

14th International Conference “Regulatory activity in
the electronic communications sector”



INTERNET OF THINGS: CHALLENGES AND OPPORTUNITIES

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THE NETWORKED SOCIETY IS MOVING TOWARDS ITS NEXT STAGE - IOT



Internet for humans, i.e. websites, e-mail, messaging, blogs etc.

Internet of Things – Devices and applications communicating and sharing information

IOT ENHANCES ALL ASPECTS OF SOCIETY



Smart infrastructure



Smart grids

Smart roads

Smart water distribution

Efficient transport



Connected busses

Connected cars

Connected emergency services

24/7/365 monitoring



Air quality measurement

Vibration and structural integrity monitoring

Precipitation tracking

Connected manufacturing



Proactive maintenance

Flow optimization

Remote operation

Healthier nations



Improved diagnostics

Improved homecare

Accelerated recovery

Home automation



Smart security

Remote climate control

Utilities consumption optimization

IOT CREATES VALUE IN FOUR KEY AREAS



Operational efficiency

will increase by automating manual processes.

New business models

will emerge when turning from a product to a service company.

Consumer experiences

IoT will enable new ways to reach end customers
Consumers will benefit from new service experiences.

Sustainability

A smarter, more connected world, will allow for sustainable business practices, leading to a better world.



CONNECTED DEVICES IN 2021

28 BILLION

7.1 BILLION IN 2015

8,7 BILLION
MOBILE PHONES

3.7 BILLION IN 2015

4,2 BILLION
PC/TABLET/LAPTOOP/FIXED PHONES

4.6 BILLION IN 2015

15,3 BILLION
M2M/IOT DEVICES



Source: Ericsson Mobility Report
November 2015



Machine to Machine

A *device...*
that captures an *event...*
transmits it over a
network...
to an *application ...*
that translate it into
meaningful information



Internet of Things

Bringing together the
**people, process, data
& things** to make
networked connections
more relevant **turning
information to actions**

IOT – TRANSFORMING INDUSTRIES AND SOCIETIES



15
BILLION

IOT CONNECTED
DEVICES IN 2021

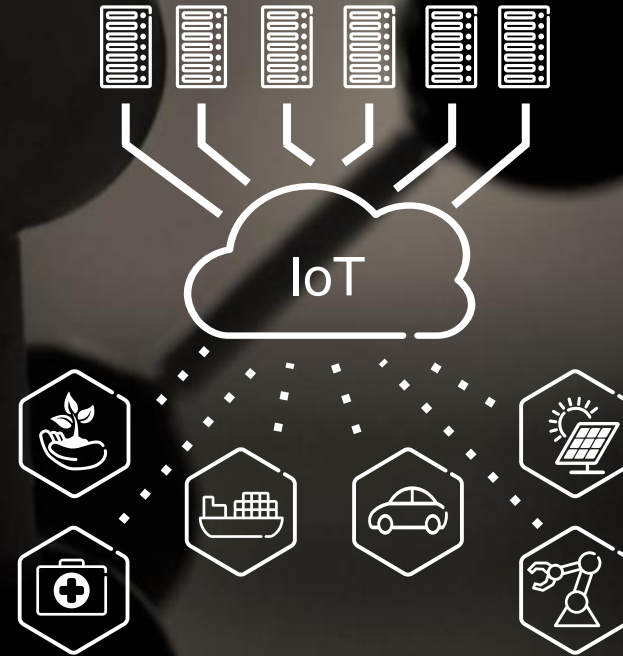


CONNECTIVITY

NEW DEMANDS FROM IOT



Consumer IoT devices
(Cellular and non-Cellular)



Industries IoT devices
(Cellular and non-Cellular)

KEY IOT REQUIREMENTS



MASSIVE NUMBER OF CONNECTIONS



DIVERSE USE CASE REQUIREMENTS

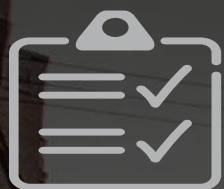


COST, BATTERY LIFE AND COVERAGE



TECHNOLOGY LANDSCAPE

3GPP RELEASE 13



COVERAGE
+20DB

BATTERY

DEVICE COMPLEXIT

NO HARDWARE OR CO-EX
GSM
WCDMA
LTE

SUPPORT MASSIVE NUMBER OF DEVICES

ENHANCE SECURITY

SELECT CORE NETWORK INTERFACE

SPECTRUM

EC-GSM



Further optimization of GPRS devices
Lower Memory, etc

RBS 2000/6000
MM Mode

Multiplexed with GSM Traffic
50K+ Devices/Cell

Integrity protection

Gb Already awesome!
Optimized for IOT traffic profiles

System: <1MHz – 1.8MHz
Channel: 200KHz

LTE M



Evolution Beyond Cat 1/0

RBS 6000
MM Mode

Multiplexed High Capacity



S1

1.4MHz

LTE LITE



Evolution Beyond Cat M

RBS 6000

Standalone High Capacity



S1
Optimizations Pending

200KHz
In-Band & Standalone

NB-IOT



Low

Standalone New Rollout

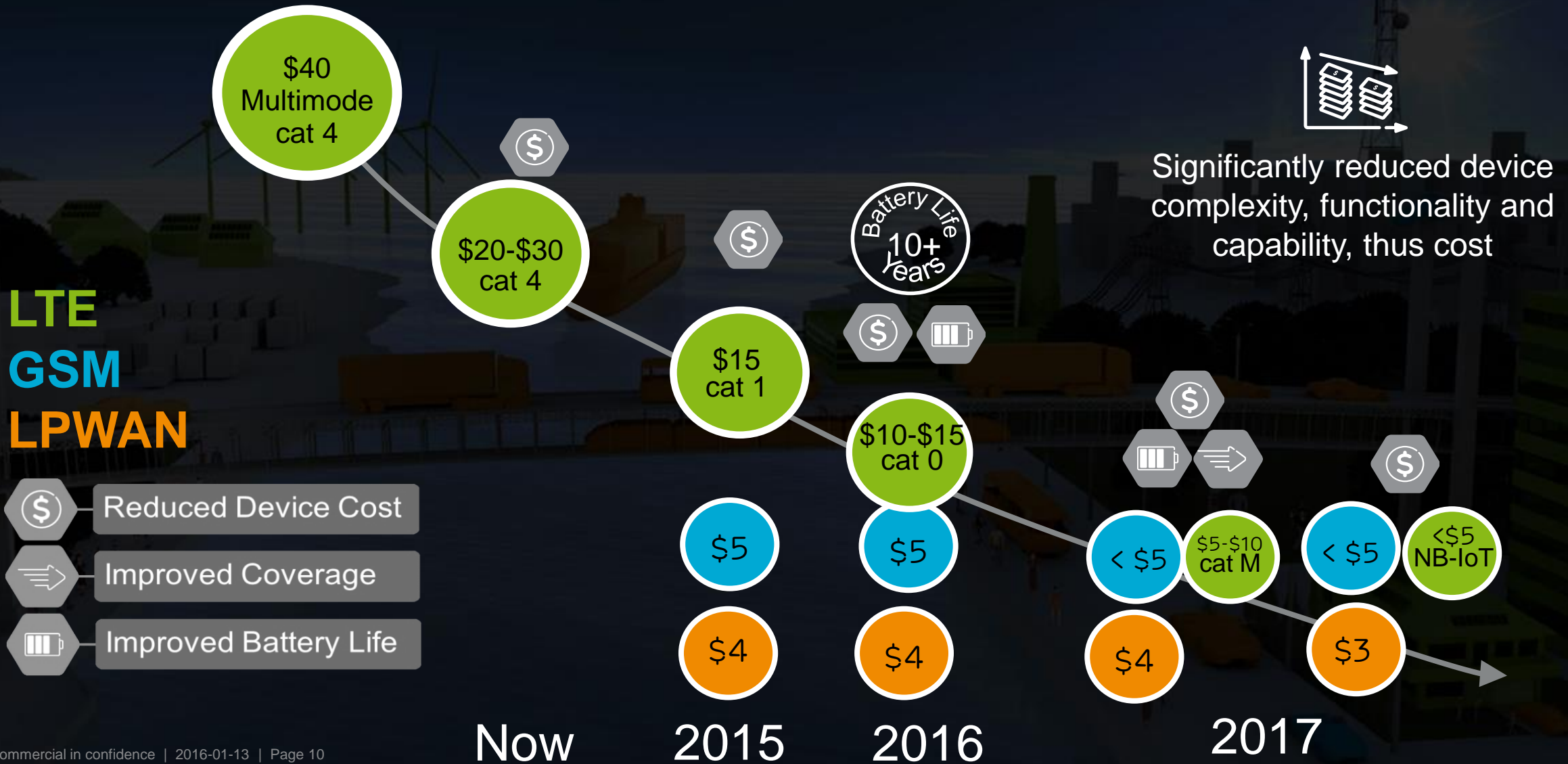
High Capacity

Ongoing Leverage GSM work

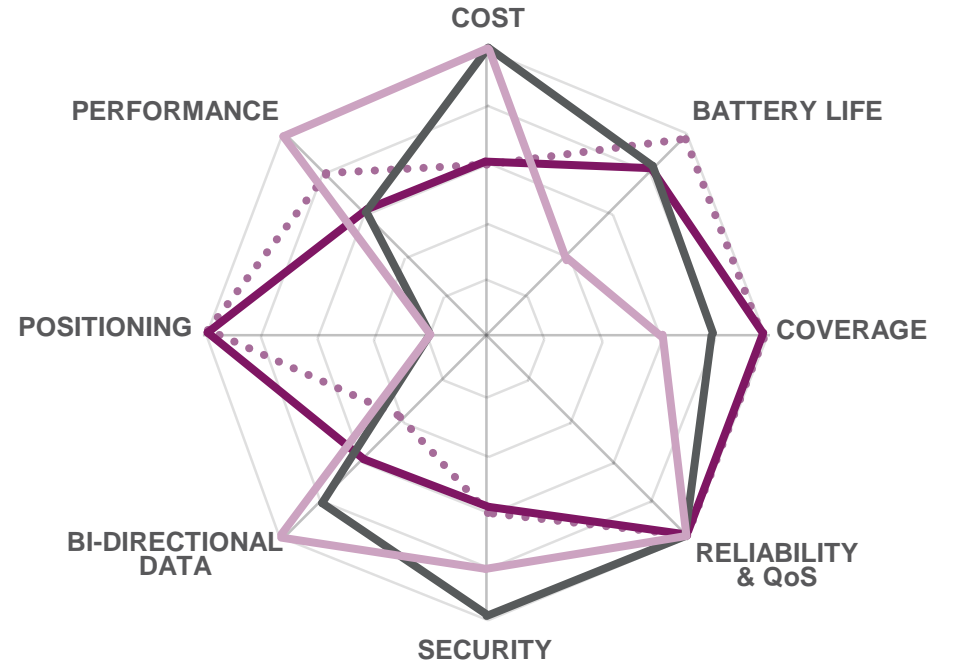
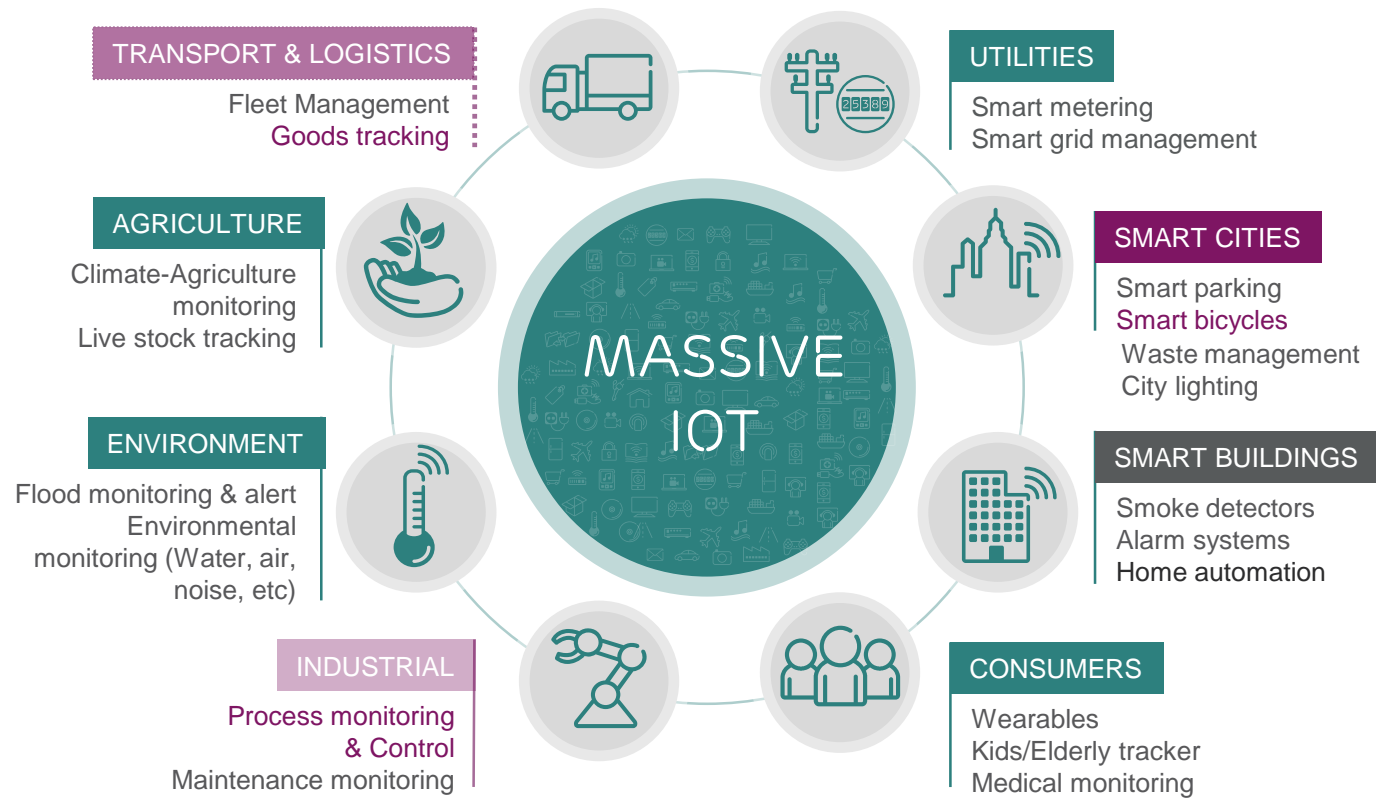
UnDecided

200KHz Standalone

3GPP COVERS ALL THE NEEDS

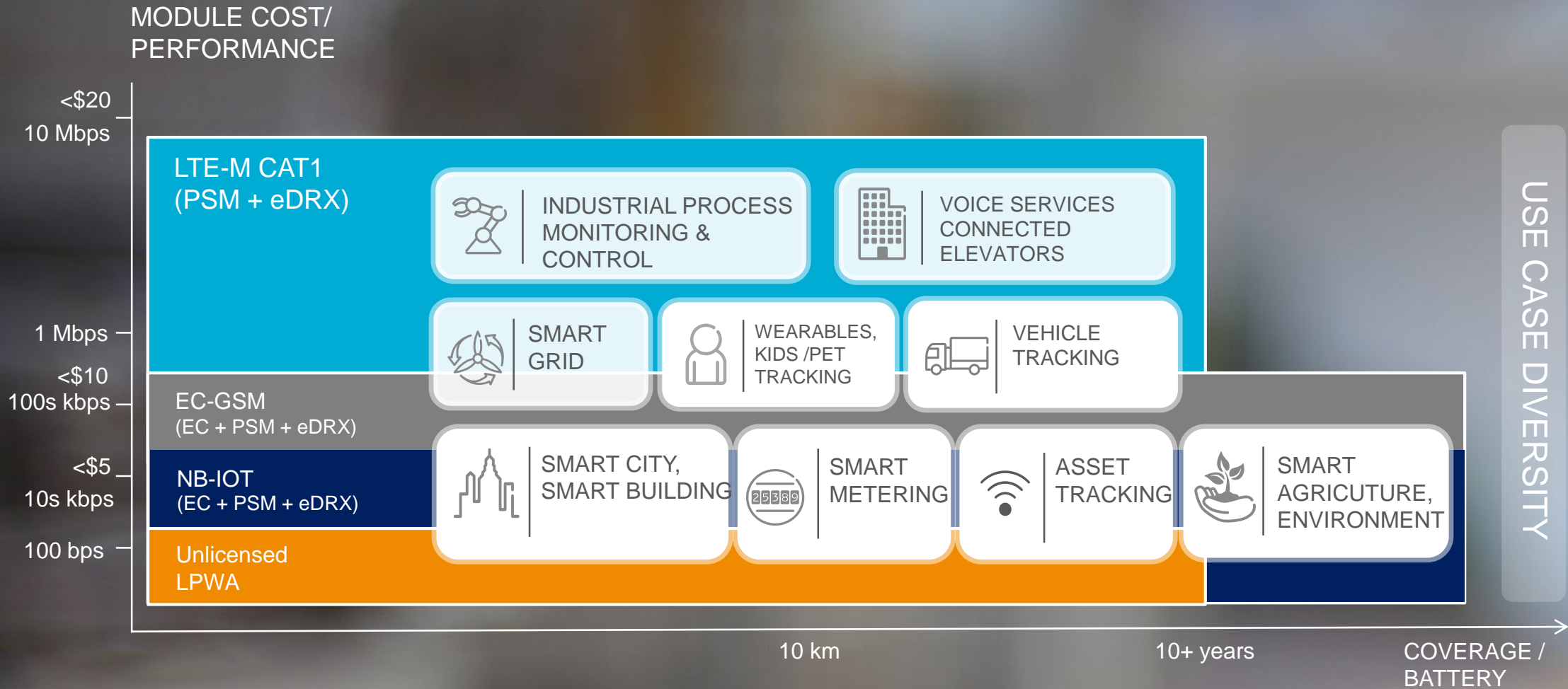


USE CASE DIVERSITY



- TRANSPORT & LOGISTICS: Goods tracking
- SMART CITIES: Smart bicycles
- INDUSTRIAL: Process monitoring & Control
- SMART BUILDINGS: Home automation

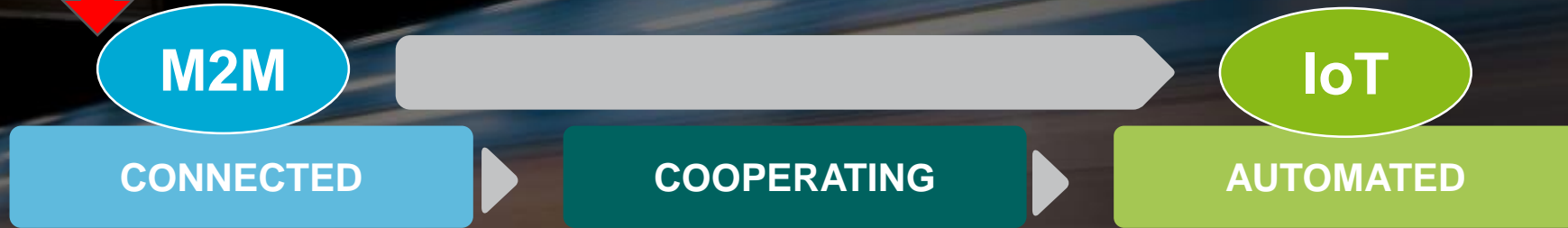
CELLULAR LPWA SERVES MUCH MORE



OPERATOR TRANSFORMATION STARTS NOW



Most Telcos are still here



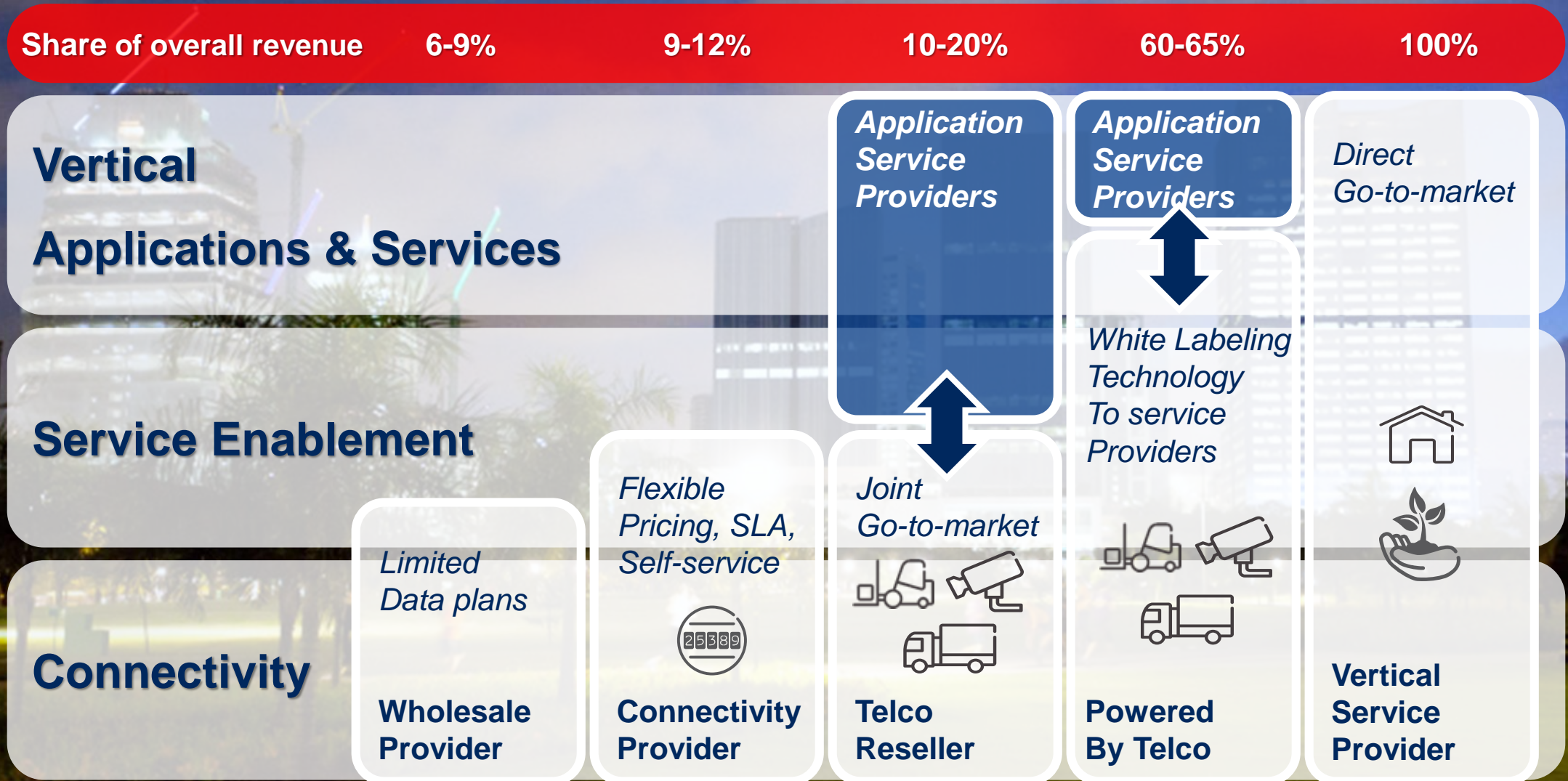
Eco-systems
Business Models
Business Processes

Where are you today?

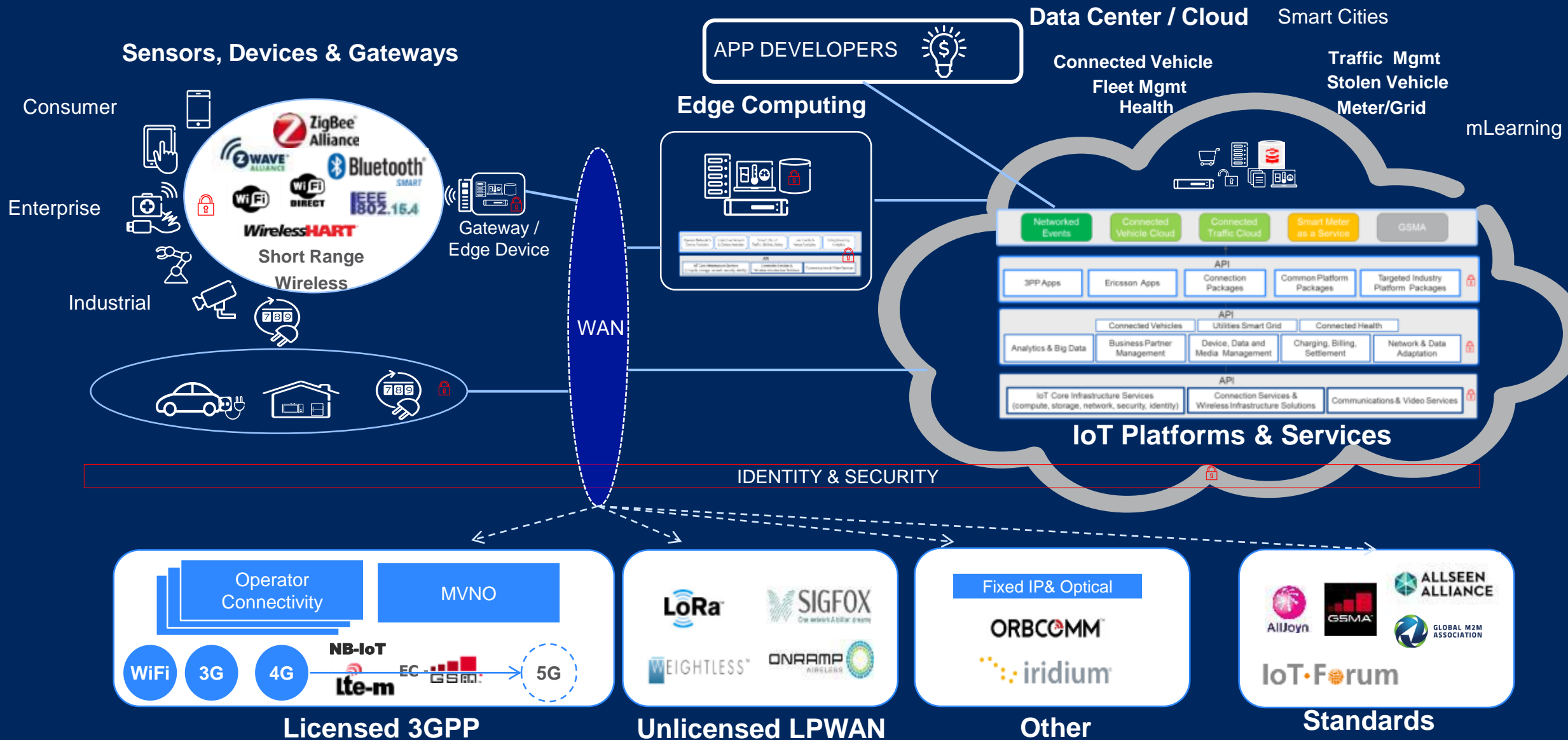
When Mass IoT becomes reality



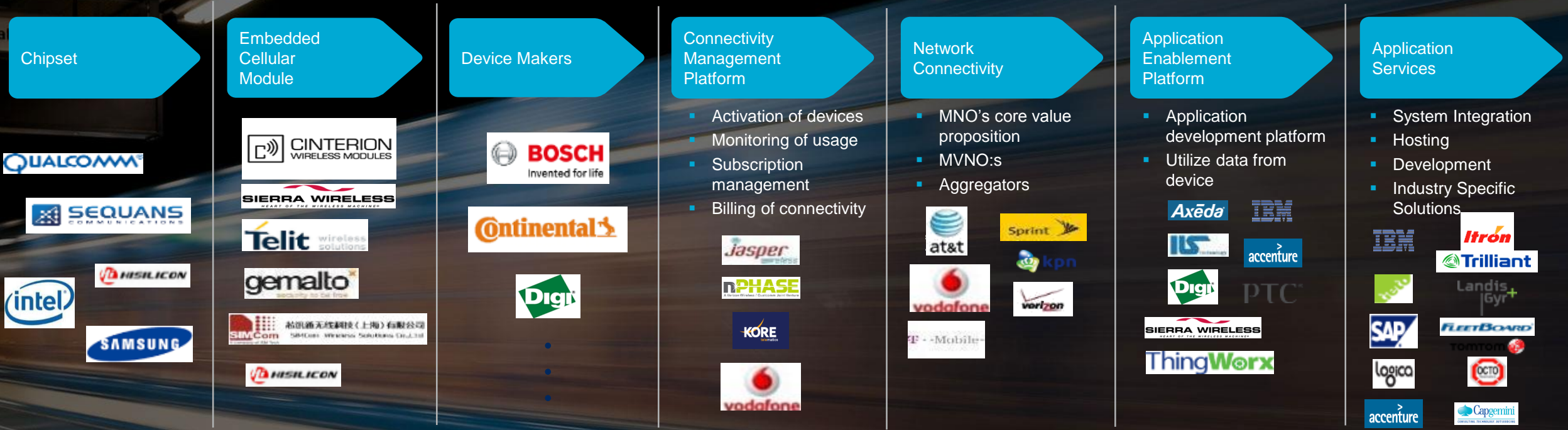
WHERE IS THE MONEY FOR TELCOS?



COMPLEX IoT LANDSCAPE



IOT VALUE CHAIN



Partnerships

- Device Connectivity Platform
- 3GPP connectivity
- Core networks
- OSS/BSS
- Service Delivery Platform
- System integration services

CHALLENGES IN IOT



MAIN REGULATORY ISSUES



- **Main regulatory issues**

- Regulatory framework
- Scarce resources (spectrum & numbers)
- Competition issues: vertical integration & lock-in
- International roaming
- Applicability of consumer protection tools (portability)
- Privacy & security of the networks



ERICSSON