

SOCIAL  
RESPONSIBILITY  
REPORT OF  
**2018**



**Build the “Five New” China Unicom**  
Connect the World to Innovate and  
Share a Good Smart Living



# Contents

## 04 Message from Chairman

## 06 Welcome to China Unicom

- 06 Feature Story I:  
The Road of Reform and Opening Up
- 07 Feature Story II:  
Deepening the Mixed-Ownership Reform
- 08 Feature Story III:  
Further Implementing Targeted Poverty Reduction in an  
All-round Manner
- 11 Feature Story IV:  
Building Smart 2022 Winter Olympics
- 13 Feature Story V: Serving the “Belt & Road” Initiative
- 15 Corporate Culture
- 15 Development Strategies

## 75 Appendix

- 75 Key Performance
- 76 Company Honors
- 77 Institutions and Organizations Joined
- 77 Description of the Report
- 77 Indices
- 80 Feedback

## 18 New Governance – Writing a New Chapter in SOE Reform

---

- 18 Upholding the Leadership of Party Building in Guiding Development
- 20 Perfecting Corporate Governance Structure
- 22 Compliance Operation and Responsibility Fulfillment
- 22 Sub-divided Unit Reform for Stimulating Vitality

## 26 New DNA – Strengthening New Foundation for Transformation and Development

---

- 26 Injecting Excellent Internet DNA
- 26 Creating a New Pattern of Talent Supply
- 27 Establishing a New Incentive and Constraint Mechanism
- 27 Supporting Employees' Sustainable Development

## 34 New Operation – Starting Internet-based New Reform

---

- 34 Constructing Smart Premium Network
- 36 Enriching Smart Applications
- 38 Improving Smart Services
- 41 Safeguarding Cybersecurity
- 43 Sticking to Green and Low-Carbon Development
- 48 Promoting Charitable Undertakings to Share Benefits with the People

## 56 New Energy – Cultivating New Values for Innovative Development

---

- 56 Assisting in Building Smart Industries
- 60 Developing Smart and Forward-Looking Technologies

## 64 New Ecology – Jointly Promoting Inner-Outer Interconnected New Development

---

- 64 Joining in Hands with Business Partners for Common Development
- 64 Win-Win Cooperation with Industry to Write a New Chapter
- 66 Deepening Cooperation with Internet Companies

## 70 Enhancing Management – Regulating and Fulfilling Social Responsibilities

---

- 70 Responsibility Strategy
- 71 Responsibility Organization
- 72 Responsibility System
- 73 Responsibility Assuming Capability
- 73 Responsibility Participation



## Message from Chairman

The year 2018 was the first year of putting into practice Xi Jinping Thought on Socialism with Chinese Characteristics for a New Era and the spirits of the 19th CPC National Congress, marked the 40th anniversary of the reform and opening up, and was also a year during which China Unicom achieved outstanding results in development and reform with noticeable improvement in corporate appearance. We followed the new development philosophies, led high-quality development with high-quality Party building work, and further implemented the Strategy of Focus, Innovation and Cooperation to fully promote the building of the “Five New” China Unicom. We proactively advanced Internet-oriented operation transformation, while comprehensively deepening the mixed-ownership reform. We facilitated the Three Critical Battles (forestalling and defusing major risks, carrying out targeted poverty alleviation, and preventing and controlling pollution), strived to be a model in sustainable development by fulfilling our responsibilities in politics, economy, society, environment and overseas development, and made new contributions to satisfying people’s increasing demand for information life and leading beautiful smart life.

**Explored New Governance to unleash more institutional benefits.** We persevered in taking sustainable development and maximization of comprehensive values as the core, deepened the mixed-ownership reform, and made systematic, holistic and reconstruction-oriented optimization and adjustments, with the aim to push forward the modernization of both the governance system and capability. We strengthened the leadership of Party building work, put into practice the “Two Full Implementation” requirements, and organized a new diversified board of directors. We leveraged ample incentives to drive the vitality of micro-entity in a normalized and overall way, fully drove the subdivided unit reform, as well as optimized and streamlined the organizational structure. As a result, the number of legal-person entities have been reduced by 26 in two years. For vitality stimulation, we elected 20,000 “small CEOs”. Their revenue grew in parallel with the value they created, and their sense of gain increased greatly. A pilot project of “contracted operation with private investment” was carried out among the secondary companies with serious loss, and China Unicom’s Yunnan branch company was elected into the “Dual Hundred Action” program for state-owned enterprises (SOEs) reform. We shoulder an important responsibility and mission of exploring and building a modern SOE system with Chinese characteristics.

**Developed strong New DNA to activate greater internal vibrancy.** We have established a concept of “strong talents and good DNA for corporate prosperous development”, and kept improving the building of corporate culture and enhancing the critical element of talents. We carried forward the spirits of model workers and craftsmanship by commending 100 Group-level model workers and elected 104 and “China Unicom Technical Experts”. Corporate culture publicity has become normal to consolidate the root of corporate prosperity and raise up the spiritual spine of China

Unicom. A separate talent management system has been established. We implemented a "418" talent project, and the innovative talents grew to 16,000 through the three programs of "U Talents", "Talents Hunting" and "Running Water". We cared about employees' living, respected and protected their legal rights and interests, pushed forward the salary and reward distribution to incline to the front-line employees and the value creation field, as well as helped solve employees' difficulties. As a result, their sense of ownership and happiness increased continuously.

#### **Promoted New Operation to achieve better efficiency and returns.**

We have earnestly implemented the cyber power strategy to promote the development of Digital China; fully driven the four Internet-oriented development of marketing, IT, network and management, and been committed to building new-generation information infrastructure that is high-speed, ubiquitous, safe, environment-friendly and benefitting people, to enable the public to enjoy faster, broader, better and cheaper smart network services. Digital gap has been narrowed down with the deepened implementation of information universal service. As we further implemented the requirement of providing faster and more affordable network, our 4G network speed has led the industry, the household broadband speed has been faster and faster, and the roaming fee for mobile data traffic nationwide has been canceled. The mobile data traffic tariff has been reduced by 59%, the household broadband tariff has been cut down by 41%, the unit price per bandwidth of the Internet private line for SMEs has declined by 36%, and the international voice and data roaming fees have been down by 44% and 46% respectively, giving the benefits to people. We exerted efforts to build smart brands, kept improving customer service and experience, innovated a 212C application and privilege system, and diversified our "Smart WO" integrated products, so as to enable the public to enjoy a more convenient, colourful and intelligent life. We committed ourselves to the battle against poverty, fulfilled our tasks in targeted poverty alleviation and counterpart assistance, as well as rolled out some discount packages for poverty alleviation and industry development-based poverty alleviation plans. We carried out special actions on preventing and combating communications information fraud, successfully fulfilled communications guarantee mission for various events, and assisted the preparation for a smart Winter Olympics. We adhered to the philosophy that human and nature is a community of life, adopted low-carbon and energy-saving technologies, intensified the management of electromagnetic radiation, promoted paperless office, and made innovation on green applications to facilitate the building of a beautiful China with blue sky, green land and clean water.

**Strengthened New Energy to lead smart development.** We have always believed that "innovation is the first driving force for development". Conforming to the development trends of new technologies, industries, models and businesses, we have been exploring the evolution of future-oriented intelligent networks and promoted the R&D on 5G. Deployment in the field of cutting-edge technology has been accelerated and emphasis has been put on key businesses such as cloud computing, big data, IoT, AI and block chain. The number of IoT connections approaches 110 million. We have pushed forward the development of standards and patents, submitted 545 papers on international standards, and applied for 1,121 patents. Our invention patents have surpassed 90%. Focusing on e-government, education, healthcare, environment, transportation, tourism,

industrial manufacturing and other main industries, we have provided diversified "smart +" applications to promote the in-depth integration of information technologies and the real economy, and facilitate the transformation and upgrading of traditional industries, economy and society. We have been building a special innovation zone to speed up the shifting between the old and new driving forces, comprehensively improve the mid-to-high-end supply ability in the innovative business field, and serve economic and social development.

#### **Built a New Ecology to put together greater synergetic advantages for win-win results.**

We have been practising the philosophy of "win-win cooperation for synergetic development" by building cooperative ecological circles and a community of development. We built an ecological circle on in-depth cooperation with strategic investors, made customer touchpoint cooperation with 54 Internet companies, and established three joint ventures, namely Yunlizhihui Technology, Yunjing Wenlv Technology, and Yunjizhihui Technology, respectively with Alibaba, Tencent and Wangsu to deepen capital cooperation. We built a cooperative ecological circle on IoT "platform +", established an IoT industry alliance, set up an innovation acceleration center and an incubation lab. We built a terminal cooperation ecological circle to keep expanding cooperation on six-mode all-network terminals. We built a 5G cooperation ecological circle, and formed a 5G innovation center to deepen innovation cooperation with vertical industries, and strengthen external cooperation relying on the platform of the 2022 Winter Olympics. We also built a cooperation ecological circle for social capitals to enhance the co-building, sharing and cooperation with peer companies, reduce repeated construction and waste of economic and social resources, and form a synergetic development effect.

**Pursue new targets and make greater efforts in a new era.** The year 2019 marks the 70th anniversary of the founding of the People's Republic of China, and is a critical year for completing the building of a moderately prosperous society. China Unicom will take Xi Jinping Thought on Socialism with Chinese Characteristics for a New Era as the guidance, fully implement the spirits of the 19th CPC National Congress, the 2nd and 3rd Plenary Sessions of the 19th CPC Central Committee, adhere to the general principle of pursuing progress while ensuring stability, follow the new development philosophies and high-quality development requirements, stick to the main line of supply-side structural reform, and firmly deepen the implementation of the Strategy of Focus, Innovation and Cooperation, to promote the building of the "Five New" China Unicom. We shall grasp the new strategic opportunities of 5G, AI, industrial Internet and IoT, take advantage of the situations and strive to overcome difficulties, and inject strong strength to the high-quality development of the Company, with the aim of building a new socialist central enterprise with Chinese characteristics in the new era, and creating new glory worthy of the new era.

Chairman of China United Network Communications Group Company Limited



March 2019

# Welcome to China Unicom

China United Network Communications Group Co., Ltd. ("China Unicom") was officially established on 6 January 2009 on the basis of the merger of former China Netcom and former China Unicom. It has subsidiaries in 31 provinces (autonomous regions and municipalities) across China and many countries and regions around the world. It is the only Chinese telecom operator listed on the stock exchanges in New York, Hong Kong and Shanghai. It has been listed in Fortune 500 for ten consecutive years, and ranked the 273<sup>rd</sup> in 2018.

The main businesses operated by China Unicom include fixed and mobile communications services, domestic and international communications facilities services, satellite IPLC service, data communications service, network access service, value-added telecom services and system integration service related to information and communications services. On 28 April 2009, China Unicom rolled out an all-service brand "WO", which represents our innovation service philosophy and provides comprehensive services to individuals, family customers and group clients. China Unicom owns a modern communications network covering entire China and linking the world. We have been actively pushing forward broadband-based fixed and mobile network development, and promoted the implementation of the cyber power strategy at the

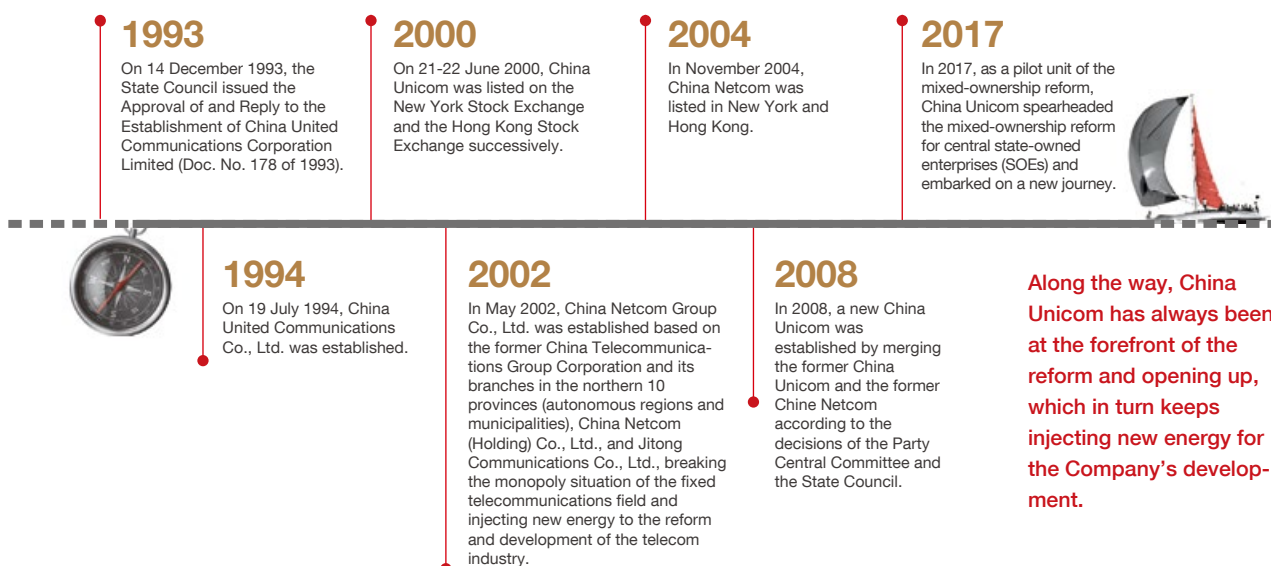
corporate level so as to provide comprehensive and high-quality information and communications services to the wide users. By the end of 2018, China Unicom had 987,000 4G base stations and about 215 million fixed broadband access ports. The international roaming service covered 615 operators in 253 countries and regions.

By earnestly practising the new development philosophies and comprehensively deepening the implementation of the Focus strategy in 2018, our business structure has been optimized with noticeable results, the health level and the business performance have improved significantly, submitting the most excellent answer sheet since the reorganization of the Company. Throughout the year, China Unicom achieved revenue from main businesses of RMB262.1 billion, with 320 million mobile charged subscribers, 220 million 4G subscribers and 80.88 million fixed broadband users. Oriented to the future, standing in a new era, all the staff of China Unicom will further expedite the building of the "Five New" China Unicom, and put emphasis on practice and implementation, to comprehensively drive the Company towards high-quality reform and development, and celebrate the 70th anniversary of the founding of the People's Republic of China with excellent achievements.

## Feature Story I: The Road of Reform and Opening Up

After 40 years of reform and opening up, Chinese speed has become the theme of the era. The reform and opening up brings not only affluence in material life, but also technological changes and richness in spiritual life, which has been witnessed by communications. Throughout the history of China Unicom, the Company was born in reform and keeps developing through reforms, becoming an epitome of the reform and opening up in China's communications industry.

## Shouldering the Mission of Communications Reform in a Changeable Situation and Making Breakthroughs



## Feature Story II: Deepening the Mixed-Ownership Reform

As the first pilot unit to adopt entire group-based mixed-ownership reform and the first central state-owned enterprise in the telecommunications industry to introduce private capital, China Unicom has been advancing the mixed-ownership reform solidly under the guidance of Xi Jinping Thought on Socialism with Chinese Characteristics for a New Era and in accordance with the general requirements of "improving governance, enhancing incentive, highlighting principal businesses and increasing efficiency". The Company started the pilot reform in September 2016; the pilot plan got approved in June 2017; the fund raised for the mixed-ownership reform was fully in place at the end of October 2017; the new Board of Directors after the reform convened its first meeting in February 2018; and the restrictive share awarding work for employees was completed in April 2018. We have successfully completed the mixed-ownership task and been further promoting the reform battle, making a good start for the mixed-ownership reform.

### "Two Full Implementation" throughout the Mixed-Ownership Reform

- Have always put politics construction in the first place and followed the leadership of the Party steadfastly to build a modern SOE system with Chinese characteristics.
- The Party Leadership Group of the Group Company firmly held the direction of mixed-ownership reform and organized more than 70 Party Leadership Group meetings to study major matters and key problems in the promotion process.
- Party leadership has been integrated and embedded into corporate governance and the work requirements for Party building have been included in the Company's regulations, which makes it clear that study and discussion by the Party Leadership Group is a procedure taken before the decision making on major issues by the Board of Directors and the management.

### Pluralistic Board of Directors with Different Specialties

- On the premise that the state-owned capital holds the majority shares, the share held of the A-share company by the Group Company has been reduced to 36.7%, 35.2% is held by the 14 strategic investors introduced in total, 25.5% is held by the public shareholders, and 2.6% is for the employee restrictive share incentive scheme. A pattern of integration as well as effective checks and balances has formed for different capitals in shares.
- The new Board of Directors consists of 13 people, including 8 non-independent directors (3 from China Unicom and 5 from strategic investors) and 5 independent directors.
- Special committees on development strategy, audit, remuneration and assessment have been set up. The directors will fulfill their responsibilities on major issues concerning development strategy, system reform and business cooperation.

### Real Reform of the Market-Oriented Systems & Mechanisms

Measures have been taken and implemented against the problem of overstaffing with the aim to stimulate micro vitality.

**For streamlining:** the management units in the Group HQ, provincial branches and local municipal companies have been cut down by 1/3, 1/5 and 1/4; and the legal-person entities have been reduced by 26 in two years, making the reduction to 27% accumulatively.

**For market-oriented employment mechanism:** a market-oriented employment and exit mechanism has been established for the management personnel by combining the principles of officers under Party supervision and market-oriented employment. The exit rate of managers at all levels after their first employment reached 14.3%, the mandatory exit rate of contracted staff reached 1.2% while 2,300 talents were brought in at the Innovation Talent Special Zone.

**For driving the sub-divided unit reform:** implemented internal "entrepreneurship and innovation", set up micro organizations, and changed "requiring me to do" to "I'm willing to do". 154,000 employees nationwide were in 24,000 sub-divided units, 20,000 "small CEOs" were elected, and the wages of the front-line staff grew by 20% year on year.

**For loss reversal:** explored a model of "private investment-contracted operation" for tertiary companies that have never earned profits but keep making losses since their establishment. The branch companies in 11 prefectures and cities of Yunnan are carrying out the pilot work.

In October 2018, China Unicom Yunnan branch and China Unicom Zhiwang Technology (a subsidiary of China Unicom) were included in the list of the "Dual Hundred Action" for SOEs of the State Council, which marked the first step of mixed-ownership reform in branch companies and subsidiaries outside of such reform at the Group level. Taking China Unicom Yunnan branch as an example, the company's revenue in 2018 increased by 17.7% year on year and its profit improved by RMB250 million.

### Strategic Synergy for Differentiated Development

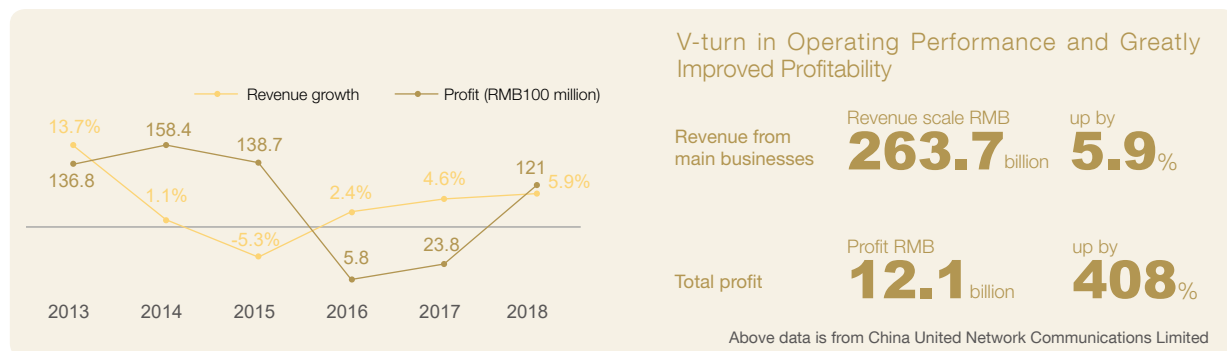
Deepened cooperation with strategic investors and kept improving our innovation capability and effective supply capability.

- Sales channel touchpoint cooperation: Conducted online touchpoint cooperation with Tencent, Alibaba, JD.com and Baidu, and created a new model of providing integrated services to customers by a telecom enterprises and Internet enterprises.
- New retail system cooperation: Carried out new retail store pilot cooperation with Alibaba, JD.com and Suning in Shanghai, Guangdong and other places, where the daily customer flow, development volume and goods sales rose significantly.
- Cloud computing cooperation: Cooperated with Tencent and Alibaba, and provided over 50 types of cloud computing products accumulatively.

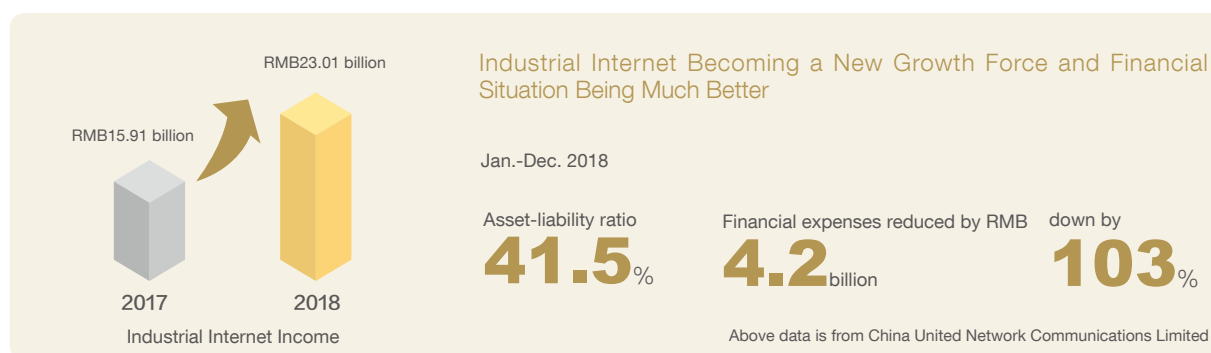
## A Good Start for the First Year of the Mixed-Ownership Reform

Our mixed-ownership reform has achieved positive results that the operating performance achieved a V-turn; both the internal and external ecologies continue to improve; the spirits of our staff from officers to front-line workers have been roused greatly; and the Company has entered into the fast track towards high-quality development.

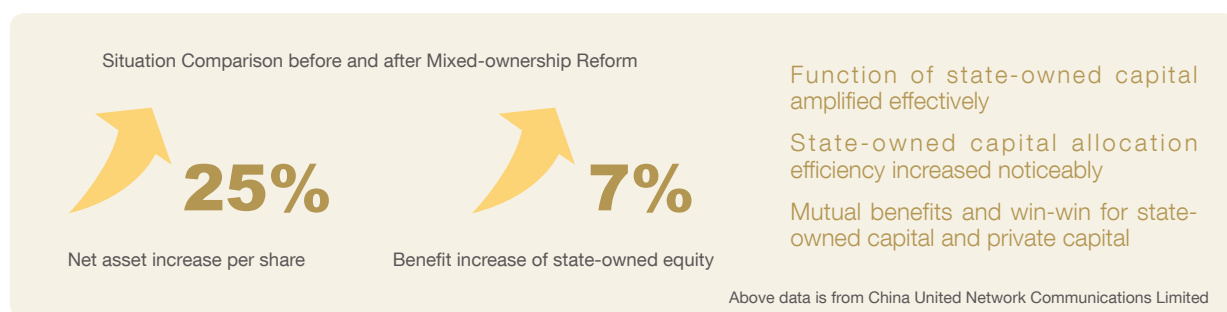
### Revenue & Profit Growth Leading the Industry



### Improved Development Quality



### Preservation & Increase of State-Owned Assets



## Feature Story III: Further Implementing Targeted Poverty Reduction in an All-round Manner

China Unicom contributed to the battle of poverty alleviation by intensifying the supports and guarantees, expanding the mobilization scope, ensuring the poverty reduction precision, accelerating the poverty reduction speed, furthering the poverty reduction depth and offering care and love.

### Building a Poverty Reduction Paradigm

China Unicom has been fulfilling its political responsibility as a central enterprise, kept improving its political stance and consciousness, and gathered strengths from all parties inside and outside the Company, so as to form an all-around, three-dimensional paradigm for poverty reduction. The Group has formed a strong strength in contributing to the battle of poverty alleviation by uniting and collaborating efforts from up to down, sharing resources, and making the internal and external complement each other's advantages.

The Company's over 500 subordinate units undertook the designated assistance tasks arranged by the central and local governments, which involved 917 national, provincial and municipal poverty-stricken counties. 1,857 personnel (including 417 First Village Residency Secretary) as well as funds, goods and materials worth RMB200 million have been sent and input to help 72,800 registered poor families to get rid of poverty. We arranged 360 local industry development programs, provided training to the workforce and technical backbone in rural areas for more than 6,400 person-time, helped 4,572 poor people to relocate from inhospitable areas, funded 2,310 poor students, and input healthcare resources that benefit 14,800 poor people. China Unicom won the "2018 Jinzhi Award of the Excellent Cases on Targeted Poverty Alleviation by Listed Companies in China".



Chairman Wang Xiaochu paid a visit to a poverty-stricken family in Ceheng County, Southwest Guizhou Autonomous Prefecture

China Unicom Hunan branch helped farmers of Dongjiu Village, one of the national key villages for tourism-based poverty alleviation, to introduce konjak and other new breeds, and invited experts on fruit and vegetable planting to provide consultations on site, with the aim to yield a good harvest and assist the village to get out of poverty.



A kiwi fruit expert from western Hunan provided site instructions on planting techniques

China Unicom Gansu branch carried out a series of assistance activities and programs such as dilapidated house transformation, villagers committees repair and education-based poverty reduction to promote the battle against poverty further.



Carried out "Poverty Alleviation Battle - China Unicom Warmth Activities" and donated 84 down jackets to the kids of three primary schools of Zhangjiachuan County

China Unicom Inner Mongolia branch built a big data platform for targeted poverty alleviation, which can realize "targeted identification, targeted aid, targeted policy implementation and targeted exit" of/for the poverty-stricken population, helping Linxi County to become the first national poor county getting rid of poverty in Inner Mongolia Autonomous Region.

Weishan County of Dali, Yunnan, the assisted counterpart of China Unicom Yunnan branch, successfully passed the national check and acceptance of poverty alleviation, becoming one of the first counties getting rid of poverty in Yunnan. 244 people of 69 families registered in the counterpart assistance threw off poverty and the company was awarded as an Advanced Unit in Poverty Alleviation and Exit Work in 2018 by Weishan County. On 26 September, the Party Secretary of Qinghua Township, Weishan County paid a special visit to China Unicom Yunnan branch to convey their gratitude together with the leading group of the township and village cadres.

## Helping the Development of Local Industries for Poverty Reduction

Developing plans and solutions together, China Unicom and Ceheng County turned their focus to the banana industry and produced targeted policies by taking into account of local resource endowment. With an investment around RMB36 million, we directly took part in the building of banana water-cellar, banana refrigerating-chamber, banana big data program, banana processing plant, banana big data industrial park and other programs, as well as helped the establishment of a comprehensive project integrating banana seeding cultivation, demonstration tourism and picking. The infrastructure capability for the whole banana industrial chain has been developed. We also adopted a new "industry + e-commerce" model for banana industrialization, to open up the sales channel, increase the economic value added and arouse farmers' enthusiasm in planting bananas. In addition, we assisted Ceheng County in building its brand as the "Home of Dwarf Banana in China" to increase the comprehensive benefits of the banana brand and drive the industry's development. Now, Ceheng County has obtained the certification of geographical indication protection for "Ceheng Dwarf Banana", and been selected as a "Pilot County of Production Base for National Forest Eco-label Products". The banana planting area had expanded from 6,000 mu (a unit of area, equals to 0.0667 hectares) to more than 60,000 mu. In 2018, over 50,000 tons of bananas had been sold with the sales volume reaching RMB81 million, bringing benefits to the farmers, enterprises and the government. In the past three years, 2,229 people from 478 families have overcome poverty, with an average annual income of RMB18,000 per family.



China Unicom opened up the banana industrial chain with the new "industry + e-commerce" model at Ceheng County of Guizhou

## Promoting Network Development for Poverty Reduction

Strengthened the basic construction for networks to enable the communications services to be available to the public in poverty-stricken areas. Focusing on the fixed poverty alleviation areas, the extremely poverty-stricken areas of “three regions and three prefectures”, and national key poverty-stricken areas, we have been clear of the network capability building target, investment scale and main projects, accelerated the construction of network infrastructure, and invested RMB1.889 billion on network in the poor areas to expand network coverage.

Expanded the coverage of optical broadband in remote rural and Western areas, and completed the broadband construction for around 16,000 administrative villages with 504,800 new broadband access ports.

Expanded the coverage of 4G universal service and constructed 17,400 new wireless base stations in national poverty-stricken counties.

Boosted the establishment of self-owned business outlets and social channels in rural and remote poor areas, the layout of which are closer to the public, and welcomed by local farmers as they bring convenience to them.

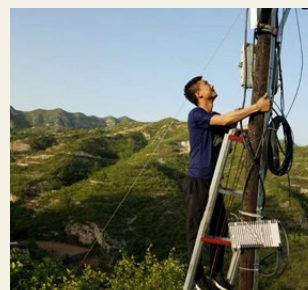
Accumulatively completed BB construction for

**16,000** administrative villages

Newly built **17,400** wireless base stations for poverty-stricken counties

4G coverage in counties and towns reached **91** %

China Unicom Shanxi branch implemented a county revitalization action to improve farmers' sense of gain of network life. More weight of the network investment was given to counties. A “Sunshine Action” on mobile network optimization was carried out, which solved 4,920 network problems and reduced the business affection alarming ratio from 6% to 1.63%.



Village network optimization action

Took preferential tariff measures to enable the public in poverty-stricken areas to be able to afford the communications services. We offered 6,252 mobile phones and other terminals dedicated for poverty alleviation and rolled out preferential packages or free communications services to poverty-stricken people, which benefited 252,000 impoverished people. On the basis of “speed up and fees down” policy, we developed special preferential measures for poverty-stricken areas and provided tariff policies with higher cost efficiency to poverty-stricken people to reduce their burden in using communications products. Targeted and fixed poverty-alleviation packages were rolled out by 27 provincial companies, the user number of which exceeded 450,000 and reduced or exempted about RMB12 million communications fees for poverty-stricken users.

Supported public welfare-oriented poverty alleviation to enable the public in poverty-stricken areas to use good communications services. We carried out in-depth cooperation with the organization of Social Participation in Poverty Alleviation and Development of China, and promised to send for free 10 million universal and fixed data flow packets that was worth of RMB44.5 million to the poverty-stricken people, good-hearted people and cadres for poverty alleviation registered on the network of Social Participation in Poverty Alleviation and Development of China.

## Creating “Internet + E-commerce” Model for Poverty Reduction

Working with our mixed-ownership reform partner JD.com, China Unicom carried out online consumption-based poverty reduction oriented to the Company's internal staff and social public, creating a new poverty reduction model of e-commerce consumption. Internally, an online store “China Unicom Poverty Reduction Flagship Store” has been established to satisfy the procurement demands of multiple internal scenarios; externally, “China Unicom Poverty Reduction Shop” has been set up on JD.com, which creates an online “brand market” for the agricultural products of the poverty-stricken counties. In general, we built a powerful sales platform oriented to all units of the whole system of China Unicom, our 300,000 employees as well as social public for the poverty-stricken areas. Just in three months after the platform going live in 2018, more than RMB30 million of poverty-alleviation goods had been sold, fundamentally solving the issue of weak sales capability of e-commerce and difficulty in selling agri-products in those areas.



Agri-products from poverty-stricken counties recommended to the public in “China Unicom Poverty Reduction Shop” jointly built by China Unicom and JD



Agri-products from Pishan County sold in Jiangsu under the collaboration of China Unicom Jiangsu and Xinjiang branches



China Unicom held more than 120 promotion and trade fairs for the agri-products of poverty-stricken counties before and after the Poverty Alleviation Day

China Unicom Shaanxi branch developed a new model of "Internet + Targeted Poverty Alleviation" by building a management platform of village residency officers for poverty alleviation, which covers about 900 departments and units with over 60,000 active users of the mobile app, and creates a convenient channel for agri-products from demand to purchase.



Data presented at the Big Data-based Poverty Alleviation Information and Commanding Center

Adopting a partner assistance form of "one company and one village", China Unicom Beijing branch has provided assistance to Foyukou Village for a long time from communications service, smart agriculture, fruits selling to low-income families. It called upon its staff to buy 4,039 boxes of apples from Foyukou Village, which cost about RMB400,000, and produced nearly 10,000 apple boxes to help the selling.

## Solidly Advancing Aid for Xinjiang and Tibet

China Unicom kept increasing the fund support to aid for Tibet and has invested RMB49.3565 million since the 13th "Five-Year Plan". Focusing on the poverty alleviation targets of "Two No-Worries and Three Guarantees", we have conducted some poverty reduction projects such as relocation from inhospitable areas, paying attention to the health of people in poverty-stricken areas, and IT-based education development, providing assistance in both knowledge and spirits. In particular, we stepped up assistance to poverty alleviation in Geji, Tibet, helping solve the actual difficulties faced by local poor people. In future, we plan to invest RMB1 billion to network-based poverty reduction in Tibet to improve the coverage of wireless and broadband networks. We also donated "Love Libraries" to 132 schools in the four prefectures of South Xinjiang, covering more than 85,000 primary and secondary school students, with the participation of 180,000 China Unicom users who donated a total of 126 million credits.



Conveyed greetings to the relocated public in Geji County, Tibet



Poverty reduction and students assistance training for the public servants of Geji County and Tibet branch company

## Feature Story IV: Building Smart 2022 Winter Olympics

As the sole official partner in communications services for the Beijing 2022 Winter Olympics and Paralympics, China Unicom incorporates the Olympic philosophy of "eco-friendliness, openness, sharing and integrity" into the Olympic communications service system under the theme of "Smart Winter Olympics Connecting the Future", and is dedicated to supporting the 2022 Winter Olympics with smart networks and ultra-fast network speed, serving the Winter Olympics with smart applications and diversified products, as well as guaranteeing smooth communications service for the Winter Olympics with smart technologies and professional manpower, so as to provide fresh and robust impetus to the success of the 2022 Winter Olympics and the manifestation of China's strength and power.

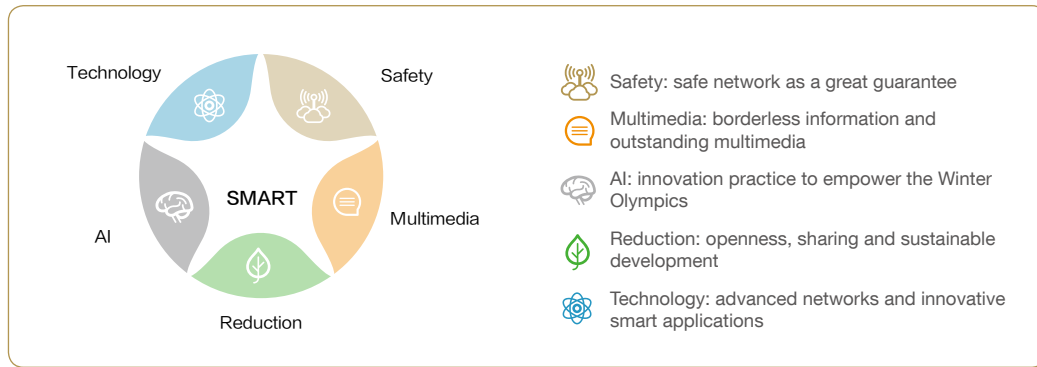
The China Unicom Theme Day activities were organized during the Olympic Expo in August 2018, at which Mr. Juan Antonio Samaranch Jr., Vice-President of the International Olympic Committee (IOC) and Chair of the Beijing 2022 IOC Coordination Commission, addressed that:

"The slogan of 'Smart Winter Olympics Connecting the Future' of China Unicom provides us more expectations of the 2022 Winter Olympics. The rapid development of communications technologies not only satisfy people's 'faster, higher and stronger' demand in network usage, but also offer more possibilities to the Olympic Games. I believe China Unicom will bring us a wonderful, excellent, and extraordinary Winter Olympics with the Beijing Organising Committee for the 2022 Olympic and Paralympic Winter Games."



## Clear of the Core Goals of Smart Winter Olympics

The core goals of China Unicom's Smart Winter Olympics can be summarized as "SMART", i.e. Safety, Multimedia, AI, Reduction and Technology, and the role of China Unicom's 5G service should be highlighted to contribute to a smart Winter Olympics.



Core Goal System of China Unicom's Smart Winter Olympics

## Publishing the Strategic Plan for Smart Winter Olympics



Press Conference of China Unicom's Smart Winter Olympics Strategy

### Safeguarding plan: empowering the Winter Olympics and building a smart protection system with 5G technologies

China Unicom is committed to developing a series of smart applications with innovative 5G technologies and building a smart application platform for the Winter Olympics, providing 360°panoramic live broadcasting, immersive VR experience and field medical care, with the help of virtualization, AI, edge computing and other technologies guaranteed by the 5G network that has high speed, low latency and large connection to empower the smart Winter Olympics.

We have invested more than RMB1.5 billion to the Winter Olympics for upgrading and building a 5G-centered ubiquitous broadband communications network as well as creating a smart system to safeguard the operation, and fulfill the three targets of providing best user experience, quality event service and intelligent venue operation.

### Development plan: expanding cooperation on events and integrating into smart life

Taking full advantage of the role as the sole official partner in communications service to the Beijing Winter Olympics, China Unicom is exploiting smart Winter Olympics related scenarios and applications, providing intelligent solutions, and expanding them to smart city, media, Internet of vehicles and other key industries to develop new energy for development.

We are cooperating with our partners to form an industrial community with integrated resources, complementary advantages and win-win cooperation, and establish a rights and interests sharing platform of smart life. The cooperation will cover multiple fields including food, clothing, shelter, transportation and entertainment. We will develop exclusive products and rights and interests of Winter Olympics for wide users, to enable the public to play winter sports, and assist the fulfillment of the national goal of "300 million people participating in winter sports".

### Promotion plan: marching ahead with the Winter Olympics for win-win results

In order to provide active support to the Beijing 2022 Winter Olympics, China Unicom has been doing some promotion work. Internally, we are enhancing our brand image, highlighting the cooperation value, improving our corporate management level, building professional talent teams, and promoting corporate culture development. Externally, we are constructing a smart service system and helping fulfill the sponsor goal of winter sports development to realize the win-win development of both China Unicom and the Winter Olympics.

## Enhancing Ecological Cooperation for Smart Winter Olympics

At the "Beijing 2022 Partner Club Launch Ceremony and the Dialogue on Marketing for Beijing 2022", as a member, China Unicom indicated that we would take the 2022 Winter Olympic and Paralympic Games as an opportunity to develop the next-generation network, and build Beijing into a future 5G leading capital in coverage, sense and applications, and announced our new deployment and measures to promote 5G development: we have determined to take Beijing as a key city for 5G trial network building and explore new operating models; we will take the opportunity of mixed-

ownership reform to cultivate and strengthen new forces for driving high-quality innovative development of 5G; and will take the opportunity of Beijing 2022 to build a new card of “Smart Winter Olympics” for the capital.



Official launch of Beijing 2022 Partner Club

On 31 October 2018, China Unicom and Shougang Group held a strategic partnership signing ceremony. The two companies will work together to build Shougang Park into the first 5G demonstration park in China, and enhance strategic cooperation in 5G industrial park building, smart park planning, design and demonstration application, joint promotion of brands, international businesses, Olympic culture promotion as well as winter sports development.



China Unicom launched a four-year-period of “Campus Winter Olympics Plan”, with the aim to further spread Olympic spirits and knowledge and culture on Winter Olympics among teenagers and students. Its first program “China Unicom Winter Dreams Campus Ambassador” has started.



## 🏠 Feature Story V: Serving the “Belt & Road” Initiative

### 🌐 Strengthening the “Belt & Road” Service Capability

China Unicom has been implementing the “Belt & Road” (“B&R”) initiative in depth. Relying on China Unicom Global Limited and holding a vision of being a “customer-trusted international information service expert”, the Company is committed to providing customers with highly safe, fast responding, excellent end-to-end experience, flexible, customized and concierge-like communications and information services. We have set up over 30 branches around the world to provide domestically and internationally integrated, global end-to-end comprehensive package information services to global customers and global voice and data services to individual customers abroad.

#### 🌐 Expanding the coverage along the “B&R”

- PoP coverage reached 14 along the “B&R”, and reached 57 globally, covering 21 countries and regions.
- 17 new vPoPs through cooperation, covering 14 African cities.
- Newly built 5 branches, completed the system capacity enlargement in China-Mongolia and China-Russia two directions, and realized the first connection with the Pakistani operator and the 100G cross-border connection with Mytel of Myanmar.
- Implemented Hong Kong-Zhuhai-Macao Bridge optical cable project, which is 50.2 km long, to provide a large-capacity, highly-safe and low-latency information channel to communications among Guangdong, Hong Kong and Macao.

#### 🌐 Forming a diversified international optical cable layout

- 410G newly-added cross-border land cable capacity, contributing to a total of 9.895T.
- 3.67T newly-added self-owned submarine cable capacity, and the self-constructed submarine cable capacity in operation reached 21.7T.

#### 🌐 Improving the international Internet outbound capacity of Africa

- The South Atlantic Inter Link (SAIL) constructed and led by China Unicom was completed on 4 September 2018. It is the first direct intercontinental submarine cable across the South Atlantic sea area, connecting the continent of Africa and South America, and further improves the international Internet outbound capacity of Africa.

### ◎ Continuously broadening the service scale

- Established long-term cooperative partnerships with more than 300 international operators, provide global connection and ICT services to over 1,000 corporate clients, and have over 460,000 mobile users abroad.

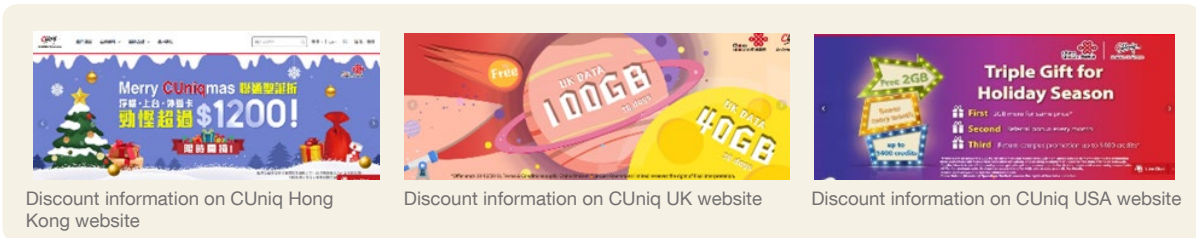
### 📍 Offering More Privileges to “B&R”

China Unicom provides innovative and preferential products and services at the places where it operates, and offers ICT service solutions to Chinese enterprises “going out”.

- For the initial demand of Chinese enterprises opening overseas, we rolled out “opening package” - one-stop ICT solutions.
- For financial customers, we rolled out low-latency fine products for financial private networks and launched Aliyun (Alibaba Cloud) service with Alibaba.
- Operated MVNO service in Hong Kong, the UK and the USA, and

launched various promotion activities, including SIM card provisioning discount, travelling card discount, number porting discount and special discount for festivals.

- Have served over 600 “going out” enterprises with the networked bandwidth reaching 1.5T and services reaching nearly 100 countries, providing efficient and convenient international communications and value-added services to a large number of companies.



### 📍 Exploring “B&R” Ecological Cooperation

China Unicom conducted wide cooperation with industries and adopted an asset-light model to quickly cover business blind areas. With the close-coupled resources and complementary advantages, we developed new markets with partners and drove business development.

- Through the cooperation with PCCW on VPOP in Africa, we extended the network to Africa, expanded the coverage of 17 new POPs in 14 cities of 11 countries, and gained PCCW's advantages in terms of network structure, time delay and price in Africa, able to provide good and efficient services to small and medium enterprises.
- We cooperated with Google with our self-constructed NCP submarine cable, and greatly increased the resources in the directions of Japan and America, changing the “stock” to “new increase” and improving the efficiency of the resources. A general resource pattern of TPE, NCP and FASTER three large-bandwidth cables across the Pacific has formed.
- Cooperated with China Telecom in constructing the HKA international submarine cable, which is expected to go into operation at the end of 2020.
- Cooperated with BAT in expanding the POPs in Singapore and South Korea to enlarge the network coverage.
- Carried out a cloud-network integrated project in Thailand to strengthen China Unicom's capability and advantage in oversea cloud.
- Actively participated in various global industrial conferences and exhibitions and the appraisal and election of various industrial awards to manifest to the world our quality information solutions and services.

### 📍 Persisting in Localized Operation during “B&R” Development

#### ◎ Strictly abiding by the laws and regulations of the host countries

- We ensure that business activities are carried out by following laws and regulations; strictly abide by the Company Law and Labor Law of the People's Republic of China, the Employment Ordinance of Hong Kong and laws and regulations of other countries and regions; avoid and eliminate discrimination behaviours based on race, colour, gender, age or other factors; avoid and eliminate child labour and all kinds of forced labour; submit statements and declared information to company governing body and license supervision body on schedule; respect local society and culture; and the supervision and audit department has a permanent hotline and e-mail address to receive complaints of unfair treatment. Till now, no incidents involving violations of the rights of the indigenous people have occurred.

- To prevent transactions with sanctioned countries, we have had preventive measures and suggestions in place in advance, make a thorough investigation, review the internal supervision policy and related transaction behaviours, and terminate related high-risk transactions as quickly as possible.

- We fully respect multi-ethnicity culture, provide equal job opportunities and build harmonious working environment. In the southern Asia-Pacific region, we not only have Chinese employees but also have staff from Singapore, Malaysia, the Philippines, Indonesia and Myanmar, making contributions to the harmony of local races.

#### ◎ Attaching great importance to honest operation

- Made publicity for the “B&R” initiative and Chinese operator brand via global famous social media such as Facebook, Twitter, LinkedIn and YouTube.
- During the past three years, we have always paid high attention to the publicity by domestic and overseas media and published more than 3,000 articles on domestic media like Xinhuanet, www.cnr.cn, toutiao.com, Tencent, Sina, Netease, and C114, and overseas media like Takungpao, Bloomberg, Thomson Reuters, and Yahoo.
- Actively participated in professional meetings and industrial conferences, such as CIO Leaders Summit Singapore, Smart Finance CIO Forum Kuala Lumpur, PTC 2018, Capacity Asia 2018 and ACC2018.

- In 2018, China Unicom got elected to be a director unit of China Enterprise Directors Association and took an active part in the activities organized by China Enterprises Association.

#### ◎ Implementing localized procurement

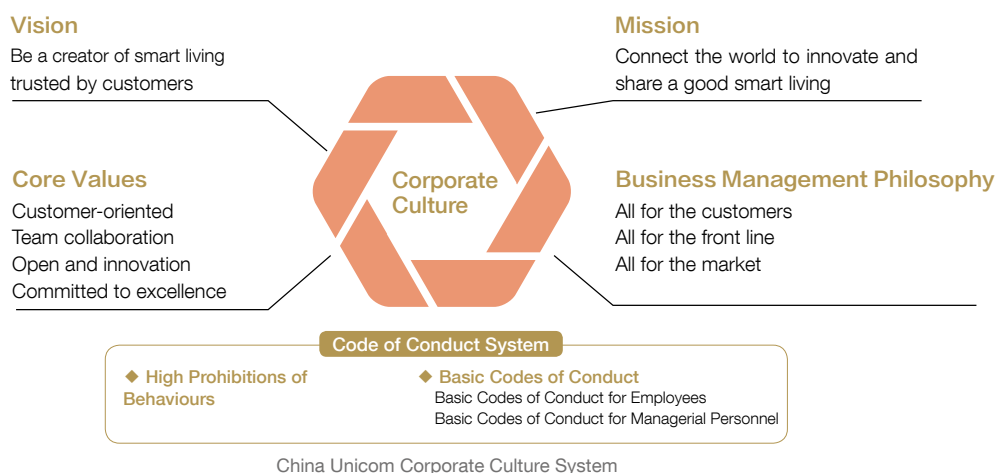
- Implementing localized procurement and cooperating with local operators to provide networking service; maintenance, insurance, legal consulting, property management, lunch, shuttle buses and other services are all procured locally.

#### ◎ Employing local staff

- By the end of 2018, China Unicom Global Ltd. had 851 employees in total, of which 696 worked abroad (252 were female), including 257 foreign employees.

## 🏠 Corporate Culture

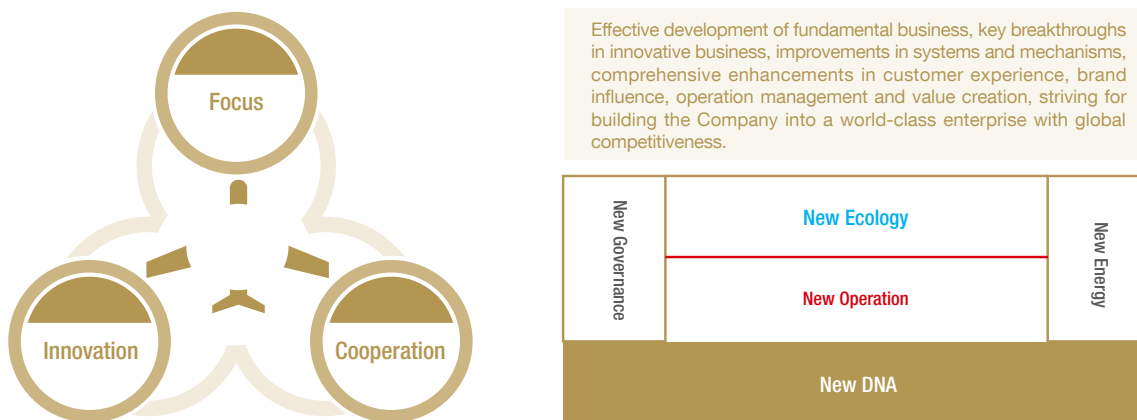
In 2018, China Unicom continued corporate culture development exercise, led by Party building to drive corporate culture as a means to strengthen the enterprise. China Unicom's corporate culture system comprises a core value system, including the Company's vision, mission, core values and business management philosophy, as well as a code of conduct system formed by the "High Prohibitions of Behaviours" and the Basic Codes of Conduct.



## 🏠 Development Strategies

In meticulous implementation of the development philosophy of "innovation, coordination, eco-friendliness, openness and sharing", China Unicom, leveraging its edges and resources, has optimized and upgraded the Company's strategies, and put forward to further implement the Focus, Cooperation and Innovation strategy to build "Five New" Unicom, in order to cope with the complex and profound changes taking place inside and outside the Company. We have persisted in focusing on key businesses, areas and customers; persevered in making innovation in consumer-oriented Internet and industrial Internet, international development, market-oriented mechanisms and systems, talents, etc.; kept making cooperation with strategic investors, industry peers as well as industrial ecology; and concentrated efforts on taking effective measures in New DNA, New Governance, New Operation, New Energy and New Ecology to drive the practise of the strategy.

In 2018, China Unicom has deepened the mixed-ownership reform, carried forward Internet-oriented operation and exerted efforts in building the "Five New" China Unicom, during which the business development of the Company took a historic turn. Our business transformation has taken solid steps forward. Profound changes in systems and mechanisms have taken place. We successfully set a benchmark for the mixed-ownership reform of central SOEs. In the future, the Company will continue to stick to the leadership of Party building in guiding reforms and development, reinforce our corporate culture to strengthen enterprise, foster solidarity among staff and intensify reforms in order to promote the revamped image of China Unicom with five new elements.

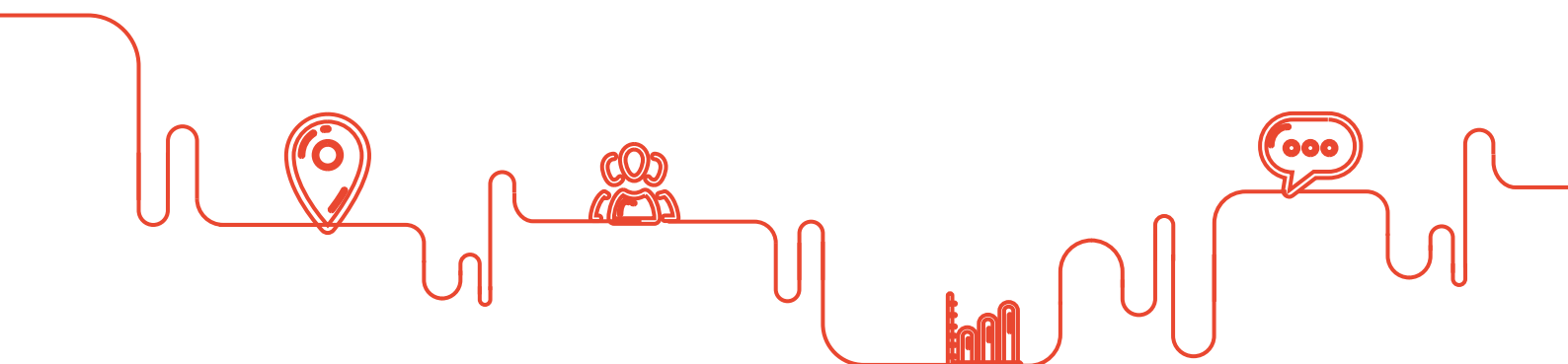
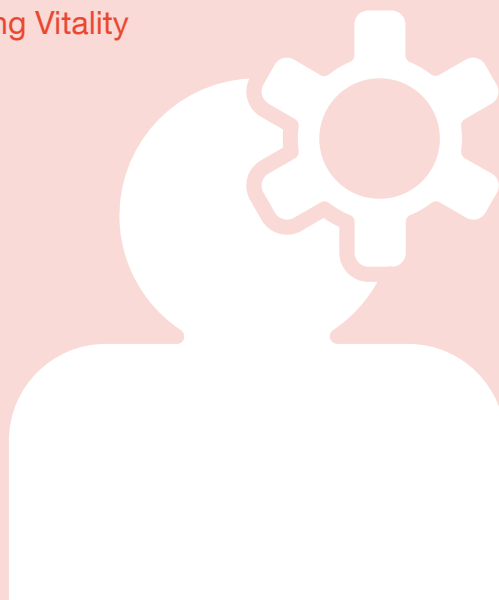


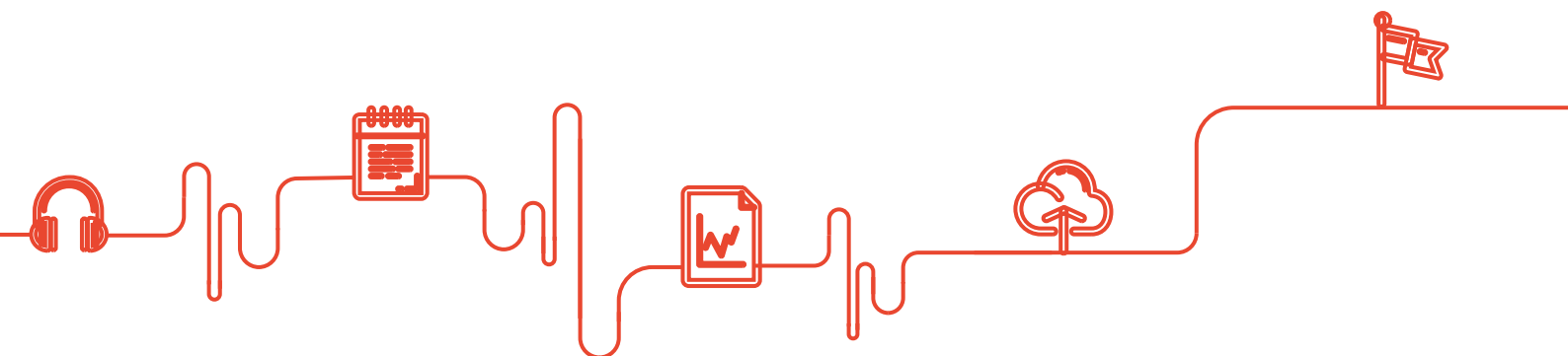
China Unicom Strategic Framework

# New Governance -

## Writing a New Chapter in SOE Reform

- 18 Upholding the Leadership of Party Building in Guiding Development
- 20 Perfecting Corporate Governance Structure
- 22 Compliance Operation and Responsibility Fulfillment
- 22 Sub-divided Unit Reform for Stimulating Vitality





## New Governance – Writing a New Chapter in SOE Reform

China Unicom has been exploring and improving new governance of mixed-ownership reform in the Company, operating based on law compliance, promoting the modernization of governance system and capability, and fully advancing the sub-divided unit reform of all production scenarios. Progresses have been made in deepening reform in an all-round way.

### Measures adopted in 2018

- Put political development in the first place, enhanced the integration of Party building work and operation, and advanced work on anti-corruption and integrity advocacy.
- Built a pluralistic Board of Directors, and increased its members to 13, including 3 internal directors, 5 strategic investor directors and 5 independent directors.
- Innovated the law popularization form, strengthened intellectual property management and strived to create a fair competition environment for the telecom market.
- Made clear of the Group Company's safety responsibility system and operating mechanism, and promoted the building of the risk control system.

### Actions to be taken in 2019

- To firmly carry out the "two full implementation", adhere to the leadership of Party building work, and establish a modern corporate system with Chinese characteristics oriented to market norms.
- To fully promote the in-depth integration of Party building work and the central operating work, and further intensify the political responsibility in performing supervision and discipline.
- To further drive mechanism and system reform that adapts to the needs of productivity development.
- To continue implementing the law popularization program of the seventh "Five-Year Plan", promote the building of a rule of law-based China Unicom, and further consolidate the responsibility of the first person responsible in legal construction.
- To further improve the risk management system and make it finer and deeper.
- To use supervision rating to guide internal control and system building and keep improving the credit-risk management level.

## Upholding the Leadership of Party Building in Guiding Development

China Unicom has seriously put into practice the general requirements for Party building in a new era, continuously intensified the construction of honest Party conduct, promoted the anti-corruption and integrity upholding work, increased the Company's vitality with Party building work and created honest corporate atmosphere with Party working style construction, so as to keep enhancing the Party's creativity, cohesion and fighting strength, to provide strong political guarantee to the high-quality development of China Unicom.

### Strengthening Party Building

Guided by Xi Jinping Thought on Socialism with Chinese Characteristics for a New Era, China Unicom earnestly implemented the general requirements for Party building in the new era, put political construction in a leading position, adhered to and enhanced the overall leadership of the Party, as well as strived to consolidate its base and root and build the soul, through which the Party building quality in the Company has been improved comprehensively.

◎ Always putting political construction at the top of the list and resolutely implementing the important instructions of General Secretary Xi Jinping and the decisions and deployment made by the Party Central Committee

- We studied in depth and implemented Xi Jinping Thought on Socialism with Chinese Characteristics for a New Era and the spirit of the 19th CPC National Congress, firmly established the "Four Consciousness", and improved the "Four Confidence". We were resolute in achieving the "Two Safeguards", always kept in alignment with the Party Central Committee with Comrade Xi Jinping at its core in thoughts, politics and deeds, and firmly grasped the correct political direction of corporate reform and development.
- We resolutely put into practice General Secretary Xi Jinping's important instructions and the Party Central Committee's decisions and arrangements in the company, and strived to make the efforts effective in implementing the new development philosophy, fighting the three major tough battles, serving the strategy of cyber power and the work on network information security, implementing the "faster and more affordable Internet connection" policy, responding to the "B&R" initiative, and assisting the implementation of the rural revitalization strategy.
- Referring to the Report of the 19th CPC National Congress, we produced and implemented "Guiding Opinions on Learning and Implementing Xi Jinping Thought on Socialism with Chinese Characteristics for a New Era and the Spirit of the Nineteenth CPC National Congress", which clearly defined 71 measures for 30 tasks in 13 aspects to guide and advance the work on corporate reform and development.

◎ Carefully implementing the "two full implementation" and constantly improving the modern SOE system with Chinese characteristics

- Following the principle of "one policy for one enterprise with classified implementation", we classified the Party building work requirements and promoted their inclusion into the Company's regulations, and defined the statutory status of Party organizations in the enterprise.
- Carried out "two-way entry and cross-appointment", meaning that the secretary of the Party organization and the Chairman shall be served by person, and the members of the management and the leading group of the Party organization shall be cross appointed.

- Refined the responsibilities and authorities of Party organizations and other governing bodies, and made it clear that the research and discussion of Party organizations is a pre-procedure for the Board of Directors and managers to make decisions on major issues.

◎ Keeping including the Party building work into the Company's central work, and leading the high-quality development of the enterprise with high-quality Party building

- Rooted Party building work into production practices, and united the strengths and promoted development by forming pairs with grass-roots Party organizations or clients. There were 694 pairs within the whole system.

- Fully pushed forward the synchronized progress of Party organization building and the sub-divided unit reform and subsidiary reform, and explored the building of a Party branch in the sub-divided unit.

- Vigorously promoted the establishment of Party Member Vanguard Posts, Youth Civilization and Civilized Units, and encouraged Party members to take the lead in shouldering heavy burdens and overcoming difficulties, to unite strengths and efforts for reform and development.



China Unicom held the 2018 Party Building and Clean Party Conduct Building Work Conference



Chairman Wang Xiaochu re-took the Party admission oath at Henan Jiao Yulu Deeds Exhibition Hall



China Unicom organized Party Theme Day activity for the 97th anniversary of the founding of the CPC



Chairman Wang Xiaochu gave a Party lecture to the students of China Unicom Party School

## 🚩 Combating Corruption and Upholding Integrity

We have continued to deepen the rectification work, further intensified work style correction and anti-corruption by keeping abreast of the Company's reality, promoted the building of a system and mechanism for the officials "dare not corrupt, can't corrupt, and do not want to corrupt", driving the Company to achieve new results from strictly governing the Party, building a clean and honest Party working style and anti-corruption work in an all-round way.

- In 2018, we identified and dealt with problems through the special inspection on optical network transformation, and retrieved and reduced a loss of RMB3.046 billion for the Company; and carried out a "three-in-one" special inspection of channels, commission and agents.

- We actively promoted the annual self-review system by Party members and cadres of their compliance with Party disciplines and 25,700 Party members reported their self-review results for 2017 to Party organizations. In 2018, 25,700 people were interviewed, of which 171 were interviewed by members of the Group Company's Party Leadership Group.

- Published "Notice on Further Addressing Both Symptoms and Root Causes and Advancing Work on Promoting Rectifications with Negative Examples", and organized all units to carry out such work to form a normalized, systematic working mechanism and to keep enhancing the systematicness and effectiveness of seeing Party self-governance exercised fully and with rigor.

- Strengthened the patrol and inspection work. In 2018, we completed the patrol of 8 provincial branches and 21 departments of the Group HQ, and the inspection of 389 city-level branches and their subordinate units as well as 2,127 county-level sub-branches.

- Perfected corporate regulations and disciplines and put emphasis on education. We printed and distributed the revised "Disciplinary Provisions for Employees' Violations of Regulations and Disciplines", and published "China Unicom Disciplines on Employees' Internal and External Communication", lining out the behaviour red line for all staff.

- Comprehensively promoted reform of the stationing system for disciplinary inspection bodies in city-level branches. By the end of 2018, there were 352 stationed disciplinary inspection teams with 1,253 full-time officers, which strengthened the supervision at the front line.

## Perfecting Corporate Governance Structure

### Management



**Wang Xiaochu**

Chairman  
Secretary of Party Leadership Group



**Li Guohua**

President  
Deputy Secretary of Party Leadership Group  
Executive Director



**Li Fushen**

Deputy Secretary of Party Leadership Group  
Executive Director



**Shao Guanglu**

Vice President  
Member of Party Leadership Group



**Zhang Lianru**

Leader of Party Discipline Inspection Group  
Member of Party Leadership Group



**Mai Yanzhou**

Vice President  
Member of Party Leadership Group



**Liang Baojun**

Vice President  
Member of Party Leadership Group



**Zhu Kebing**

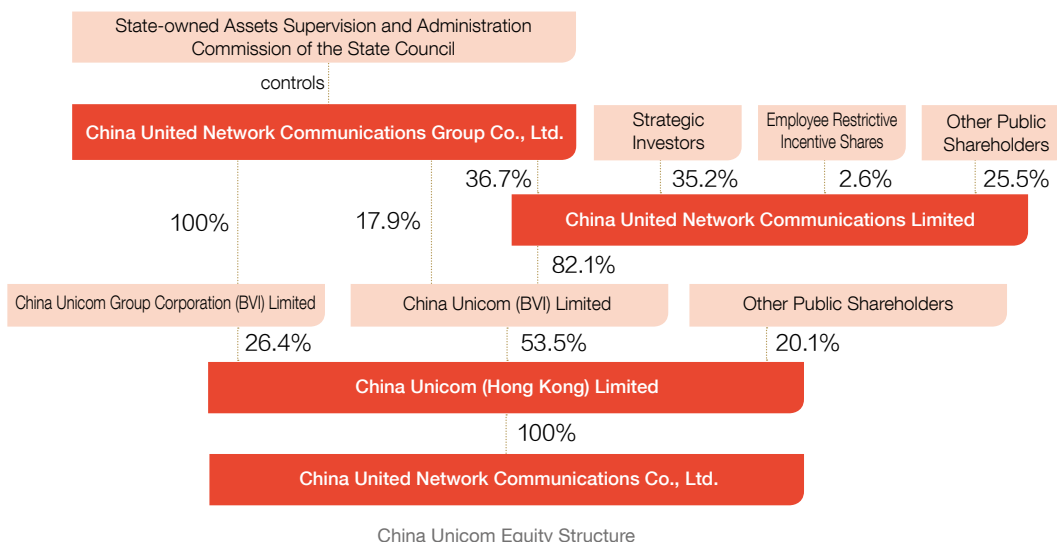
Chief Accountant  
Member of Party Leadership Group



**Fan Yunjun**

Vice President  
Member of Party Leadership Group

## Equity Structure



Note:

1. Data as of 31 December 2018.
2. The shares of China United Network Communications Limited held by strategic investors represented the shares acquired by the strategic investors introduced by the mixed ownership reform from non-public share issuance and transfer of existing shares.
3. Excluded the interest in 225,722,791 shares of the Company held by China Unicom Group Corporation (BVI) Limited as trustee on behalf of a PRC shareholder.

## Organizational Structure

In 2018, China Unicom steadily promoted organizational structure reform and the “body streamlining 1.0” action achieved noticeable results. Through normalized streamlining, several departments of the headquarters continued to shrink to build a structure of “small management, big operation and strong collaboration”, and a human resource system of “capable up, mediocre down and inferior eliminated” so as to improve the management efficiency and arouse employees’ vitality.

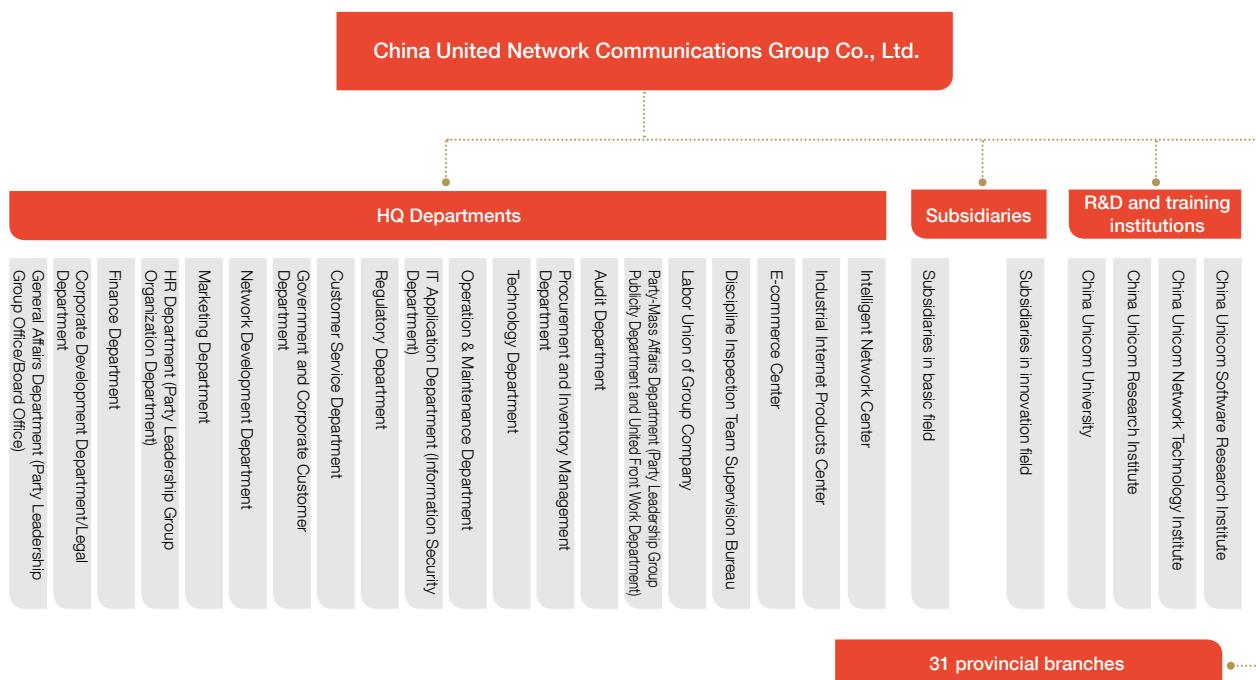


Chart of China Unicom Organizational Structure

## Compliance Operation and Responsibility Fulfillment

Legal compliance is a prerequisite for the sustainable development of an enterprise, as well as an important organizational and institutional safeguard for it to make decisions, operate businesses, management, and protect legitimate rights and interests according to laws. China Unicom enhances its legal compliance and risk management mechanism on an ongoing manner in consistent adherence to business ethics. The Company is in a diligent effort to protect the common interests of itself and its stakeholders and contributes to the development of business integrity and rule of law in the nation.

### Operation in Compliance with Laws and Regulations

China Unicom insists on taking Xi Jinping Thought on Socialism with Chinese Characteristics for a new era as the guide, and thoroughly implements the new philosophy, thought and strategy of ruling the country by law in an all-round way to push forward legal construction and culture in the Company and improve its operation in compliance with laws and regulations.

- Implemented the rules on the performance of duties by the chief officer of the enterprise as the primary responsible person for promoting legal governance and the “7th Five-Year Plan” planning for general legal education, and carried out layered, graded and continuous in-depth publicity and education of the rule of law to promote all staff to respect, abide by and use laws.
- Compiled and distributed “Special Issue on Law Learning for Leading Cadres”; carried out Constitution learning propaganda and special law popularization activities such as on “3.15” World Consumer Rights Day, “4.15” National Security Day, and “4.26” World Intellectual Property Day; strengthened law popularization training for new employees; and organized lectures on law popularization for the grass-roots level, and legal risk prevention training in key business areas.
- Enhanced intellectual property management to promote the transformation and innovation of scientific and technological achievements; strengthened protection of patents, trademarks, copyrights and business secrets, and set up strict review and approval procedures to avoid infringing on others’ intellectual property rights (IPRs); and organized activities such as IPR popularization quiz to create a good atmosphere of respecting innovation and IPRs.
- Strictly abided by the “Advertising Law” and relevant administrative regulations of the Ministry of Industry and Information Technology and other relevant authorities that: all advertising materials and images were purchased through proper channels; all advertising and promotional materials were marked with products names, costs, service contents, valid period, promotional and other relevant information; and the advertising information was true, accurate, and easy to understand. We also strictly complied with national laws and regulations when conducting business promotional activities and regulated our propaganda behaviors.
- Implemented relevant laws and regulations of the state regulatory authorities, and strived to create a fair competition environment in the telecommunications market. Relying on the three-level supervision system of Group-province-city, we exerted efforts to do a good job on policy implementation and supervision. Put into practice and took full advantage of the supervision policies in the telecommunications market, formulated relevant management measures and systems such as anti-commercial bribery, to consciously maintain a good market competition order.
- In 2018, the number of economic contracts of the Group was about 750,000, and both the review rate and the performance rate of the contracts reached 100%.

### Risk Prevention

In order to effectively prevent operation risks and protect the Company’s robust operation, we kept improving the comprehensive risk control system and developed multiple management measures.

- In terms of cooperative partners, we made unified application through the Chinese partner platform to rigorously avoid the suppliers on the blacklist.
- Carried out inspections on the implementation of the internal control system, established new business management methods, developed market risk management policies and processes, improved information technology-related management systems, formulated credit rating and granting templates, conducted internal control self-evaluation, etc.
- Completed the comprehensive risk self-examination and rectification in the Group and financial subsidiaries, formulated the rules of procedure for the Group’s Financial Risk Management Committee, implemented new management method of revenue funds, as well as optimized the analysis model of accrual income and sales cash inflow at the Group and provincial levels.

## Sub-divided Unit Reform for Stimulating Vitality

All-production scenario sub-divided unit reform is a specific measure in implementing the arrangements of the Party Central Committee on reform deepening, an inherent demand in improving corporate new governance of mixed-ownership reform, and an important impetus to drive the Company’s sustainable development. In 2018, focusing on the six elements of “micro-organization establishment, gross income assessment and incremental gains sharing, small CEO employment, inverted-triangle service support, IT system support, and supervision and evaluation system”, China Unicom deepened the all-production scenario sub-divided unit reform in an all-round way with the aim to stimulate the greatest vitality for development, and positive results have been achieved.

Divided more than **24,000** contracted units

Selected and employed about **20,000** small CEOs

Over **154,000** employees entered contracted units      Salary of the unit employees grew by **20**% per capita

#### ◎ Responding to the Call of “Innovation and Entrepreneurship” to Stimulate the Vitality of Front Line Staff

As long as the enterprise puts its staff in mind, the staff will carry the enterprise on their shoulders. While protecting and respecting employees' rights and interests as always, China Unicom adheres to its original intention of bringing benefits to those who shoulder responsibilities and make achievements, and established a value creation-related incentive resource allocation system of more pay for more work and no ceiling for the remuneration. The sub-divided unit reform drives the employees to form a “community of shared future” with the enterprise based on the “community of interests” and the “community of undertakings”, which has greatly motivated the enthusiasm of employees in working and starting businesses.

We regard the people in charge of sub-divided units as the most admirable group, and have granted more power to them including the independent management right, resource use right, employment right, assessment and distribution right, reversed assessment right and broadband construction right, making them to be real CEOs. Giving full play to their advantages in knowing the market and close to customers, we can improve the Company's acumen of the market and competitiveness. On the other side, the CEOs of the sub-divided units are responsible for the performance results and capability improvement of the units and their employees, having equal rights and responsibilities as managers. For those CEOs who are full of entrepreneurship, have great achievements and outstanding abilities, we give them more honour incentives to effectively stimulate the internal impetus and vitality of the units.

#### ◎ Transforming Corporate Operation Model and Establishing an Inverted-Triangle Service Support System

China Unicom established an inverted-triangle service support system to “let the demand from market front line drive the efficient operation of the corporate management system”. An intelligent middleground with the roles assignment of “the foreground submitting work orders, the middleground responding and the background offering support” provides support and guarantee to small CEOs in production delivery. A city-provincial-Group three-level integrated service support system provides various one-stop service supports to small CEOs, and mobilizes the three levels to fully satisfy the units' demands through a reversed order dispatching process from small units, city branches, provincial branches to the Group Company. Small CEOs are also granted the reversed assessment right against backend supporting departments, driving specialty departments to transform from “managers” to “service providers”, effectively supporting the units to respond to market demands faster and more efficiently, and empowering the front line.

In China Unicom Shandong branch, the sub-divided unit reform greatly motivated employees' enthusiasm in doing practical work, starting businesses and shouldering responsibilities, and attracted a large number of outstanding talents to go to the front line to serve as small CEOs, achieving consistency between the interests of employees and the enterprise.

The employees of Licheng Comprehensive Grid run the company as their own homes. With an Internet-based working method, and the two IT supporting systems of Wuji and Wuyou, their work efficiency has been improved, and a team willing to do, capable of doing and able to do practical work has formed. The remuneration of the employees after contracting rose by 27% per capita year on year.

- Fully granted small CEOs the power in doing practical work and starting businesses, including the employment right, tariff review and approval right, investment right, etc.
- Divided the budget target to individuals and established a gross margin-oriented assessment mechanism with every one having a target and task, and more pay for more work without a ceiling.
- Divided the cost resources to the small units and individuals, driving them to make cost control voluntarily. As a result, 17 energy consumption sites were transformed, saving about RMB210,000 in electricity expenses during the whole year, and the recovery amount of fixed-line terminals increased by 2.5 times.



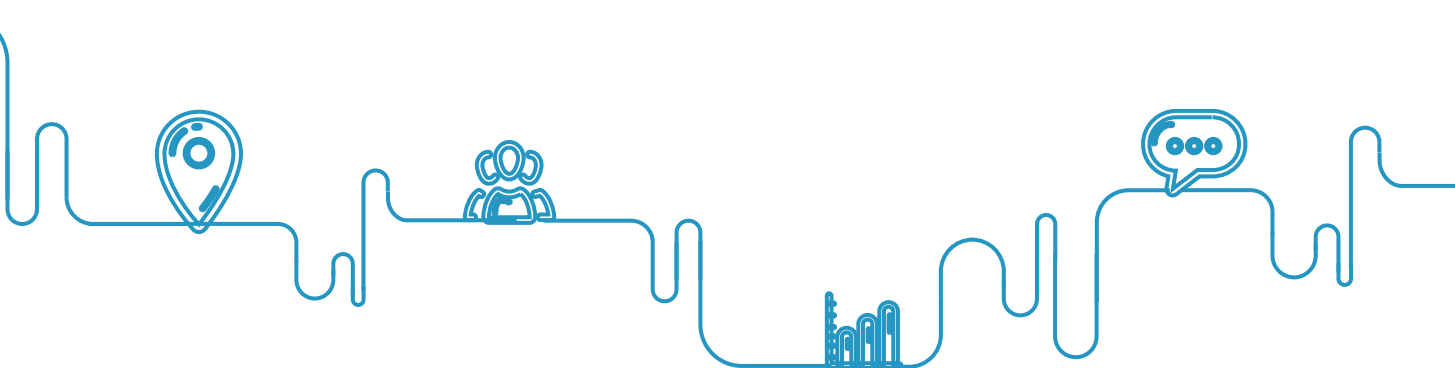
“The sub-divided unit reform provides us a platform to realize our aspirations. I will exert the greatest efforts to prove myself with good performance.”

—Xu Minyu, a middle managerial officer of China Unicom Shandong Tai'an branch going down to the marketing service center to act as a small CEO in response to the call

# New DNA –

## Strengthening New Foundation for Transformation and Development

- 26 Injecting Excellent Internet DNA
- 26 Creating a New Pattern of Talent Supply
- 27 Establishing a New Incentive and Constraint Mechanism
- 27 Supporting Employees' Sustainable Development





## New DNA – Strengthening New Foundation for Transformation and Development

China Unicom actively cultivates and strengthens the new Internet DNA, injects the excellent cultural gene of Internet enterprises into corporate development, and boosts the corporate Internet-based thinking transformation and human ability promotion, so as to continuously consolidate the transformation and development foundation, persistently improve the social responsibility awareness and ability level, earnestly safeguard the lawful rights and interests of employees, form warm and harmonious labor relations, promote the sense of happiness and sense of acquisition of employees, and achieve the common growth and development of employees and the Company.

### Measures adopted in 2018

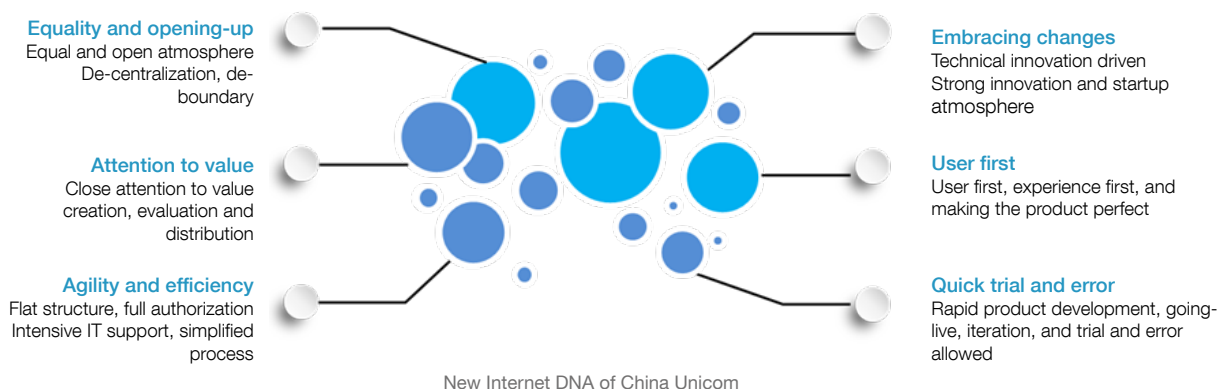
- Attracted about 10,000 innovative talents, enhanced the innovation capacity training and injected excellent Internet DNA into the Company.
- The employee job grade promotion rate of the whole group was 14%, and the salary level promotion rate was 34%.
- Enhanced the four-level professional talent team building, selected 3 leading talents, 320 expert talents, 3,540 backbone talents and 6,033 new talents.
- Fulfilled the granting of restricted shares for the first time in the Group.

### Actions to be taken in 2019

- To further consolidate the training work system construction, and carry out Party theoretical education, Party style education and professional capability training.
- To continuously carry forward the value creation-centric incentive resource allocation system.
- To continuously carry forward the comprehensive incentive system implementation, activate the incentive resources, and stimulate the vitality of employees.

## Injecting Excellent Internet DNA

We further inherited and carried forward the existing “red, reform, open and diversified” excellent DNA, quickly internalized the equality and opening-up, attention to value, agility and efficiency, embracing changes, user first, rapid trial and error and other excellent DNA of Internet companies as the endogenous genes of the Company, and strengthened the foundation for transformation and development.



## Creating a New Pattern of Talent Supply

Development is the top priority, talent is the first resource and innovation is the first driving force. China Unicom has been persistently optimizing the talent system, to realize the mode of “talent efficiency promotion for basic business and establishment of special talent zone for innovative businesses” and cultivate high-level innovative teams. In addition, the Company exerted great efforts to cultivate loyal and responsible high-quality cadres, gather outstanding talents, and cultivate and select excellent young cadres.

### ◎ Innovatively reforming the human resources system

We implemented the corporate strategy and Internet-based transformation requirements, carried out talent segmentation management in the innovation field, implemented the “418” talent project in the innovation field to deeply advance the talent mechanism reform, and implemented eight action plans based on the four goals of “new mechanism, quantity increase, capacity improvement and use enhancement”.

- For “new mechanism”, based on “6-break” principle, with the business driven project system operation mechanism as the core, and with the talent supply and incentive and constraint as the principal line, established a new mechanism of special talent zone in the innovation field, to realize “promotion and demotion”, “entry and withdrawal” and “salary increase and decrease”.
- For “quantity increase”, implemented “U talent”, “talent hunting” and “flowing water” programs; increased the talent supply through fresh graduate recruitment, high-end talent hunting and stock personnel flow; and the innovative talents rose from 7,000 to 16,000.
- For “capacity improvement”, established a talent endogenous mechanism and capacity standard; implemented “U growth”, “engine” and “accelerator” programs; and promoted the IT and innovation capacity of fresh graduates, stock personnel, technical innovation capacity and business innovation personnel. The Group held 6 “demonstration classes” (25,480 man-days in total) of three programs. Meanwhile, the course system and online capacity resources have taken shape.

- For “use enhancement”, implemented the “startup and innovation plan”; centralized talent transfer through the trans-organizational project system; enhanced the use of medium- and high-end talents; implemented the “sharing plan” to realize knowledge sedimentation and sharing; and promoted talent value creation by knowledge experience sharing and other ways. In 2018, there were 77,000 talent community users and about 50 crowdfunding projects.

#### Attaching great importance to the selection of excellent young cadres

- Strictly enforce the criteria and highlighted the orientation. Lay emphasis on discovering excellent young management personnel at the grass-roots level, and take practical efforts to discover and recommend the excellent young management personnel who “desire to do the things, can do the things and succeed in doing the things”.

- Improve the candidate generation mode. The leading Party group has established a normalized working team to make surveys on excellent young management talents; the Party organizations at all levels have built excellent young management talent teams, and made recommendations to the superior based on the merits; we also carried out a method combining block recommendation and line recommendation, plane research and key research and hierarchical investigation and direct investigation for candidate generation, and discover excellent young management talents through daily investigation, open selection and open recruitment.

- Grasp the information of talents in different grades and guarantee the sufficient quantity. The Group's Organization Department tracks and masters the excellent young management talents under 45 years old, and pays close attention to the excellent young management personnel under 40 years old, especially the excellent young management personnel in the innovative business field; and the organization departments of the units at all levels track and master the excellent young management talents under 35 years old.

## Establishing a New Incentive and Constraint Mechanism

China Unicom aims to achieve the coordinated growth of incentive resources and value creation in the organization dimension, based on the market-oriented allocation direction; and to achieve the coordinated growth of salary and personal contribution in the individual dimension, based on the differentiated allocation direction.

- Advanced the normal operation of the promotion incentive system. In 2018, the promotion rate in terms of employees' positions was 14% and the salary promotion rate was 34% in the whole Group.
- Enhanced the four-level professional talent team building. There were about 10,000 talents (including leading talents, expert talents, backbone talents and new talents) for the four-level talent echelons in 12 disciplines, including big IT, network operation and maintenance and industry Internet.
- Carried out the talent segmentation management in the innovation field, deeply advanced the talent mechanism reform, and drove the mechanism establishment and plan implementation through allocating special incentive resources, to effectively support the development in the innovation field.
- Comprehensively boosted the sub-divided unit reform of the whole production scene, established an incremental gain sharing mechanism for the units, and promoted the talents to share the reform results. The salary level of the front-line employees rose by 20%.

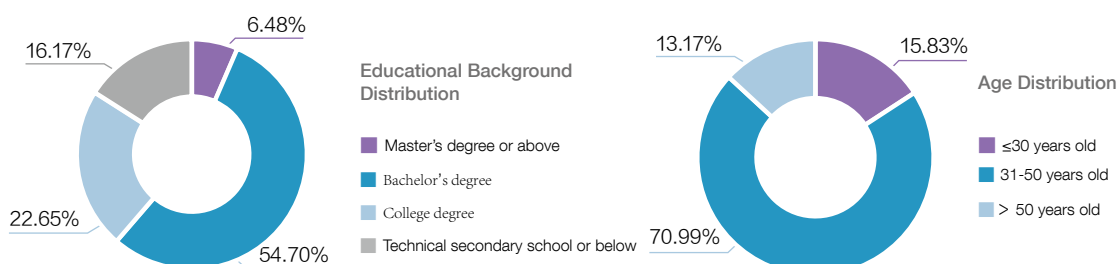
Employees' job promotion rate of the Group was **14%**, and the salary promotion rate was **34%**

Selected **3** leading talents, **320** expert talents, **3,540** backbone talents and **6,033** new talents

China Unicom Guangxi Nanning branch established a multi-level, wide-coverage and sustainable point accumulating system for talent value, in which the honor incentive is dominant and the material reward is secondary. Relying on “temperature” creating atmosphere and “system” as guarantee, the talents were further discovered, cultivated and retained, teams were activated, and the employees' enthusiasm, creativity and subjective initiative were motivated.

## Supporting Employees' Sustainable Development

Gene decides success and the critical factor lies in human. China Unicom firmly holds a philosophy of “strong talents and excellent genes prosper the enterprise”. We exerted efforts to strengthen the critical factor of talents, and explicitly put forward that the human resource is the first resource of the Company, and is the source for the healthy development of the Company. We made positive contribution to the employees' growth, and constantly improved the sense of acquisition of employees. A harmonious atmosphere of “the company sincerely cares about the employees and the employees care for the corporate development” has taken shape in the Company.



Employees (person)	Absorbed Personnel (person)	Male-female Ratio	Proportion of Minority Employees (%)	Dismission Rate (%)
262,634	10,954	1.50: 1	6.77	2.16

Note: Employees mainly include in-service employees and dispatched labor.

Current Situation of Employees of China Unicom

## Protecting the Basic Rights and Interests of Employees

### Employing workers subject to the law

- The Company strictly executes relevant provisions of the Labor Contract Law and has signed labor contracts with all employees. Besides, the Company earnestly guarantees employees' rest and vacation rights, and carries out the paid leave system for employees. At the same time, the Company buys the endowment insurance, medical insurance, work-related injury insurance, maternity insurance and unemployment insurance for employees, sets up the enterprise annuity for employees based on voluntary choices, achieves the full coverage of annual physical examination of the employees, and retains the job for the employees who take the maternity leave/paternity leave.
- The Company lays emphasis on protecting human rights, and respects personal privacy. In the recruitment and promotion process, it is prohibited to have any discrimination about age, ethnic group, and gender and other aspects to the employees, and it is prohibited to use child labor or forced labor. A mechanism protecting employees' rights and interest has been established and an appeal channel has been smoothened. In 2018, no discrimination incident occurred.
- The Company strictly performs the Interim Regulations for Labor Service Dispatch, continuously carries forward the employment optimization and standard management, and implements the policy of equal pay for equal work subject to the national requirements. The employees' satisfaction rate has continuously improved.

### Rights and interests protection system

- In building harmonious labor relations, the branches at all levels open the channels, and listen to employees' reasonable appeals through the "three-in-one" democratic management. Labor dispute mediation organizations have been established in the whole Group. The Group's Labor Union established a labor relation consulting committee to conduct researches on collective contracts, labor dispute mediation, special projects in serving employees and other topics, so as to safeguard the lawful rights and interests of the employees.
- Our 31 provincial branches have realized a full coverage of collective contracts, of which, 11 provinces have additionally signed the "Collective Contract for Protecting the Rights and Interests of Female Staff" and the "Collective Contract for Wage Negotiation" and other special contracts, to protect the legitimate interests of the employees.

## Ensuring Employees' Health and Safety

40 work safety training

Work safety training coverage reached **100%**

We attach great importance to production safety, and have earnestly implemented the Production Safety Law of the People's Republic of China and other work safety related laws and regulations. We also periodically carried out inspections of production safety in the whole system based on the lessons and focusing on key points and problems, making rectification while checking, and promoting the rectification by inspection. Meanwhile, we consolidated the responsibility system of production safety, strengthened the supervision and assessment work, boosted the in-depth combination of plan management with emergency handling, production and operation, and intensified emergency drills to prevent trouble before it happens, and improve the response capacity. We helped all of our staff to raise safety awareness, and carried out "taking a picture of hazards around" activity, to find and solve potential risks, rectify safety hazards and build a good environment for production safety.



China Unicom Shandong branch organized a fire drill in order to cultivate the emergency handling capacity of all of its employees and improve their fire protection awareness and escape skills.

## Improving Employees' Quality and Ability

### Continuously carrying out education and training

- Organized the study and training on Xi Jinping Thought on Socialism with Chinese Characteristics for a New Era and the spirits of the 19th CPC National Congress, and carried out special studies and training activities in multiple forms and covering all Party members in the Company by virtue of Unicom Party School, online Party school and Unicom pioneer column platform. The Group Company provided 78 special trainings in rotation for the management personnel at Level III or above in a centralized manner, opened a special zone for study on the spirits of the 19th CPC National Congress in the online Party school, and organized about 4 million person-times of cadres and Party members to study 29 courses in the "special zone" online.
- Advanced the development of teaching materials for courses. We took the lead in systematically developing Group-level Party building courses among central enterprises; focusing on network technologies and long-term talent cultivation, we developed 107 face-to-face and online courses (325 class hours in total); focusing on the Internet-based operation transformation, innovative businesses, new employees' cognition and other fields, we developed 80 business courses.
- Innovated training modes and methods. Oriented to product managers of the whole Group, we organized an "O2O study demonstration class", built an online study platform that integrated the online college, "Wo school" and "Micro school" into one and focused on the work hotspots and businesses of the Company, and carried out 10 online learning activities participated by 28,000 people. More than 30,000 people watched the live video streaming online, and the subscribers of our "Micro school" account on WeChat reached 103,000.

- Carried out the "Talents at the Front Line" themed staff skill contests. In 2018, China Unicom held 4 Group-level skill contests (in big data innovation, e-commerce, cyber security and Domain B agile innovation and development (Tiangong Tianti)) and 22 provincial-level skill contests. About 210,000 person-times in the Group participated in the skill and labour contests.

- Continuously strengthened the institutional, systematic and standard construction of the education and training system of the Group. We carried out targeted, professional capability training for key groups, such as the management personnel, outstanding young management talents, professional talents, grass-roots small CEOs and new employees.

**11,527** online courses

More than **11.25** million person-times studied at the online learning platform

#### Management Personnel at All Levels

Organized 17 leadership training classes, participated by about 1,500 people in total; and selected and sent about 25 senior executives, experts and backbone personnel based on the "one school and five academies" and other high-quality external resources.

#### Outstanding Young Management Talents

Conducted 2 sessions for further studies in spring and autumn of Unicom Party School, and organized 88 potentially excellent management talents to study in the medium- and long-term off-job classes for advanced studies in the Unicom Party school in succession.

#### Professional Personnel and Strategic Talents

For professional personnel, we organized 164 professional skill training sessions, providing training to 23,547 core backbone talents. For strategic talents, we carried out "U growth plan", "engine plan" and "accelerator plan" in an orderly manner, and organized 6 Group-level training, participated by 25,480 person-times in total.

#### Training on New Technologies and Businesses

In the online academy, 80 courses on big data, AI, block chain and other relevant contents were opened, and 2 million person-times of the Group participated in the study. For the innovative businesses and Internet operation, big IT and other key groups and disciplines, 72 innovation capability training were provided. For 5G deployment, 4 sessions on 5G technical training were organized, and a professional 5G wireless team consisting of about 100 people nationwide has formed.

#### Internal Post Authentication System Building

Carried out internal authentication of retailers, Smart Home engineers and market auditors; released the "Guiding Opinions on Building of a Training Authentication System for "Smart Home Engineers of China Unicom"; and organized experts in relevant fields to compile hierarchical post authentication standards and the course outline. 73 online authentication courses were developed, 80 lecturers were cultivated, and 120 evaluators received training.



China Unicom Tianjin branch carried out the service personnel skill contest, Industrial Internet skill contest and other activities, to establish an exchange and sharing platform, create a contest atmosphere of "comparison, learning, catching up, helping and surpassing", and achieve the purposes of "driving learning by contest, improving production by contest, and promoting integration by contest".

## Encouraging Employees' Involvement in Management

China Unicom fully respects the right to know, right to participate and right of supervision of the employees, and attaches importance to the employees' involvement in the operational management activities of the Company. Through the participation of employees in the decision-making activities of the Company, their autonomy and enthusiasm are increased, which is more conducive to making decisions in a more scientific manner, and building good atmosphere of common development and progress for the Company and the employees.

The Group has established an operation mechanism for the adjournment period of Workers' Congress, to supervise and urge relevant units and departments to implement the resolutions of the Workers' Congress of the Group Company. Through the e-proposal platform for staff representatives, a closed-loop mechanism for handling the staff representatives' proposals and receiving the reasonable appeals of the employees has taken shape. In 2018, 15 provincial branches broke the convention of holding the Workers' Congress at the beginning or end of the year only, and convened more than 2 meetings. The organizing frequency of Workers' Congress was obviously higher than the previous years.

The corporate affairs open release system of China Unicom improves the mutual understanding and support of the Management and the employees. All provincial branches have established a normalized system for corporate affairs open release and 381 release meetings were held in total. The employees are informed of the stage operation goal fulfillment, cadre appointment and dismissal, purchase tendering, employees' welfare and treatment and other important matters periodically through such open release meetings.

Held **523** Workers' Congresses

Listened to and deliberated **1,295** matters related to the vital interests of staff

China Unicom Shandong branch encouraged all of its staff to participate in management, and carried out service quality improvement activity by taking the opportunity of "big reflection and big discussion". The employees of different posts actively participated in the activity, and put forward suggestions. During the period, 406 reasonable suggestions were collected, of which 117 have been adopted, covering system support, service procedures and standards, etc.

In 2018, together with the general managers of relevant departments of the Headquarters, the President of the Group interacted with the employees of the whole Group with regard to the sub-divided unit reform of whole production scene, Internet-based transformation and other themes for twice, and the number of online participants reached 23,000 at the peak. 21 provincial branches have printed and distributed the general manager online activity system, to learn about employees' appeals in time, and increase their recognition of and support for the corporate reform and transformation.

Carried out the General Manager Online activity for **447** times, covering **172,000** employees

The employees raised **10,463** suggestions, and the general managers replied to **4,653** on site



The President of China Unicom answered employees' questions in the special activity of "General Manager Online" of the "Face-to-face Talk between Big and Small CEOs".

China Unicom Beijing branch extended the scope of the General Manager Online activity from "speaking out freely" to employees' welfare and remuneration reform, opening employees' most concerned topic, and a special activity for human resources was held. Highlighting the goal of providing valuable references to reform and development, China Unicom Shanxi branch carried out a special activity on sub-divided unit reform of the whole production scene, to constantly bring the positive role into play of bidirectional communication in strength gathering. On the basis of on-site activities, China Unicom Heilongjiang branch and Fujian branch opened the General Managers' mailboxes to the staff 7\*24, which would accept letters and complaints irregularly, to ensure that employees' appeals are handled in a real-time manner.



## Caring about Employees' Life

Based on the spirit of serving the employees, we paid close attention to solving the most concerned, the most direct and the most realistic problems of the employees, carried out multiple cultural and recreational contests and activities, improved their working environment and conditions, cared about their physical and psychological health, and settled the actual difficulties of the staff to warm their hearts.

### Established and improved the employee service system

- Established an after-school care system in summer and winter vacations for children of the employees, and opened 220 classes with nearly 7,000 children.
- Improved the office environment for grass-roots employees. 17 provincial branches nationwide invested a total of RMB53.19 million of "five-small" construction funds, and completed the reconstruction in 4,228 grass-roots units.
- Cared about the special rights and interests of female staff. We organized various activities, such as lectures on female workers' rights protection, and marriage law forums, effected insurance on female workers' health, promoted special services, including breastfeeding rest room and special parking space for the pregnant women, and signed special collective contracts with female staff, to make the system for safeguarding the rights and interests of female staff more standardized and institutionalized.
- Explored the establishment of a care system for remote exchanged employees, caring about their life and work, and providing timely assistance.

## ◎ Colorful cultural and recreational activities

China Unicom have been active in carrying out “sending culture” and “sending health” to the grass-roots activities. Based on the practical situations and starting from employees’ hobbies, interests and needs, the branches promoted the grass-roots to extensively carry out various cultural and artistic activities as well as sports and body-building activities for staff, which have greatly improved their sense of belonging, sense of honours and sense of gains, raised up their morale, facilitated the corporate cultural development, and are deeply welcomed and loved by the vast grass-roots employees.

China Unicom fully supports the popularization and inheritance of the culture and spirits of table tennis. Four Olympic cycles have passed since China Unicom established strategic partnerships with Chinese Table Tennis Association and the International Table Tennis Federation. In 2018, China Unicom continuously held the table tennis contest “Table Tennis in WO” for all, and integrated a teenager contest and table tennis culture publicity activity, setting a good example in the industry for supporting national fitness.



National Final of the 6th China Unicom Table Tennis Challenge



Zhang Xielin, Former Chief Coach of Chinese Women's Table Tennis Team, Led a Teenager Team



“Common Growth of Me and Reform” Speech Contest of China Unicom Software Research Institute



Staff Sports Meeting of China Unicom Guangdong Branch



Outdoor Training Activity of China Unicom Shandong Branch



Staff Fun Games of China Unicom Tianjin Branch

## ◎ Caring about employees’ physical and psychological health

We attach great importance to the physical and psychological health of the employees. In 2018, we were continuously committed to the employee assistance program and the establishment of a perfect medical support system, to improve their sense of gains and sense of happiness.

The Company has kept advancing the EAP assistance program, improved the service platform for psychological health publicity and education, training and evaluation, as well as consulting and tutoring, and enhanced the building of a professional team on psychological counseling. At present, there are 300 certified EAP specialists and psychological counselors in the Group, providing psychological counseling services. In 2018, the number of employees accepting psychological services exceeded 40,000 person-times.

Besides providing health insurances to employees, the branches further explored the provision of better medical support solutions to the employees.

China Unicom Fujian branch has built a “Health Appointment” platform that covers the employees of grass-roots units in the whole province, and opened a green channel for the grass-roots employees to seek the help of experts and get medical treatment in “large hospitals”. In addition, the labour union organized well-known medical experts to come to the units to provide diagnosis, consulting and health tour activities for public welfare.

China Unicom Heilongjiang branch constructed the first “Employees’ Health Room” in the province, providing multiple services to its employees free of charge. With the grass-roots unit employees as main objects, the company also carried out free clinic services and large medical assistance activities.

China Unicom Yunnan branch organized some of its front-line employees working in the border and Tibetan branches to participate in the recuperation activity.

China Unicom Zhejiang branch organized about 3,000 front-line employees to participate in staff recuperation, including over 1,700 outsourcing and dispatched employees, which has improved the cohesive force of the company and won wide praises from the employees.



China Unicom buys critical illness insurance for the employees. Throughout the year, the number of employees having obtained compensation and assistance through the critical illness insurance and employees’ mutual aid was 6,016 person-times, with an amount totalling RMB41.48 million. Employees’ sense of belonging has improved greatly.

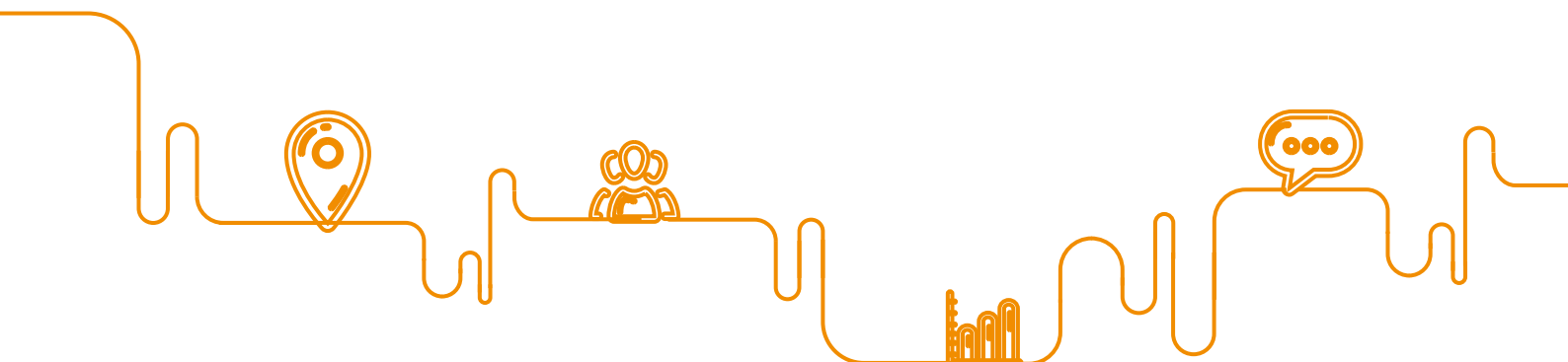
China Unicom established records for 5,245 needy employees to grasp their conditions in a real-time manner, formulate assistance plans, and carry out dynamic management, ensuring that “no one is left behind”.

RMB **30.22** million was invested to help the needy employees    RMB **28.53** million was invested for condolence funds

# *New Operation-*

## **Starting Internet-based New Reform**

- 34     Constructing Smart Premium Network
- 36     Enriching Smart Applications
- 38     Improving Smart Services
- 41     Safeguarding Cybersecurity
- 43     Sticking to Green and Low-Carbon Development
- 48     Promoting Charitable Undertakings to Share Benefits with the People





## New Operation – Starting Internet-based New Reform

China Unicom spares no effort to accelerate the Internet-based new operation, which is an important approach to implement the new development philosophy and is closely related to the customer-centered perception and experience, cyber security protection, green and low-carbon operation, social benefits manifestation, and other requirements. As a responsible state-owned large communications central enterprise, during the Internet-based operation transformation, China Unicom should pay close attention to economic benefits, social benefits and environmental benefits, and facilitate the harmonious development of the Company and the society.

### Measures adopted in 2018

- Provided information universal service, opened 987,000 4G base stations in total, covering 90% of the population, and canceled the traffic “roaming” fee.
- Diversified “smart + life” applications, built an integrated rights and interests system, and established a family Internet operation center.
- The customer satisfaction rate improved, with the NPS up by 13 scores, and the service up by 6 scores.
- Guaranteed emergency communications, and fought against communications fraud, to protect public information security and maintain social stability.
- Performed low-carbon development through technical energy saving, paperless office, waste recycling, innovative green applications and other ways. In 2018, the special funds for energy saving and emission reduction exceeded RMB100 million.
- Kept bringing returns to society. In 2018, the external donation reached RMB191.96 million; and volunteer activities were carried out with 44,000 registered volunteers.
- Improved customer service by virtue of new technologies and channels, and the Internet channel served 31.65 million users.
- Improved the system inquiry function to realize consistent account balance inquiry results through all channels, and enhanced the payment functions of all businesses on “online business hall/mobile business hall”.
- Carried out “Attentive for 10-score satisfaction” themed all staff service action.

### Actions to be taken in 2019

- To boost the information universal service and narrow down the regional digital gap.
- To carry out emergency communications guarantee, and further purify the cyberspace.
- To continuously conduct NPS evaluation and make continuous improvement in such aspects as service means and service channels, to improve the customer perception and customer word of mouth.
- Based on the living circle of the public, to further develop cooperation channels that are closer to the public with different industries, to meet the communications needs of local people.
- To pay close attention to electromagnetic radiation management, and further innovate green applications.
- To further improve the resource service system of the Company, carry out external donation, expand the volunteer team and cultivate civilized style.

## Constructing Smart Premium Network

China Unicom has made active efforts to implement the strategy of building a nation with powerful networks, and carried out network optimization and evolution and speed upgrading, to forge a premium network in an all-around manner and provide quality services to the wide users.

### Creating Optimal Network Experience

China Unicom has exerted great efforts to forge a premium network, and paid close attention to user experience, with the aim to provide users high-quality networks with good coverage and fast speed.

- **Leading 4G network speed and smooth watching experience of high definition videos:** In 2018, China Unicom invested RMB17.91 billion to 4G network and opened 987,000 4G base stations in total, covering 90% of the population. Taking advantage of big data, AI and other technical methods, we can accurately predict the network business volume and effectively solve customers' complaints to ensure user perception. According to the statistics of Broadband Development Alliance, in 2018, the 4G downloading rate of China Unicom was 23.57Mbps, leading the industry.
- **Speed increase of home broadband for seven years in consecutive:** In 2018, the broadband and data network investment of China Unicom reached RMB9.16 billion, and the broadband ports totalled 215 million, of which the FTTH ports accounted for 82.3%. The mainstream rate of home broadband has been improved to 200M at least. The Smart WO Family Package has gone through constant improvement. Ranging from two-people family to five-people family, customers can make their own choices as needed, providing benefits and convenience to the public.

Opened 987,000 4G base stations in total

**987,000**

4G base stations in total

Covering **90**% of the population

To enable the community residents to have more satisfactory network experience, China Unicom Shandong branch invested RMB154 million in Weifang, and reconstructed 417 old communities, covering 400,000 users, and all those households have the access to 200M above network.



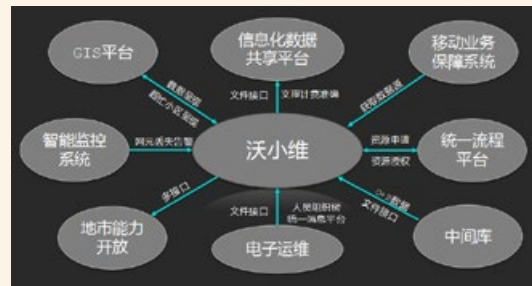
Eliminated "spider webs" in the air



Renovated the network cabinets and junction boxes

Making use of the multidimensional analysis of the big data platform, China Unicom Sichuan branch carried out fast iterative rolling construction to respond to users' demands. The cities above town-level in the whole province have realized continuous 4G coverage, and the coverage along the airport expressway, bullet train and high-speed railway was 94%. The NPS improved by 5.7% year on year.

China Unicom Jiangxi branch created "WO Xiaowei" network data steward and broke the traditional mode, having greatly improved the network operation and maintenance efficiency. Through the cross-platform smart analysis, the user requirements were better met and the data accuracy rate reached 99.3%.



Cross-platform data connection escorting the premium network

China Unicom Beijing branch implemented the sixth speed up and fees down action. The users' broadband has generally been upgraded to 100M, with 200M as the dominant speed. The broadband network equipment is gradually evolving to 10GPON. 1,361,200 households have realized Gigabit capacity to fully meet the requirements of 2K/4K HD video business, basically satisfy the AR/VR demand, and enrich the happy life of vast users.



## Driving Network's Smart Evolution

While retaining the existing network development, China Unicom has been exploring the future-oriented intelligent network architecture and evolution strategy, and constantly improved the intensiveness, elasticity and smartness of the network, to gradually realize Internet-based network operation, and provide agile, self-served, e-commerce and individualized network service experience to users.

- Accelerated the construction of a new-generation CUBE-Net 2.0+ architecture, to gradually realize cloud-oriented, automatic and intelligent network development based on SDN/NFV, cloud, ultra wide band, AI and other technologies.
- Realized the connection with typical APPs through integrating the mobile network's differentiated end-to-end service capacities, and the product was successfully invoked for more than 1 million times daily in average, covering all provinces nationwide.
- Robustly boosted the cloudification and virtualization of the core network, laying a cloud network foundation for the development of IoT and 5G.
- Enhanced the independent researches on network software, embraced open source technologies, promoted network decoupling and openness, and accelerated network reconfiguration by virtue of open technical eco-system.

For China169 backbone network construction, we have actively implemented the "Action Plan for Promoting the Scale Deployment of Internet Protocol Version 6 (IPv6)" to comprehensively deploy IPv6. Extended the functions of automatic and intensive opening and deployment of SDN controller and its application scope, and further improved the service quality of some important businesses. Continuously maintained our leading position in the Internet industry with the average delay inside the Internet at 32.22ms, which was superior to that of other operators for 32 consecutive months. At the end of 2018, our domestic backbone network capacity reached 240T, the domestic IPv6 interconnected bandwidth was 3,112G and the international interconnected bandwidth was 2,427G.

For the industrial Internet construction, we completed the development, test and launch of multiple new functions; completed the networking test and automatic connection with Alibaba cloud and Tencent cloud, and provided the automatic opening process; completed the construction of two batches of 139 self-owned DC access and more than 40 cloud commercial DC access resources; fulfilled the IPRAN network and industrial Internet connection in 334 prefecture-level cities; and completed the upgrading of the SDN function of PE equipment of the whole network, and all local networks have met the cloudification and inter-cloud interconnection needs of the enterprises.

China Unicom Guangdong branch deployed VXLAN switch on the edge of the bearer network in 21 prefecture-level cities, which may realize rapid traffic flowing and dispatch and seamless business switch among prefectural-level cities, and lay a foundation for the official deployment of SDN/NFV. Guangdong branch will accelerate the deployment of the 5G bearer network, and gradually introduce SDN, NFV, MEC and other new technologies, to achieve intensive network resources, agile services and open capacity.

At the 2018 Barcelona Mobile World Congress (MWC), China Unicom issued the "White Paper for China Unicom's Edge-Cloud Service Platform Architecture and Industrial Eco-system" with ZTE and Intel; announced the official launch of Edge-Cloud scale pilot project and pre-commercial network construction in 15 provinces and municipalities, covering campuses, venues, parks, industrial Internet, Internet of Vehicles and other scenes; and jointly demonstrated the edge vCDN and edge smart analysis on site at the Intel's exhibition stand.



## Reducing Fees and Providing More Benefits

China Unicom pushed forward the "four-reduction, one cancellation" work, bringing more benefits to hundreds of millions of users.



Lowering the Ice Cream Package Threshold to Freely Enjoy the Traffic

- **Same price for national traffic:** From 1 July 2018, the traffic roaming fee has been canceled, benefitting more than 200 million users.
- **Greatly reducing the international roaming/Hong Kong, Macau and Taiwan roaming fees:** Reduced the data roaming fees in 143 countries and regions, with an average decrease of 46% and the maximum decrease of 97%. Provided the service of daily package with unlimited data traffic in 174 countries and regions, and the traffic of some packages doubled.
- **Helping the public realize free traffic:** As of the end of 2018, the average unit price of mobile traffic rates decreased by 59% compared with that at the end of last year. The rates threshold of Ice Cream Package has been lowered, and multiple users can share the traffic freely. The 4G daily average traffic reached 62PB, increasing by 165% year on year.
- **Launching innovative Internet packages:** Jointly launched Tencent King Card, and more than 100 APPs can enjoy the exclusive free traffic. Jointly launched Ant Treasury Card, Jingdong Qiang Card, Weibo Wei Card and other diversified Internet packages to closely meet users' individualized needs, and enable them to enjoy the traffic bonus.

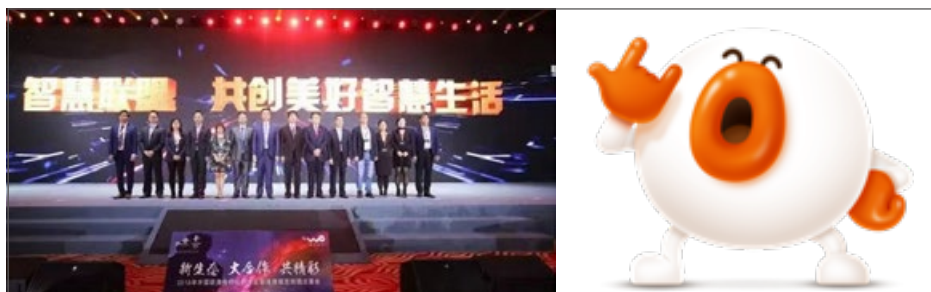
- **Family broadband, bringing more benefits to users:** Provided more preference to users in terms of the integrated package of fixed-line telephone and mobile phone. As of December 2018, the rate for family broadband decreased by 41% compared with that at the end of last year.
- **Boosting business startups and innovations, and increased the speed of smart development:** The bandwidth unit price of Internet private line for SMEs decreased by 36%, and offered special preferential policy to startups and innovation companies.
- **Shouldering the social responsibility, and benefitting the soldiers, medical workers and teachers:** Brought returns to the society in all aspects: provided preferential services and favorable packages to the soldiers, medical workers and teachers; and offered them discounts for mainstream products and direct, exclusive optical fiber connection.

## Enriching Smart Applications

Based on the basic communications network and taking advantage of emerging technologies, China Unicom robustly developed various "smart+" applications in such fields as smart life and smart industry, to enable the public to enjoy a more convenient and intelligent life.

## Building Smart Brands

In 2018, China Unicom continued its brand image deepening. As a corporate brand, China Unicom has innovative, reliable, trustworthy, open and cooperative outstanding brand assets. As a government and corporate business brand, China Unicom has to meet the needs of government and corporate customers for individualized and polymerized innovative services and powerful network and technical strength. As a public business brand, WO is oriented to the mass consumers, and should meet their needs for interest-related, conveniently perceived and acquired services as well as a younger, energetic and approachable brand.



Cartoon Image of WO Brand

## Freely Enjoying the Smart Life

### ◎ Paying close attention to the user experience

In 2018, China Unicom started the "Attentive for 10-score satisfaction" themed all staff service action. All channels were linked together and all employees took uniform actions. Every employee integrated the service culture into their blood, and conveyed the "Attentive for 10-score satisfaction" by language and behavior. China Unicom's workers used their considerate and sincere service attitudes and professional and satisfactory service quality to provide sincere services to users. At the same time, we enhanced the standard management of operation behaviors, and established an evaluation and investigation system for continuous improvement of user experience in products and services.

- Based on NPS research and evaluation, public opinion monitoring and customer satisfaction survey, as well as the analysis of perceptual data of the same user in five scenes (namely, physical business hall, mobile phone business hall/online business hall, 21 online customer service, broadband installation, relocation and repair, and domestic roaming investigation) and 43 dimensions, a comprehensive experience cloud diagram of integrated customer service tracking from "business acceptance" to "service feedback" has been developed.
- For the broadband process, solutions were developed by centering around four critical points, namely, convenient customer experience, automatic order penetration, one-stop delivery of installation and maintenance services, and whole-process order monitoring.
- We developed Woyishou, Woxingxiao and other Apps with independent researches, which, through simple ordering, removed the information security worry of customers when placing an order, increased convenience, provided rapid response to the needs, and improved the customer perception.

In the reconstruction of communications lines and facilities of old communities, China Unicom Shandong Weifang branch took the customer perception as the orientation, and informed the community customers in advance of reconstruction arrangement through on-site publicity, telephone call or SMS notice, WeChat customer service and other channels, to reduce the effects on customers' life. When the customers were informed, the company laid emphasis on explaining the advantages, such as "three-network integration", "optical fiber Internet", faster speed and stronger stability, so as to promote the residents' support and understanding of reconstruction. By "the customer determining the reconstruction time", and free replacement of reconstruction equipment, they obtained customers' cooperation to the maximum extent, and truly fulfilled the "Attentive for 10-score satisfaction".



### ◎ Innovating 4G products

In 2018, China Unicom kept improving the Internet-oriented product system, and diversified the traffic product system. We used Internet partners' APP touchpoints to make scenario-based directional promotion, and took advantage of the resources of the two sides to make deep integration of products so as to build a complete and flexible 2I2C application and privilege system and provide users with products of higher values and better services.

- For 2I2C business, we developed the terminal, express, travel and other new cooperation fields and launched 2I2C products with Xiaomi, YTO and Ctrip; made iteration and optimization of the existing cooperative projects to constantly improve products' coverage width and depth.
- Simplified the 4G package contract system, and drove the transformation from contract product to traffic product.
- Continuously intensified the promotion of the Ice Cream Package, and kept optimizing the Ice Cream Package.
- In the mobile video field, we carried out comprehensive cooperation of "content + traffic + membership rights and interests" with Internet video APPs, and our partners included Tencent, Iqiyi, Youku, Mango TV, Bilibili and the other five. The membership rights and interests-based cooperative products have provided better video experience services to China Unicom customers and video users of the whole network.

#### ◎ Enriching the integrated business

In 2018, China Unicom proceeded with the implementation of the "big bandwidth, big traffic, big integration and big video" operation philosophy, and enriched the "Smart WO Family" integrated products to the vast family users. Based on the high-speed broadband, big data traffic and rich video content, China Unicom created a comprehensive home information service solution, established a smart family ecology, and accelerated the industrialization of smart family.

- Established a family Internet operation center, and operated smart gateway, smart home, family cloud and other businesses in a centralized way.
- Provided "fiber optic modem + wireless router" two-in-one smart gateway terminals to new broadband users. The users may carry out such operations as smart control, remote management, and application downloading of the terminal through the client APP.
- The smart family engineer team kept improving their service capabilities and provided full coverage services of the family network to users, to comprehensively meet the demand for surfing the Internet of the user family.
- Provided smart loudspeakers with voice communication function, smart camera, family cloud and other services, to meet the demands in family communication, video monitoring, infant care and care for the elderly.
- The video company now has a base containing 100,000-hour HD television programs and films, and have introduced the full TV end contents of Iqiyi to provide richer product experience to customers.

## 🌐 Improving Smart Services

Based on the customer first concept, China Unicom serves customers through the business halls nationwide, customer service hotline "10010", online business hall, SMS, official Weibo account, WeChat customer service and other channels, and continuously improves the service system, operation and service retention method, to provide better customer services.

## 👤 Improving the Window Service

In 2018, China Unicom persistently enhanced the window channel service level and the efficiency of our own business halls.

- Focusing on customer perception and front-line service difficulties, we realized code scanning payment on self-service terminals and optimized the operation process in business halls, to solve the "two-duration" problems.
- Continuously optimized the bill presenting process and further simplified the front desk operation. As a result, the duration for handling integrated businesses at the counter has been shortened from 35 minutes to 12 minutes.
- Enhanced the support to the efficiency evaluation system of business halls based on Wo Stores.

The cooperative new retail flagship store - Tmall Smart Life Store by China Unicom and Alibaba was established in Tianjin, which is a physical digital product store dominated by digital 3C products based on the advanced new retail technology. The storefront design fully embodies new, fashion and cool features. It not only provides fresh shopping experience of on-site interactive code scanning for customization of preference or goods in the store, but also fully supports the Internet-based convenient shopping mode of ordering on the mobile phone, and goods pickup in the store or direct distribution by logistics. The main goods in the store are new digital products, which may facilitate the citizens to feel and experience the charm of new and fashionable digital products to the greatest extent.



China Unicom Smart Life Experience Store



China Unicom Smart Life Experience Store



Interior of China Unicom Smart Life Experience Store

## 📡 Expanding the Internet Service

China Unicom took active measures to develop and promote the Internet-based customer service by guiding users to move from traditional channels to online self-service, carrying out 28 publicity and promotion activities and initiating the live broadcasting mode of PK contests. The broadcast volume of “The Most Beautiful Customer Service Personnel” contest reached 29 million times, and the service capacity and influence improved greatly. The Internet channel served more than 97 million users with the penetration rate of the Internet service channel up by 4.4%; the fans grew by 59.6% in total; and the Internet service volume increased by 35.2%.

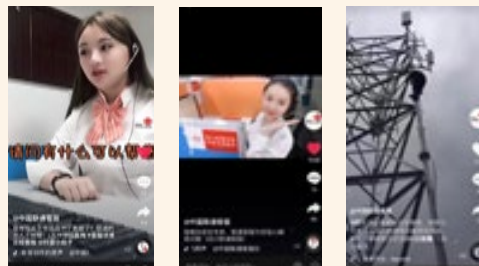
- For customer service hotline: We carried out the “Special Action for Improving Customers’ Perception of Hotline Service”, and optimized the IVR layer and broadcast content to enhance the online problem solving capability. The manual service level of the customer service hotline increased by 1.9PP; the overall settlement rate of the hotline service exceeded 96%, and the customers’ perception rose obviously.
- For Weibo, WeChat and online customer services: The timeliness rate of handling customer consulting and complaints by the “China Unicom Customer Service” official Weibo/WeChat account reached 99.5%, winning good public praise. We developed a Class I authoritative information release platform of “China Unicom Customer Service” on WeChat, and developed 5.35 million followers.
- For open knowledge base: We answered customers’ consulting through the “WO Know” knowledge assistance platform, and opened 500,000 pieces of knowledge in total; established the “China Unicom Bar” fan exchange platform on the post bar, gathered 3.63 million active fans and posted 610,000 messages, with a browse volume of 100 million person-times.

China Unicom Beijing branch accelerated the problem solving process by removing the ineffective procedures, shortening the solving time limit, and upgrading the technical means. The complaint handling process was transparently presented with the process being inquireable and traceable. It established an online-offline multi-touchpoint cooperation and open evaluation mode. Through the opening of the problem solving progress inquiry, the whole scene and whole process customer satisfaction evaluation on WeChat and online/mobile business hall channels, as well as other open and transparent means, the complaint process was shown in a transparent manner, and customers’ suggestions could be effectively transferred.

The Internet channel served over **97** million users

The user penetration rate of the Internet service channel increased by **4.4**%

The National Level-I Douyin account of “China Unicom Customer Service” started operation. Within 4 months, we collected 175 positive publicity videos in such aspects as service, business operation and maintenance, and obtained 450,000 likes.



## 📡 Enhancing Appeal Control

In 2018, according to the longitudinal and horizontal matrix appeal control system, China Unicom continuously enhanced the appeal control. In the whole year, no vicious fee collection appeal occurred, and the appeal control achieved remarkable effects. The Company brought the client complaint problem solving and corporate-end problem solving into the complaint closed-loop management system, strived to “handle a complaint and solve a kind of problems” and constantly improved the capacity for solving complaints from the source.

- Persistently enhanced the backstage complaint solving capacity, standardized support of service plans and knowledge bases, and classified and hierarchical complaint handling, and extended front-line service authorization, to effectively improve the solving capacity and complaint handling efficiency of customer complaints by the hotline service window.
- Constantly improved the fundamental solution operation mechanism for complaints bypassing the intermediate leadership, established a special team and virtual expert team for fundamental solution operation, enhanced the functions of the fundamental solution system, and linked up the early warning and fundamental solution operation process of complaints bypassing the intermediate leadership.
- Continuously conducted daily abnormality monitoring of complaints, to timely discover and give an alert to complaints made by most customers, and guide the provincial branches to quickly and properly solve the problems, so as to avoid the happening of group complaints by customers.
- Based on the fundamental solution operation and plate hanging and removal mechanism, laid emphasis on solving the difficult and hotspot problems in all the appeals.

China Unicom Inner Mongolia branch tried to improve customer perception, increase the service remedy scenes, and advance the participation of business departments in the complaint handling process by various approaches. It established WeChat group, QQ group, and other platform flat communication mechanisms, to do well the information feedback and communication between the complaint handling departments at all levels. Besides, a "call center public opinion communication group" was established to quickly process group sending and major complaints, interact with the specialized departments immediately, and solve customer appeals in time.



## Sticking to Transparent Services

China Unicom earnestly implements the Law on Protection of Consumer Rights and Interests of the People's Republic of China, and other relevant laws and regulations on protecting customers' rights and interests, strictly regulates the billing and fee collection behaviours, protects the right to know of customers, and enhances the product and service knowledge popularization to consumers.

- Strengthened billing supervision and management. Checked the billing performance, and intensified the accuracy management of routine billing through assessment, patrol inspection and notification.
- Enhanced the management of business fees collection. Carried out a special action on dealing with unknown collection of value-added business fees, and established a uniform authentication platform of value-added businesses, to prevent the happening of the unknown collection of value-added business fees from the source.
- Consolidated the channel partner management. Revised and improved the "Management Measures for Value-added Businesses", and organized publicity and implementation trainings throughout the country to fully implement the management rules.
- Enhanced the publicity and supervision of package sales policies. For business recommendation, based on the principles of "simplifying the rates structure, regulating the rates publicity, improving the rates transparency and protecting users' needs", earnestly ensured that the structure was simple, popular and easy-to-understand, prohibited ambiguous rates structure and use condition, and eradicated unreasonable fee collection items; recommended packages with simple, clear rates structure and national uniform rates standard to improve the rates transparency; regulated the business rates and fee collection policy publicity, and publicized package and promotion information on the mobile business hall/online business hall.
- Fulfilled the national launch of message charging, upgraded the billing system, and continuously optimized the bill presenting process.



Duration for traffic reminding by SMS



Duration for billing stop during the bill presenting period

## Improving the Customer Word of Mouth

China Unicom is committed to comprehensively improving the customer perception and customer word of mouth, and has introduced NPS evaluation to make all-around monitoring of the disciplines and units at all levels of the Company, so as to facilitate the Company to understand the customers, adapt to the customers, and make improvement oriented to the customers in different disciplines.

- NPS research and evaluation has been deployed in 31 provinces nationwide, covering three dimensions of network, business and service, supporting about 300 customer service personnel and about 1 million times of data service all the year around.
- Continuously conducted NPS customer satisfaction evaluation. In 2018, the NPS score for business increased by 13.0 points year on year and the service increased by 6.
- Started the "special action for customer perception" that was oriented to problems, and based on the plate hanging and removal mechanism of key service problems, improved and optimized the internal processes, and drove the fundamental improvement of key problems.
- Initially established a customer experience management (CEM) platform, realizing one-point support and multi-level operation and use of NPS evaluation, Internet public opinion monitoring and satisfaction follow-up visits; integrated customers' opinions in different touchpoints and satisfaction surveys together to improve customers' information in an all-around manner, and accurately serve the customers based on the big data analysis.

China Unicom Guangdong branch carried out an activity of "Original Aspiration Action and Listening to Customers' Voices" to learn about customers' actual needs through on-site listening, online listening, and line-based centralized listening. Senior managers wore the earphones to listen to customers' opinions online. Meanwhile, through the "Voice of Customers" platform, the company could not only listen to customers' voice recordings online but also collect suggestions. As of the end of 2018, the "Voice of Customers" had collected 864 pieces of customer voice messages for the purpose of consultation. Finally, the listening results would be regarded as a key project of the Company for follow-up, to solve customers' problems in a closed loop of "known-analysis-settlement".



Listening to Customers' Voices



"Voice of Customers" Platform

## Safeguarding Cybersecurity

### Guaranteeing Emergency Communications

#### ◎ Implementing emergency plans to guarantee smooth communications

In 2018, China Unicom revised the Group-level communications guarantee emergency plan, including an overall plan and 8 special emergency plans, and organized 1,740 emergency drills in total.

#### ◎ Sparing no effort to guarantee communications in natural disasters, including flood prevention

In 2018, serious flood disasters occurred in some regions of China, and in some areas, torrential flood, debris flow, landslide and other disasters also occurred. Fearless of danger and difficulty, China Unicom established 24h standby rescue teams to guarantee the communications of important customers, such as Party organizations, governments, military, and flood control and draught relief command departments with all the strength, and ensure smooth and secure communications during the flood season. We invested RMB137.11 million, 78,431 person-times, and 31,670 rescue vehicles for disaster relief, and sent 75.55 million emergency short messages in total.

Invested RMB **137.11** million and **78,431** person-times for disaster relief

#### ◎ Communications guarantee for 2018 Beijing Summit of the Forum on China-Africa Cooperation

In September 2018, the Beijing Summit of the Forum on China-Africa Cooperation was held. To ensure the smooth and steady network operation in the Great Hall of the People, China National Convention Center, Diaoyutai State Guesthouse and other important areas, China Unicom dispatched over 6,900 support personnel and 970 vehicles; and added a new big data analysis-based situation perception system. During the period, 482 threats were discovered in total and were 100% intercepted successfully. In the important areas, "zero fault" was realized.

#### ◎ Communications guarantee for Qingdao Summit of Shanghai Cooperation Organization

In May 2018, the Qingdao Summit of Shanghai Cooperation Organization was held. In Qingdao International Convention Center, Press Center and other important areas for protection, we achieved normal network operation and "zero fault". To ensure smooth communications, about 6,800 support personnel and 1,010 vehicles were dispatched in total. The brightening project of the Fushan Bay involved 112 sets of UTN equipment and 1,000 IoT cards. We made signaling monitoring of the base stations of the IoT cards to ensure safe and reliable operation of the system and equipment. Besides, we developed a "One second stop with one key" system, and constructed a 1.2T big bandwidth DDOS cleaning system, to achieve near-source cleaning of attack sources.



#### ◎ Communications guarantee for the first China International Import Expo

In November 2018, the first China International Import Expo was held in Shanghai. By "one hall one policy" and "one scene one policy", China Unicom optimized the network, and achieved smooth and steady network operation during the period. About 6,500 support personnel, 980 vehicles, 2 patrol ships and 2 drones were dispatched in total. In the important areas, "zero fault" was realized. The intelligent fault judgment system and intelligent robot network administrator were put into use for the first time, which made fault pre-judgment and fulfilled NOC production and operation functions based on AI, big data, and cloud computing technologies. During the Expo, they responded for more than 1,000 times. In WH hall, media center, and other indoor and outdoor core areas, China Unicom was the first to deploy 5G network, through which, 5G HD videos were played for the news media on site.

## Safeguarding Information Security

#### ◎ Improving the information security working mechanism

China Unicom has carefully put into practice the spirit and important instruction of "no national security exists if there is no network security" of General Secretary Xi Jinping, and the requirements of the national cybersecurity and information working conference, strictly implemented the Cybersecurity Law, and issued a series of business and system security management measures to escort the smooth and steady development of the Company's work in cyber and information security.

- In 2018, RMB600 million was invested in the treatment of cybersecurity hazards and no serious or major security incident occurred.
- The centralized technical support capacity was robustly enhanced to provide technical guarantee to branch companies and subsidiaries.
- Data security check and loophole treatment were carried out. The loophole scanning had been carried out for 1,989 times in total nationwide, effectively reducing the security risk.
- Took the accountability assessment as the entry point to promote the comprehensive implementation of all tasks.

#### ◎ 100% implementation of the real name system control

- China Unicom strictly implemented the real name control requirement of the Ministry of Industry and Information Technology by ensuring new subscribers' registration with their real names, optimizing the online order process in the network channel, conducting self-inspection and clearing of the real name registration situation of IoT cards, and carrying out job number clearing in the agent channel, to reduce the agent's violation behaviours and achieve 100% real name registration rate.

### ◎ Enhancing cyber security

- Through years of experience accumulation, the Company has mastered multiple safety protection and service capabilities, such as abnormal traffic cleaning, zombie Trojan horse monitoring, mobile malicious program monitoring, cybersecurity situation perception, security configuration baseline, and loophole management.
- “Unicom Cloud Shield” DDoS attack protection product has been released, and received wide recognition from about 70 government and corporate customers, including ICBC, Alibaba and Tencent.

### ◎ Ensuring the security and confidentiality of user information

China Unicom has implemented the “Regulations on Protection of Personal Information of Telecommunications and Internet Users”, and formulated and published the “User Privacy Policy of China Unicom” and relevant agreements, requiring that the necessary user personal information collected and used by China Unicom and affiliated companies should be legally authorized.

- Enhanced the user information publicity and confidentiality management, and strictly implemented the “seven-ban” requirements for customer data.
- The online business hall publicized and notified customers of the purpose, approach and scope of collecting and using user information, the channels of inquiring and correcting information, and consequences of refusing to provide information, to remind the users to the greatest extent, and practically enhance the customer information protection capacity.

China Unicom Hebei Tangshan branch carried out the network and information security work in all disciplines and multiple dimensions. In 2018, the company fulfilled the network and information security guarantee work for major activities; treated about 50,000 harassing/fraud telephone calls, and cooperated with the public security law enforcement departments to fulfill many on-site arrests and closure of phone number involved for evidence obtaining.

## ✈ Purifying the Cyber Space

### ◎ Severely dealing with hostile attacks

- Treated malicious mobile applications, enhanced interception, conducted the three-level security check (including APP virus security, content and function security and billing security), continuously monitored complaints, and eradicated APPs that could change mobile phone numbers.
- Continuously implemented the illegal APP disposal measures, identified more than 500 illegal applications and about 4,000 illegal online games in WO Store, and directly removed about 50 APPs with security hazards.
- Made use of big data advantage, built and optimized the “eagle eye” system, and established a centralized operation team, to improve the accuracy of fraud and harassing number screening, which greatly decreased the total reports.
- Dynamically optimized the trash short message interception strategy, and intercepted 143 million trash short messages each month in average.
- Newly launched an international fraud telephone call interception system, which intercepted 388 million times of international fraud telephone calls in total.

With the innovative algorithm, China Unicom Shanghai branch made targeted interception of the “debt collection” trash short messages with the interception accuracy increasing to 99.3%. About 3,000 trash short messages are intercepted each day in average during the peak period, and the monthly average complaint against trash short message has decreased by about 85%.

Based on the eagle eye anti-fraud system, China Unicom Hainan branch provided users with secure and clean Internet surfing environment, and raised the public protection awareness. In 2018, 1,783 anti-fraud reminding short messages and 534 voice reminders were sent, about 2,560 abnormal call numbers were closed, protected browsing of malicious pages for 485,000 times, and stopped 272,000 visitors for malicious access.

To protect the public from telecom fraud, China Unicom Guangdong Maoming branch established an anti-communications fraud system of technical monitoring, closure and interception, channel tracing and police-enterprise linkage. Through the targeted interception, the total telephone traffic in Shuzai Town and Magang Town decreased by more than 55%. The “card head” grey industrial chain was jointly cracked down and 112 vicious buyers were locked in a real-time manner, cutting off the local card supply source.

China Unicom Jiangsu branch established a big data-based all-around anti-fraud system, which averagely intercepted abnormal calls for about 2 million times each day, with an accuracy rate of more than 90%, and effectively reduced the reports of numbers roaming to Maoming, Longyan and other key regions of telecommunication fraud named by the central government.

### ◎ Carrying out the public welfare service of cybersecurity publicity

- Took the lead in launching the anti-fraud public welfare service, which could cover the whole network free of charge, accurately identify the suspected defrauded users, and remind and help the users stop the losses in cooperation with the public security department. About 1,000 users were reminded each day in average.
- Sent more than 970 million short messages on security common sense.

China Unicom Liaoning branch carried out various publicity activities on cybersecurity. It sent 12 million publicity short messages, made propaganda to 31.5 million people via the online business hall and WeChat official account, organized 18 publicity week activities in communities, and broadcasted the publicity videos for more than 400,000 times in business halls.



Rolling Playing on the LED Screens of Business Halls



On-site Publicity in Communities



Online Business Hall Publicity

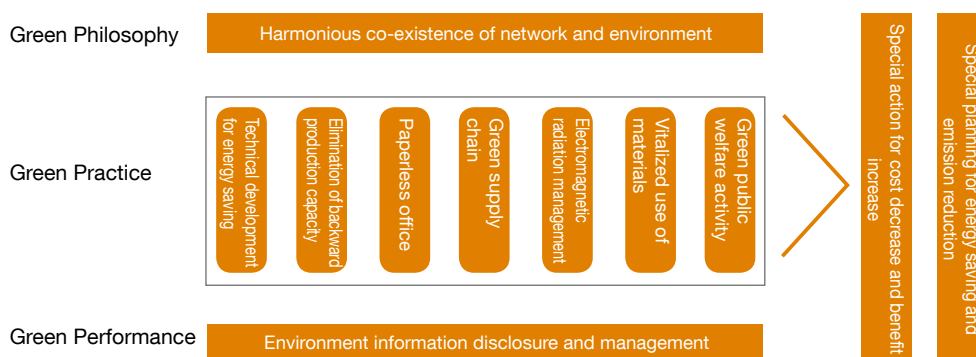
## Sticking to Green and Low-Carbon Development

China Unicom resolutely implements the “pollution prevention and control” task, strictly complies with the Environmental Protection Law of the People's Republic of China, the Energy Saving Law of the People's Republic of China and other relevant laws and regulations on environmental protection, integrates the green and low-carbon development concept into the corporate strategies and production and operation, and actively carries out green management, green network, green operation, and green application, to facilitate the building of a Beautiful China with blue sky, green land and clear water, and constantly meet the increasing needs of the people for a beautiful ecological environment.

### Refining Green Management

#### Improving the management system

China Unicom has established a trinity green management system of green philosophy, green practice and green performance. Led by special actions and special planning, China Unicom implemented the general requirement of “cost control and mechanism transformation” of the Group, deeply advanced the energy saving and consumption reduction work, eliminated the low-efficiency production capacity, decreased expenditures on network energy consumption, reduced the impacts of greenhouse gas emission on the environment, and regulated the pollutant and waste treatment, so as to improve the green delicacy management level. In addition, the Company has been committed to improving water efficiency and boosting the cyclic utilization of water resources by raising water saving awareness and periodically checking and repairing all links of the water supply system to eliminate water resource waste and water leakage phenomena. The water used by the Company mainly comes from the running water of the building or property, and during the report period, no water problem occurred.



The Trinity Green Management System of China Unicom

#### Advancing the management work

China Unicom has been implementing the spirits of the 19th CPC National Congress, fully advancing the implementation of the “three battles”, and implementing the major deployments of ecological civilization construction.

- Formulated special implementation plans for pollution prevention and control, to internally drive the green and low-carbon development of the enterprise, and externally focus on the ecological environment field.
- Established a green development monitoring and data collection system. In 2018, the discharged carbon dioxide and sulfur dioxide were 5.296 million tons and 2,400 tons respectively.
- Improved the green procurement system, and scrap material disposal-related management system.
- Attached great importance to environmental protection publicity, constructed green business halls, and promoted paperless office.

- Carried out water saving and power saving work, and compiled the "Program for Energy Saving and Emission Reduction of China Unicom Building" in 2018, through which, the power consumed per capita decreased by 18.2% and the water consumed per capita decreased by 24.6%.
- Supported green and low-carbon industrial development, carried out energy saving and emission reduction training and exchanges, and joined in the "Alliance of Internet + Energy Conservation".
- Arranged a special fund for energy saving and emission reduction, which was mainly used for energy saving-oriented reconstruction and energy saving technology application.

China Unicom Cloud Data Company set up a working team on energy saving and emission reduction for IDC rooms, compiled and published the "Management Measures for Energy Saving and Emission Reduction of China Unicom Cloud Data Co., Ltd. (Trial)", to tap the energy saving potential of existing base power systems and refrigeration systems, and continuously carry out researches and application implementation of new technologies for energy saving.

In December 2018, China Unicom joined in the "Alliance of Internet + Energy Conservation", and became a Vice President unit. The Alliance aims to integrate the resources in all circles, deepen the work on energy saving, facilitate the innovative development of "Internet + energy conservation" related industries, and provide support for governmental departments to make an overall plan of the energy revolution and ecological civilization construction, enhance the macro-control of energy saving and expand the energy-saving and environmental protection industry.



Conference on Establishment of "Alliance of Internet+ Energy Conservation"

The special funds for energy saving and emission reduction in 2018 exceeded RMB **100** million

#### ◎ Constructing a green supply chain

China Unicom pursues environmental quality certifications, specifies green environmental protection requirements for purchased equipment, sets energy-saving environmental protection qualifications, and requires suppliers to pass SA8000, ISO14000 and other certifications.

We comprehensively pushed forward the in-depth operation of electronic tendering and bidding and electronic mall, to achieve the fully electronic "sunshine procurement" and "green procurement", reduce the environmental costs in transactions, and raise the awareness of the suppliers in fulfilling environmental protection responsibilities.

We enhanced the social responsibility requirements for terminal suppliers, established a responsible supply chain system, customized the power consumption of key test products of the terminals, and cooperated with manufacturers to make improvement, so as to guarantee that the terminals meet the energy saving, environmental protection, safety and other standards.

### 🌿 Building a Green Network

#### ◎ Applying green technologies

China Unicom adopted efficient and energy-saving construction schemes to promote cost decrease and benefit increase of communication infrastructure from the source.

In 2018, we introduced the efficient power module and smart double-cycle air conditioner, which increased the efficiency of the power system by 2-5%, made the air conditioner's energy-saving rate reach 30%, and saved 20.54 million KWH for the first year.

The independently developed loose coupling channel closure technology (Unicom Cloud Cabin) has been adopted, and closed the cold channel of traditional communications equipment. Compared with the traditional construction model, the computer room's pPUE decreased from more than 2.0 to 1.5, and achieved continuous energy saving during the whole operation lifecycle of the equipment.

Green data center construction concept was promoted. We used large refrigerating capacity centrifugal water chiller, variable frequency circulating pump, inter-row precision air conditioning, high frequency UPS, amorphous alloy transformer and other high-efficiency environmental protection equipment, adopted the waste heat recovery, natural cooling, high-voltage direct current, distributed power supply, photovoltaic power generation (lighting system) and other energy-saving technologies, adjusted the refrigeration system parameters, and optimized the UPS operation mode and other operation strategies, to improve the energy utilization rate. The lowest PUE could be 1.33.

- Adjusted the refrigeration system parameters: increased the water supply and return temperature from 7°C-12°C to 10°C-15°C. About 2-4% power is saved for each 1°C increase.

- Natural cooling: according to the climatic conditions, started the natural cooling mode, the annual operation duration of which was about 3,600 hours, accounting for 41.1% of the annual refrigeration duration, and about 33.6% power has been saved.
- Optimized UPS operation mode: closed the high-redundancy and low-load rate UPS, and improved the single set load rate, which may reduce 10% self-losses of UPS full load.
- High-voltage direct current: compared with the traditional UPS, the change levels were decreased, and about 15% power could be saved.

China Unicom Hohhot Cloud Data Base tried the "Smart Cloud Energy Saving" device, achieved 6% system energy saving, passed the appraisal and selection of demonstration units for green data centers by the MIIT, and won the titles of "Technical Innovation Unit for Energy Saving in the Communication Industry" and "Annual Excellent Operation and Maintenance Award of Data Center".



The power consumed by the operating equipment and air conditioning of the IDC machine building on Xiangjiang Road, China Unicom Heilongjiang Harbin branch accounted for 20%-25% of the total power consumption of the overall operation and maintenance, which became a key point for energy saving. Through introducing the energy saving ventilation system, the energy saving rate reached 72.3%, with remarkable energy saving effects. In the future, it will be promoted on a large scale.

In the construction of IDC, land cable and other projects, China Unicom (Hong Kong) Global Center strictly implemented local ecological environmental protection requirements, and facilitated the industrial chain partners to jointly fulfill the environmental protection responsibilities. The projects won the international LEED gold medal and Hong Kong BEAM+ authentication, reaching the international top green building level.

#### ◎ Optimization and upgrading of production capacity

China Unicom deeply promoted the supply side structural reform, eliminated backward production capacity, optimized and upgraded the network, as well as decreased costs and increased benefits by accelerating 2/3G network downsizing, integrating fixed network businesses and withdrawal of old equipment. In 2018, 500,000m<sup>2</sup> machine rooms were vacated and about 300 million KWH power was saved for the year.

China Unicom Shandong branch promoted innovation of the energy saving and consumption reduction model. It optimized and adjusted the hardware to reduce energy consumption. For software, it focused on 2/3G network frequency and capacity decrease, so as to reduce the costs and increase the benefits, and improve the environmental, economic and social benefits.

#### ◎ Electromagnetic radiation management

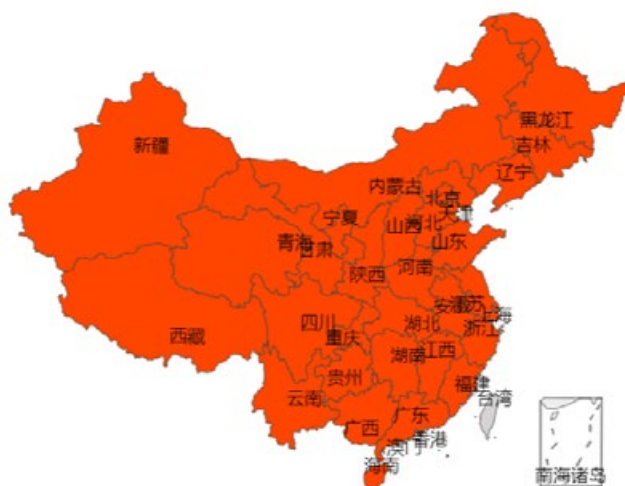
In the construction of mobile communications base stations, China Unicom strictly conforms to the regulations of the Ministry of Ecology and Environment (MEE) and local environmental protection departments, and consolidates the electromagnetic radiation management, so as to ensure that the electromagnetic radiation level meets the national standards. According to the requirements of Decree 41 of the MEE, the registration form of environmental impacts of construction projects has been fully implemented.

We strengthened the work on filing of mobile communications base stations, electromagnetic radiation tests, test data openness and complaints handling pursuant to the "Management Regulations on Electromagnetic Impacts on Environment of Communications Base Stations of China Unicom (Trial)".

We took the lead in establishing a national uniform electromagnetic radiation monitoring and information announcement system for mobile communications base stations, through which the electromagnetic radiation data could be made public, stakeholders' concerns could be replied to, and is convenient for the public to supervise the electromagnetic management work of China Unicom.



## 中国联通基站电磁辐射信息公示平台 ChinaUnicom EMF Information Publicity System



Interface of the Information Announcement Platform on Electromagnetic Radiation of Base Stations of China Unicom

## Enhancing Green Operation

### Green office

Following the “low carbon, emission reduction, and green office” concept and taking the construction of digital business halls as the entry point, China Unicom built green smart business outlets characterized by “regulated management, standard layout, modern equipment, digital operation and paperless acceptance”. Relying on the uniform paperless system, in 2018, 106 million businesses were accepted in total, and about RMB112 million of paper and labor costs were saved.

We integrated multiple devices of the business hall to form integrated equipment; promoted online order receiving and centralized middleground handling to improve the handling capacity of own online channel; developed the online handling channel through external cooperation to reduce the operating costs and labor costs of business halls; and fulfilled the green operation concept.

Accepted **106** million businesses in a paperless manner in total

Saved up to RMB **112** million costs in total

### Vitalizing and using the materials

China Unicom continuously strengthened the disposal of scrap materials, stored and managed the to-be-disposed materials in strict accordance with the environmental protection requirements, and increased disposal methods that meet the regulations, to improve the scrap materials disposal efficiency, and reduce the environmental pollution caused by the scrap materials. In 2018, the recycled materials were about RMB101.87 million, the disposal amount of scrap cables was RMB440.01 million, the battery disposal amount was RMB94.46 million, the general scrap materials disposal amount was RMB85.58 million, and the value of materials vitalized was RMB108.51 million.

Comprehensively advanced the Internet-based operation in the asset disposal field, enhanced cooperation with Alibaba and jointly created an “open, transparent, sunshine and efficient” smart asset transaction platform to realize the connection of Unicom asset disposal bidding platform and Alibaba’s auction platform. 150 China Unicom branches and subsidiaries have settled in Alibaba’s auction platform, of which 17 branches and subsidiaries carried out 131 scrap assets auctions, and the rate of return on terminal asset disposal increased by about 50%, while the rate of return on cable asset disposal increased by about 10%.

Launched “old for new”, financial installment, and mobile phone insurance services. We lowered down the threshold of device exchange for users to promote green and healthy industrial development. Cooperated with Apple and carried out a device exchange activity for old users, which not only met the terminal upgrading demand of Apple fans but also effectively reduced resource waste.

The recycled materials were about RMB **102** million

The disposal amount of general scrap materials was RMB **85.58** million

The value of materials vitalized was RMB **109** million

With the "Internet +" online platform auction model, China Unicom Guangxi branch maximized the preservation and increase of the value of waste assets of the company. In the whole year, 603 sets of waste batteries, 13,934 units of waste communications equipment, 4,164 units of waste office equipment and 26 scrap vehicles were auctioned, and the auction income was RMB4.013 million.

By the recycled old and idle equipment, China Unicom Inner Mongolia branch independently constructed a cloud resource pool, and established a uniform smart maintenance and operation control platform. The basic hardware facilities were 100% from the old equipment, and about RMB2 million purchase expenses were saved. 35 smart network management systems have been deployed in the resource pool, saving about RMB3 million hardware investments.

#### Green actions

China Unicom advocates environmental protection, and attaches great importance to green public welfare actions. The vast employees, starting from things by their side, make contributions to protection of biological diversity and ecological restoration, and facilitate the building of a Beautiful China.

In June 2018, the National Low Carbon Day Themed Publicity Activity was held in the Office Area of Beijing Organizing Committee for the 2022 Olympic and Paralympic Winter Games. China Unicom and all Winter Olympic Games partners jointly signed the "Low Carbon Initiative" and launched the low-carbon action initiative: "Comprehensively implementing the green, inclusive, open and clean concept for the Beijing 2022 Games, and holding a fantastic, extraordinary and excellent event are our common pursuit and responsibility. To support Beijing 2022 Games to fulfill the low-carbon emission goal, as the official partners of Beijing 2022 Games, we solemnly propose that all should take green and low-carbon actions to facilitate Beijing 2022 Games to achieve 'green Olympic Games'."



China Unicom Participated in National Low Carbon Day Themed Publicity Activity



China Unicom Shandong Rizhao branch carried out "planting a tree and making a city green" tree-planting activity



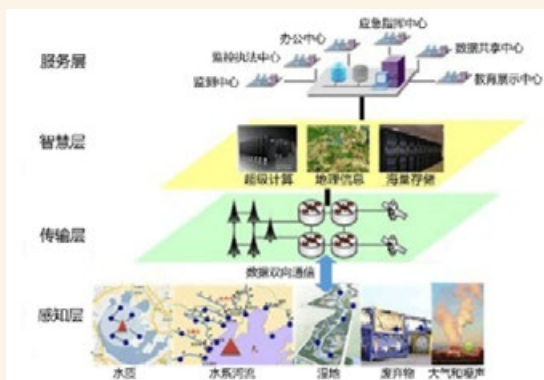
China Unicom Hebei Cangzhou branch took a centralized voluntary action for "saying no to illegal small advertisements"

#### Exploring Green Applications

China Unicom externally focuses on the vertical field of environment protection. Based on its technical advantages in such aspects as cloud, big data, IoT, and mobile Internet, China Unicom constantly innovates its green products and applications, launches green information solutions, and supports the development of low-carbon industries, to make contributions to green and low-carbon development, as well as the battle against pollution.

- Promoted green electronic rechargeable cards, and reduced the usage of paper cards. In 2018, the sales of electronic rechargeable cards accounted for nearly 90%.
- Promoted eSIM cards to replace physical SIM cards, gradually cut down the costs spent by the operator and telecom users in the production, transportation, storage, and renewal of physical SIM cards, decreased the consumption of raw materials, and reduced environment pollution.
- Developed the transformation business process from naked mature cards to white cards and supported their reuse, so as to avoid waste due to scrap. It is estimated that the recyclable naked mature cards exceed 2 million.

Using modern information technologies, China Unicom Hubei branch developed a smart environment protection platform integrating the functions of environment monitoring, emergency command and mobile law enforcement, which may facilitate the improvement of the ecological environment monitoring network, ecological environment regulation and governance capability. According to statistics, by carrying out smart environment protection, the excellence rate of the air of the city reached 79.7%, the water qualification rate was 100%, and a batch of environmental problems reported by the public have been solved.



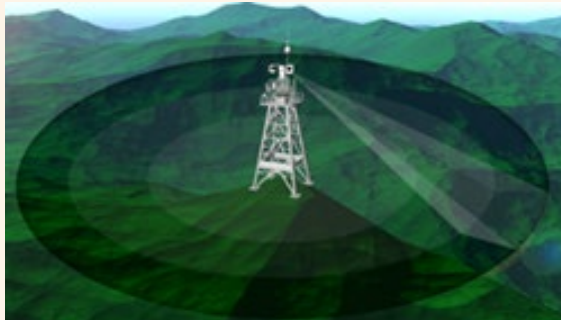
Overall Architecture of Smart Environment Protection

Employing the integrated capability of system integration + optical fiber network + IoT, China Unicom Anhui Chuzhou branch developed a comprehensive smart regulation platform on mineral resources development for Dingyuan County, which deployed 22 monitoring points, effectively cracked down on the illegal mining of mineral resources, and prevented environment pollution and loss of soil and water. This project has strong demonstration effects, and may be copied and generalized throughout the country.

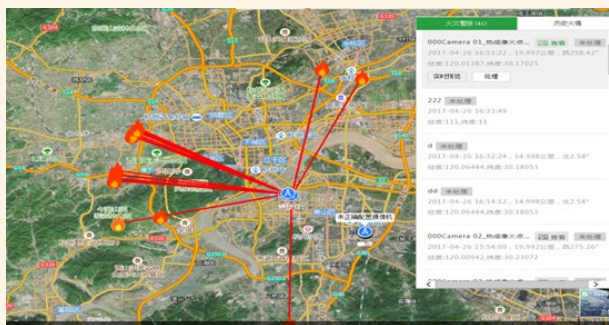


Integrated Smart Regulation Platform of Mineral Resources Development

In 2018, China Unicom Hebei branch adopted the international advanced infrared thermal imaging video monitoring technology, and comprehensively carried forward the building of a straw incineration monitoring platform, to improve the information and smart level of straw incineration control of the province, and realize "one platform managing environment protection". At present, the system construction has been completed in Handan, Langfang and Zhangjiakou, realizing the comprehensive application of 803 monitoring locations in 36 counties (cities and districts) and winning the high recognition of local environment protection bureaus.



The thermal imaging camera on the iron tower carrying out uninterrupted all-weather patrol for 24\*7



Discovering and positioning the fire point in time

To strengthen water pollution control and build a green ecological water network, China Unicom Fujian branch, with the "Internet + river chief system" thinking, developed an efficient instrument for riverway protection regulation - "Comprehensive Management and Information Platform on River/Lake Chief System", providing information support and scientific management means for the government and the society to jointly manage and protect rivers and lakes. The company undert

## Promoting Charitable Undertakings to Share Benefits with the People

Be a responsible central enterprise and shoulder the responsibilities in the era. China Unicom attaches great importance to social livelihood issues, actively devotes itself to social welfare with its own professional and technical advantages, and robustly carries out public welfare donations, aiding and voluntary activities, to facilitate the improvement of people's livelihood, transfer the loving heart and promote shared and harmonious development of the Company and the society.

### External Donations

Following the donation principles of "acting according to the ability, clear rights and responsibilities, and integrity", the Company keeps bringing returns to society.

External Donation of RMB **191.96** Million

Donation Project	Group Company
Donation to the designated poverty alleviation regions (poverty alleviation)	RMB152.69 million
Aid to Tibet	RMB36.86 million
Aid to Xinjiang	RMB30,000
Donation to the cultural and sports undertakings	RMB70,000
Donation to the education undertakings	RMB630,000
Other public welfare relief and public welfare donations	RMB50,000
Donation to social public facility construction	RMB50,000
Other designated aided regions	RMB360,000
Donation to the medical and health undertakings	RMB20,000
Donation to the handicapped undertakings	RMB50,000
Donation to the environment protection undertakings	RMB20,000
Other donations	RMB1.14 million
Total	RMB191.96 million

Statistics of External Donations of China Unicom in 2018

China Unicom Shanghai Pudong branch called on all Party members and cadres to make donations. Since 2010, the needy students in Sifangwu Township, Huining, Gansu have been aided for 8 years consecutively, with a total donation of more than RMB23,000.



## Assisting the Disadvantaged Groups

China Unicom always pays close attention to social disadvantaged groups, and extends warm care to the disabled, children, college students and migrant workers through enterprise donation, public welfare performance, employment assistance and service care.

## ◎ Caring about the disabled



China Unicom Chongqing branch donated communications services and products worth RMB56 million to the disabled, and upgraded its service and management through the building of a smart information management platform, to achieve unified standards, data sharing and business combing. In the whole year, about 20,000 disabled friends enjoyed the care from China Unicom.

China Unicom Zhejiang branch held a "Love and Voice to You" public welfare activity, and invited the students from the School for the Blind of Zhejiang to give a performance, expecting that they could win more attention and recognition from the society.



For the disabled in the province and their family members, China Unicom Zhejiang branch launched the "Lions Love and Happiness Card" series products with preferential tariffs, and donated RMB600,000 to the Foundation for the Disabled every year. 100,000 "Lions Love and Happiness Cards" have been issued in the three years, opening a public welfare new trial with Zhejiang cultural characteristics in the Internet + era.

## ◎ Caring about the children

China Unicom Guangzhou branch carried out "Small Credits for Big Charity - Free Lunch from Wo Care" activity, and called on Unicom users to provide free lunch to the designated primary schools in the poverty-stricken regions through donating their credits, which gained warm response from the vast users. The service platform obtained support from about 100,000 users, and raised about RMB300,000 donations.





China Unicom Sichuan branch initiated a “Gloves” action to its employees in the province, and proposed “donating a pair of gloves to make this winter no longer cold”. About 2,000 pairs of gloves were donated to the needy children in the 28 primary schools and left-behind children schools in the aided villages.

#### ◎ Caring about the migrant workers

During the period of returning to the hometown for the Spring Festival, China Unicom Guangdong Shenzhen branch presented a warm communications gift bag, including the King Card Product, to each worker in Shenzhen who got on the “Love Bus” to return to their hometowns. Meanwhile, it sent care to factories and construction sites, providing traffic-free communications gift bags to the migrant workers in Shenzhen to enable them to better enjoy the tender feelings and happiness in contacting their families and relatives. At the bus station and railway station, ginger tea was cooked, gift bags were prepared, and guidance boards were held up to warmly welcome and see off each migrant worker returning to their hometowns for the Spring Festival. In addition, “warm gift bags” were presented to them. In 2018, 586 Party members from 33 Party branches of China Unicom Shenzhen branch participated in the “Warm Road to Home” series activity for more than 9,000 person-times. The activity had been carried out for 5,293 times in total, providing services to about 140,000 migrant workers.





China Unicom Henan Zhoukou branch carried out an activity of "caring about the migrant workers and providing free communications and Internet services", presenting Unicom King Card and preferential high-speed optical fiber broadband products to all migrant workers of Zhoukou. More than 100,000 people in Zhoukou were benefited.

China Unicom Guangdong Dongguan branch cared about sanitation workers in various forms: opened 100 business halls in the city as love stations to provide drinking water, rest and other services to sanitation workers; presented life gift bags to sanitation workers; at the sports meeting of sanitation workers, provided free food and rest areas to the sanitation workers athletes, and network guarantee for the on-site communications. More than 10,000 sanitation workers enjoyed the warmth sent by China Unicom.



#### © Caring about university students



China Unicom Jiangsu Nanjing branch supported the Provincial Committee of the Communist Youth League and college communist youth league committees to do a good job in serving the innovation and business startups of university students with practical actions, organized about 800 students from universities in Nanjing to take part in the "summer camp" activity, and employed excellent training tutors to organize systematic training on such aspects as team cultural development, startup consulting, startup skills improvement, and excellent startup cases, and gave certain startup support to the students with outstanding performance in the summer camp.

### 👤 Active Participation in Public Welfare and Voluntary Activities

In 2018, China Unicom robustly carried forward the voluntary service spirits of "dedication, friendly affection, mutual assistance and progress", and deeply boosted the voluntary action of "Learning from Lei Feng". In the year, the Company had 43,873 registered volunteers who participated in voluntary activities for 50,412 person-times, contributing "Unicom Positive Energy" to the development of social welfare.

Registered volunteers reached **43,873**

Volunteers participated in voluntary activities for **50,412** person-times in total

China Unicom Xinjiang branch kept carrying out the "Unicom Love Study" public welfare donation activity. Till 2018, 271 studies had been built, with 250,000 donated books, and about 150,000 primary and secondary school students of different ethnic groups in Xinjiang benefited from the activity.





China Unicom Sichuan branch launched a “Love Builds Dream” public welfare activity and donation ceremony, and donated education information products worth RMB66 million, including quarterly cards for Daoxuehao members, children smart security watches, campus smart robots, “online study cards” and “Along with Love” accident insurances worth RMB300,000, and RMB100,000 education public welfare funds.

China Unicom Sichuan branch set “May 4th” as the civilization public welfare day, and organized its sub-branches in different cities and prefectures of the province to carry out public welfare activities based on local conditions. In Chengdu, at the subway entrance, commercial plaza, residential community and other places, the youth volunteers publicized “civilized travel”, searched the “most beautiful smiling face of civilized travel”, arranged the disorderly parked shared bikes in the parking locations as per color and brand, and presented bottled water to sanitation workers, subway workers, traffic police and civilized citizens they met, which improved the social reputation of China Unicom.



#### ◎ Active participation in overseas public welfare activities

On 1 March 2018, the Hong Kong Branch obtained the “Caring Company” social welfare certification of Hong Kong Council of Social Service



On 19 November 2018, obtained the “Green Office” environmental protection certification of World Green Organisation

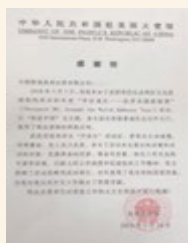


On 18 March 2018, the employees of Hong Kong Branch took part in “The Last Stand” public welfare running activity organized by “A Drop of Life” charity organization, for the purpose of disaster relief and poverty alleviation in remote regions, and donated HKD30,000.

On 4 November 2018, the employees of Hong Kong Branch attended the fifth “Innovation Race Ten Kilometers 2018”, which publicized information on healthy life to IT workers and the public, and donated HKD80,000.



In May 2018, China Unicom Americas attended the annual “Washington D.C. Tour - Travel to Consulates of Different Countries in the World” held by the Embassy of the People's Republic of China in the United States of America, and made positive contributions to the public diplomacy of the Embassy of the People's Republic of China in the United States of America, showing good national image, and winning high recognition from the Embassy of the People's Republic of China.



On 7 December 2018, China Unicom Americas attended the festival toy donation activity chaired by the MOAPIA in Washington D.C., caring about the happy growth of local teenagers, and was highly praised by the Foundation of the China General Chamber of Commerce - USA (CGCC).

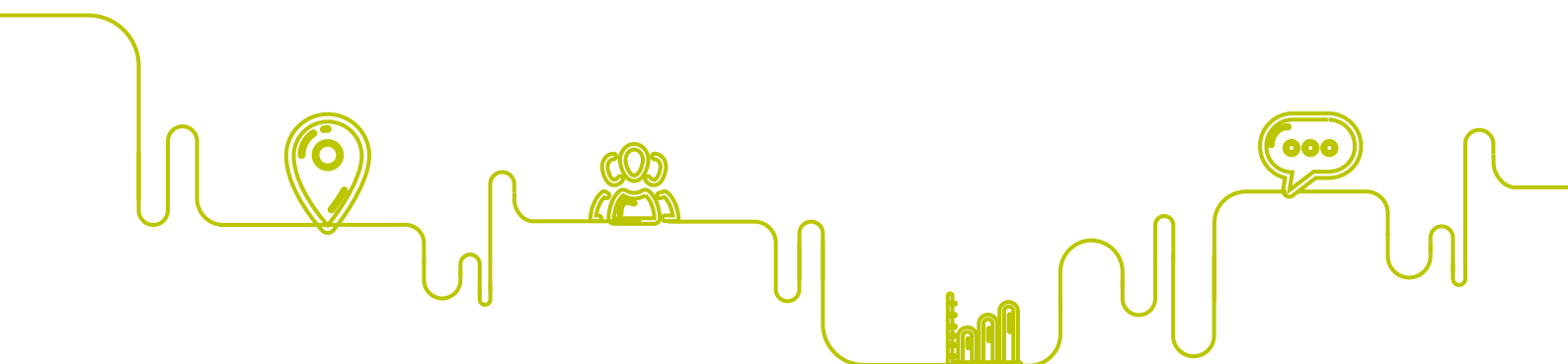
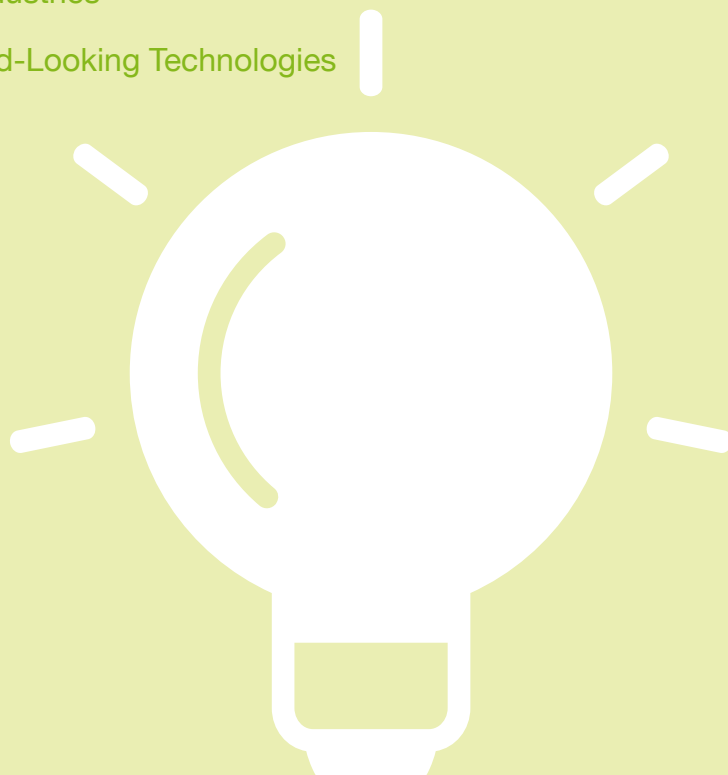
In November 2018, China Unicom Americas took active participation in the public welfare activity “No-Shave November”, which aimed to arouse dialogues on and raise the awareness of cancer through participants’ “no-shave and combing” behaviours. About USD400 was donated to the Cancer Research Center.

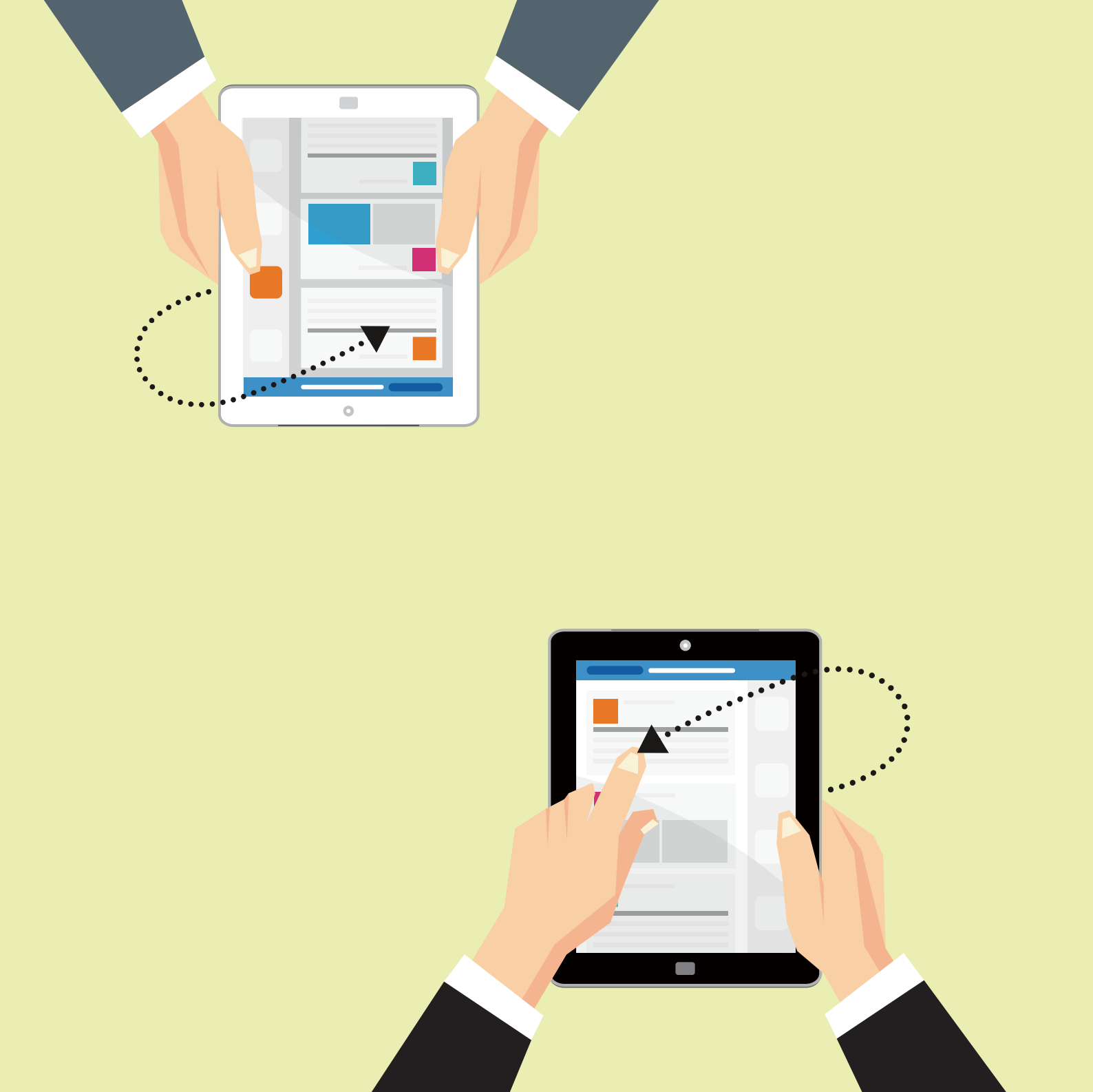
# New Energy -

## Cultivating New Values for Innovative Development

56     Assisting in Building Smart Industries

60     Developing Smart and Forward-Looking Technologies





## New Energy – Cultivating New Values for Innovative Development

China Unicom puts forth efforts to enhance the new energy for innovative development. Innovation is the primary force for development, and the edge tool driving the transformation between the old and new energies. China Unicom has always based development on innovation, actively promoted the construction of a smart network, accelerated the layout in cloud computing, big data, IoT and other fields, actively participated in the research of artificial intelligence and block chain, and focused on the application of new technologies in life and industry, to realize more innovation-driven and first-mover advantage-based pioneering development and comprehensive upgrading of customer service.

### Measures adopted in 2018

- Conducted researches on forward-looking network technologies, introduced SDN/NFV to develop intelligent networks, and completed scale test verification for 5G trial commercial operation.
- Sped up the layout in cloud computing, IoT, big data, AI, block chain and other fields, and carried out business and service innovation.
- Developed diversified “smart +” applications and new products with new technologies.

### Actions to be taken in 2019

- To keep promoting researches and application of the SDN/NFV technology, accelerate 5G technological R&D, and carry out work related to 5G experiment network and functional tests.
- To further improve capabilities on cloud computing, IoT, big data and other new Internet technologies and develop richer IT application services.
- To further enhance the guiding role of the Company in forward-looking technology researches and improve the systems and regulations related to the management of R&D and operation.



## Assisting in Building Smart Industries



### Improving Cloud Service Capability

Taking cloud service as the lead, China Unicom has been cooperating with partners to establish a cloud-network integrated new ecology, made active exploration of an Internet-oriented new operation path to build an integrated platform-based operation system and realize one-stop provisioning, billing and settlement on the WO-cloud platform, exerted full efforts to drive Internet-based customer retention, product marketing, operation and management, and provided users with fast, elastic, on-demand cloud connectivity service for private networks.

- In terms of public cloud, strengthened cooperation with mixed-ownership reform partners, launched a special action named “Yunguang Huiqi” (benefitting SMEs with cloud service) for SMEs to open cloud services, finished the going-live for nearly 100 types of products, established a cloud-network integrated product system in an all-round way, and served 34,000 customers during the whole year.
- In terms of private cloud, focused on six main industries and 36 key areas, and made use of the unique advantage of WO-cloud in cloud-network integration, multi-cloud and mixed-cloud management to provide quality holistic private cloud solutions to customers.
- In terms of cloud service, an exclusive operation team was established to provide integrated services of fast demands response, rapid resource delivery, unified operation and maintenance management, and safe operation. Established a customer service evaluation system, which sent a monthly service evaluation table to the customer, collected customers’ feedbacks and promoted internal coordination and solution. Set up a central monitoring center for operation and maintenance to further optimize the fault upgrading and solving process, strictly regulate fault processing time and improve customers’ perception.
- We have deployed 41 public resource pools and 44 exclusive private cloud resource pools nationwide, and put into production more than 500,000 cores computing capability, 40PB storage capacity, and over 1,000G network capacity. Our four cloud data centers could provide 20,199 cabinets. All data centers were directly connected to the core of China 169 backbone network with the time delay less than 5ms, and the total outbound bandwidth was about 3.24T.
- We also actively joined in domestic and international cloud computing standard organizations, had 15 software copyrights in cloud computing, and several more new winners of top-level certificates in cloud computing.

In 2018, China Unicom become a domestic cloud storage service provider to the iCloud service of Guizhou-Cloud Big Data; won the 2018 China Trusted Cloud Technological Innovation Award, and the Excellent Products and Solutions Award for Cloud Computing-Big Data Service; as well as the PT Expo China Annual Excellent Scene Application Award, and Excellent Power Project Annual Management Team Award.

China Unicom Anhui Chuzhou branch built a basic cloud platform for the monitoring platform of Chuzhou taxis (including online hailed cars) to make unified management of those cars. The platform can make real-time monitoring of taxis (including online hailed cars), and make alerts in time of vehicles in abnormal operation, for the supervision authority to take timely measures and providing convenience and safety guarantee to the public in transportation.

## Constructing a Big Data Paradigm

Relying on China Unicom Big Data Company, we provide professional data intelligence service to governmental and corporate clients, and are committed to becoming an “aggregator of data resources, leader of innovative applications, and builder of industry ecologies”. We innovatively proposed a data value system and took the scientific data value as a norm to build a big data security system throughout the whole life cycle, which passed ISO/IEC2700 and National Information System Security Level Protection - Level III Certification, being in line with international standards in the data security field.

- **Data asset integration capability:** Focusing on the key areas and scenarios demanding for “data” and “smart” technology in major industries, we provided clients and cooperative partners with data sharing, application development and other services on the basis of security and compliance, and strived to become an expert in intelligent data service operation.
- **Data liquidity:** We developed basic, standard and platform-level industrial solutions containing 12 operation products, of which 8 have shaped up and received wide attention and praise from the industry. Moreover, we have developed more than 1,000 cooperative partners.
- **Data platform operating capability:** We created two core platforms in production and capability opening in accordance with the standard three-layered architecture design, and built two assistants of data security and data governance to improve three service capabilities in data, basic components as well as production, operation and maintenance.

Served over **20** industries,  
Developed more than **1,000** clients and partners

China Unicom Beijing branch has a big data governance system, which takes rules and regulations as the prerequisite and organizational structure as the safeguard for management in the horizontal direction; and takes the technical platform as the carrier, focuses on security control and regards service management as the result manifestation in the vertical direction, to finally release the value of big data. Employing the big data technology for real-time monitoring of people flow and public opinions, the company have successfully completed the safeguarding tasks for the “Two Sessions”, the “Belt and Road Forum”, the 19th CPC National Congress and other national events. It helped governments and relevant public transportation departments to make decisions in constructing roads, metros and other public transport stations as well as developing and perfecting the operation frequency of the public transport. Besides, it cooperated with healthcare institutions on analyzing the spreading trend of epidemic diseases, and facilitated enterprises to realize their social values.

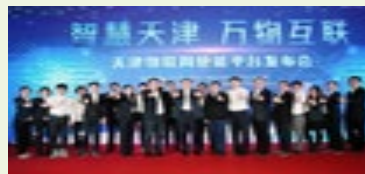
## Promoting IoT Development

China Unicom’s Internet of Things takes the “IoT + platform” ecological strategy as its core to build end-to-end holistic service capability. We follow the principles of innovation-driven, cooperative development and collaboration, gather the strengths of partners along the upstream and downstream of the industrial chain to make collaboration in innovation, and assist the digital transformation of cities, to enable the public to enjoy a smart life. By the end of 2018, the IoT connections approached 110 million, and carried over 15,000 corporate clients, covering industry, agriculture, transportation and logistics and other key fields. China Unicom’s IoT ranked among the top 10 in the “2018WIOTRL” (2018 World Internet of Things Ranking List).

IoT connections approached **110** million,  
IoT basic platform connections surpassed **90** million,  
Carrying over **15,000** corporate clients

- **Network capability:** We constructed a private NB-IoT core network with the latest virtualization technology and universal servers, and have completed the commercial provisioning of NB-IoT in major cities nationwide and finished the eMTC field trials in Guangdong, Changsha and Xiamen.
- **Platform capability:** A new-generation connectivity management platform was released, which was more powerful and safer, and its strong secondary operation capability could provide more convenience to SMEs in customizing and developing innovative products as well as building new business models.
- **Product capability:** Global connectivity products were built to satisfy the demands of domestic companies’ users around the world for one-stop subscription and one-stop management, facilitating companies to develop internationally. At the same time, over 20 products used to solve social livelihood problems were provided, serving a smart life.
- **Ecology capability:** We kept promoting the IoT industrial chain towards maturity by co-establishing the China Unicom IoT Industry Alliance, the Innovation Acceleration Center and the Incubation Lab. Moreover, an IoT developer action was launched to promote hundreds of developers to apply and provide an experimental field for SMEs to make innovation and start businesses.

The IoT-enabling platform of China Unicom Tianjin branch provides one-stop IoT solutions to corporate clients with demands in intelligent upgrading, helping enterprises to realize device access, management and in-depth analysis fast and with low costs, enabling them to have the IoT capability rapidly, upgrade their products and improve their competitiveness. It also provides a resource sharing and channel interconnection platform to IoT ecological partners, and aims to fulfill the goal of promoting high-speed development of the IoT industry by gathering the advantages of all parties.



## ● Innovating Industrial Solutions

Based on the leading advantages in cloud computing, big data, IoT and AI, China Unicom has expedited the deployment in the field of industrial Internet. An Industrial Internet Product Center was established at the HQ, and 12 industrial Internet companies are being built nationwide in batches to further improve the national supporting service system as well as the independent integration and operation service capabilities. Meanwhile, in order to enhance the capacity of industrial Internet products, we launched 10+3 standard products and rolled out Internet solutions for key industries.

- **Solution capability:** Completed and completed 74 innovative comprehensive solutions related to new smart city, with a 26% increase in the number of national programs supported year on year. The "Safety Risk Management and Control Platform Plan" won the Top Ten Best Solutions Award for Network Security and Industrial Internet of Central Enterprises, and the "Smart Animal Husbandry Internet of Things Platform Plan" won the 2018 China IoT Application Demonstration Project Award.
- **Integrated implementation capability:** Set up a Cloud Migration Lab and a special team consisting of 227 people for national cloud migration service to fully support the "Yunguang Huiqi" activity. Led several large cloud integration projects, building its whole-process service capability. The Intelligent Architecture and Xueliang Project were evaluated as Outstanding Industrial Solutions in Safe Construction.
- **Operation service capability:** Completed a total of 24 operation system training and provincial branch on-site training, and supported more than 1,800 training for provincial branches. Advanced the construction of the HQ-branch integrated operation system, and provided operation service guarantee for governments, central enterprises and other large enterprises, successfully completing the safeguarding for the "Online Discussion and Remote Consultation" activity of the national "Two Sessions" and the CPPCC.

### ◎ Rolling out standard solutions

- **Smart Government Administration Brain:** In order to respond to the national call on promoting government administration service reform of "one network, one door and one time" and building an "online whole-process integrated national government service platform", China Unicom developed the "3+X" Smart Government Administration Brain product with full efforts. Driven by the "cloud network", led by "digital intelligence", and oriented to government service and handy service for the public, it can integrate data resources in real time, use leading AI technology to recreate the service process, realize good governance and bring benefits to the public through the online-offline integrated efficient service.
- **Smart Environment Brain:** Focusing on the existing demand in environment governance, China Unicom developed the "Environment Brain 2.0" with the AI and big data technologies. Based on the circular services of monitoring, analysis, decision-making and governance, it produced blockchain-based products such as the Trusted Data Platform for Environment Monitoring, Joint Prevention and Control for Environment, Intelligent Monitoring of Public Opinions on Environment, and Smart River/Lake Chiefs Platform, to provide powerful IT support to environment management.
- **New Smart City:** Taking the urban development strategy as the lead, relying on the new-generation information technologies and the industry-leading professional advantages, China Unicom has been building five key elements: a neural network with deep perceptions, a shared and efficient cloud heart, a data-driven urban brain, a management center with joint commanding, and an industrial alliance for win-win cooperation; and constructing a new data-centered, open 4+N Smart City system, i.e. one network (a space-air-ground integrated intelligent perception network), one cloud (a flexible and scalable cloud computing data center), one data (a shared, open big data service platform), and one center (an urban joint commanding center with efficient operation). Based on the comprehensive capability of the four "ones", we will provide an open and reliable "powerful platform". Through extensive industrial cooperation, we will work with partners to launch N "vibrant applications" for smart cities, covering government administration, enterprises and the public, to jointly build a new ecology for smart cities.

### ◎ Launching 10+3 industrial Internet products

10 independent products:

Industry	Government Administration	Environment	General Industry
Product Name	Governance Data Sharing & Exchange Platform	Smart River/Lake Chiefs Comprehensive Management Platform	Service Outsourcing
	One-Stop Government Administration Service		
	Internet + Targeted Poverty Alleviation		
	Smart Party Building	Smart Construction Site	Corporate Mall
	Secrecy-Related Integration		
	New County-Wide Smart City Cloud Platform		

3 cooperative products:

Industry	Product Name
Medical & Healthcare	Medical Imaging Cloud
Traffic & Tourism	Industry Monitoring & Emergency Commanding Platform
General Industry	Fleet Management Platform

### ◎ Smart Education

China Unicom has continuously increased investment in education and has been praised by the Ministry of Education as "the only operator in China that systematically provides information solutions on the main battlefield of education". In the education industry, we provide the city, county and district education

bureaus with comprehensive services integrating cloud platforms and high-quality teaching resources, so as to help the education authorities and schools to achieve cloud-oriented development. We also launched cloud desktop service for basic education, vocational education, higher education and educational training institutions, which can effectively improve the educational informatization level and management efficiency of schools and educational management institutions. Aiming at preschool education as well as primary and secondary education, a “Three Accesses and Two Platforms” project has been launched nationwide, serving more than 620,000 teachers and students. More than 500,000 classes in the country have implemented “Banbantong” (Class Access) and 9.2 million people have been covered by “Renrentong” (Everyone Access).

China Unicom Jiangsu branch built standard examination rooms for Nantong City, Suqian City, Nanjing University and other places and schools to realize online HD patrolling and HD teleconference by upgrading the HD system; established a new full-band cheating prevention and control system; and initiated the function of identity identification for examination service communication, and real-time transmission of examination data. It aimed to safeguard a fair and equal examination environment with the wide and in-depth usage of modern information technologies in the examination field, facilitate locals to advance the building of national standard examination rooms and contribute to the national education and examination reform.



#### ◎ Smart Medical Care

China Unicom provides cloud-network integrated solutions to the medical and healthcare industry, offering high-quality, highly reliable and safe cloud service to hospitals' IT systems and health information service, regional medical collaboration service and other health-benefiting services to medical administration and management units.

#### ◎ Smart Government Administration

Adhering to the concept of “enhancing the platform and vitalizing the applications”, China Unicom provides “capability platform + scenario applications” to governmental clients to improve the efficiency and effect of government administration services, and uses massive real-time operation data of administration services to make active learning and continuous optimization of the service procedures, and realize the transformation of government administration from “passive service” to “intelligent service”, “empirical administration” to “scientific administration”, “manual service” to “process-based service”, and “IT-oriented administration” to “intelligent administration” with multidimensional awareness, overall-situation insight, real-time decision-making and continuous evolution, opening a new pattern of smart government administration service.

The digital urban management platform of Xianning, Hubei, built under the assistance of China Unicom Hubei Xianning branch, takes the digital map and unit grids as its division basis, integrates various data resources including fundamental geography, geocoding, municipal administration and community service affairs, and collects information through the channels of city monitors and citizen hotlines. It also established a comprehensive commanding system for city management and citizen service, creating a new supervision and processing mechanism for city management and public services that enables convenient communication, timely handling, in-place responsibilities and efficient operation, to improve city management and public service level in an all-round way.

#### ◎ Smart Traffic

China Unicom made active explorations in smart traffic. Taking “reducing traffic congestion and pressure” as the goal and technical intelligent traffic safety management as the basis, We formulated improvement plans for smart traffic project, bringing new experience to urban residents' smooth travelling.

Setting a goal of “near-future oriented smart travel by combination of far and near, treatment of both symptoms and root causes, and active promotion”, China Unicom Ningxia branch assisted Wuzhong City of Ningxia in intelligent traffic construction by building an intelligent comprehensive traffic management and control platform, a vehicle big data management and control platform, intelligent e-police monitoring devices and a cloud storage system. Since the implementation of the project, the traffic of Wuzhong has been significantly improved while traffic violation behaviors have been greatly reduced, bringing good experience to residents in travelling.

#### ◎ Smart Environmental Protection

Responding to the national strategic deployment for information-based government administration and the battle against pollution, China Unicom developed the four links of environment monitoring, analysis, decision-making and governance into closed data loops by integrating innovative technologies such as cloud computing, big data, IoT and smart technologies, relying on its river chief system and the ET Environment Brain 1.0 product of Alicloud as well as the four platforms of data management, data resources, learning algorithm and operation service, to support environment authorities to build a continuous circular system for ecological improvement and promote the in-depth integration of Internet and ecological civilization construction.

In July 2018, China Unicom Shanghai Baoshan branch successfully implemented the first intelligent garbage spillover monitoring project in its administrative area, to further consolidate the outcome as a national health town, and improve the environmental sanitation level and residents' living quality.

#### ◎ Smart Tourism

By integrating industrial resources and capabilities, including participating in data open cooperation, expanding data basic resources, and deepening the industry-leading data collection and integration capability for different contents and types, China Unicom provided diversified data application services to traffic and tourism, and developed Tourism Big Data Platform (2.0), Tourism Industry Monitoring and Emergency Commanding Platform, Scenic Areas Integrated Control Platform, Lexiang Hotel Platform and other superior products.

China Unicom Henan Xin'an branch facilitated the "Smart Tourism" platform building in "Smart Xin'an", playing the functions of intelligent devices in all scenarios of the city, making urban life more efficient and comfortable. With the help of the "Smart Tourism" program, Longtan Grand Canyon and Daimaishan Mountain were rated as "One Diamond Smart Scenic Spots".

### ◎ Smart Manufacturing

In response to the call of the State for transformation and upgrade of industrial manufacturing, China Unicom has launched an "Internet + Manufacturing" service model with its technological expertise and network resources, to help the manufacturing industry to solve a number of pain points on the industrial chain, and facilitate enterprises to make optimization and transformation.

China Unicom Jiangxi branch connected all links on the industrial chain and developed the first complete S2B2C ecological platform in the clothing industry in China "Zhongfulian", based on the features and pain points of the industry and targeting at the classic application scenarios of the industry, assisting the enterprises realizing individualized customization, flexible production, and intelligent manufacturing, so as to promote the Internet-oriented development of the textile and clothing industry.

### ◎ Smart Agriculture

China Unicom has built a big data platform for targeted poverty alleviation, WO land "Internet + Agriculture" cloud platform and other platforms to promote agriculture-related information applications and products such as agricultural products tracing, home security and Xueliang Project, with the aim to improve agriculture, rural areas and the production and life of farmers, increase agricultural production efficiency, and enhance the modern management in rural areas.

Giving play to the advantages of the e-commerce platform and exploring the "e-commerce + industry + poverty alleviation" model, China Unicom Henan Biyang branch built several information platforms, of which, 21 e-commerce companies and 9 business start-up teams have settled in the E-commerce Operation Center; 689 commercial tenants have settled in pangu1688.cn with the sales volume exceeding RMB30 million; and the Biyang Agricultural Products Tracing Management Platform has covered 36 specialties of Biyang County.



An E-commerce Village Service Station for Poverty Alleviation of Biyang County

### ◎ Smart Finance

China Unicom has been committed to the development of financial platforms, the iteration of financial products and the improvement of users' operating ability. While serving users and partners well, we are actively developing industry customers and different industrial scenarios to achieve new value innovation and breakthroughs in telecommunications + payment/financial industry. In 2018, we made further communication with clearing organizations such as NetsUnion, UnionPay and Settlement Center, actively accessed various payment businesses, and expanded the scope of supporting banks to 543. At the same time, we continued to promote the going-live of innovative businesses such as type II and III accounts and credit card drainage, and developed new system-supported cross-border services like crossborder payment, IVR payment and POS acquiring, as well as rolled out WO Installment, Staff Service, Party Membership Dues Assistant, Poverty-Alleviation Mall and other financial businesses/products, to offer more convenient and easier financial services to internal and external customers.

### ◎ Smart Party Building

China Unicom further advanced the deployment of the Party building work in leading, integrating into and promoting the overall situation, paid attention to the integration of Party building work and business development, and built a platform of "Internet + Smart Party Building", to spread the voice of the Party and gather the strength of the masses, so as to help the grass-roots Party organizations to play the role of fighting fortress.

The "Internet + 'Smart Party Building'" platform built by China Unicom Henan branch fully integrated contents like big data on Party members' education, Party building work management and handy services, spread the Party's voice and gathered the strength of the masses in the forms of micro-videos and micro-Party classes, to improve the service level of the grassroots Party organizations, and better serve the overall situation and educate and serve Party members and the masses. The number of users of the platform in the province has exceeded 300,000 and the learning duration of the Party members in the whole province approached 500,000 hours. It has truly achieved the goal of "letting Party members and cadres be educated, and bringing benefits to the masses".

## 🌐 Developing Smart and Forward-Looking Technologies

Following the innovation-driven principle, China Unicom has made active exploration in key frontier areas, strengthened independent innovation, and constantly deepened the integrated development of new technologies and mobile communications, to promote the improvement of product and service supply capabilities.

## 🚀 Embracing AI

China Unicom has been researching AI technologies as well as exploring and practising AI applications in the fields of network, business and management.

- Used AI for improving the smartness of networks and explored autonomous driving network and other frontier fields.
- Made active use of AI to empower industrial applications, and provided solutions to smart city, smart medical care and other fields to drive the development of real economy.
- Applied AI to intelligent customer service and achieved good results in improving the quality of customer service and cost reduction and benefits increase.
- Used AI to improve the smartness of human resources, finance, and legal works to enable smart management.

China Unicom has actively implemented the national strategy of AI, took the lead in and participated in the formulation of several AI international standards, holds several positions in international standards organizations, participated in many AI related open source projects under the Linux Foundation; and joined in the Artificial Intelligence Industry Alliance of China as a Vice President Unit.

## 🚀 Tracking Blockchain Technology

China Unicom focuses on the core technology and innovative application of blockchain, and has actively explored and practiced the application of blockchain in network, business, operation and management fields, to promote the development of blockchain technology and scenario application, and help industrial transformation and upgrading. We also explored the application of blockchain technology in enhancing network capability, took the decentralized collaboration model of blockchain as an important complement to the traditional collaboration model that supports corporate production, operation and management, and actively combined blockchain with industrial Internet.

China Unicom has taken the lead in and participated in the formulation of several blockchain related international standards, and the number of our blockchain patents reached 113 in 2018, ranking the 6th in the world and the 2nd in China.



## 🚀 Accelerating Technical Researches

China Unicom keeps promoting technical researches and in 2018, we innovatively constructed a scientific and technological innovation system consisting of four parts: organizational system, operation system, evaluation system and incentive system. At the same time, we built an information platform for scientific and technological innovation to continuously consolidate the foundation of scientific and technological innovation.

- In terms of international standards, China Unicom holds more than 100 positions in several key international standards and open source organizations, of which over 20 are important management positions, basically covering the major communications and IT fields in the world.
- In terms of industrial standards, we led and participated in the development of 285 projects on industry standards, and ranked the 3rd among the members of China Communications Standards Association (CCSA) in this aspect. Many of our employees hold important positions in CCSA.
- The "Omnidirectional Ceiling Antenna Used in Indoor Distribution System of Mobile Communications Network" won the 20th China Patents Silver Award and several more projects won the First Prize for Scientific and Technological Progress.

Submitted **545** contributions on international standards

Led and participated in the production of **285** projects on industry standards in 2018

Applied for **1,121** patents

**441** patents granted

## 🚀 Expediting 5G R&D

In 2018, China Unicom fully promoted the whole-industrial chain evolution of 5G businesses, network, terminals and applications, carried out large-scale 5G networking experiments, as well as developed and deployed construction plans.

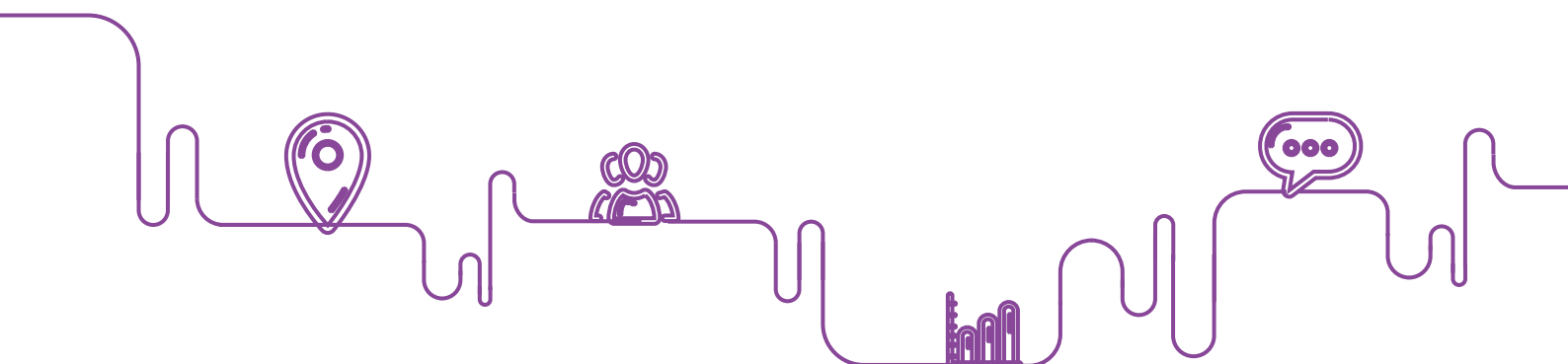
- Completed the lead and set-up of "4G/5G Tightly Coupled Network Architecture" and the other two 3GPP international standards projects, completed 5G NR series enterprise standard formulation, and promoted the formulation of 5G NR related industry standards.
- Completed the formulation of function and technical requirements for 5G base station equipment, internal and external field test specifications, new technology test deployment plans and construction guidance.
- Constructed 737 base stations in 17 cities to carry out external field tests and business demonstrations, among which scale networking tests were carried out in five external fields to promote the maturity of 5G industrial chain.
- Stuck to the synergy and parallel advancement between terminals and network, published China Unicom 5G Terminals White Paper, which clarified the technical requirements of China Unicom 5G terminals, and promoted the development of 5G terminal industrial chain.
- China Unicom 5G Innovation Center was officially established, responsible for the application innovation of the 5G industry.

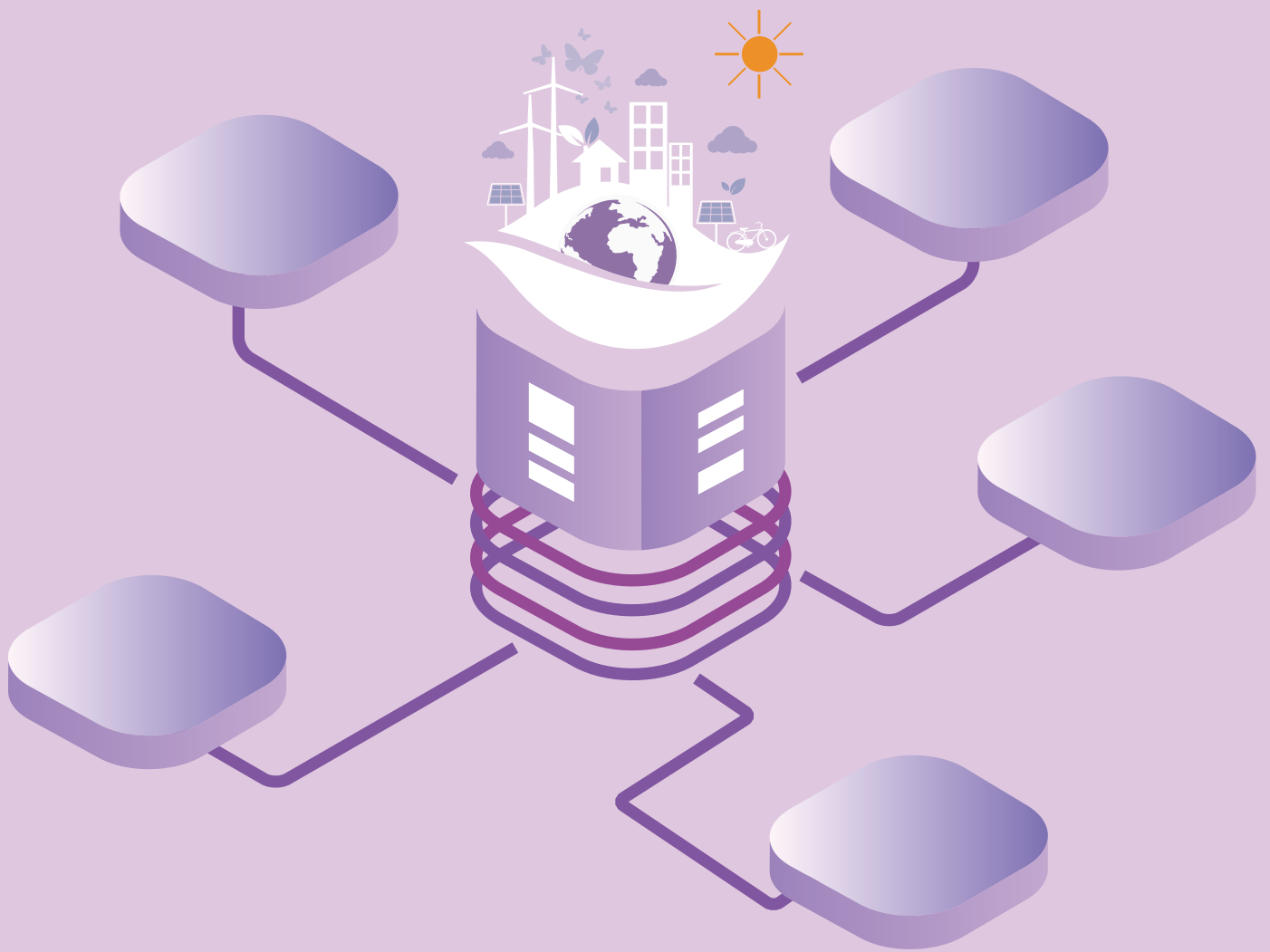
On 29 September, China Unicom and Huawei played together China's first 5G concert in different places during the PT Expo China. At this concert, the "Song of China Unicom" was simultaneously played in three venues in Beijing with different musical instruments, and the performance was broadcasted synchronously at the conference site in real time through millisecond transmission, enabling the audience to fully experience the beautiful future scene brought by 5G.

# New Ecology -

## Jointly Promoting Inner-Outer Inter-connected New Development

- 64 Joining in Hands with Business Partners for Common Development
- 64 Win-Win Cooperation with Industry to Write a New Chapter
- 66 Deepening Cooperation with Internet Companies





# New Ecology – Jointly Promoting Inner-Outer Interconnected New Development

China Unicom has been establishing an inner-outer interconnected new ecology and is committed to achieving open, sharing, integrated and win-win cooperation with ecological partners with the focus on the living needs of the public. By developing the ecological capability, China Unicom aims to promote the high-quality development of the industrial chain and provide support to people's beautiful life.

## Measures adopted in 2018

- Improved the co-construction and sharing level of telecom infrastructure, network supply capacity as well as quality and benefits.
- Promoted synergetic development with enterprises along the industrial chain including equipment suppliers, terminal suppliers, social channels, virtual network operators and private capital partner enterprises and performed social responsibilities.
- Deepened cooperation with Internet companies in new retail, brand publicity, channel touchpoints and industrial Internet capability building.

## Actions to be taken in 2019

- To make co-construction and sharing with partners in 5G construction.
- To further strengthen cooperation with the industrial chain, and provide more favorable communications products and better network services to users with wider Internet cooperation touchpoints.
- To deepen product cooperation in cloud computing, big data, IoT and industrial Internet, and broaden the business scale.
- To explore new capital cooperation with partners.

## Joining in Hands with Business Partners for Common Development

Implemented the new development philosophy. In line with the principle of “win-win cooperation and common development”, and focusing on improving the network supply capacity, quality and efficiency, China Unicom actively promoted complementary and in-depth cooperation with peer operators in the fields of resources and innovation, so as to form a synergistic effect of development and continuously improve the level of joint construction and sharing of telecom infrastructure.

- Saved project investment and achieved benefits of more than RMB750 million through joint construction and sharing of telecom infrastructure such as transmission poles, pipelines, directly buried optical cables and indoor distribution systems.
- Jointly constructed 2,100 line kilometers of transmission poles, 4,900 line kilometers of pipelines and 3,690 indoor distribution systems.
- Shared 6,500 line kilometers of transmission poles, 860 line kilometers of pipelines and 765 indoor distribution systems of peer operators.
- Shared with peer operators 8,540 line kilometers of transmission poles, 1,030 line kilometers of pipelines and 1,100 indoor distribution systems.

Responsibility Performance Indicator	2016	2017	2018
Co-construction rate of indoor distribution systems (%)	73	71	79
Sharing rate of indoor distribution systems (%)	63	93	93
Co-construction rate of poles (%)	85	88	91
Sharing rate of poles (%)	92	95	95
Co-construction rate of pipelines (%)	85	92	94
Sharing rate of pipelines (%)	86	98	96

## Win-Win Cooperation with Industry to Write a New Chapter

Oriented to the industrial chain, China Unicom expanded cooperation with open mind in multiple fields, including technology, business, resource and capital, to construct a benign industrial ecological cycle.

### Cooperation with Equipment Suppliers

#### Promoting normative management

- Carried out procurement in strict accordance with the relevant management regulations of material purchasing of the company and following the principles of fairness, equity and openness.
- Implemented intensive “sunshine procurement” and “green procurement” and performed social responsibilities. Reduced the Company's procurement cost through centralized procurement at the Group and provincial levels, the sum of which accounting for 88% of the total procurements.
- Developed material procurement rules, and the 1+2+N China Unicom Procurement Management System was determined. 16 procurement management rules were established (including those newly added and revised) in 2018.
- China Unicom E-Mall has a total of 25,000 suppliers and approximately 940,000 products, with an annual order amount of 1.252 million and a net trade volume of RMB41.26 billion. The growth rate of trade volume surpassed 55%.

The Company still ranked the second in the 2018 benchmarking activity of material procurement management for central state-owned enterprises organised by the SASAC. During the bidding and tendering work inspection organized by the MIIT, no serious procurement operating issue was identified and the normativity of tender offering has improved greatly.

**25,000** enterprises passed the green credential audit and settled in the E-mall

#### ◎ Promoting equipment suppliers to fulfill responsibilities

- To prevent the negative impact of supply-chain enterprises on society, we established a supplier blacklist management mechanism; conducted post-performance evaluation and management of the E-mall; made real-time management and risk early-warning in terms of integrity and account settlement; and set up a legal risk early-warning information and management mechanism in the fields of material procurement and communications construction.
- Implemented Internet + procurement by fully promoting the use of an electronic bidding system and an order trading system in the whole Group, which enhanced the capability of the E-mall and provided convenient procurement service for sunshine poverty alleviation.
- Organized 3 training sessions on material procurement regulations, which were participated by 320 employees from the HQ departments and subsidiaries in total.

### 📶 Cooperation with Terminal Suppliers

#### ◎ Establishing a strategic sharing mechanism and platform

- In 2018, "China Unicom Partners Conference" was held in Chongqing, attended by thousands of partners and industry peers. It published the cooperation arrangement and operation policies of China Unicom to the industrial chain. The crowd-funded conference cooperative brands reached 54 with 315 models, the crowd-funded terminals exceeded 60 million units, of which 7.44 million were fully intelligent, and the transaction volume was about RMB50 billion.

#### ◎ Facilitating industrial development

- Formulated and improved terminal standards, as well as respected and protected intellectual property rights. We revised the 4G Terminal Specifications, Smart SMS Specifications and VoLTE Specifications, and published All-netcom (China Unicom) White Paper 3.1 and New Terminal White Paper V1.0. The number of those specifications and whiter paper totaled 14. "Enterprise Standards, Industry Standards and International Standards for China Unicom 4G+/5G Terminals" won the First Prize of China Unicom 2018 Technical Standards Awards.
- Six-mode all-netcom terminal cooperation continued to expand, occupying an absolute share of the 4G terminal market. Up to October, the proportion of six-mode all-netcom terminals rose to 85.5%, up by 5.7% year on year.
- We vigorously promoted the eSIM-based Apple Watch S3 that supports dual terminals with one number in the 7 eSIM pilot cities approved by the MIIT to satisfy users' demands of multiform smart terminals for communications.



#### ◎ Propelling terminal suppliers to fulfill responsibilities

- Carefully checked the social responsibilities of suppliers, such as industry qualifications, product source, financial and taxation audit, and emphasized the responsibility of after-sales service, so as to ensure that the terminal is active and reliable to national economy, environmental protection, and user experience.
- Ensured that the terminals launched were energy-saving, environment friendly and safe. Required qualified manufacturers to provide quality certification, green certification, financial reports and other materials, and to ensure the authenticity and validity of the information.
- Required the cooperative manufacturers to have a perfect after-sales service system.
- Focused on products' power consumption in the test of customized terminals, and constantly collaborated with manufacturers to improve the products.
- Required that the mobile phones and the pre-installed applications launched by terminal manufacturers and China Unicom should meet relevant national standards, and pass the national safe terminal level test to ensure the security of user information on the terminal.
- To prevent terminal suppliers from having negative influence on society, China Unicom stressed responsibilities in the articles of its cooperation agreement with suppliers; and urged suppliers to help users to communicate with manufacturers to solve the after-sales problems. Since 1 January 2013, all cooperative manufacturers have signed the Test Commitment Letter. If the cooperative manufacturer violated relevant national regulations and had negative impact on society, China Unicom will take certain punitive actions.

### 📶 Cooperation with Social Channels

- Carried out channel cooperation with around 200,000 partners to build a win-win, sustainable eco-oriented channel cooperation and operation system for China Unicom, channel partners and users.
- Improved partners' capability in compliance selling, and opened up red packets, electronic coupons, installment and other financial capabilities to increase partners' operation capability.
- Opened the platform functions such as face recognition and photo auto-comparison, and provided partners with ID card reader and automatic card-writing equipment to help partners operate in compliance with laws and regulations and implement the real-name registration system.
- Continuously improved the IT supporting capability, sped up commission settlement, and operated in good faith, to comprehensively improve the efficiency of partners' fund flow.
- To prevent channel partners from having negative influence on society, we revised and perfected the business agent agreement, which further clarified the requirements on agents to sell products in compliance with laws and regulations and operate honestly from the aspects of responsibilities, rights and interests.

## Cooperation with Virtual Network Operators (VNOs)

### Enhancing cooperation with VNOs

Holding the “active, cooperative, open and win-win” attitude, China Unicom supports the development of resale enterprises. In 2018, China Unicom engaged in resale business cooperation with 31 enterprises and expanded the pilot programme to 220 prefectural-level cities, covering most of the provincial capitals and economically developed areas. We actively promoted the healthy development of mobile resale business, helped VNOs to enhance their differentiated competitiveness, continued to optimize the function of module products, added a new business model of deep cooperation project system, opened up the capacity of domestic traffic speed limit, and provided anti-harassment, anti-fraud telephone analysis services.

By the end of 2018, China Unicom's resale users reached **55.14** million with a market share of **67**%

### Helping VNOs to implement the real-name registration system

China Unicom helped resale enterprises to implement well the real-name registration system and network information security work from multiple aspects.

- Connected the implementation situation of the real-name registration system with the numbering resource distribution policy to resale enterprises.
- Strengthened network interception of bad information such as spam messages, provided free anti-harassment, anti-fraud telephone analysis services for enterprises, and pushed suspected numbers daily.
- Summoned the enterprises violating regulations for a meeting and put forward the requirement of rectification, as well as held supervision and communication meetings on implementation of the real-name registration system from time to time according to the business developments, to urge the resale enterprises to intensify the work on such system.
- The real-name registration work of resale business has been greatly improved in 2018. All resale enterprises could continuously and strictly register new users according to the supervision requirements. The management of bad network information, such as spam messages and fraudulent telephone calls, has also made some progresses.

## Social Cooperation on Networks

### Social cooperation on broadband

In 2018, China Unicom actively promoted social cooperation on broadband with the focus on the southern part. Throughout the year, we built 7.46 million broadband ports through social cooperation, of which 5.64 million were in southern provinces and cities. The total ports built through social cooperation approached 40 million, accounting for about 16.0% of all broadband ports. We also made broadband cooperative agreement with Founder to provide services to its users.

## Deepening Cooperation with Internet Companies

### Exploring “New Retail” Trials

We carried out in-depth cooperation with Internet companies including JD, Alibaba, Suning, Tencent and Baidu to explore the path for new retail.

- Built new retail stores through cooperation and conducted all-round cooperation with strategic partners in supply chain, IT support, big data targeted marketing, online-offline integrated operation and intelligent applications.
- Experience transplantation. Transplanted the operation model, system and capability of new retail stores to the business outlets of China Unicom on trial to improve their operation capability.
- Established a new platform system for new retail to further integrate the new retail capability, export the capability to social partners, enable them to improve productivity and form a new cooperation model of joint operation, promotion and marketing.

## Strengthening Internet Publicity and Cooperation

Took advantage of big events for Internet publicity. Taking the opportunity of World Cup, we enhanced the publicity on Tencent King Card, Ice Cream package and other major businesses; and took advantage of the new media resources of CCTV and the rights and interests platform of Youku to make a combined blow of TV and Internet to develop all-touchpoint publicity and improve the affinity of the brand.



## Advancing Customer Touchpoint Cooperation

China Unicom carried out APP touchpoint cooperation with Internet partners and took advantage of their platforms to provide quality network services and favourable packages to wide users, achieving win-win results for users, partners and China Unicom. We also made active exploration of resource exchange (SMA model) and other new models and made wide cooperation with small and medium-sized Internet companies, fast moving consumer goods companies and banks and financial institutions to cover the touchpoints in users' daily life.

- Developed 54 Internet partners and launched 63 cooperative projects, including 139 Internet packages. For the SMA business (resource exchange model), the cooperative projects exceeded 30 throughout the year.
- Successfully organized a series of channel touchpoint activities, such as those with mobile QQ, WeChat, Bilibili and Alibaba.

During the cooperation, China Unicom strictly abided by the cooperation agreements and took the initiative to carry out commission settlement, resource exchange, capability export and other work in a timely manner. In 2018, the 2I2C business billing users, cumulative billing revenue and users developed all rose significantly compared with that of last year.

China Unicom Qinghai branch conducted cross-industry cooperation with the Football Club Internazionale Milano and jointly launched a new model of "sports + Internet" in China by rolling out a card exclusive to fans of F.C. Internazionale Milano, which would integrate the rights and interests in both communications and sports, to meet people's demands for high-quality life and build a brand-new sports ecology in the Internet age.



F.C. Internazionale Milano and China Unicom Qinghai branch held a press conference on their strategic cooperation on 7 November 2018

## Deepening Capital Cooperation

- Co-funded and established Yunli Zhihui Technology Co., Ltd. with Alibaba, which focuses on the core technologies of cloud computing, big data, IoT, AI and blockchain, aims to lead the theoretical and practice direction for digital transformation, and provides holistic solutions, cloud product services and IT services in the fields of government administration, finance, environment, public security and manufacturing. It has gathered the strengths of over 150 mainstream enterprises on the industrial chain to jointly build the "platform + application" capability.

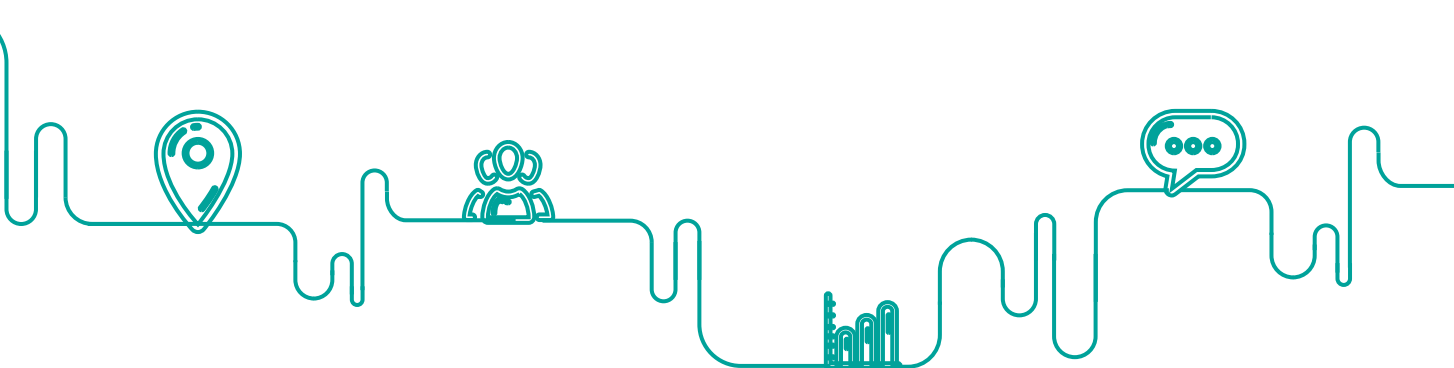


China Unicom and Alibaba worked together to build a pacemaker for the digital transformation of governments and companies

- Established Yunjing Wenlv Technology Co., Ltd. with Tencent, which focuses on the tourism industry, and aims to build its core competitiveness in tourism big data and tourism apps driven by big data to empower the tourism industry. Its core businesses include "tourism big data, smart tourism building and operation services".
- Established Yunji Zhihui Technology Co., Ltd. with Wangsu, offering CDN service and CDN-related security and edge computing services, to facilitate the comprehensive upgrading of CDN services and products.

# Enhancing Management - Regulating and Fulfilling Social Re- sponsibilities

- 70 Responsibility Strategy
- 71 Responsibility Organization
- 72 Responsibility System
- 73 Responsibility Assuming Capability
- 73 Responsibility Participation





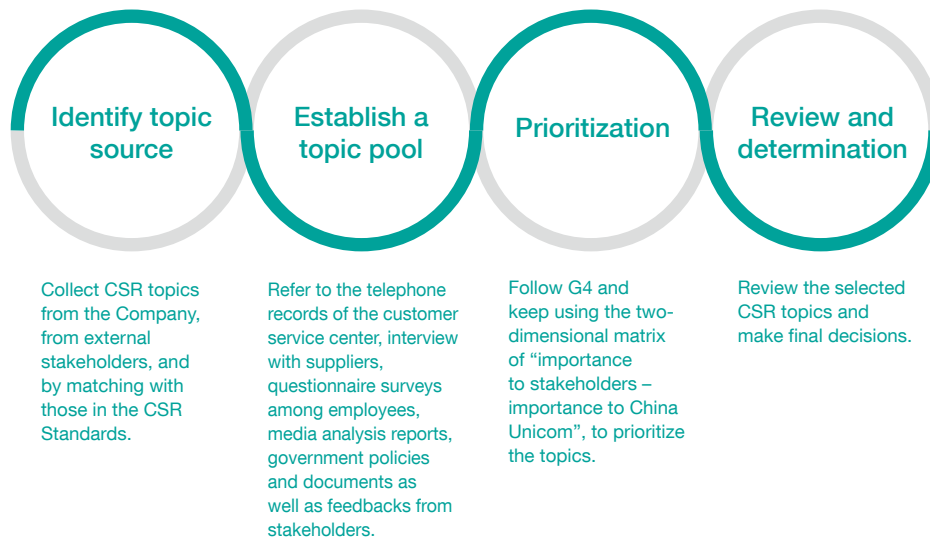
# Enhancing Management – Regulating and Fulfilling Social Responsibilities

## Responsibility Strategy

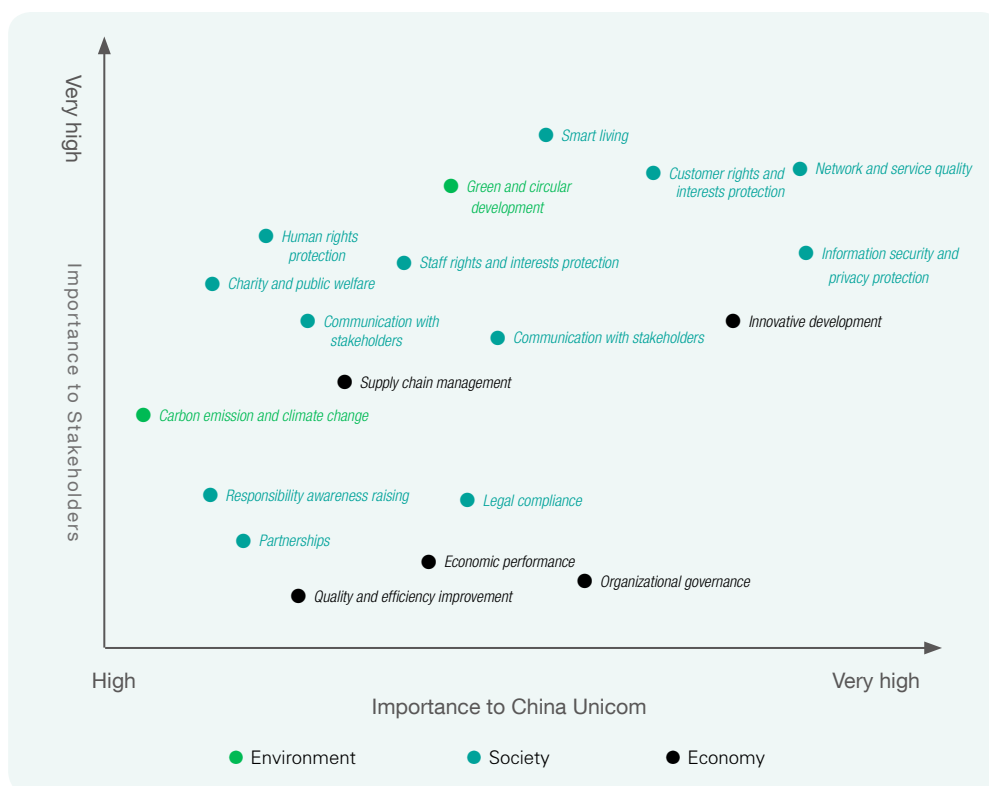
Led by the new development philosophies of “innovation, coordination, greenness, openness, and sharing”, the Company took practical steps to contribute to the “cyber power” strategy, the “Belt & Road” initiative, supply-side structural reform, the three tough battles and other national strategic deployments, fulfilling its obligations through responsible operations. We continuously enhanced our ability to create comprehensive economic, social and environmental values, seeking to promote sustainable development and make due contribution to China's economic, social and informatisation development.



China Unicom formulated a three-year plan for social responsibilities, established a social responsibility topic selection procedure under the principle of “closely following standards, regularly updating and sustainably improving”, and set nine substantive topics. The Company studies social responsibility topics every three years by closely following international changes and domestic trends, continuously taking advanced enterprises as the benchmark, and using scientifically selected topics to guide corporate responsibility practices so as to ensure the effectiveness, high standard and positive influence of our social responsibility implementation.



China Unicom's Selection Procedure for Social Responsibility Topics



## Responsibility Organization

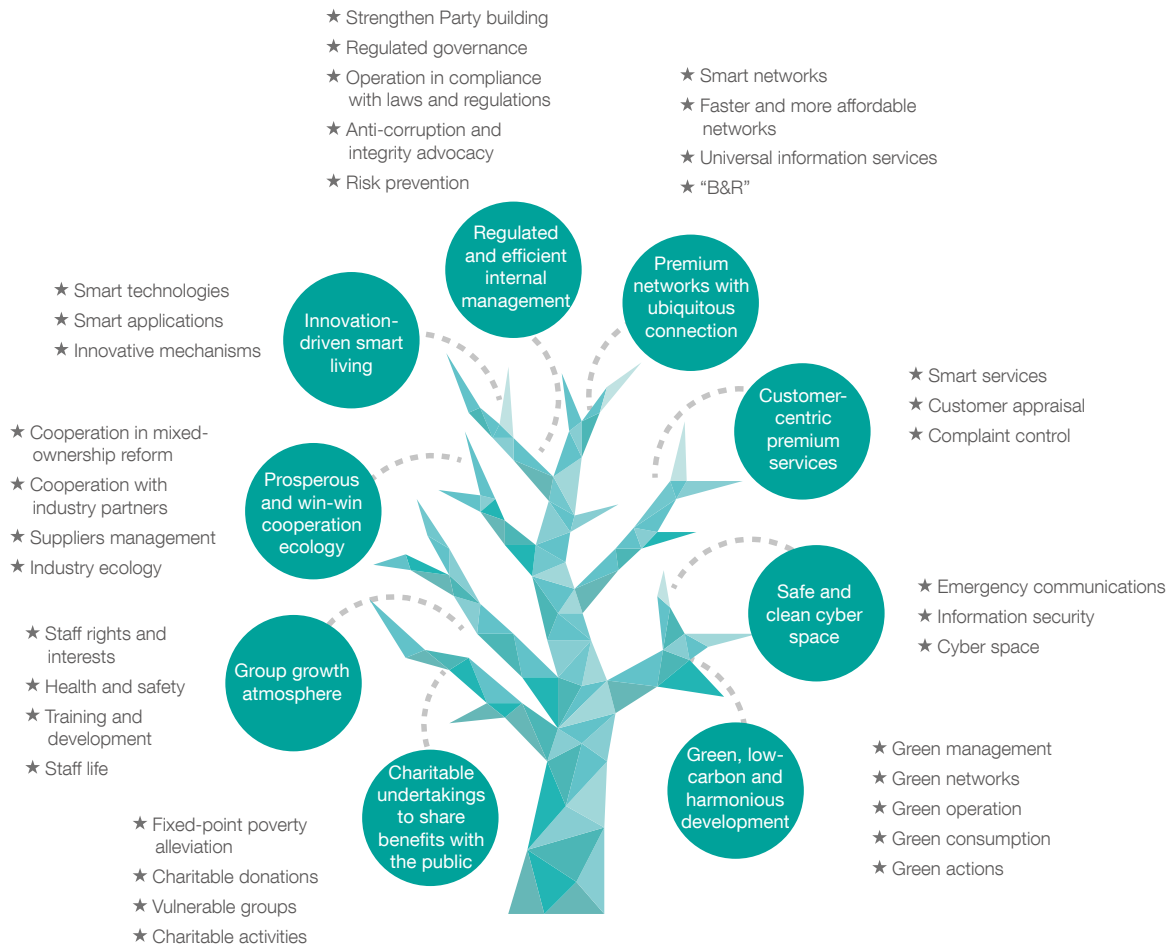
“China Unicom Social Responsibility Management Measures” has been developed, which clarifies the composition and responsibilities of the responsible organizations. Under the leadership of the Social Responsibility Steering Committee, the Corporate Development Department/Legal Department of the Group serves as the office to take charge of daily work, while the other departments of the Group, 31 provincial branches and subsidiaries of the Group are responsible for the implementation and practice of CSRs in special fields.



## Responsibility System

The Company's Social Responsibility Management System consists of organizational management, implementation management, communication management and performance management. In practical work, we adhere to the principles of "management first, integrating into operation and top-down linkage", and follow the system to develop responsibility plans, drive the fulfillment of responsibilities and compile CSR reports.

In accordance with international and domestic standards for social responsibility and focusing on 9 substantial topics of the Company, we further optimised "China Unicom's Social Responsibility Indicator System" that comprises 131 indicators and 35 categories, to drive social responsibility to be effectively integrated into enterprise production and operation.



China Unicom's Social Responsibility Indicator System

China Unicom promotes the whole Group to fulfill responsibilities focusing on the core topics and specialties, and has established a CSR practice reporting system where the prominent CSR practices will be included in the CSR Report of the year, and outstanding cases will be selected and reported to the SASAC, ICT industrial associations and Global Compact for promotion. In 2018, over 160 CSR practices were reported by 31 provincial branches, of which, 4 cases were recommended to take part in the SASAC's research projects, 3 were recommended to the election organized by Global Compact Network China and one of the three won the "Best Practice Award".

## Responsibility Assuming Capability

In 2018, China Unicom organized CSR training in the country and nearly 80 employees responsible for CSR management work from 31 provincial branches participated. Authoritative lecturers were invited to give lectures on international sustainable development reporting policy, HKEX's ESG policy, China A-share ESG policy, green finance and responsible investment, which deepened students' understanding of social responsibilities and broadened their international horizons.



Participated in the training course on CSR of central SOEs organized by the SASAC of the State Council: officials, experts and scholars from SASAC, Chinese Academy of Social Sciences, China WTO Tribune, and Shanghai Jiaotong University, interpreted CSR theories and trends from different perspectives; colleagues from LANXESS, State Grid, China Merchants Group and other enterprises, exchanged practical experience of CSR in depth; and visited Shanghai Business Hall of China Southern Power Grid for experiential training, enhancing the participants' awareness and ability of social responsibility in an all-round way.



CSR Work Training for Central SOEs

In 2018, China Unicom was actively involved in various exchanges and seminars organised by the social responsibility community to inform itself on trends in social responsibility, learn from outstanding enterprises and contribute its own ideas and views for the ongoing in-depth development of social responsibility.

Organiser	Event
UN Global Compact	At "2018 China Business Summit on Achieving SDGs", won the "2018 Best Corporate Practice on Achieving SDGs" Award
SASAC	Participated in the research project of "Blue Paper on CSR on Central SOEs" and "Central SOEs' 'Belt and Road' Performance Report (2018)", filled in questionnaire and submitted cases
GRI Greater China Regional Annual Meeting	Exchanged sustainability reports, and management and disclosure of corporate ESG information
KPMG	Exchanged views on sustainable investment assessment
China WTO Tribune magazine	Received awarding at the "11th International Conference on CSR Reporting in China" and the "Release Ceremony of GoldenBee CSR Report Honor Roll 2018"
Caixin Media	Received awarding at the 2018 SGCX-ESG50 Index Ceremony
UN	Launched the "Case For Change" activity with the UN Department of Public Information, GSMA and the Gongyi channel of ifeng.com at the "73rd UN Day" ceremony

## Responsibility Participation

China Unicom sets up a social responsibility communication mechanism to continuously carry out targeted communication according to the expectations of stakeholders and based on the substantial topics of social responsibilities.

Substantial Topics	Stakeholders	Communication Ways	Expectations on CU
Enhancing stable and regulated internal management	Shareholders	<ul style="list-style-type: none"> <li>Shareholders' meeting</li> <li>Investors communication meeting</li> </ul>	<ul style="list-style-type: none"> <li>Timely and transparent information acquisition</li> <li>Long-term and stable investment returns</li> <li>Corporate governance and risk control</li> <li>Legal compliance and clean operations</li> </ul>
	Government	<ul style="list-style-type: none"> <li>Face-to-face communication</li> <li>Meetings</li> </ul>	<ul style="list-style-type: none"> <li>Fair market competition order</li> <li>Efficiency increase and costs reduction</li> <li>Party organization building enhancement</li> </ul>
	Public and media	<ul style="list-style-type: none"> <li>Phone communication and forums</li> <li>Internet-based communication</li> </ul>	<ul style="list-style-type: none"> <li>Timely learning about Company information</li> <li>Interactive communication with the Company</li> </ul>
Forging premium networks with ubiquitous connection	Customers	<ul style="list-style-type: none"> <li>Service hotline</li> <li>Weibo/WeChat</li> <li>NPS (net promoter score) survey</li> </ul>	<ul style="list-style-type: none"> <li>High-speed and smooth networks</li> <li>Innovative smart network services</li> <li>High-quality networks in remote areas</li> </ul>
Pursuing innovation-driven smart living	All stakeholders	<ul style="list-style-type: none"> <li>Meetings</li> <li>Interviews</li> <li>Weibo/WeChat</li> </ul>	<ul style="list-style-type: none"> <li>Smart products that improve the quality of living</li> <li>Innovative and forward-looking communications technologies</li> <li>Internet-oriented management systems</li> </ul>
Refining customer-centric premium services	Customers	<ul style="list-style-type: none"> <li>NPS survey</li> <li>In-depth interviews and meetings</li> <li>Customer activities</li> </ul>	<ul style="list-style-type: none"> <li>Favorable and transparent tariff policy</li> <li>Convenient and efficient service channels</li> <li>Effective after-sales service assurance</li> </ul>
Creating a prosperous and win-win cooperation ecology	Partners	<ul style="list-style-type: none"> <li>Partners' conference</li> <li>Meetings and visits</li> <li>Self-service portals of partners</li> </ul>	<ul style="list-style-type: none"> <li>Wide cooperation scope</li> <li>Fair and open cooperation opportunities</li> <li>Rich and convenient support services</li> </ul>
	Peers	<ul style="list-style-type: none"> <li>Face-to-face communication</li> <li>Meetings</li> </ul>	<ul style="list-style-type: none"> <li>Stronger ability for complementary use of resources</li> <li>Cost savings and higher efficiency</li> </ul>
	Customers	<ul style="list-style-type: none"> <li>Interviews and hotline</li> </ul>	<ul style="list-style-type: none"> <li>Driving partners to honour obligations</li> </ul>
Developing secure and clean cyber space	Customers and government	<ul style="list-style-type: none"> <li>Service hotline</li> <li>Weibo/WeChat</li> <li>Meetings and forums</li> </ul>	<ul style="list-style-type: none"> <li>Smooth network connection anytime, anywhere</li> <li>Safe and healthy cyber space</li> <li>Network information security and confidentiality</li> </ul>
Fostering an ambience for growth by team effort	Employees	<ul style="list-style-type: none"> <li>Staff forums</li> <li>Staff representative assemblies</li> <li>Democratic informal meetings</li> <li>Online communication with the General Manager</li> </ul>	<ul style="list-style-type: none"> <li>Protection of lawful rights and interests</li> <li>Training and career development opportunities</li> <li>Opportunities for participation in democratic management</li> <li>Support in adversity</li> <li>Safe and comfortable work environment</li> </ul>
Promoting green, low-carbon and harmonious development	Ecological environment	—	<ul style="list-style-type: none"> <li>Green and eco-friendly operations</li> <li>Reduction of pollution through recycling</li> </ul>
Advancing charitable undertakings to share benefits with the public	Community	<ul style="list-style-type: none"> <li>Meetings</li> <li>Forums</li> <li>Villages support station</li> </ul>	<ul style="list-style-type: none"> <li>Continuous and effective donations</li> <li>Enhancing efforts in poverty aid and relief</li> <li>Charitable volunteering programmes</li> </ul>

In 2018, the Company was engaged in extensive publicity initiatives and interaction with the media, enhanced communication with the public and the press, and vigorously developed a new ecology of corporate communication with internal as well as external parties, presenting China Unicom's open approach to communication.

- We persisted in the transition to Internet-based publicity with the development of a complete mechanism covering the monitoring and reporting of public opinions and the provision of feedback and response.
- We held 25 key publicity events in connection with, among others, the announcement of network speed upgrade and tariff reduction, launch of terminals compatible with six modes, ITU Telecom World, Winter Olympic Games and Winter Paralympic Games.
- We published 109 news releases and arranged 32 press interviews.
- We have more than 150 million followers on new media such as Weibo and WeChat with an annual viewership in excess of 1 billion views. We have won the title of the most influential new media account among Chinese enterprises and central enterprises for 5 years in a row, ranked the first among Chinese enterprises and central enterprises in terms of the influence of new media for 4 consecutive years, and won the Chinese Enterprise Network Volume Award and the award for listed companies with great new media communication influence.

#### © Honours and Recognition

In 2018, China Unicom sturdily performed social responsibilities, disclosed its responsibility performance promptly, and gained positive progress in social responsibility performance.

- The Company ranked the 27th in the "2018 Corporate Social Responsibility Development Index for China's Top 300" of Chinese Academy of Social Sciences, which is 10 places higher than that in 2017.
- Elected in 2018 "China SGCX-ESG50 Index", and the CSR Report won the "2018 GoldenBee Outstanding CSR Report - Leading Enterprise Award".
- The CSR practice of China Unicom Henan branch "Promoting Information into Villages and Households to Facilitate the Sustainable Development of Agriculture" was appraised by the Global Compact as the "2018 Best Practice for Enterprises on Achieving SDGs".

# Appendix

## Key Performance

Category	Indicator	Unit	2016	2017	2018
Operations and development	Total assets	RMB billion	664.65	619.39	580.359
	Operating income	RMB billion	275.75	276.15	292.296
	Revenue from main businesses	RMB billion	239.98	247.42	262.076
	Mobile billing subscribers	Million	263.822	284.163	315.036
	Of which: 4G subscribers	Million	104.551	174.876	219.925
	Fixed-line local access subscribers	Million	66.649	59.997	55.899
	Fixed-line broadband subscribers	Million	75.236	76.538	80.88
	E-commerce turnover	RMB billion	40.84	66.42	71.26
Network capability	Labor productivity	RMB Thousand/Person • Year	871.2	921.2	1,004.1
	Number of 4G base stations	Thousand	740	852	987
	Number of fixed BB access ports	Million	189	202	215
	BB coverage in administrative villages in the ten northern provinces	%	95	95	96
	Coverage rate of network at a speed ≥ 20Mbps in urban areas	%	89	93	97
	Coverage rate of network at a speed ≥ 4Mbps in rural areas	%	99	100	100
	Coverage rate of mobile network in township	%	100	100	100
	Coverage rate of mobile network in administrative villages	%	87	89	89
	International interconnection bandwidth	G	1,711	2,072	2,427
	4G network access rate	%	99.69	99.72	99.77
Emergency guarantee input	4G network call drop rate	%	0.10	0.10	0.09
	Number of channels in rural and remote poverty-stricken areas	Thousand	260	200	200
	Total number of emergency communications guarantee participated	Time	393	361	407
	Emergency communications vehicles called out	Thousand vehicle-time	124	137	133
	Emergency communications equipment input	Thousand set-time	115	109	94
Independent Innovation	Personnel used	Thousand person-time	413	471	482
	Technological innovation input	RMB billion	4.82	5.81	11.5
	Number of personnel in technological activities	Person	4,508	4,195	7,703
	Contributions on international standards	Paper	614	649	545
	Industrial standards	Item	226	228	285
	Patents applied	Item	621	648	1121
Customer service	Patents granted	Item	232	346	441
	Monthly average complaint rate in the year	Person-time/million users	3.61	2.73	2.96
	Overall satisfaction rate	Point	77.5	77.9	80.42
	Including: Fixed line user satisfaction rate	Point	80.4	82.45	85.73
	Mobile phone user satisfaction rate	Point	78.8	79.13	81.94
	Fixed BB user satisfaction rate	Point	72.5	74.62	76.17
People- oriented	Mobile Internet user satisfaction rate	Point	75.9	75.05	77.83
	Gender proportion of staff	Male : Female	1.48:1	1.48:1	1.50:1
	Proportion of minority staff	%	6.78	6.89	6.77
	Proportion of females in senior management	%	11.7	10.6	11
	Input in staff training	RMB million	302.64	321.57	422.99
	Training length per capita in average	Hour	60	62	66
	Network college online learning person-time	Thousand person-time	4,585	15,333	11,250
	Network college total online learning hours	Thousand credit hours	3,750	13,096	7,040
	Number of safety production training provided	Time	32	37	40
	Coverage rate of safety production training	%	100	100	100
	Proportion of contracted employees in labor union	%	100	100	100
	Input to help employees in difficulty	RMB million	9.67	9.37	30.22
	Condolence fund input	RMB million	35.71	28.38	28.53
	Employee turnover rate	%	2.12	2.07	2.16

Category	Indicator	Unit	2016	2017	2018
Low-carbon development	Special investment in energy conservation and emission reduction	RMB million	200	100	100
	Unit information flow energy consumption	Kg ce/TB	6.47	7.5	3.14
	Petrol consumption	Thousand tons	45.6	29.1	28.6
	Diesel consumption	Thousand tons	12.8	24.5	8.1
	Natural gas consumption	Thousand m3	10,995.6	7,081	10,145.2
	Electricity consumption	Billion KWH	13.893	13.986	14.19
	Water resource consumption	Thousand tons	22,892.5	22,210.6	18,573.1
	Coal consumption	Thousand tons	110.6	72.7	58
	Energy saved	Thousand tce	156.5	169.2	163.2
	Greenhouse gas emission	Thousand tons	5,098.9	5,188	5,296
	SO <sub>2</sub> emission	Thousand tons	6.6	8.9	2.4
	Chemical oxygen demand (COD)	Thousand tons	18.3	25.4	21.1
Compliance management	Recycling upon scrappage and disposal	RMB million	2,711	1,242	621
	Compliance training organized	Time	1,591	1,576	1,920
Community responsibility	Compliance trainees	Person	254,628	253,530	248,193
	Registered volunteers	Person	17,042	23,998	43,873
	Participants in volunteer activities	Person-time	25,386	39,966	50,412
	Credit rating	Grade	AAA	AAA	AAA
	Total tax paid	RMB billion	12.09	7.58	8.552
	Jobs created	Person	30,271	10,780	10,954
	Total donation	RMB million	23.01	72.96	191.96

Note: The financial data for 2018 is bulletin data that has not been audited.

## Company Honors

- China Unicom won the "Asia's No.1 Best Managed Telecommunications Company", "Best Managed Company in China – 1st", "Best Investor Relations in China – 1st", "Best Corporate Social Responsibility in China – 1st" and "Most Committed to Corporate Governance in China – 1st" in "Asia's Best Managed Companies Poll 2018" by FinanceAsia.
- China Unicom was voted for three years in a row as "Asia's No.1 Most Honored Telecom Company", "Asia's No.1 Best CEO (Telecommunications)", "Asia's No.1 Best Financial Director (Telecommunications)", "Asia's No.1 Best Investor Relations Company (Telecommunications)", and "Asia's No.1 Best Corporate Governance (Telecommunications)" in "2018 All-Asia Executive Team" ranking organised by Institutional Investor.
- In "The Asset Corporate Awards 2018" voting, China Unicom won the "Platinum Award for Excellence in ESG" and "Highly Commended Investor Relations Team". Meanwhile, Mr. Wang Xiaochu, Chairman and CEO of China Unicom, was awarded as the "Best CEO".
- China Unicom was voted by investors, analysts, and professionals in the financial community as "Best in Communications Sector", "Best in Hong Kong" and "Best Overall Investor Relations (Large-Cap)" at "IR Magazine Awards – Greater China 2018".
- China Unicom was awarded "The Best of Asia - Icon on Corporate Governance" in the Recognition Awards 2018 by Corporate Governance Asia. Meanwhile, Mr. Wang Xiaochu, Chairman and CEO of the Company, was honoured with the "Asian Corporate Director Recognition Award 2018".
- China Unicom's website (<https://www.chinaunicom.com.hk>) has won the gold award in "iNova Awards" consecutively for three years.
- China Unicom ranked the 273rd by revenue in "Fortune Global 500" for the year 2018.
- China Unicom stood out from 500 excellent Internet of Things (IoT) enterprises to rank the sixth on the "World IoT Ranking List 2018" announced at the World Internet of Things Convention 2018, and was one of the three Chinese enterprises shortlisted in the top 10.
- Won the "2018 Outstanding Case on Targeted Poverty Alleviation of Listed Companies in China" award by jrj.com.
- Unicompay Company Limited received the "2018 Outstanding Enterprise Award in China's Mobile Payment Sector", "Star Platform Award in China's Mobile Payment Sector", and "Annual Operator Innovative Product Award in the Sinatech Awards 2018", and was included in the Top20 of China FinTech Unicorn List.
- China Unicom Cloud Data Company won the "2018 Cornerstone Award for Digital Transformation of China IDC Industry", "Trusted Cloud Technology Innovation Award", and "Cloud-computing Big Data Service Excellent Product and Solutions Award".
- The "Smart River Chief Management Platform" of China Unicom System Integration Company received the "2018 China's Electronic Information Industry Pan Gu Award for Innovations (Innovative Products)".

## Institutions and Organizations Joined

Major organisations newly joined by China Unicom in 2018

No.	Name of Organization	Membership Category
1	Trusted Blockchain Alliance	Regular member
2	China Information Industry Trade Association Big Data Industry Branch	Vice President unit
3	Alliance of Internet + Energy Conservation	Vice President unit
4	China Cybersecurity Industry Alliance	Member
5	China Big Data Technology and Application Alliance	Vice President unit
6	Big Data Industry Alliance of China	Member
7	China Tourism Association – Tourism Marketing Branch	Founding member
8	Tourism Big Data Industry-University-Research Alliance	Member unit
9	National Smart Cities Standardization General Working Group	Director unit
10	China Tourism Big Data Academy	Founding unit

## Description of the Report

Reporting Period	From 1 January 2018 to 31 December 2018, some sections exceeding aforesaid period.
Release frequency	The CSR report of China United Network Communications Group Company Limited is an annual report.
Organizational coverage	The report covers China United Network Communications Group Co., Ltd. and its subordinate institutions. For the convenience of expression, “China Unicom”, “the Group”, “the Company” and “We” are used respectively in the report.
References	<p>“Guiding Opinions on State-owned Enterprises to Better Perform Social Responsibilities”, SASAC;</p> <p>“Guidance of Shanghai Stock Exchange for preparation of Report of Social Responsibility Performance”;</p> <p>“Guidance on Environment, Society and Governance Report”, HKEX;</p> <p>“Social Responsibility Report Preparation Guidance” of AQSIQ and SAC;</p> <p>“Guide on Preparation of China Corporate Social Responsibility Report (CASS-CSR 4.0)”, Chinese Academy of Social Sciences;</p> <p>“Guide on Sustainable Development Report” of Global Reporting Initiative (GRI) (G4 Edition);</p> <p>“Social Responsibility Management System for China Information and Communications Companies”, China Association of Communications Enterprises.</p>
Clarification about the data	The 2018 data quoted in this report are final statistical data. In case of any discrepancy between the financial data herein and those in annual report, the annual report shall prevail.
Report quality assurance	The Board of Directors and all directors undertake that the information disclosed in the report is authentic, complete and correct, with no false record or misleading statement.
Language versions and availability	<p>The CSR Report of the Company is issued in Chinese and English in forms of paper and electronic editions.</p> <p>For the online Chinese report, please visit the website of China Unicom: <a href="http://www.chinaunicom.com.cn">http://www.chinaunicom.com.cn</a>.</p> <p>For the online English report, please visit the website of Global Compact: <a href="http://unglobalcompact.org">http://unglobalcompact.org</a>.</p>
Contact information	<p>Address: China Unicom Corporate Development Department/Legal Department, No. 21 Jinrong Street, Xicheng District, 100033, Beijing, China</p> <p>Fax: 86-10-66258674</p> <p>E-mail: <a href="mailto:yangwei3@chinaunicom.cn">yangwei3@chinaunicom.cn</a></p>

## Indices

### GRI G4

No.	Page Disclosed	No.	Page Disclosed	No.	Page Disclosed	No.	Page Disclosed
Strategy and Analysis		G4-8	P6、75	G4-16	P4-8、76	G4-23	—
G4-1	P4-5	G4-9	P6	Identified Material Aspects and Boundaries		Stakeholder Engagement	
Organizational Profile		G4-10	P15、27、75	G4-17	P6	G4-24	P73-74
G4-3	P6	G4-11	—	G4-18	P77	G4-25	P73-74
G4-4	P6、P36-40	G4-12	P44	G4-19	P77	G4-26	P73-74
G4-5	P82	G4-13	P6、20-21、65	G4-20	P77	G4-27	P73-74
G4-6	P6、13、14	G4-14	P39、65	G4-21	P77	Report Profile	
G4-7	P21	G4-15	P47、51	G4-22	—	G4-28	P77

No.	Page Disclosed	No.	Page Disclosed	No.	Page Disclosed	No.	Page Disclosed
G4-29	P77	<b>Biodiversity</b>		<b>Labour-Capital Relation</b>		G4-HR10	—
G4-30	P77	G4-EN11	—	G4-LA4	P29	G4-HR11	—
G4-31	P77	G4-EN12	P47	<b>Occupational Health and Safety</b>		<b>Human Right Grievance</b>	
G4-32	P77	G4-EN13	—	G4-LA5	—	G4-HR12	P28
G4-33	P77	G4-EN14	—	G4-LA6	—	<b>Society</b>	
<b>Governance</b>		<b>Exhaust Gas Emission</b>		G4-LA7	P28、31	<b>Local Community</b>	
G4-34	P20-21	G4-EN15	P76	G4-LA8	P28、31	G4-SO1	P14-15
<b>Ethics and Integrity</b>		G4-EN16	P76	<b>Training and Education</b>		G4-SO2	—
G4-56	P20-22	G4-EN17	—	G4-LA9	P28-29、75	<b>Anti-Corruption</b>	
<b>Management Method Disclosure</b>		G4-EN18	—	G4-LA10	P28-29	G4-SO3	P19
G4-DMA	—	G4-EN19	—	G4-LA11	P27	G4-SO4	P19
<b>Economy</b>		G4-EN20	—	<b>Diversity and Equal Opportunity</b>		G4-SO5	P19
<b>Economic Performance</b>		G4-EN21	P76	G4-LA12	P27	<b>Public Policy</b>	
G4-EC1	P8、75	<b>Sewage and Waste</b>		<b>Equal Pay for Men and Women</b>		G4-SO6	—
G4-EC2	—	G4-EN22	—	G4-LA13	P28	<b>Anti-Competition Behaviour</b>	
G4-EC3	—	G4-EN23	—	<b>Assessment of Suppliers' Labour Practices</b>		G4-SO7	P22
G4-EC4	—	G4-EN24	—	G4-LA14	—	<b>Compliance</b>	
<b>Market Performance</b>		G4-EN25	—	G4-LA15	—	G4-SO8	P22
G4-EC5	—	G4-EN26	—	<b>Labour Grievance Mechanism</b>		<b>Assessment of Suppliers' Social Influence</b>	
G4-EC6	—	<b>Products and Services</b>		G4-LA16	P28	G4-SO9	—
<b>Indirect Economic Impacts</b>		G4-EN27	P45、46	<b>Human Rights</b>		G4-SO10	P45、P65
G4-EC7	P8-9、34-35	G4-EN28	P23、46	<b>Investment</b>		<b>Grievance Mechanism for Impacts on Society</b>	
G4-EC8	P19、45	<b>Compliance</b>		G4-HR1	—	G4-SO11	—
<b>Procurement Practices</b>		G4-EN29	—	G4-HR2	P75	<b>Product Responsibility</b>	
G4-EC9	P15、64	<b>Transportation</b>		<b>Non-Discrimination</b>		<b>Customer Health and Safety</b>	
<b>Environment</b>		G4-EN30	—	G4-HR3	P28	G4-PR1	P65、66
<b>Material</b>		<b>Overall Situation</b>		<b>Freedom of Association and Collective Bargaining</b>		G4-PR2	—
G4-EN1	—	G4-EN31	P44	G4-HR4	—	<b>Product and Service Labelling</b>	
G4-EN2	P47	<b>Supplier Environment Assessment</b>		<b>Child Labour</b>		G4-PR3	P9
<b>Energy</b>		G4-EN32	P65	G4-HR5	P14、28	G4-PR4	—
G4-EN3	P47	G4-EN33	P65	<b>Forced and Compulsory Labour</b>		G4-PR5	P35、37
G4-EN4	—	<b>Environmental Grievance Mechanism</b>		G4-HR6	P14、28	<b>Marketing</b>	
G4-EN5	—	G4-EN34	—	<b>Security Measures</b>		G4-PR6	—
G4-EN6	P46-47	<b>Society</b>		G4-HR7	—	G4-PR7	—
G4-EN7	P46-47	<b>Labour Practices and Decent Work</b>		<b>Indigenous Rights</b>		<b>Customer Privacy</b>	
<b>Water</b>		<b>Employment</b>		G4-HR8	P14	G4-PR8	—
G4-EN8	P76	G4-LA1	P27、75	<b>Assessment</b>		<b>Compliance</b>	
G4-EN9	—	G4-LA2	P28	G4-HR9	—	G4-PR9	—
G4-EN10	—	G4-LA3	P28	<b>Supplier Human Rights Assessment</b>			

## CASS4.0

Indicator	Page Disclosed	Indicator	Page Disclosed	Indicator	Page Disclosed	Indicator	Page Disclosed
<b>I. Foreword (P Series)</b>		P4.1	P15	G2.3	P72	G5.2	P72-73
<b>(P1) Report Specification</b>		P4.2	P21	G2.4	P73-74	<b>(G6) Participation</b>	
P1.1	P70-74	P4.3	P6、P36-38	<b>(G3) Organization</b>		G6.1	P74
P1.2	P70、P77	P4.4	P6、P75	G3.1	P4-5、P71	G6.2	P73-74
P1.3	P77、P80	P4.5	P7、P20-21	G3.2	P71-72	G6.3	P44、P73
<b>(P2) Message from Senior Management</b>		<b>II. Responsibility Management (G Series)</b>		G3.3	P71	<b>III. Market Performance (M Series)</b>	
P2.1	P4-5	<b>(G1) Vision</b>		<b>(G4) System</b>		<b>(M1) Responsibility to Shareholders</b>	
P2.2	P4-5	G1.1	P15、P70	G4.1	P72	M1.1	P20
<b>(P3) Responsibility Focus</b>		G1.2	P43、P70	G4.2	P70-72	M1.2	P5、P20-21
P3.1	P70-71、P74	<b>(G2) Strategy</b>		G4.3	P73	M1.3	P19
P3.2	P6-14、P71-72	G2.1	P70-72	<b>(G5) Culture</b>		M1.4	P20、P77
<b>(P4) Company Profile</b>		G2.2	P70	G5.1	P73	M1.5	P20

Indicator	Page Disclosed	Indicator	Page Disclosed	Indicator	Page Disclosed	Indicator	Page Disclosed
M1.6	P8, P75	M3.15	P65	S3.6	—	E2.6	P76
M1.7	P8, P75	M3.16	P65	S3.7	—	E2.7	P76
M1.8	P8	IV. Social Performance (S Series)		(S4) Community Responsibility		E2.8	P44
(M2) Responsibility to Customers		(S1) Responsibility to Government		S4.1	P42, P43	E2.9	P76
M2.1	P6, P8, P34	S1.1	P22	S4.2	P14–15	E2.10	P76
M2.2	P38, P44	S1.2	P76	S4.3	P15	E2.11	P44–45
M2.3	—	S1.3	P76	S4.4	P15	E2.12	P76
M2.4	P56	S1.4	P7–8	S4.5	P15	E2.13	P44
M2.5	P75	S1.5	P27–28, P76	S4.6	P48–53	E2.14	P44
M2.6	P61, P75	S1.6	P27, P76	S4.7	P53	E2.15	P46–47
M2.7	P61	(S2) Responsibility to Employees		S4.8	P49, P76	E2.16	P46–47
M2.8	P22	S2.1	P27, P75	S4.9	P52	E2.17	P46–47
M2.9	P40, P46	S2.2	P28	S4.10	P52–53	E2.18	P46–47
M2.10	P22	S2.3	P28	S4.11	P76	E2.19	P46–47
M2.11	P22	S2.4	P29–30	S4.12	P8–11	E2.20	—
M2.12	P47	S2.5	P75	S4.13	P9, P11	E2.21	P47
M2.13	P42	S2.6	P28	S4.14	P8, P10	E2.22	P47
M2.14	P38–40	S2.7	P28	V. Environment Performance (E Series)		E2.23	P44–47
M2.15	P39–40	S2.8	P28, P75	(E1) Green Management		E2.24	P44–47
M2.16	P75	S2.9	P28	E1.1	P43	E2.25	P76
M2.17	—	S2.10	P27	E1.2	P45–46, P48	(E3) Green Operation	
M2.18	P40, P75	S2.11	P28, P30	E1.3	P44–48	E3.1	P46
(M3) Responsibility to Partners		S2.12	P28, P30–31	E1.4	P44, P76	E3.2	P44, P46
M3.1	P64–65	S2.13	P31	E1.5	P44, P46	E3.3	P47
M3.2	P22	S2.14	P28–29	E1.6	P44	E3.4	P47
M3.3	P64–65	S2.15	P28–29, P75	E1.7	P47–48	E3.5	P47
M3.4	P64–67	S2.16	P27	E1.8	P44	E3.6	P47
M3.5	P22, P65	S2.17	P30–31	E1.9	P44–47	VI. Afterword (A Series)	
M3.6	P22, P64–67	S2.18	P31	E1.10	P76	(A1)	P70
M3.7	P22, P64	S2.19	P28	E1.11	P76	(A2)	P75–76
M3.8	P64–67	S2.20	P75	E1.12	P47	(A3)	P76
M3.9	P65	(S3) Safe Production		(E2) Green Production		(A4)	P74
M3.10	P64–67	S3.1	P28	E2.1	P47	(A5)	P77–79
M3.11	P44, P64–67	S3.2	P28	E2.2	P44, P64	(A6)	P80
M3.12	P65	S3.3	P28	E2.3	P44–45		
M3.13	P65	S3.4	P28, P75	E2.4	P43, P76		
M3.14	P64–67	S3.5	P28	E2.5	P76		

## ESG Indexes

Indicator	Page Disclosed	Indicator	Page Disclosed	Indicator	Page Disclosed	Indicator	Page Disclosed
A1	P43, 76	A2.4	P44, 48, 76	B3	P28–29, 75	B6.2	P39–40
A1.1	P43, 76	A2.5	P43	B3.1	P28–29, 75	B6.3	P22, 61, 65, 75
A1.2	P43, 76	A3	P44–48	B3.2	P28–29, 75	B6.4	P34–35
A1.3	P43	A3.1	P44–48	B4	P14, 28	B6.5	P41–42
A1.4	P43	B1	P27, 75	B4.1	P14, 28	B7	P19
A1.5	P43, 76	B1.1	P27, 75	B4.2	P14, 28	B7.1	P19
A1.6	P43	B1.2	—	B5	P44, 64–66	B7.2	P19
A2	P43–48, 76	B2	P28, 31, 75	B5.1	P65	B8	P48–53, 76
A2.1	P44–45, 76	B2.1	—	B5.2	P44, 64–66	B8.1	P48–53, 76
A2.2	P44–45, 76	B2.2	—	B6	P34–42, 61–65, 75	B8.2	P48–53, 76
A2.3	P44–45, 76	B2.3	P28, 31, 75	B6.1	N/A		

## Feedback

Dear reader,

Thank you very much for reading this China United Network Communications Group Co., Ltd. Corporate Responsibility Report 2018, which is our 12th social responsibility report publicly released to the society. In order to better provide valuable information to you and other stakeholders, facilitate supervision of our work in the field of social responsibility, as well as improve our capability in fulfilling social responsibilities, we sincerely invite you to offer us your opinions and suggestions to this report.

Email: yangwei3@chinaunicom.cn

Fax: 86-10-66258674

Address: China Unicom Corporate Development Department, No. 21 Jinrong Street, Xicheng District, 100033, Beijing, China.

● **You're from:**

A. Customer B. Shareholder C. Government D. Community E. Partner F. Media G. Social group H. Others (please specify) \_\_\_\_\_

● **Your overall evaluation of China Unicom CSR Report is:**

A. Excellent B. Good C. Average D. Bad E. Very bad

● **What do you think about China Unicom in fulfilling its economic, social and environmental responsibilities:**

Economic responsibility A. Excellent B. Good C. Average D. Bad E. Very bad

Social responsibility A. Excellent B. Good C. Average D. Bad E. Very bad

Environmental responsibility A. Excellent B. Good C. Average D. Bad E. Very bad

● **What do you think about the response to and disclosure of the concerns of stakeholders?**

A. Excellent B. Good C. Average D. Bad E. Very bad

● **What do you think about the information, data and indicators released in this report in terms of clarity, accuracy and completeness?**

Clarity A. Excellent B. Good C. Average D. Bad E. Very bad

Accuracy A. Excellent B. Good C. Average D. Bad E. Very bad

Completeness A. Excellent B. Good C. Average D. Bad E. Very bad

● **Is this report easy to read in terms of content arrangement and format design?**

Content arrangement A. Easy B. Average C. Not easy

Format design A. Easy B. Average C. Not easy

● **Other opinions and suggestions on China Unicom's CSR work and this report:**

---



---

Thank you for your feedback and time!





Address: No.21 Jinrong Street, Xicheng District, Beijing  
Postcode: 100033  
Website: [www.chinaunicom.com.cn](http://www.chinaunicom.com.cn)