

Comba

京信通信系統控股有限公司

Comba Telecom Systems Holdings Limited

股份編號 Stock Code : 2342

2018 Interim Results Corporate Presentation

**Exploring Opportunities •
Creating Value**

開拓商機 • 創新價值

**Reforming Mechanism •
Enhancing Efficiency**

變革機制 • 提升效能



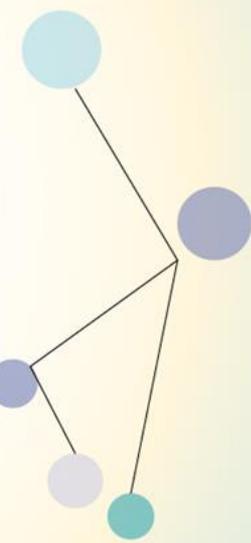
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Agenda



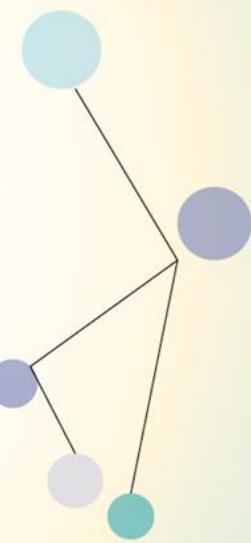
Financial Highlights

Financial Review

Industry Development

Company Outlook

Financial Highlights



Financial Results

Financial Metrics on Profitability

Financial Position

Financial Indicators on Operation

Financial Results



HK\$'000	For the six months ended 30 June			For the year ended 31 December 2017
	2018	2017	Change	
Revenue	2,493,733	2,721,948	(8.4%)	5,563,725
Gross profit	708,912	769,832	(7.9%)	1,437,028
Gross profit margin	28.4%	28.3%	0.1pp	25.8%
Operating profit	53,271	175,851	(69.7%)	101,095
Tax	16,417	57,191	(71.3%)	29,185
Profit attributable to shareholders	21,028	94,205	(77.7%)	27,373
Net profit margin	0.8%	3.5%	(2.7pp)	0.5%
Basic earnings per share (HK cents)	0.86	3.85	(77.7%)	1.12

Financial Metrics on Profitability



HK\$'000	1H2017	2H2017	1H2018
Revenue	2,721,948	2,841,777	2,493,733
Gross Profit	769,832	667,196	708,912
Gross Profit Margin	28.3%	23.5%	28.4%
Operating Profit/(Loss)	175,851	(74,756)	53,271
Operating Profit/(Loss) Margin	6.5%	(2.6%)	2.1%
Net Profit/(Loss)	94,205	(66,832)	21,028
Net Profit/(Loss)Margin	3.5%	(2.4%)	0.8%

Financial Position



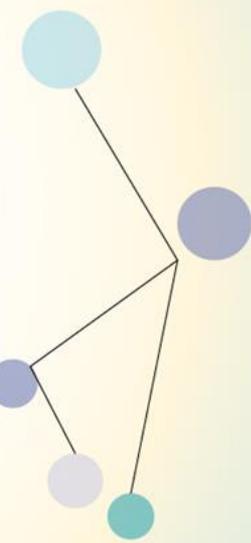
HK\$'000	As at 30 June			As at 31 Dec 2017
	2018	2017	Change	
Net debt	(786,320)	(304,806)	158.0%	(72,261)
Total assets	10,999,355	9,353,408	17.6%	10,891,728
Total liabilities	6,825,171	5,645,969	20.9%	6,560,238
Net assets	3,626,655	3,650,536	(0.7%)	3,766,311
NAV per share (HK\$)	1.50	1.48	1.4%	1.53

Financial Indicators on Operation



	For the six months ended 30 June			For the year ended 31 Dec 2017
	2018	2017	Change	
Inventory turnover days	152	127	▲25 days	120
A/R turnover days	331	279	▲52 days	274
A/P turnover days	377	284	▲93 days	291
Cash conversion cycle	106	122	▼16 days	103
Gross gearing ratio	18.9%	15.0%	▲3.9PP	14.5%
Asset to liability ratio	62.1%	60.4%	▲1.7pp	60.2%
Cost of debt ratio	1.4%	1.6%	▼0.2pp	3.0%
Return on average equity	1.1%	5.3%	▼4.2pp	0.8%

Financial Review



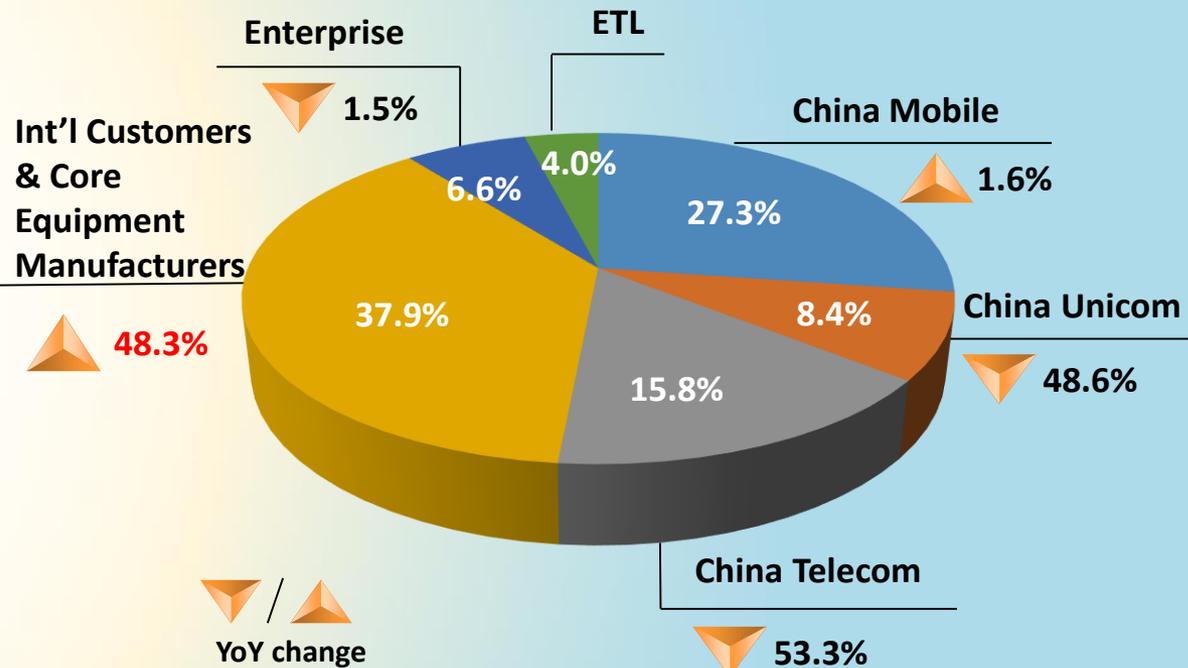
Revenue Breakdown by Customers

Revenue Breakdown by Businesses

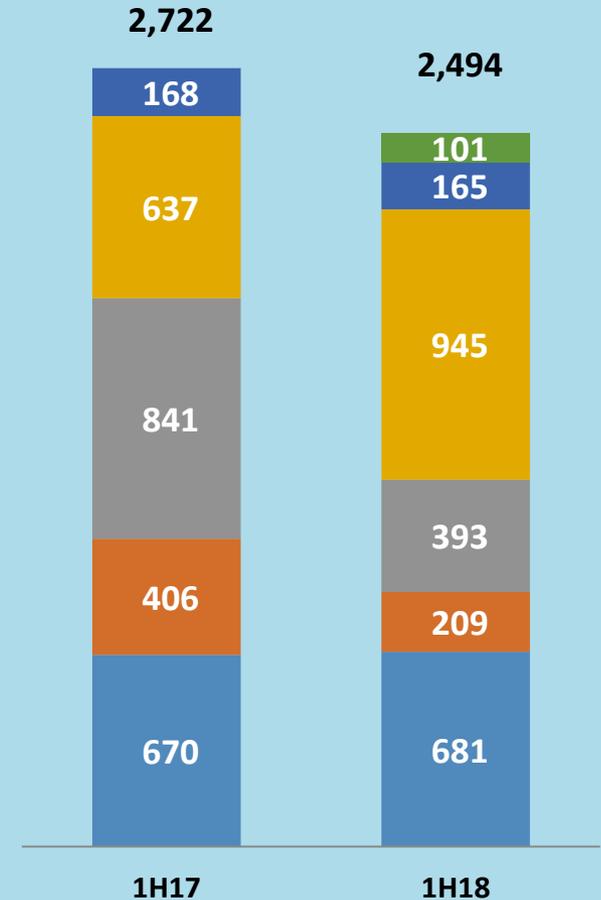
Expenses Structure

Revenue Breakdown by Customers

For the six months ended 30 June 2018



Revenue (HK\$ Mn)



- ◆ *China Tower accounted for approx. 48% in "Enterprise"*
- ◆ *ETL was consolidated since July 31, 2017.*

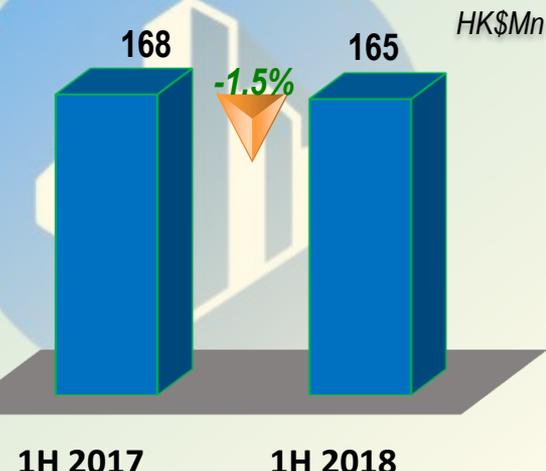
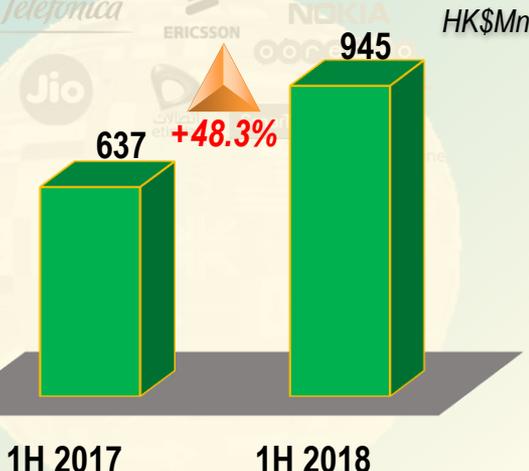
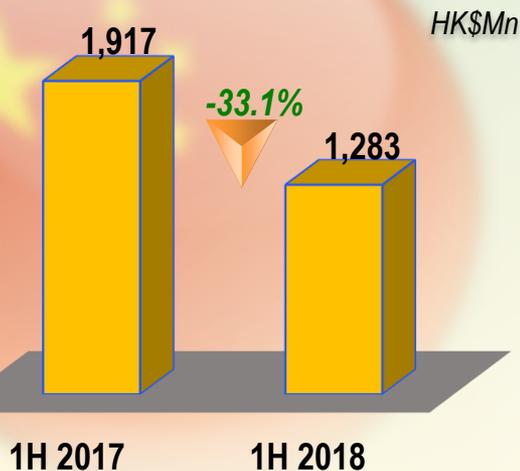
■ CM ■ CU ■ CT ■ Int'l ■ Enterprise ■ ETL

Major Customer Set

China Carriers

Int'l Business & Core Equipment Manufacturers

Enterprise Business



- Reduced operator CAPEX (post 4G plateau)
- Deferred rollout of projects
- Global political/economic uncertainty

- Global political/economic uncertainty

- Global political/economic uncertainty
- Entry point for industrial applications

- 4G network capacity expansion
- 5G long term growth: ramp up expected in 2019
- Operator diversification into IoT, MEC, AI
- Vertical integration into smart city and IoT ecosystem

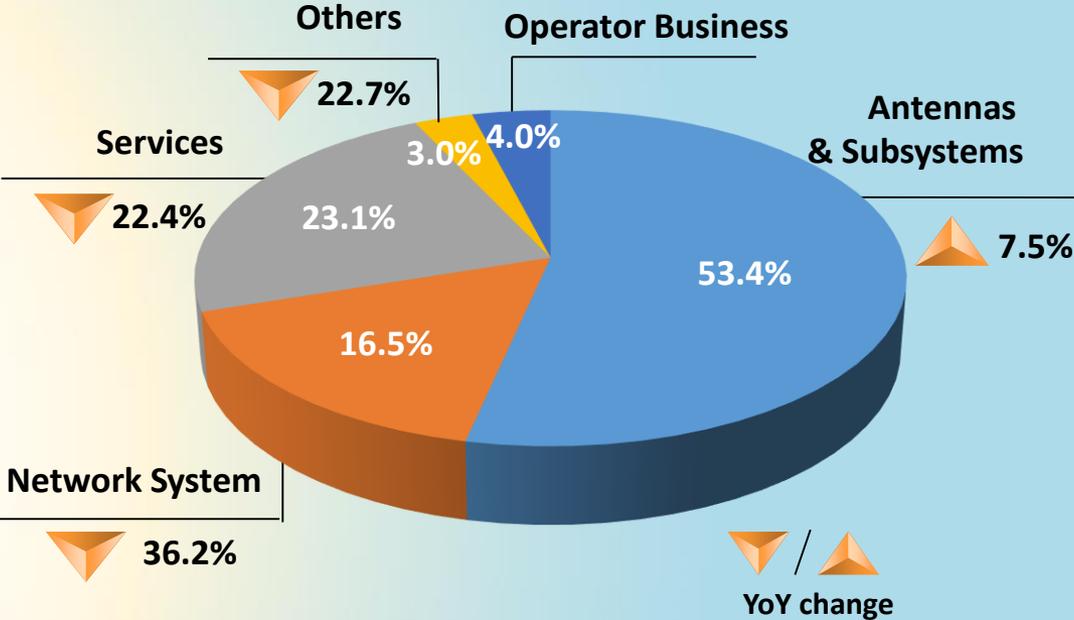
- Continued international business growth
- Major successes in India and OEM segment
- 5G product shipments and trials globally
- Global wireless infrastructure market recovery

- Smart solutions in China markets
- Long term prospects of China rail communications business
- Industry specific solutions for enterprises globally

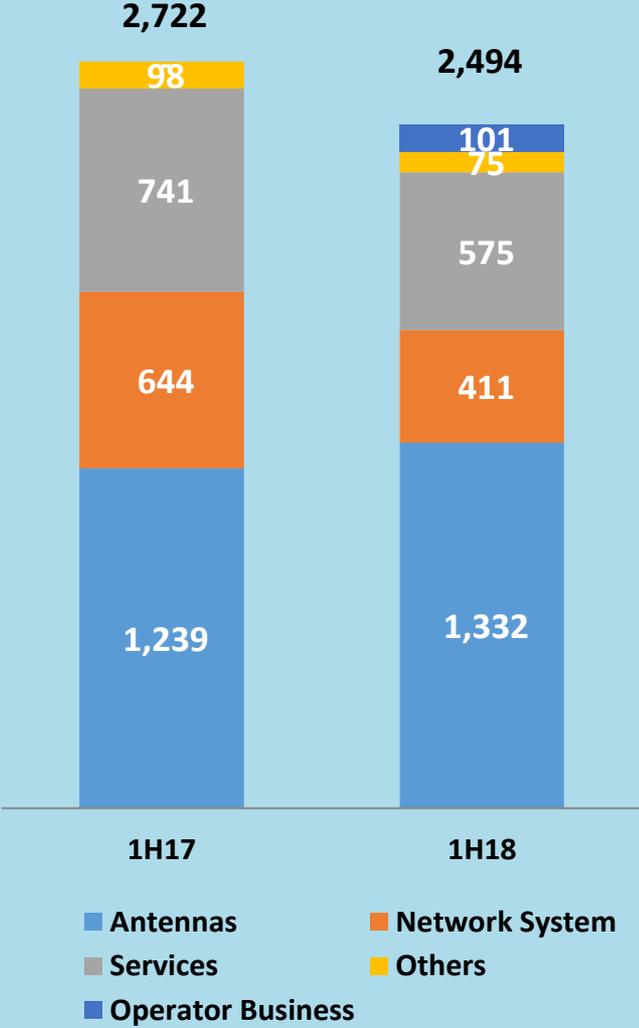
Revenue Breakdown by Businesses



For the six months ended 30 June 2018



Revenue (HK \$Mn)



◆ **Network System Business** (Wireless Access & Wireless Enhancement)

- Wireless Access accounted for 2.7%, down 45.5% y-o-y;
- Wireless Enhancement accounted for 13.8%, down 34.0% y-o-y.

◆ **Other Business** (Wireless Transmission & Specialized Enterprise Network)

- Wireless Transmission accounted for 2.2%, down 33.3% y-o-y;
- Specialized Enterprise Network accounted for 0.8%, up 40.6% y-o-y.

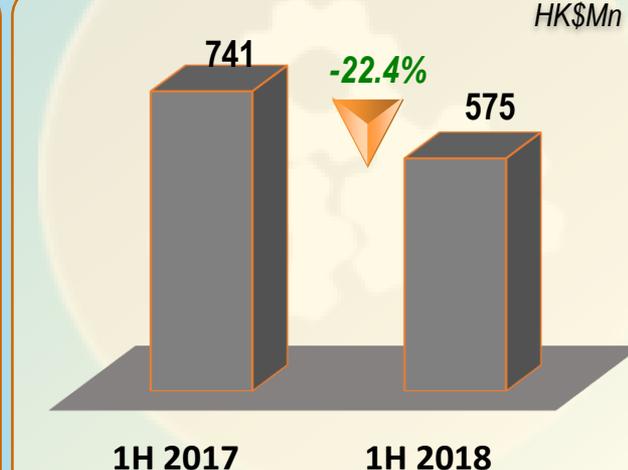
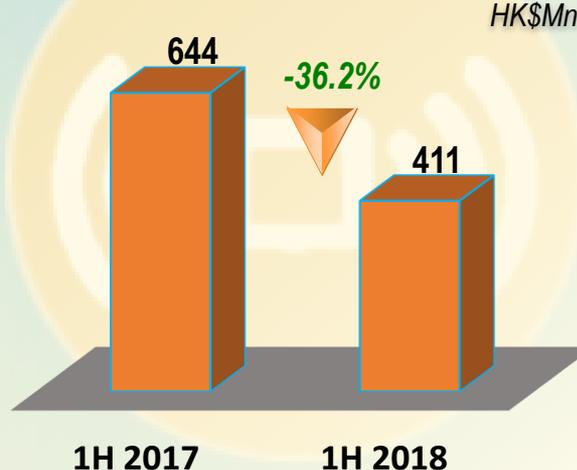
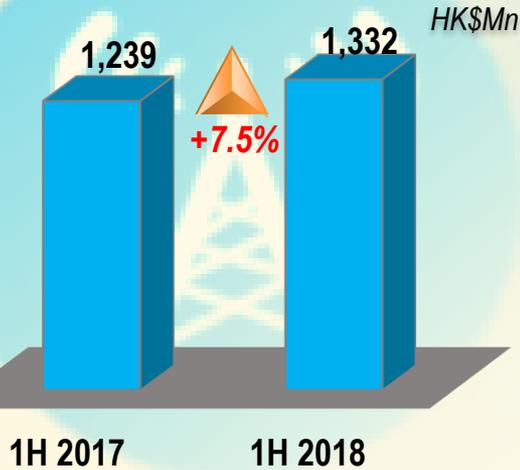
◆ **The Operator Business ('ETL') was consolidated since July 31, 2017.**

Major Business Set

Antenna and Subsystems

Network Systems

Services



- Soft demand in China market
- General slowdown in 2G/3G/4G infrastructure spending

- Post-LTE global slowdown in DAS
- Postponed network systems projects and OEM business slowdown in China

- Slowdown in 2G/3G/4G infrastructure spending impacting project service opportunities
- Postponed network systems projects in China

- Major wins in Europe, Middle East and India
- OEM growth globally
- Complex antenna demand driven by operator 5G strategies
- New product development: e.g. 5G Massive MIMO antennas

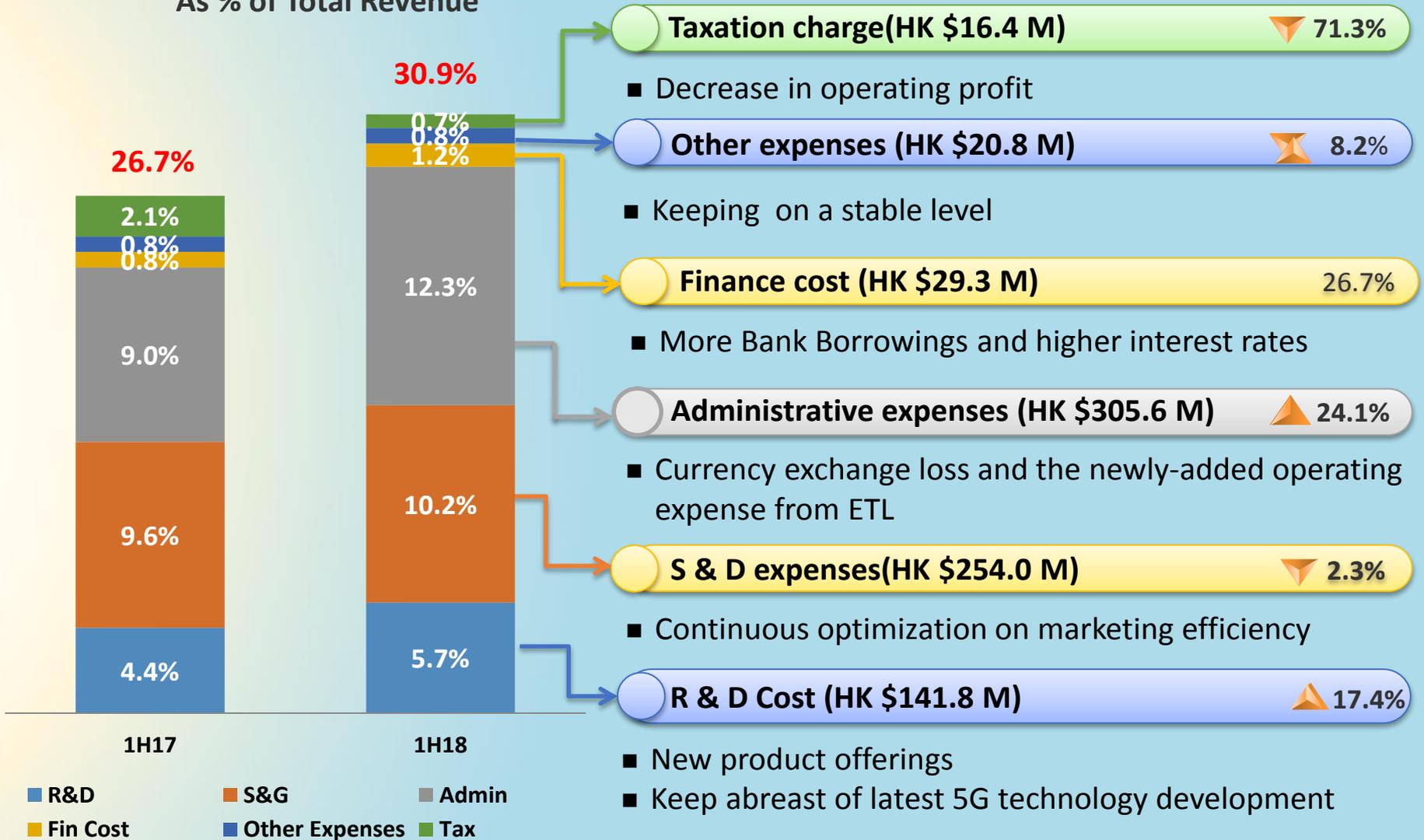
- Explosive growth for data traffic
- Numerous deployments of DAS in railway networks globally
- International Small Cell deployments
- CPE/Compact RAN launched in international market
- Tapping into NFV, network slicing and ORAN trends

- Diversified service capabilities to tap into new segments (smart home)
- Long term opportunities in enterprise segment

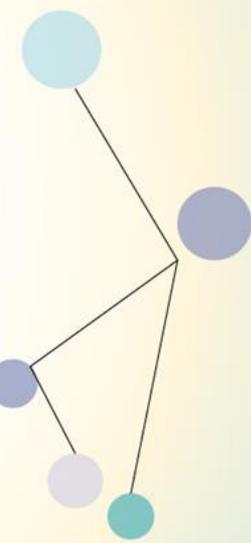
Expenses Structure

For the six months ended 30 June
As % of Total Revenue

▼/▲ = YOY change



Industry Development



Post-4G Network Capacity Expansion

5G Networking Modes & Frequency Spectrum Allocation

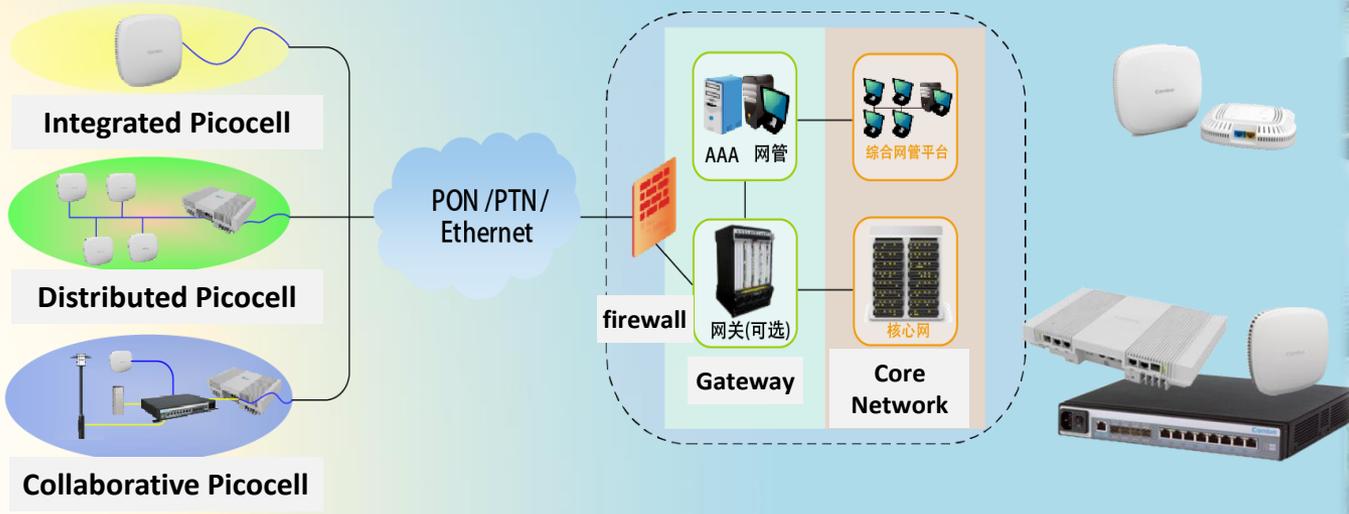
5G Key Technologies

5G Key Use Scenarios & Challenges

5G Investment Forecast

Post-4G Network Capacity Expansion

Digital Indoor Network Coverage Solutions



Hot Spots Coverage Solutions



Extended Area Coverage Solutions



Investment Focuses for China Carriers

China Mobile

- **Continue to improve 4G network quality;**
- Continue to build all-optical broadband networks;
- **Extend NB-IoT's continuous coverage to the county-level, city-level and urban areas across the country.**

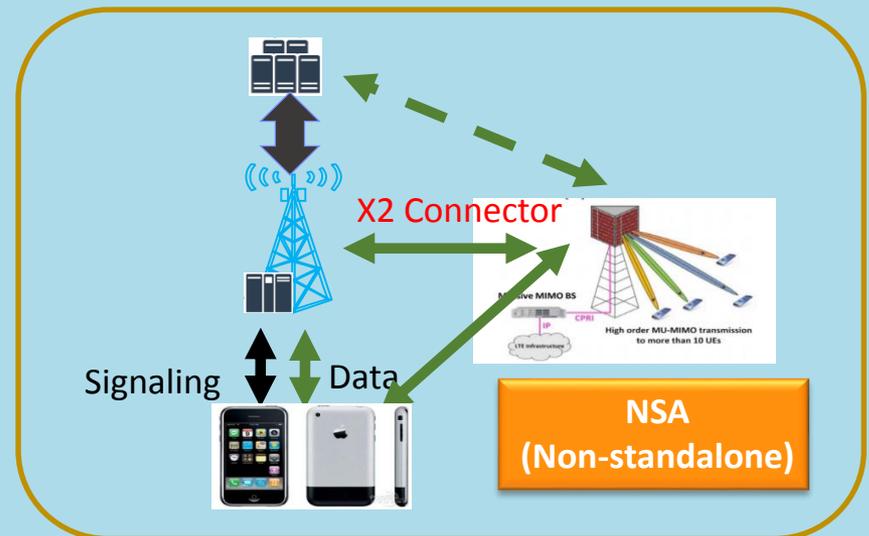
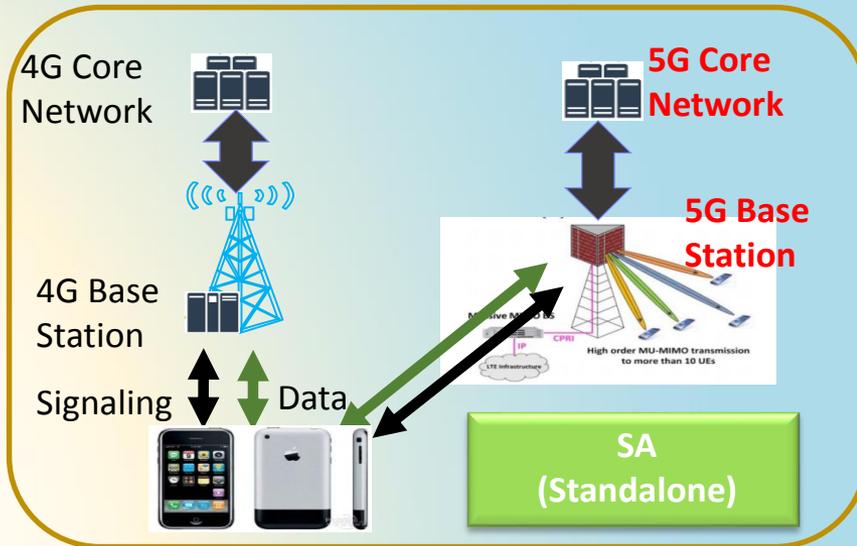
China Unicom

- **Continue to expand 4G network and improve 4G network quality in key areas;**
- Advance the technical deployment of 10GPON in the northern regions and gradually realize the gigabit access capability;
- **NB-IoT full coverage will be implemented in 2018;**
- Fully push forward the internet-based operation, and continue to advance the "mixed ownership reform" in 2018

China Telecom

- **Continue to improve 4G network quality ;**
- **Continue to expand broadband access in part of urban and rural areas;**
- Add investment in new businesses such as IDC, IoT, Big Data, CDN and etc..

5G Networking Modes & Frequency Spectrum Allocation



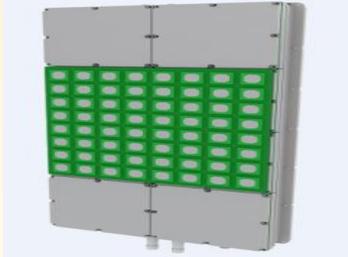
- ◆ China Telecom operators are actively advancing the SA networking mode, the 3GPP has approved the freeze of 5G NR SA networking function;
- ◆ 5G SA can better support various services such as enhanced broadband, low latency and massive connections.

5G Frequency Spectrum Allocation

China (Medium & High Frequencies)	US (High Frequencies)	Japan (Medium & High Frequencies)	South Korea (Medium & High Frequencies)
<ul style="list-style-type: none"> ➤ In Nov., 2016, it's expected to allocate 100M medium frequency and 2G high frequency spectrums to each telco; ➤ In Nov., 2017, 3.3-3.6GHz, 4.8-5.0GHz were reserved for 5G, and 3.3-3.4GHz will be for indoor use. 	<ul style="list-style-type: none"> ➤ It's expected to release a large amount of high frequencies for 5G, including 24GHz, 28GHz, 37GHz, 39GHz, 47GHz, 64GHz, 71GHz; ➤ Planned to auction 28GHz in the year end, followed by 24GHz. 	<ul style="list-style-type: none"> ➤ 5G spectrums will be released in March, 2019, Including 3.6-4.2GHz, 4.4-4.9GHz, 27.5-29.5GHz; ➤ Launch 5G in 2020 to greet the Tokyo Olympics. 	<ul style="list-style-type: none"> ➤ Release the 5G spectrum permit in the mid of this year and auction 3.5GHz, 28GHz for the Commercial network use; ➤ SK Telecom and SanSumg had already tested based on 3.5GHz, the test network speed can reach as high as 1Gbps with low latency 1ms.

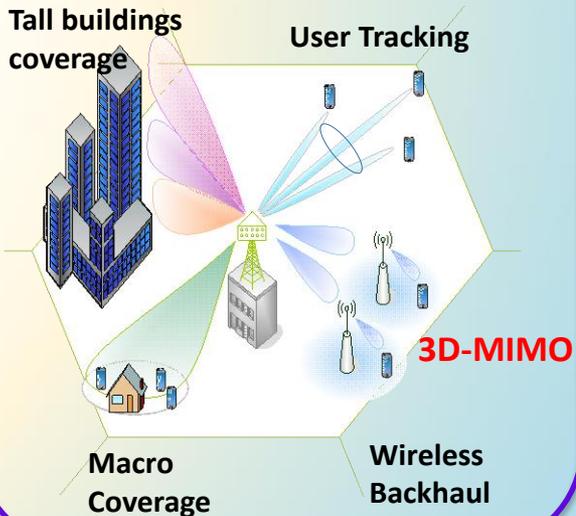
AAU , 3D-MIMO

AAU (Active Antenna Unit)



Typical Parameter: 64T64R
192 oscillator

BBU



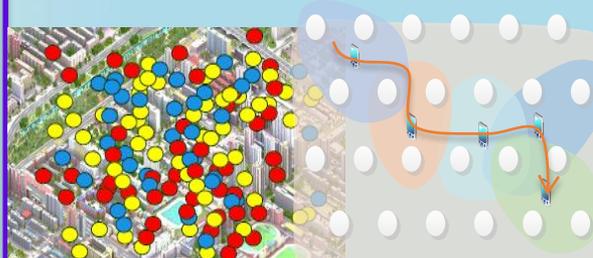
Digital Ultra-dense Networking

Digitalization: Support higher capacity, more controllable and improve the competitiveness of indoor coverage network.



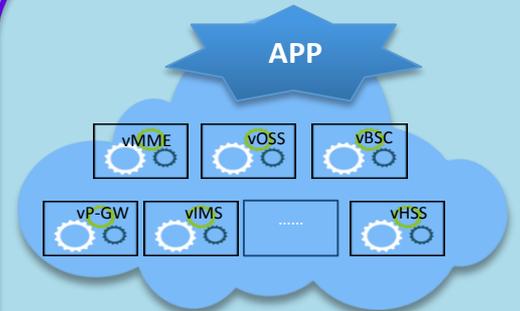
5G Indoor Coverage System

Ultra-dense Networking; User-centered, enhance the user perception.



- Control/Bearing Separation Technology
- Resources Centralized Dispatching
- User Centered
- MEC Deployment

Hardware & Software Decoupling



Software: Virtual Network Elements



Hardware: Commonly-used X86 Server(Pool)



Key

- Technologies:**
- SDN/NFV
 - OVS
 - DDPK
 - Live Migration
 - Software Programming
 - Package Speeding
 - Wireless Resources Virtualization
 -

5G Key Use Scenarios & Challenges

Latency

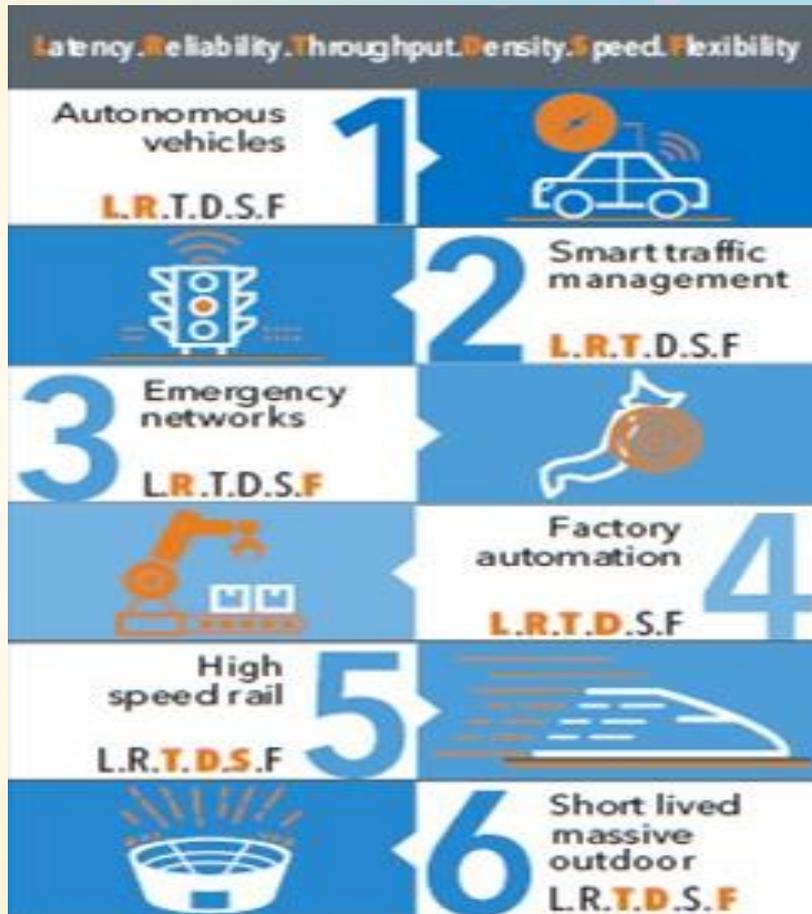
Reliability

Throughput

Density

Speed

Flexibility



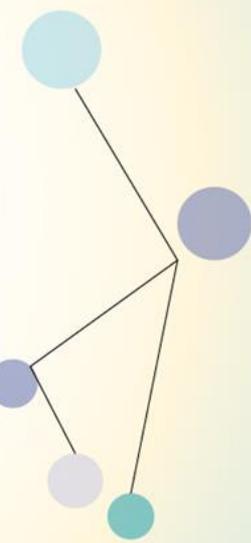
▶ *Almost all cases occur and/or heavily involve indoor or densely populated areas and cities.*

5G Investment Forecast

- According to *the 2018 China 5G Industry and Application Development White Paper* released by CCID CONSULTING (Stock code: 08235) on May 15, 2018, the market size of China's 5G industry will reach **1.15 trillion yuan** by 2026, nearly **50 %** higher than the overall market size of 4G industry.
- The future 5G industrial chain will be divided into four major parts: base station system, network architecture, terminal equipment and application scenarios. Among which, 5G base stations will include **4.75 million** medium and low frequency macro stations and **9.5 million** high frequency small cells.

Item	5Gmarket size(RMB'Bn)	Increase (%) Vs. 4G
Base Station Antenna	85.5	400%
Base Station RF	64.1	
Wireless Core Equipment(BTS)	260.0	37%
Wireless Supporting Components	160.0	7.2%
Small Cell & Indoor Coverage	105.0	735%
Optical Fibre & Optical Cables	88.9	
Optical Modules	99.8	2320%
Network Planning & Operation	130.0	
System Integration & Application Services	160.0	

Company Outlook



Antenna Products

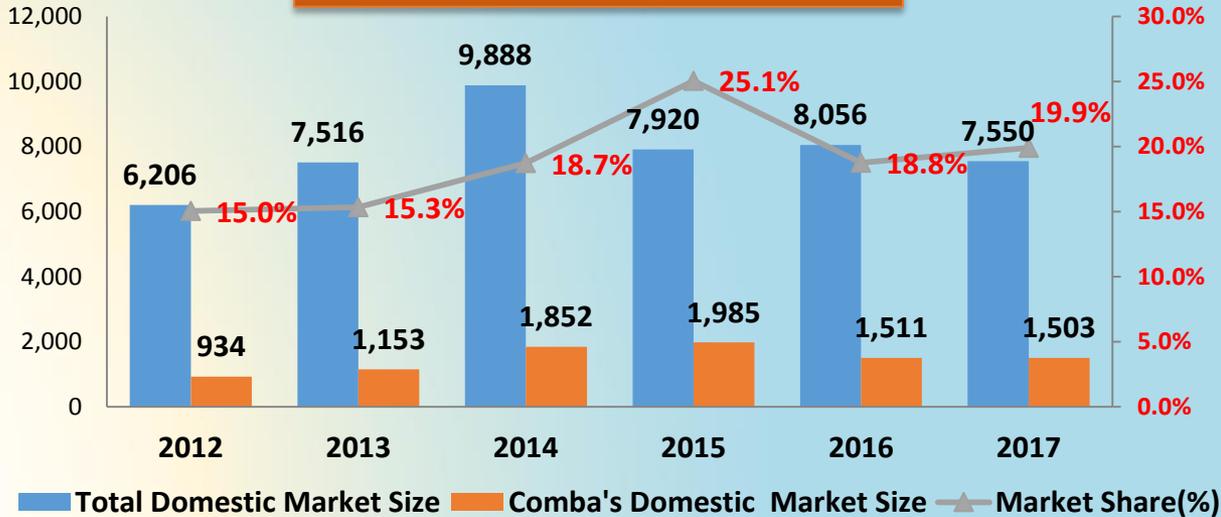
Small Cell Products

Enterprise Network Solutions

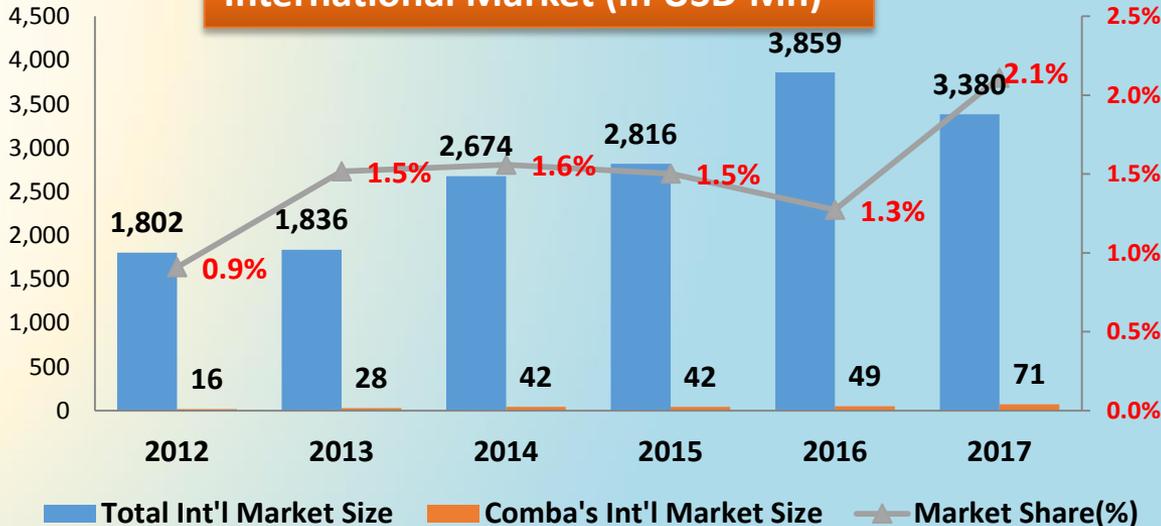
Strategic Outlook

Current Status for Antennas

Domestic Market (In RMB'Mn)



International Market (In USD'Mn)



1

has been named as a **“global Tier 1 Supplier”** for 6 consecutive years since 2011 by EJL Wireless Research.

2

1008 patents at home and abroad, leading and making national industry **technology standards for 10 items**.

3

Global Top 3 market share for 8 consecutive years, among which, **Top 1** in 2014 and **Top 2** from 2015 to 2017.

4

Benefitted from the telco's **low frequency re-farming and deployment of NB-IoT** in the post-4G cycle.

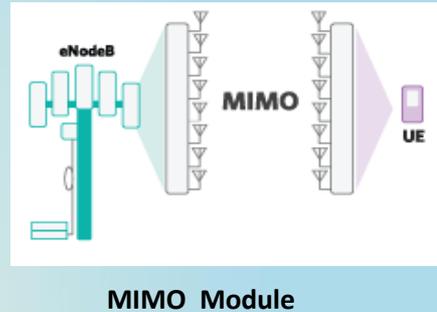
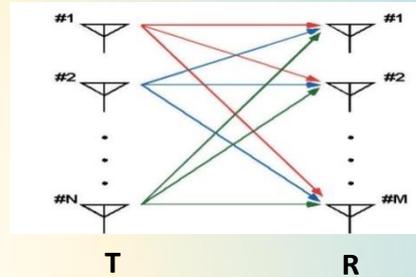
5

The global demand for sub-3GHz base station antennas is gradually declining, but there still needs a large volume of antenna, **esp. the vast growth potential for int'l markets**.

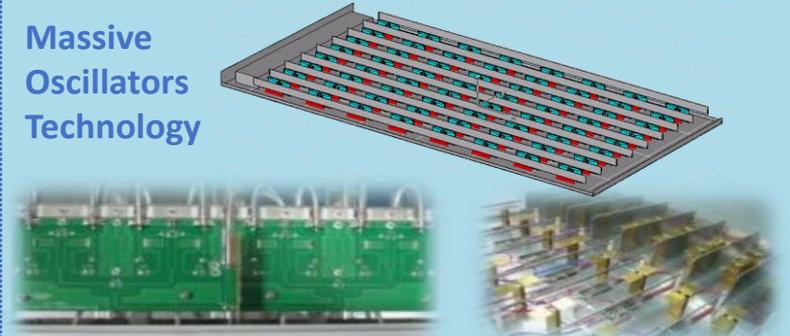
5G Massive MIMO Active Antenna

- Per the forecast of *5G White Paper* released by CCID CONSULTING, the market size of 5G base station antenna will reach **85.5 billion yuan, 400% more than 4G, showing a good prospect.**

MIMO Technology



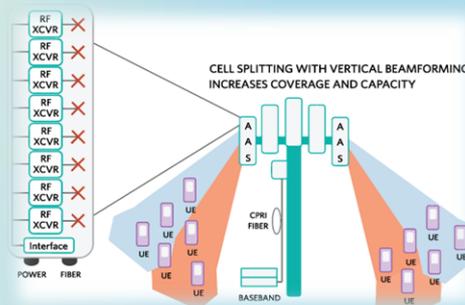
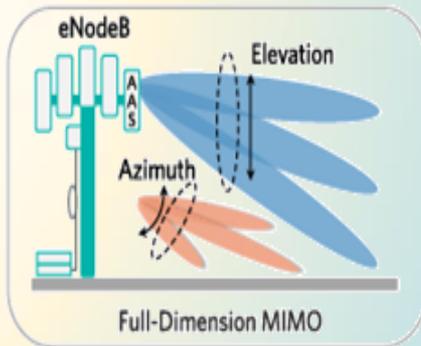
Massive Oscillators Technology



High Spectral Efficiency and Transmitting Rate

3D beam-forming is achieved to suppress interference and improve communications quality

3D Beam-forming Technology



5G Massive MIMO Active Antenna

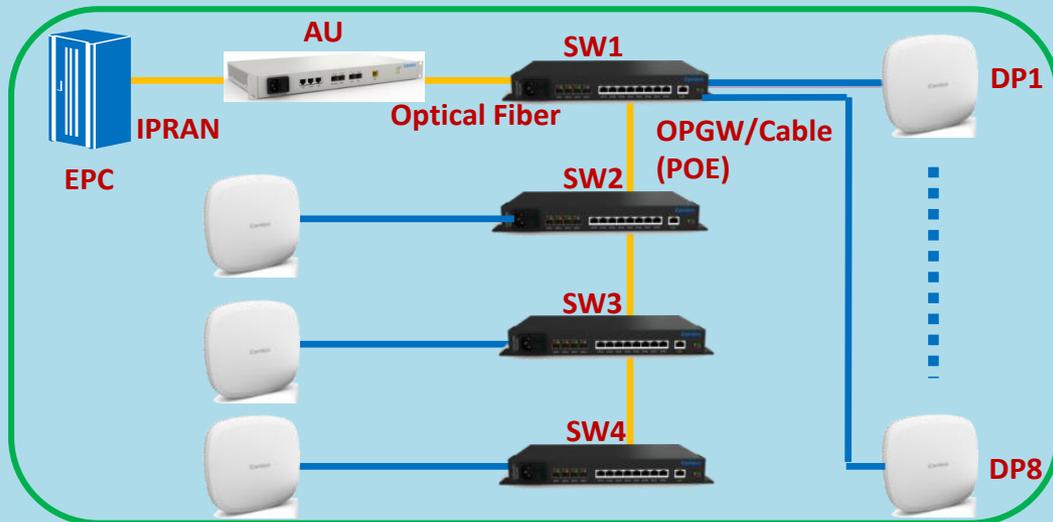


3D Beam-forming and Spatial Multiplexing can be achieved by the combination of MIMO technology, massive oscillators technology and active antenna technology so as to **improve network quality and capacity.**

Innovative Indoor Coverage Solutions

➤ Per the forecast of *5G White Paper* released by CCID CONSULTING, the market size of 5G small cell and indoor coverage will reach **100.5 billion yuan, 735% more than 4G, growth prospect is promising.**

<p>With signal sources, small cell enhances capacity when access</p>	
<p>Cell splitting to expand capacity flexibly, cost-effective</p>	
<p>Fast deployment based on IP</p>	
<p>Visible, manageable and controllable from end to end</p>	
<p>Evolvable support for 4.5G/5G networks</p>	



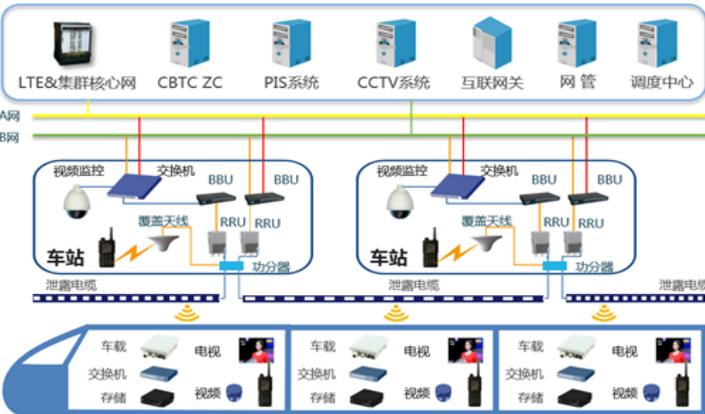
- Three-level architecture, flexible expansion, support the upgrade to 4.5G/ 5G technology;
- Based on SOC, Comba's innovative small cell is **targeted at small-and-mid sized scenarios and "tailor-made" coverage**, which can reduce the cost of deployment.

Enterprise Network Solutions



➤ Through advanced wireless coverage technology and strong integration service capability, the Company has built a high-quality, efficient and optimal cost communications system for the rail transit industry, public security, government affairs and other communications systems, **providing one-stop services including technical scheme design, equipment supply, installation and integration services.**

Rail Transit Industry Solutions



Bearing Services

- CBTC
- PIS
- CCTV
- Train Status
- ...

System Features

- Redundant backup
- Overall carrying
- Broadband
- Safe, Reliable
- Efficient

Gov. Affairs and Public Safety Solutions



Airport Solutions



Smart Scenic Spots

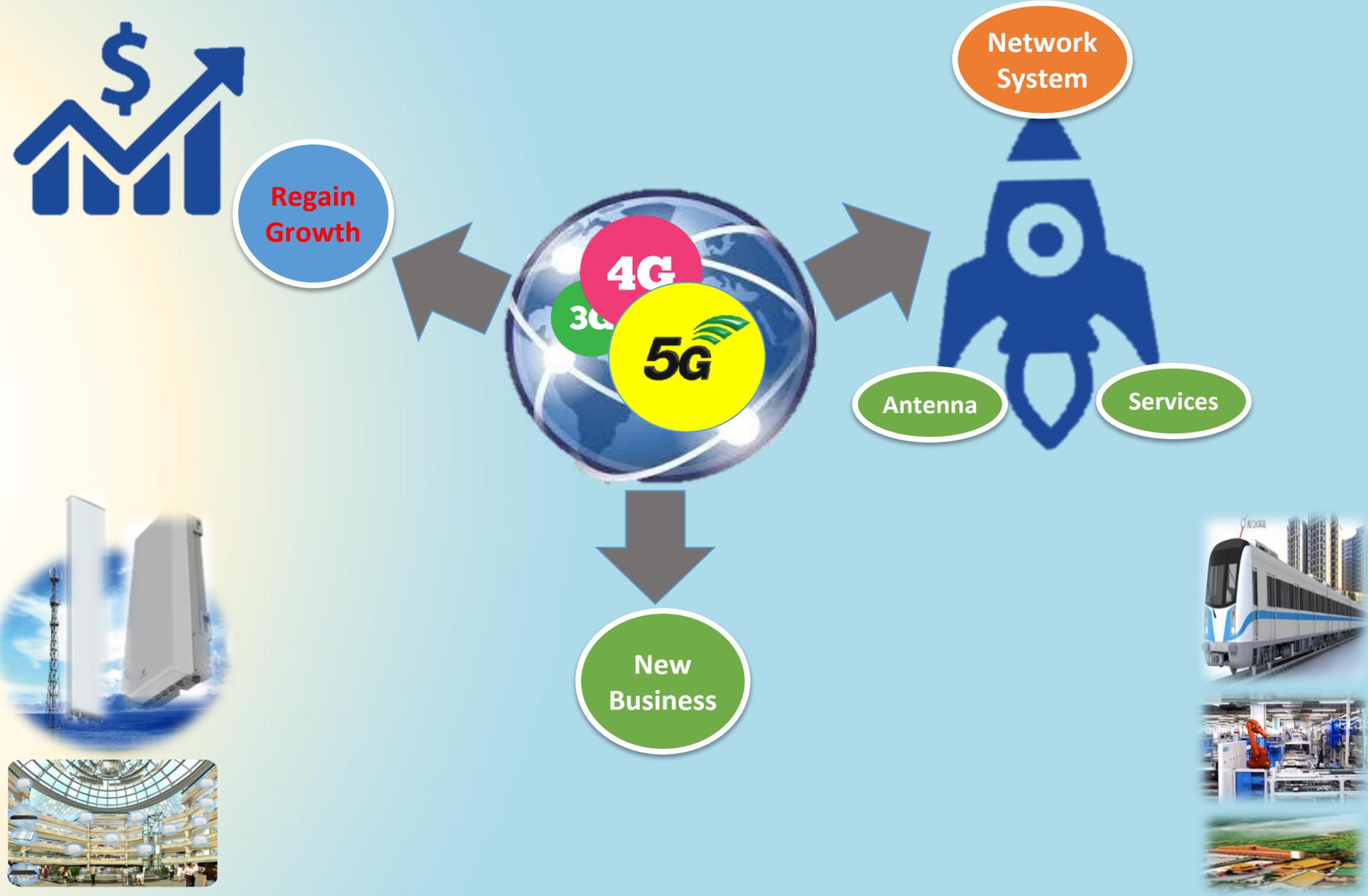
Industrial Parks

Smart Cities

Public Safety

Strategic Outlook

Comba



让世界**互联**，促进人类文明进步

Connecting the World
to Promote the Progress of Human Civilization

Thanks for Your Time!