

# Future-Proofing Cellular IoT: eRedCap's Role in the 5G Technology Evolution | 面向未来的蜂窝物联网:eRedCap在 5G 技术演进中的作用

**伊戈尔·托夫贝里**

产品营销和战略合作伙伴总监

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# Future-Proofing Cellular IoT: eRedCap's Role in the 5G Technology Evolution

June 26 , 2026

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Director, Product Marketing and Strategic Partnerships





**1,000,000,000**

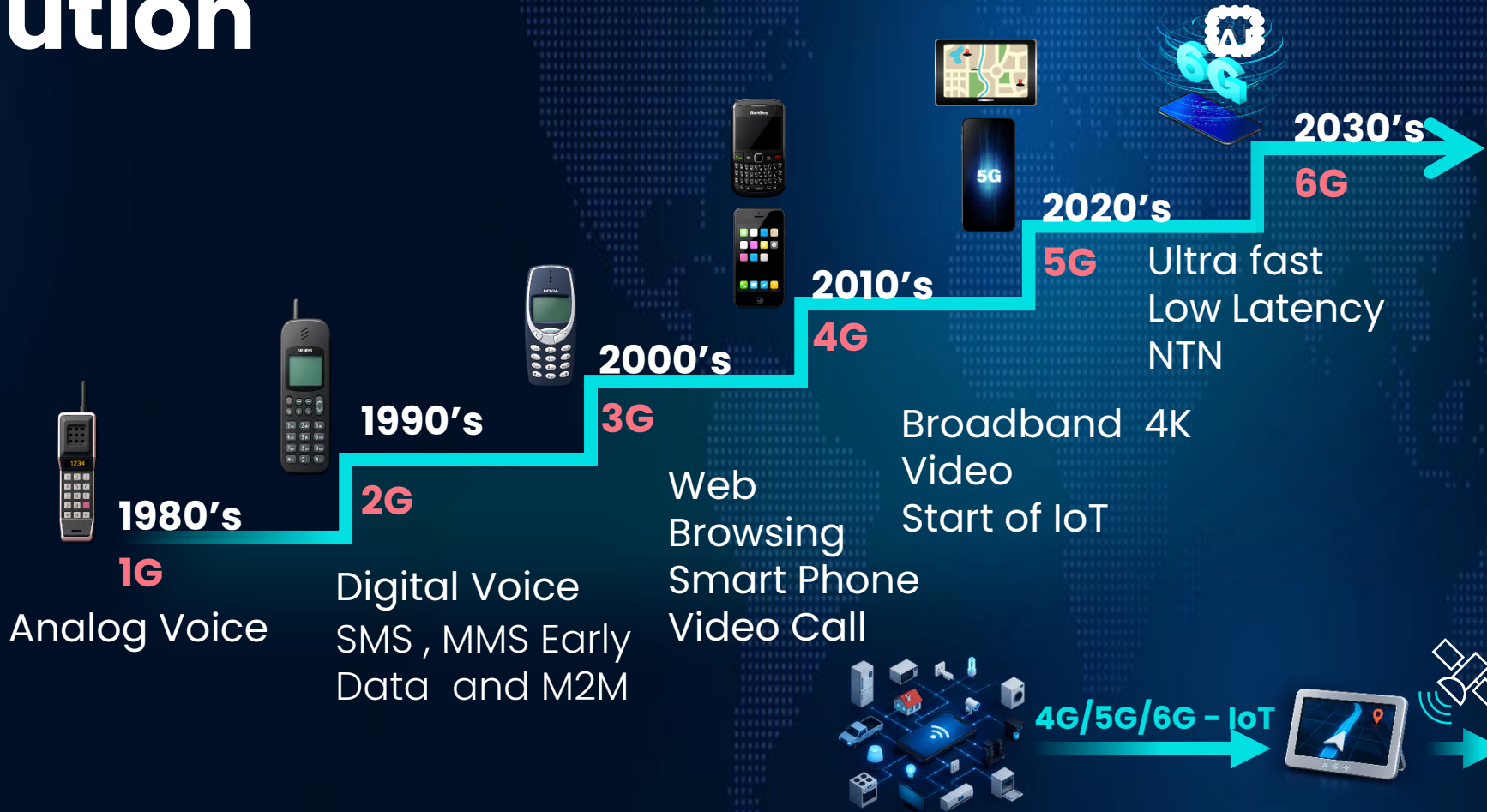
Cellular IoT Devices Globally

# Cellular Technology Evolution

Powering the AI transformation with low-power connectivity for the physical world



# Cellular Technology Evolution

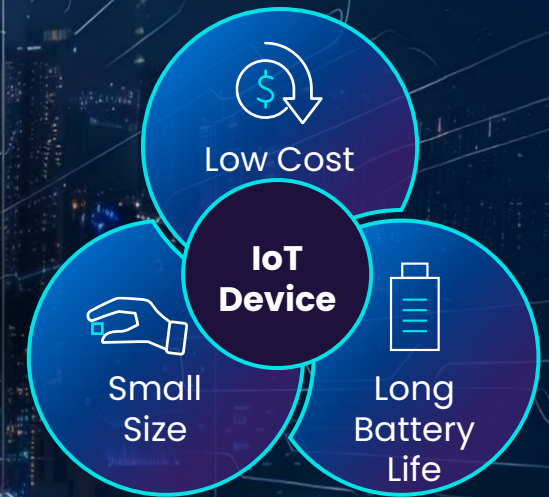


# Longevity and Large-scale deployment of Cellular IoT

What had to happen to reach large scale IoT deployment?

## ECOSYSTEM

- ✓ **Infrastructure**  
eNB vendors
- ✓ **Roaming Agreements**  
MNO/MVNO
- ✓ **Global Coverage**  
Spectrum/Regulation
- ✓ **Devices:**  
Chipset → Module → Product





**Igor Tovberg**

Director, Product  
Marketing and Strategic  
Partnerships



- Altair is a leading provider of Cellular IoT chipsets since 2005
- Focus on Ultra-low-power and ultra-small chipset solutions for 5G IoT
- More than 100 Millions of Altair chipsets connecting cellular IoT devices around the world.



Appointed as the Chair of the GSMA 5G IoT Strategy Group - Effective Apr 1st, 2026

## Leading The IoT Innovation

Gas



Wa



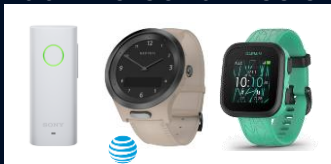
Electricit



Heat



Kid/Adult Personal Assistants



Sport Wearables



BPM



Glucose



CPAP



Autoinjector



Pet tracker



Disposable parcel tracker



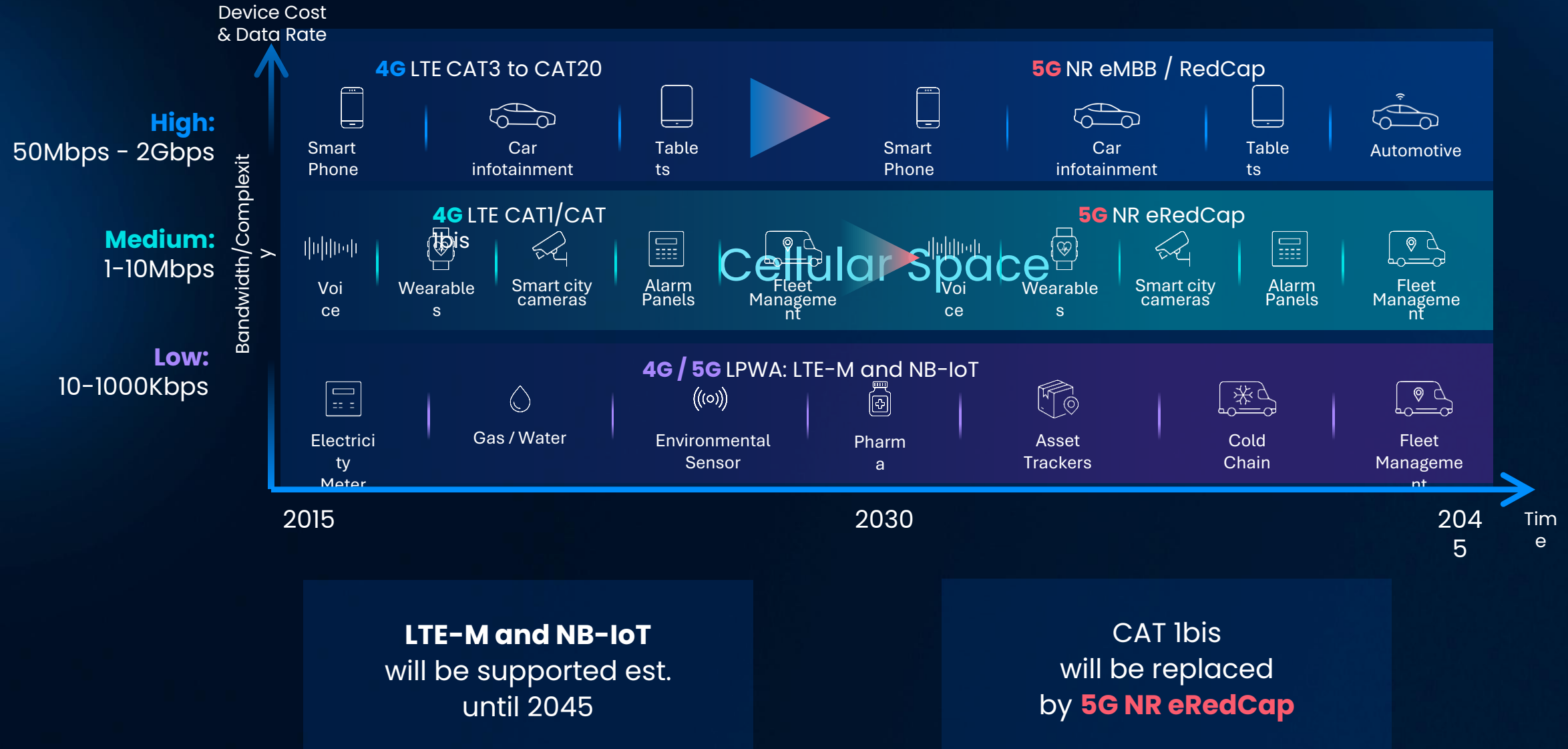
Livestock NTN



Vehicle Telematics



# Cellular Technologies Direction and Timeline



# Technology Selection Guidelines

| Use case               | <br>Smart meters<br> Trackers | <br>mHealth<br> Wearable | <br>Smart Agriculture<br> Smart City |  Sensors | <br>Surveillance Camera<br> Sensors Gateway | <br>Alarm panel<br> Vehicle telematics | <br>Voice<br> Trackers | <br>AI Chat Bot<br> Wearable | <br>Gateway<br> AR/VR | <br>High Resolution Camera<br> Mi Fi |
|------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Data Rate (up to)      | 159 Kbps                                                                                                                                                                                        |                                                                                                                                                                                            | 1 Mbps                                                                                                                                                                                                     |                                                                                             | 10 Mbps                                                                                                                                                                                                           |                                                                                                                                                                                                              | 10 Mbps                                                                                                                                                                                      |                                                                                                                                                                                                    | 220Mbps                                                                                                                                                                                     |                                                                                                                                                                                                            |
| Battery life           |                                                                                                                                                                                                 | Long                                                                                                                                                                                       |                                                                                                                                                                                                            |                                                                                             | Medium                                                                                                                                                                                                            |                                                                                                                                                                                                              | Medium                                                                                                                                                                                       |                                                                                                                                                                                                    | Short                                                                                                                                                                                       |                                                                                                                                                                                                            |
| Module price           |                                                                                                                                                                                                 | Low                                                                                                                                                                                        |                                                                                                                                                                                                            |                                                                                             | Mid                                                                                                                                                                                                               |                                                                                                                                                                                                              | Mid                                                                                                                                                                                          |                                                                                                                                                                                                    | High                                                                                                                                                                                        |                                                                                                                                                                                                            |
| Selection              |                                                                                                                                                                                                 |                                                                                                                                                                                            |                                                                                                                                                                                                            |                                                                                             |                                                                                                                                                                                                                   |                                                                                                                                                                                                              |                                                                                                                                                                                              |                                                                                                                                                                                                    |                                                                                                                                                                                             |                                                                                                                                                                                                            |
| Technology             | NB-IoT and LTE-M                                                                                                                                                                                |                                                                                                                                                                                            |                                                                                                                                                                                                            |                                                                                             | CAT 1, CAT 1bis                                                                                                                                                                                                   |                                                                                                                                                                                                              | eRedCap                                                                                                                                                                                      |                                                                                                                                                                                                    | RedCap                                                                                                                                                                                      |                                                                                                                                                                                                            |
| Mass Market adoption   | 2020                                                                                                                                                                                            |                                                                                                                                                                                            |                                                                                                                                                                                                            |                                                                                             | 2016                                                                                                                                                                                                              |                                                                                                                                                                                                              | 2028                                                                                                                                                                                         |                                                                                                                                                                                                    | 2026                                                                                                                                                                                        |                                                                                                                                                                                                            |
| Longevity              | Towards 2045                                                                                                                                                                                    |                                                                                                                                                                                            |                                                                                                                                                                                                            |                                                                                             | By 4G Sunset est. 2035                                                                                                                                                                                            |                                                                                                                                                                                                              | Towards 2045                                                                                                                                                                                 |                                                                                                                                                                                                    | Towards 2045                                                                                                                                                                                |                                                                                                                                                                                                            |
| Preferred UL/DL Duplex | HD-FDD                                                                                                                                                                                          |                                                                                                                                                                                            |                                                                                                                                                                                                            |                                                                                             | FD-FDD/TDD                                                                                                                                                                                                        |                                                                                                                                                                                                              | HD-FDD                                                                                                                                                                                       |                                                                                                                                                                                                    | FDD/TDD                                                                                                                                                                                     |                                                                                                                                                                                                            |

**LTE-M and NB-IoT will reside**

Beside eRedCap

Complimenting each other

With **HD-FDD** technology

# Why HD-FDD?

## Technology

## Architecture

## Physical Design

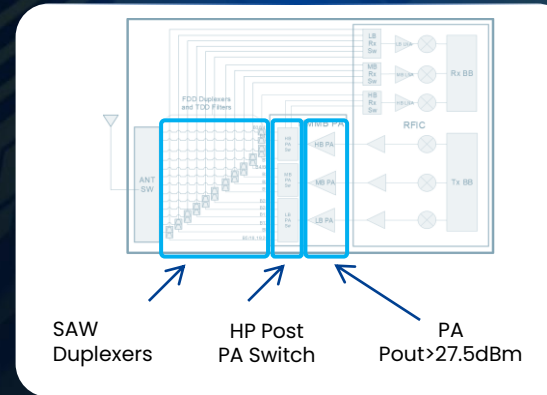
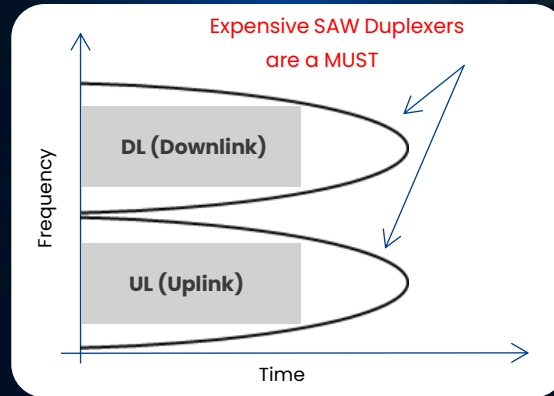
### Technology

### Architecture

### Physical Design

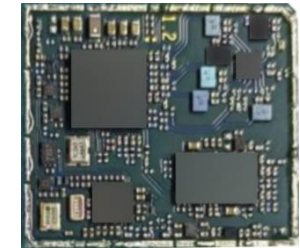
## FD-FDD

Full duplex Frequency Division Duplexing



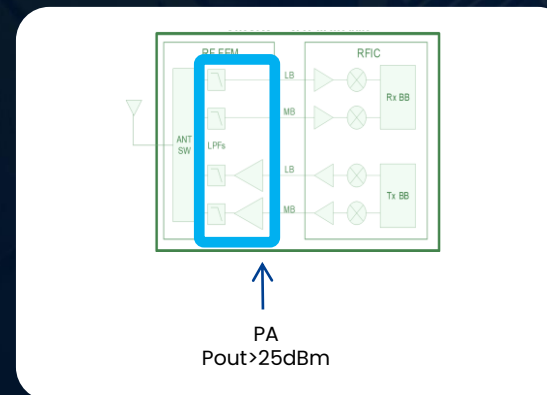
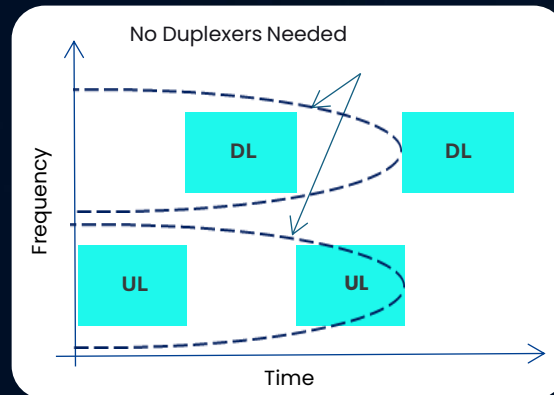
### Regional SKU - CAT 1bis

B2, B4, B5, B12, B13, B14, B66, B71



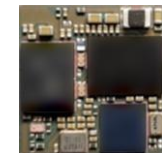
## HD-FDD

Half Duplex Frequency Division Duplexing



### Global SKU

Simpler, Smaller, Lower cost



# eRedCap: Backward Compatibility and Future proofing



## LTE-M (HD-FDD)

- Up to 1Mbps data rate
- Single SKU for global operation
- Low HW cost (HD-FDD)
- Deep indoor coverage advantage (CE)



## CAT 1bis (FDD)

- Higher throughput – up to 10Mbps  
Network availability – global mobility  
Cost vs Mobility:
- Costly Global SKU covering all bands
  - Lower cost but limited by regional SKUs

# Summary

✓ **4G** will start sunseting from 2030

✓ **CAT1/CAT 1bis** will be replaced by 5G eRedCap

✓ **LTE-M/NB-IoT** will be operated throughout 5G era, by 2045's

✓ **HD-FDD** scheme is the preferred technology from **2G to 6G IoT**:

- Global module by OneSKU design
- Dramatically lower cost
- Smaller size
- Lower power consumption and heat dissipation
- Higher sensitivity enriching coverage and performance

## Join the industry revolution

Embracing the Future of IoT Connectivity with eRedCap, LTE-M and NB-IoT



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