



Objective

- Construct a robust ecosystem of TD-LTE
- Speed up the commercialization of TD-LTE
- Promote the converged development of LTE TDD and FDD



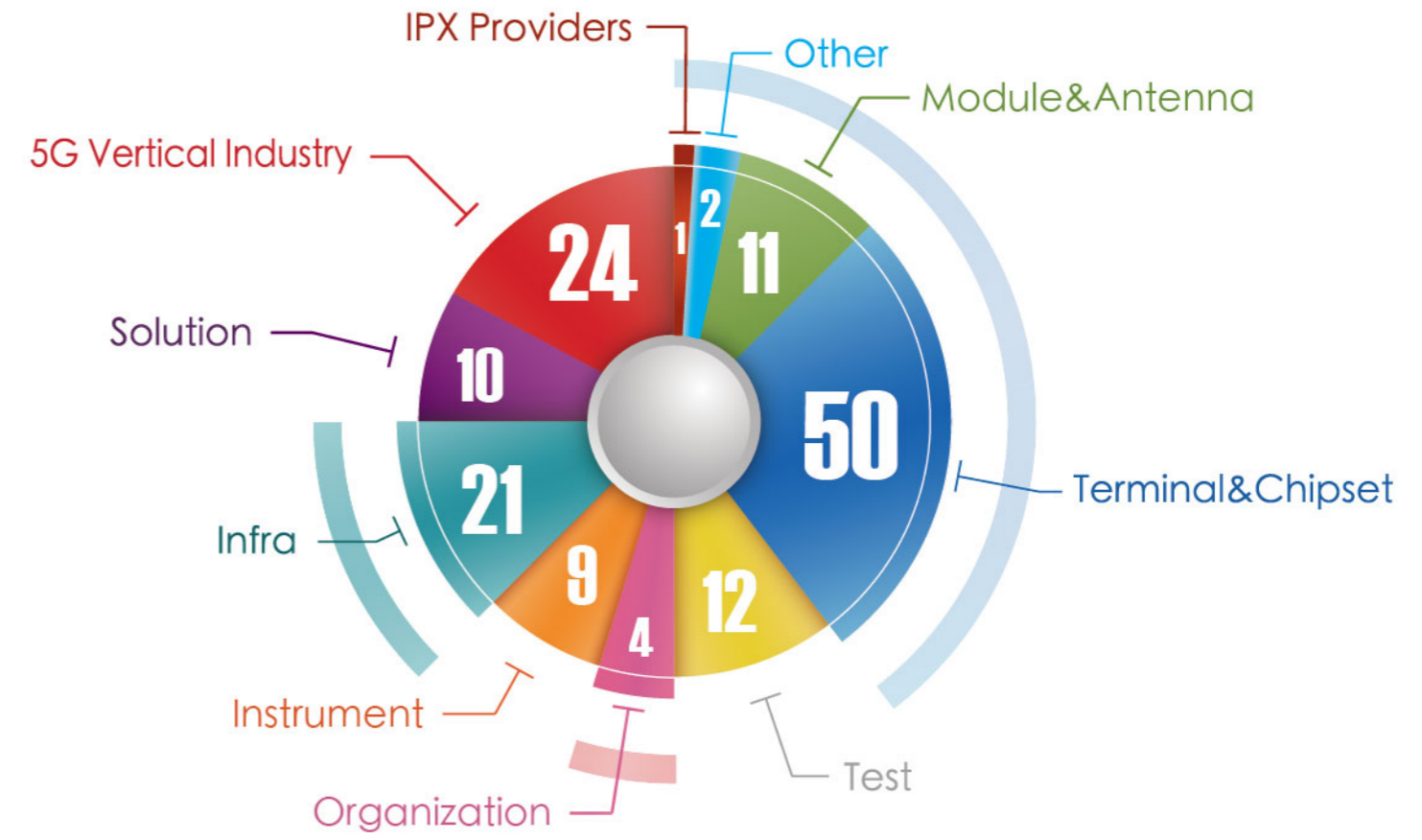
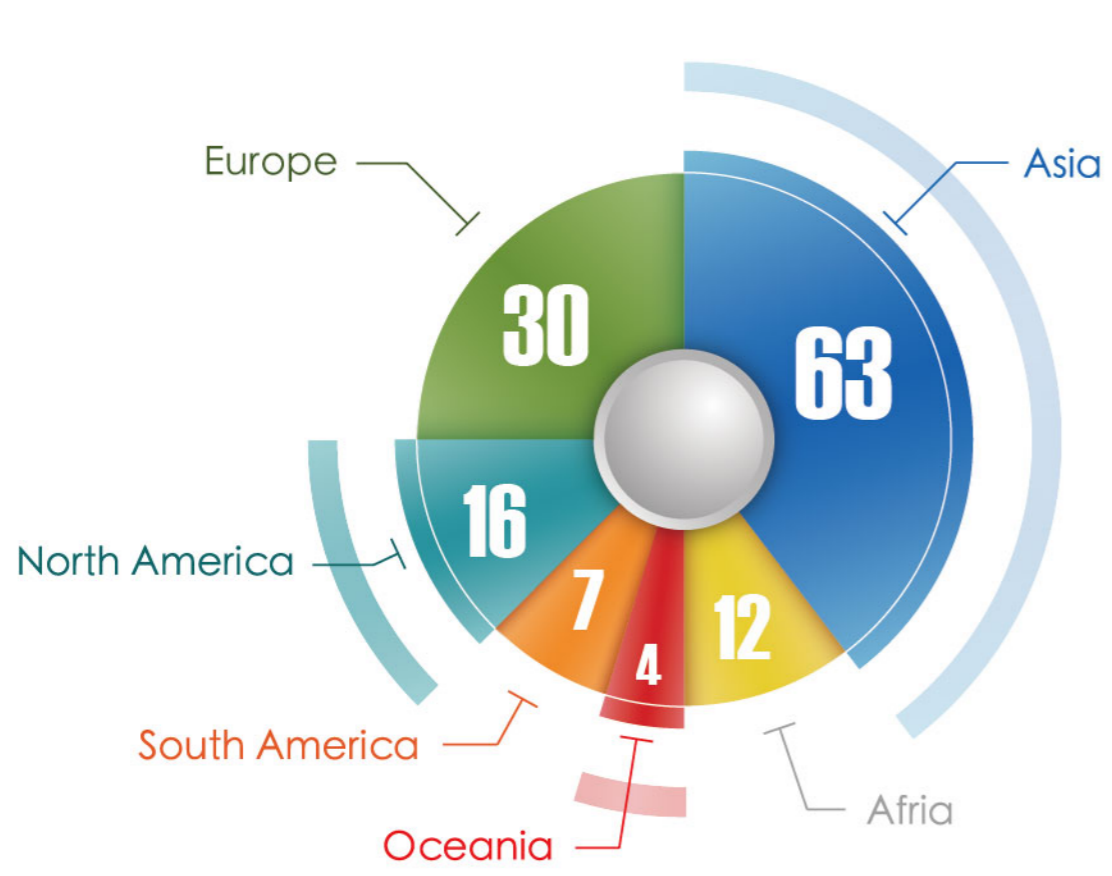
Objective

- Further promote TD-LTE evolution and expand global market
- Promote 5G development and cross-industry innovation

GTI Has Become One of The Most Important Platforms for Industrial Collaboration

132 operators have joined GTI

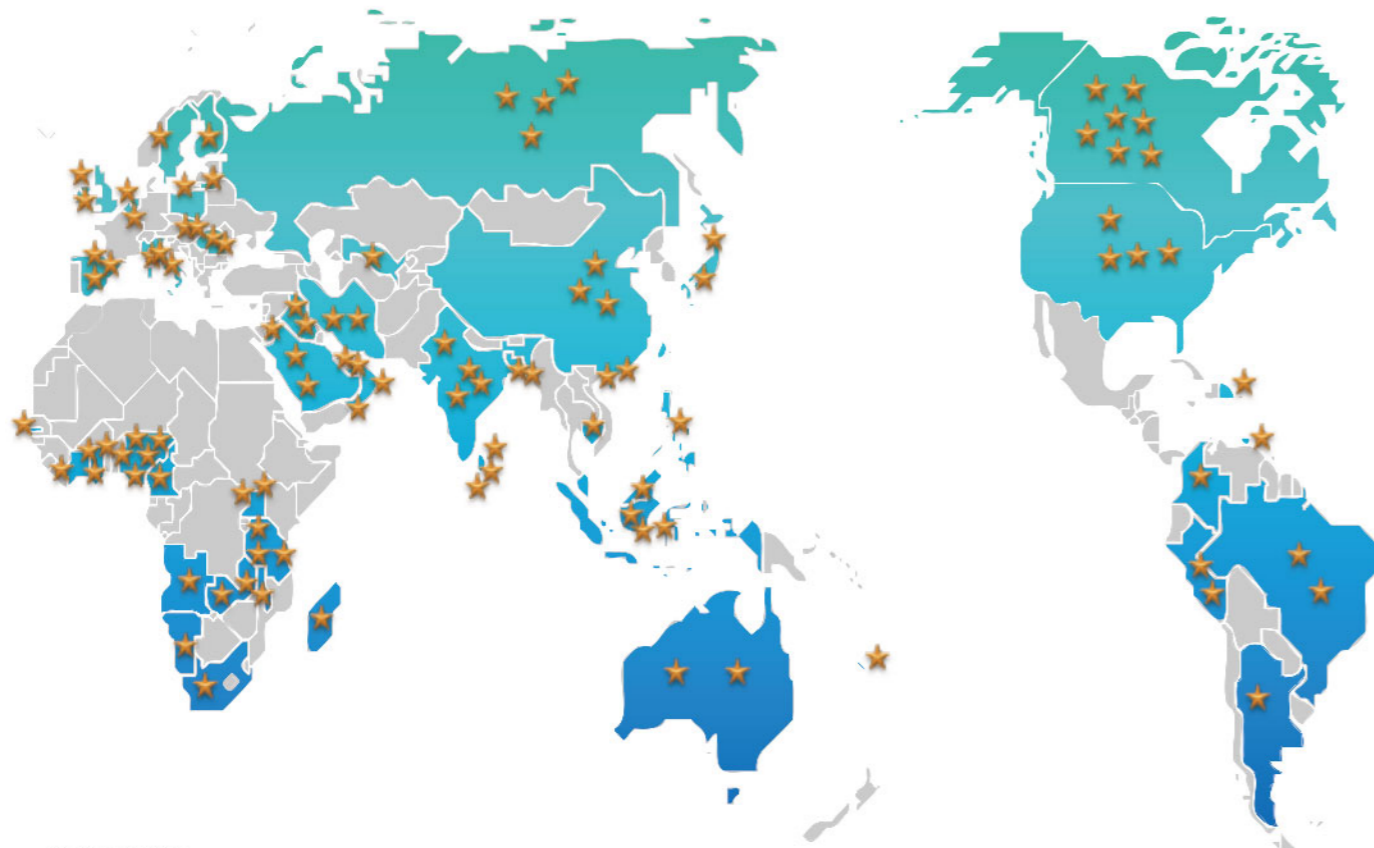
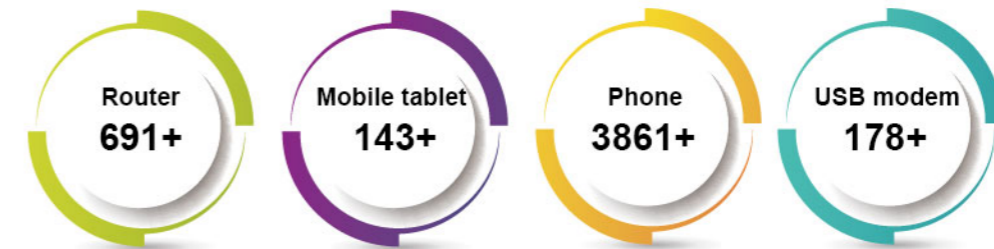
144 vendors have joined GTI Partner Forum



Successful Global Commercialization of TD-LTE

- **101** TD-LTE commercial networks in **53** countries, and **91** TD-LTE commercial networks in progress
- **35** converged TDD/FDD networks
- **2.32 million** TD-LTE base stations
- **1 billion** TD-LTE subscribers
- **4966** TD-LTE terminals, **59.3%** supporting TDD/FDD

E2E TD-LTE industry is getting mature, especially in terminal and chipset aspects, could meet the demand of large-scale commercial deployment.

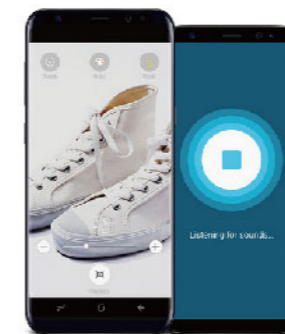


High-end market

Low-end market



iPhone 7



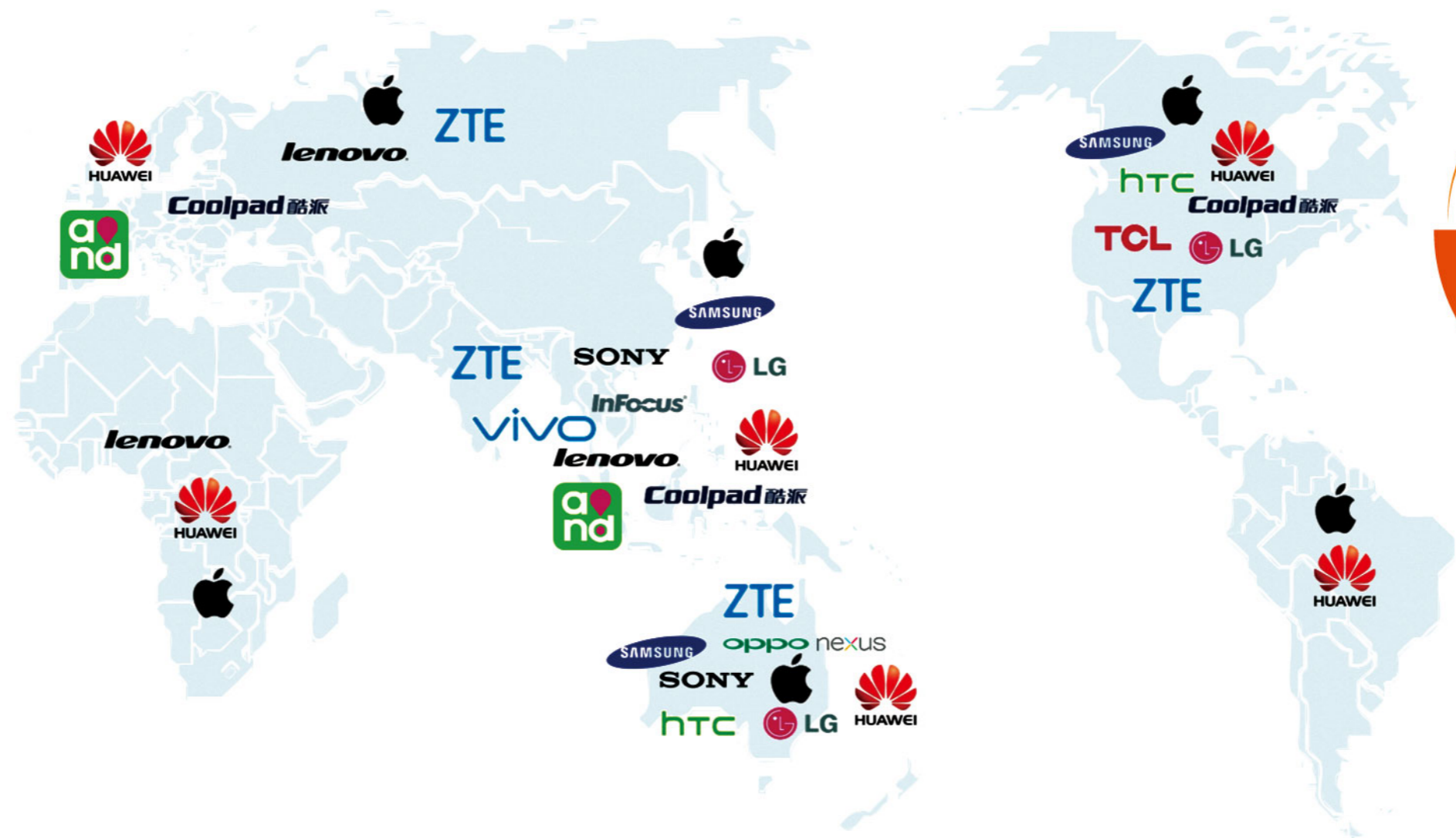
Samsung S8



Source: GTI
By Q1, 2017

Source: GTI, GSA, TDIA
By Q1, 2017

Converged LTE TDD/FDD Commercialization Has Been Achieved Globally



Main stream terminal vendors have launched LTE TDD/FDD smart phones.

Breakthroughs and Accomplishments

Promoted Global TDD Spectrum Allocation



India Release 2.6GHz/ 2.3GHz license

After China, Japan and the United States, India has become the fourth biggest country where 190MHz spectrum at 2.6GHz band was all allocated as TDD (Band 41)



Norway

Release 3.7GHz license



Spain

Release 2.6GHz/
3.7GHz license



Hungary

Release 3.7GHz license



Iran

Release 2.3GHz/
2.6GHz license



Russia

Release 2.6GHz license



Thailand

Release 2.3GHz license

Released Future Spectrum Initiative



A guidance to achieve global harmonization of future spectrum usage by comprehensive introduction to the status of global 5G spectrum and concrete recommendations.

Recommendations

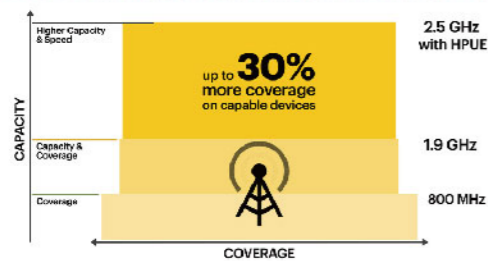
- » Coordination of low frequency band and high frequency band shall be considered for both network planning and solution design
- » C band frequency range due to the already started ecosystem development and availability of contiguous bandwidth is the future golden frequency band
- » As for mmWave, 24.25-27.5GHz and 37-43.5GHz are highly recommended to be harmonized around the world
- » To enable frequency flexibility, the network infrastructures are expected to be reused by software upgrade from LTE to 5G

※ To get the full version of Future Spectrum Initiative,
- please view on the GTI website <http://gtigroup.org/Resources/rep/>
- or scan the QR code on the cover to download GTI APP to view

Breakthroughs and Accomplishments

Promoted Commercialization of High Power UE

In 2016, with joint effort of the GTI, High Power UE on Band 41 has been delivered to the market in an expedited manner, significantly improving coverage and user experience at cell edge, meanwhile saving 15%-30% investment for operators.



HPUE extends 2.5GHz coverage up to 30% farther with capable devices

- » Band 41 HPUE increases band 41 outdoor coverage between 15-25% when compared to PC-3 UE
- » Band 41 HPUE reduces in half the coverage gap between Band 41 and mid-frequency bands, with band 41 indoor coverage reaching up to 90% of mid-bands
- » HPUE increases UL capacity in average by 10%, while cell edge throughput is increase by up to 50%

In 2017, the 4 types of B41 HPUE have been released. More is coming.



Samsung GS8



Samsung GS8+



LG G6



ZTE-MAX

Promoted Maturity of IoT Universal Module

In 2017, GTI promoted the maturity of IoT Universal Module which is the bridge of communication capability and service capability.

- » The **Technical Requirement of IoT Universal Module** is published for the very first time giving specific guidance to the whole industry
- » Jointly developed the world's smallest **NB-IoT Universal Module (16mm*18mm)**



Why Universal Module?

- » Break the fragmentation of IoT industry to further expand IoT market
- » Make the integration of C-IoT technology and terminal more convenient and ease the application in vertical industry
- » Lower the cost of terminals

Published White Papers and Technical Reports on Key Issues

GTI also released white papers and technical reports to facilitate maturity of the industry and guide TD-LTE performance improvement and its evolution, as well as lead operators to innovative services and new business growth.

Newly Released



To introduce key concepts, technologies and business forecast of cloud robotics, in the era of 5G mobile communication systems, in order to facilitate further discussions and business investigations between robot players and telecom players.



To define the test cases and test method for NB-IoT module, including interconnection testing, power consumption testing, RF performance testing and positioning testing, and to promote the maturity of NB-IoT module development.



To guide and give a reference for operators and industry partners during 4G evolution and 5G deployment by describing the technical principles and test achievements of Massive MIMO.



To tap market potential, facilitate the ecosystem development of Fixed Wireless Broadband and provide good reference for industry regulators, operators and suppliers.



To ensure the multi-mode device can meet the needs of network operation and business development to propel wider commercialization of Global Phone.

Version Update



※ To get the full version of GTI White Papers,
- please view on the GTI website <http://gtigroup.org/Resources/rep/>
- or scan the QR code on the cover to download GTI APP to view

**GTI 2.0 Technical Work:
A Significant Shift to Foster Joint Innovation towards 5G**



Objective

Focus on key technical issues, provide solutions and guidance to the whole industry and ensure commercial success



Goal-Oriented

To stay goal-oriented with clearly defined objectives and plans to ensure efficient operation and collaboration



Concrete Deliverables

With concrete deliverables to ensure substantial progress of the industry



Win-win Cooperation

To encourage more active participation and contribution from all partners to unleash synergy and benefit the industry as a whole



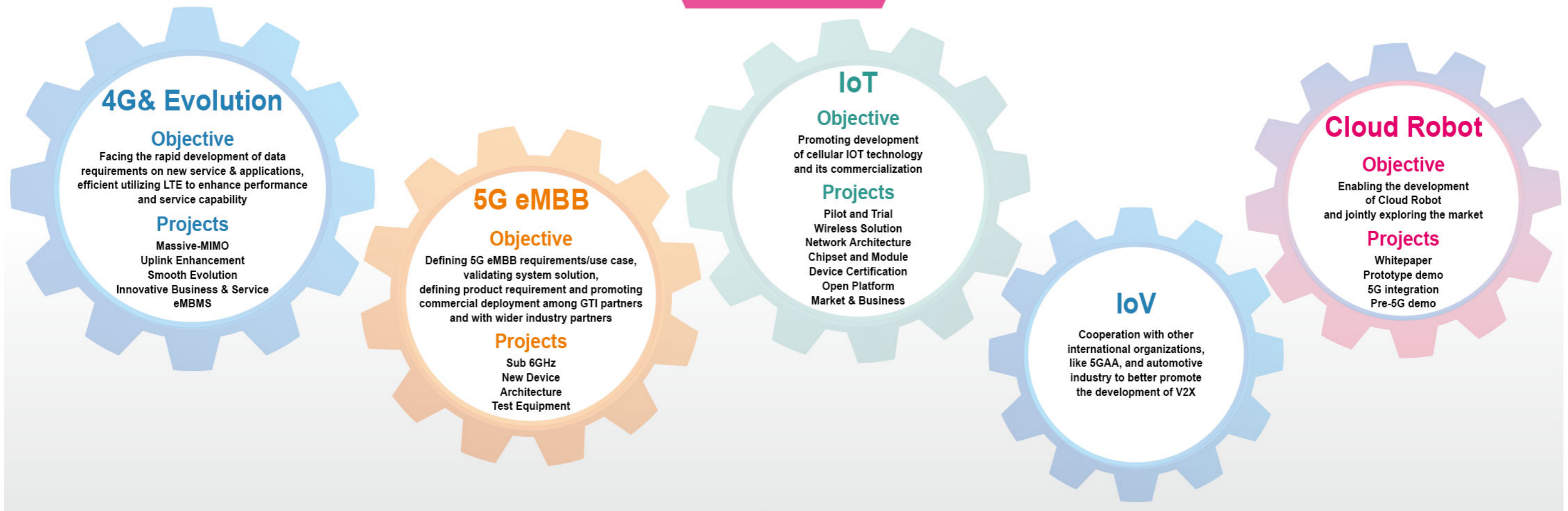
Working Methodology

- Set up **PROGRAMS** to reflect GTI's focused areas
- Create **PROJECTS** within programs to address key topics

- Break down projects into **TASKS** that produce deliverables
- Carry on tasks to achieve concrete deliverables through joint efforts of the industry

Programs with Concrete Deliverables to Continuously Promote 4G Evolution and 5G Development

PROGRAMS



DELIVERABLES

Requirement
Whitepaper

Test/Technical/Business &
Service Report

Prototype/
Product

Trial/
Showcase

...

Leadership of GTI 2.0

Leaders Committee Strategy Guidance



Sunil Bharti Mittal
Founder and Chairman
Bharti Enterprises



Shang Bing
Chairman
China Mobile



Chang-Gyu Hwang
Chairman & CEO
KT



Masayoshi Son
Chairman & CEO
Softbank Group Corp



Vittorio Colao
Chief Executive
Vodafone

Steering Committee Management



Mr. Craig Ehrlich
Chairman of SC
GTI



Mr. Abhay
Savargaonkar
CTO
Bharti Airtel



Mr. Li Zhengmao
Executive Vice President
China Mobile



Dr. John Saw
Chief Network Officer
Sprint



Mr. Seong-Mok Oh
Head of Network Group
KT



Dr. PS Tang
Managing Director
Arete M



Mr. Ted Matsumoto
Senior Advisor
Softbank



Mr. Andy Macleod
Director of VF Network
Vodafone



Mr. Natee Sumethason
Assistant Vice President
AT&T/DRVLA



Mr. Paul Berriman
Group Chief
Technology Officer
PCCW



Mr. Mathew Oommen
President Network
Global Strategy
and Service Development
RJIL



Dr. Masashi Usami
Executive Director and
General Manager
of R&D Strategy Division
KDDI

Global Collaboration, Bright Future !





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