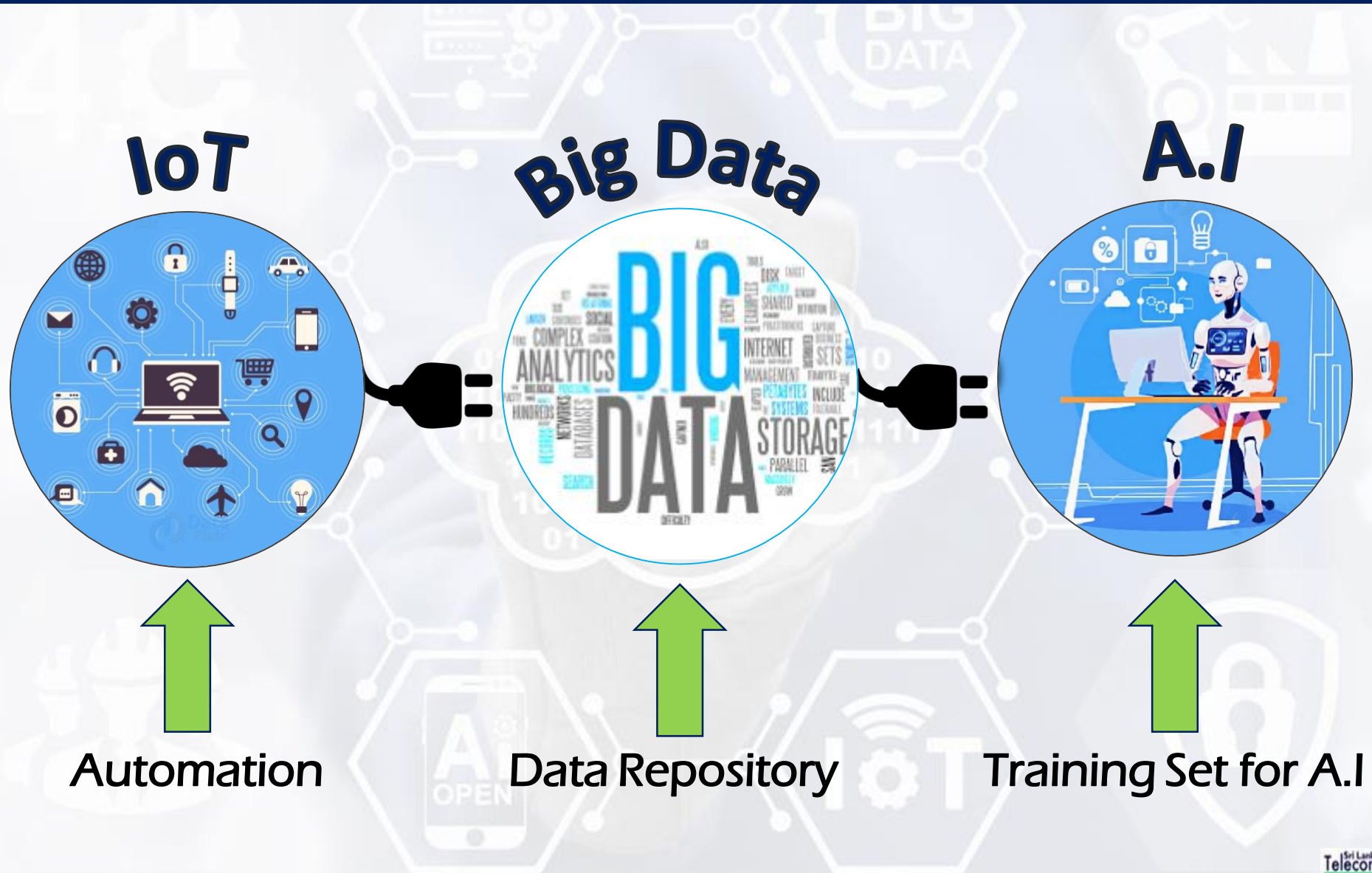


Application

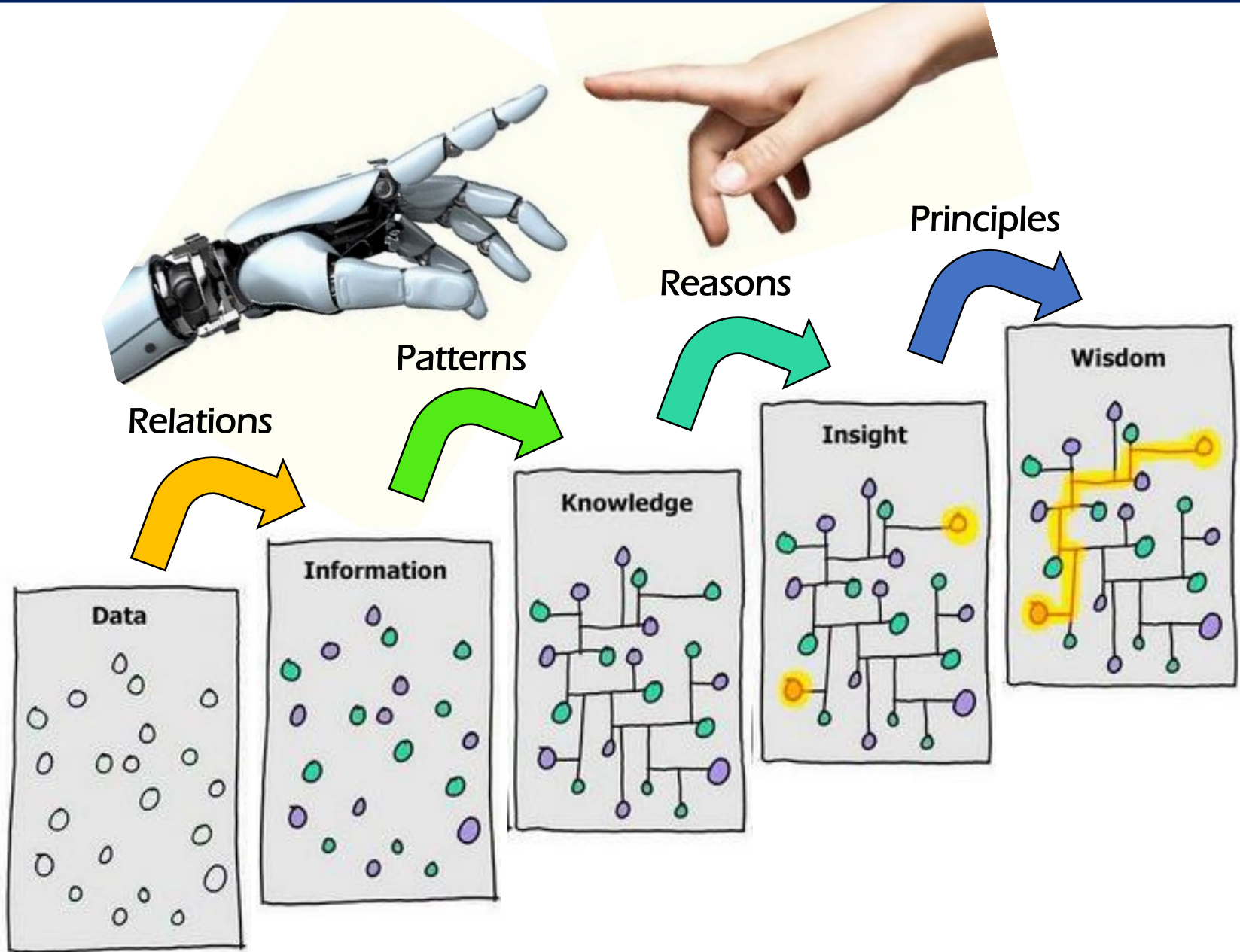




# Achieving Real Power of A.I requires IoT adoption



# A. I. + Human Intelligence

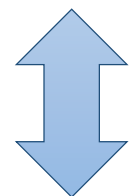
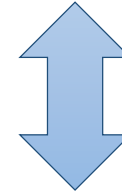
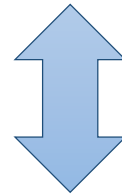
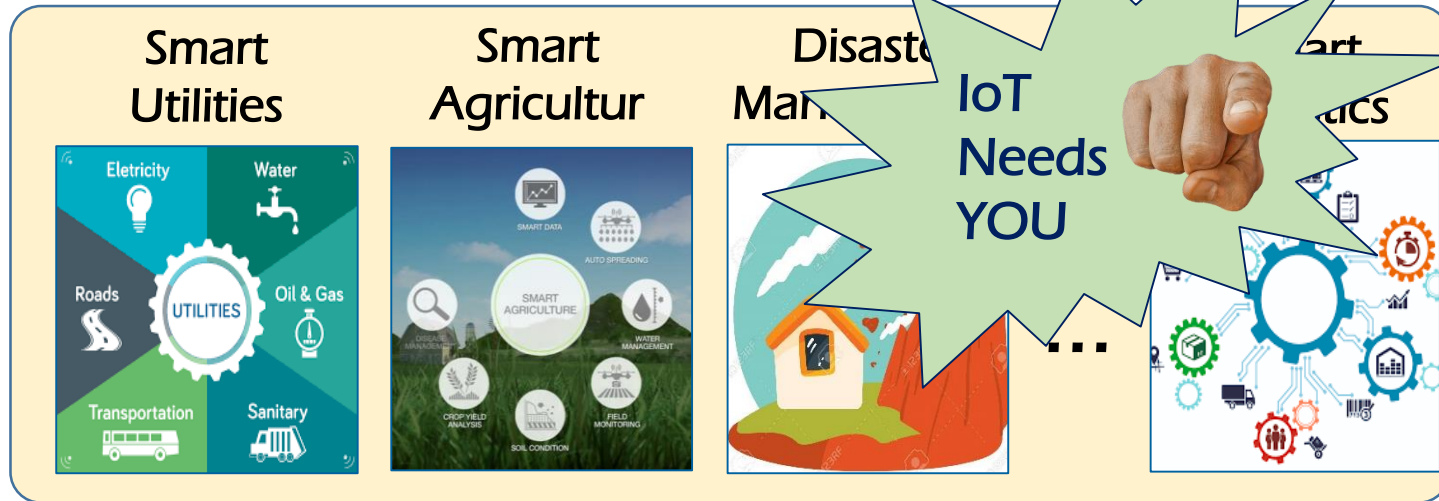


# IoT Ecosystem

Individual companies



- Devices
- Application



- Communication Network
- Network Operation



