

China Unicom 2016 Social Responsibility Report

Linking the World Creating Wonderful Smart Life



Contents

Chairman Address	04
-------------------------	-----------

About Us	06
-----------------	-----------

Corporate governance	06
----------------------	----

Development strategy	08
----------------------	----

Organizational framework	08
--------------------------	----

Compliance operation is stable and orderly	11
---	-----------

Strengthen Party building	12
---------------------------	----

Anti-corruption	13
-----------------	----

Law-based company management	13
------------------------------	----

Risk management and control	13
-----------------------------	----

Focus on development, improve quality and efficiency	15
---	-----------

Create ingenuity network	16
--------------------------	----

Create ingenuity products	20
---------------------------	----

Focus on ingenuity services	23
-----------------------------	----

Enrich terminal supply	27
------------------------	----

Lead reform by innovative development	29
--	-----------

Build innovation system	30
-------------------------	----

Key field layout	31
------------------	----

Carry out independent R&D	38
---------------------------	----

Deepen enterprise reform	39
--------------------------	----

Co-creation and win-win by cooperative development	41
---	-----------

Set up cooperative platform	42
-----------------------------	----

Promote partnership	44
---------------------	----

Cooperate with Internet companies	45
-----------------------------------	----

Develop industrial ecology	45
----------------------------	----

Explore capital cooperation	47
-----------------------------	----

Introduction

Focused Development



Concerns of interested parties

Smooth and safe fine network
Favorable, applicable and user-friendly product
Effectively guaranteed client rights
Convenient and effective service channels

Innovative Development



Innovation system applicable to market
Diversified innovation services
Focused technical innovation
In-depth reform promoting development

Concerns of interested parties

Concerns of interested parties

Open and synergistic cooperative platform
Diversified friendly partners
Prosperous and symbiotic industrial ecology
Responsibility-sharing cooperation environment

Cooperative Development





Green Development

Concerns of interested parties

- Energy-saving and environmental protection communication network
- Low-carbon and low-consumption operating service
- Green practices beautifying life



Harmonious Development

- Coordinative and equivalent information popularization
- Sharing and jointly progressing employees
- Continuous return of public benefits
- Harmonious and mutual-benefit community atmosphere

Concerns of interested parties

Green and environment-friendly development	49
Create green network	50
Promote green operation	51
Carry out green actions	53
Harmonious development, people benefiting and sharing	55
Shorten digital gap	56
Improve employee value	58
Spread caring and public benefits	63
Integrate to local community	65
Responsibility management	67
Responsibility strategy	68
Responsibility governance	69
Responsibility communication	70
Capacity for responsibility	72
Responsibility performance	73
Appendixes	74
Key performance	74
Glories of Company	75
Clubs and organizations	76
Instruction to report	76
Indexes	76
Feedback	79



Chairman Address

The year 2016 is the first year of the “13th Five-Year Plan”, and also the first year of China Unicom to comprehensively implement focus strategy and innovative & cooperative development. China Unicom carefully follows the Five Development Concepts of “innovation, coordination, green development, opening up and sharing”, and strives to push supply-side structural reform such as “creating 4G+ ingenuity network, popularizing all-network compatible terminals, and innovating Internet consumption service experience”. During the new round information supply and demand equilibrium process, China Unicom helps information consumption transformation and upgrading of billions of clients, and makes active contribution to build network power and domestic economy social informatization construction.

Stay true to the mission, and forge ahead. China Unicom, as a global compact member of the United Nations and a central enterprise of China, strictly complies with 10 principles of global compact, deeply realizes and assumes important responsibilities, insists on bringing social responsibilities to corporate governance, integrating into company strategy and settling in production and operation. We carefully implement national strategic deployments such as network power, broadband China and “Internet+” action plan, insist on “all for clients, all for front-line and all for market”, sustainably improve the abilities of enterprise value creation and service supporting, and help harmonious development of economy, society and environment by information consumption new services.

Stick to craftsmanship and good quality. In 2016, we kept improving in network construction, and realized 4G network upgrading in 341 cities and all optical network in 139 cities so that the clients can enjoy quality network experience of “faster speed, more extensive coverage and better perception”. We deeply carried out special actions for communication information fraud prevention, adopted multiple technical and management measures to prevent from junk SMS, crank call and fraud information, and strengthened resell number management to effectively protect client information and property safety. We kept improving in service perception, realized continuous improvement of client satisfaction, and strived to provide more convenient user experience, more assured consumption and more considerate services. We focused on improving global service ability, and realized leading position of international marine and land cable total bandwidth in Asia-Pacific Area. In 2016, we strengthened interconnection with countries along the “Belt and Road Initiative”, newly expanded 22 operator clients, and realized entire coverage of operating services in ten ASEAN countries. We actually took mission granted by the “Belt and Road Initiative” of China.

Insist on innovation drive, transformation and upgrading. We strived to seek for breakthrough in expanding new network economic space, seized new opportunity for integrated innovation brought by “Internet +”, provided package information application services in fields of Internet of Things, cloud computing and big data, focused on eight hot industries such as education, transportation and logistics, and formed self-product system to create more possibilities for smart life. We are serious for

mechanism and system reform and innovation, and carefully implement deployment requirements of state-owned enterprise reform. We improved efficiency and motivated activities by stimulating activity of basic-root unit, streamlining administration and delegating power, and building strategic talent team; further deepened reform by setting up market mechanism in innovative service field, and carrying out board pilots of subsidiaries. We are courageous to be the pioneer of reform. We actively explored in public venture and innovation, started “WO Maker” plan, and created “incubation base with innovative supply, innovative gene and innovative talents”. The incubation base gathered talents of China Unicom, totally incubated 35 projects and created favorable atmosphere for internal innovation and venture of the enterprise.

Persist in cooperative development, sharing and win-win. We cooperated with partners of the industrial chain to create the industrial ecology of “innovation, activity, linkage and win-win”. We carried out deep cooperation with China Telecom with the theme of “jointly building and sharing resources, improving customer service quality”, pushed network supply-side structural reform by practical actions, and provided high quality and high efficient information communication service to all users and various enterprises. We comprehensively cooperated with DiDi, Baidu, Alibaba and Tencent in fields of mobile Internet, artificial intelligence, big data and communication basic service to push new progress for sharing Internet development. China Unicom grows together with employees, comprehensively implements incentive system of employee promotion, perfects talent dual-channel promotion mechanism, encourages employees to provide suggestions for company development, helps employees improve self-value and shares enterprise development achievements with our employees. China Unicom is harmonious with the environment. We advanced recycling of old equipment and materials, reduced network energy consumption, carried out green operation and promoted environmental ideas. We actively helped the “Development of Western Region”, participated in universal service pilots and targeted poverty alleviation, strengthened remote area network coverage and service channel construction to shorten regional digital gap and actually enhance sense of gain of people.

In 2017, China Unicom will continuously forge ahead, successfully accomplish missions, and firmly implement focus strategy; target at scale benefit development, accelerate reform and innovation, and comprehensively strengthen enterprise capacity construction so as to cooperate with relevant parties by open and practical attitude to jointly create new industrial ecology, help the construction of network power and information society, start a new chapter for healthy development and jointly create new situation of smart life.

Chairman of China United Network Communications
Group Co., Ltd



March 2017

About Us

China United Network Communications Group Co., Ltd. (“China Unicom”) was officially established 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 several consecutive years.

China Unicom mainly operates fixed and mobile communications service, domestic and international communications facilities, satellite IPLC service, data communications service, network access service, value-added telecom services and system integration service related to information and communications services. On April 28, 2009, China Unicom pushed out all-service brand “WO” , which represented brand new service ideas and innovation spirits and provided comprehensive services to the public and group clients. As of the end of 2016, total users of China Unicom services reached 410 million, and scale of assets reached RMB 664.65 billion yuan.

China Unicom owns the modern communication network covering entire China and linking the world, actively pushes broadband-based fixed and mobile networks, expands international network coverage, perfects marketing outlet layout and provides comprehensive and high quality information communication services to all users. By the end of 2016, China Unicom totally has 740,000 4G base stations, providing about 190 million fixed network broadband access ports. The international roaming service covers 609 operators in 250 countries and regions.

In 2016, China Unicom carefully practiced new development concepts, implemented focus strategy and adopted multiple measures to realize stable and favorable development. In the entire year, China Unicom realized main business income of RMB 239.98 billion yuan, 264 million mobile charged users, 105 million 4G users and 75.24 million fixed network broadband users.

In the future, China Unicom will comprehensively implement focus strategy, innovate cooperative development, accelerate and double network coverage sharing, speed up key business development, adjust unsuitable operating system and mechanism, and create core competitiveness of the enterprise.



Corporate governance

China Unicom actively pushes normalized construction of the board of directors, perfects board general election procedures and employee director election procedures to lay firm foundation for corporate governance and sustainably improve company governance level; strengthens communication between the management layer and directors, communicates with shareholder units about company strategies, operating situations and significant matters in a timely manner to make sure the board of directors can make scientific, effective voting for deliberation matters which comply with shareholder's benefits. In 2016, China Unicom organized to hold twice board meetings and three shareholders' meetings according to the laws, regulations and articles of associations. In 2017, China Unicom will carry out board election and set up relevant commissions of board of directors pursuant to the requirements of SASAC for normalized construction of board of directors.



Management layer



WANG Xiaochu

Chairman
Party Secretary



LU Yimin

General Manager
Vice Chairman
Deputy Secretary of
the Party



LI Fushen

Director
Deputy General Manager
Chief Accountant
Deputy Secretary of the Party



JIANG Zhengxin

Deputy General Manager
Party Members



SHAO Guanglu

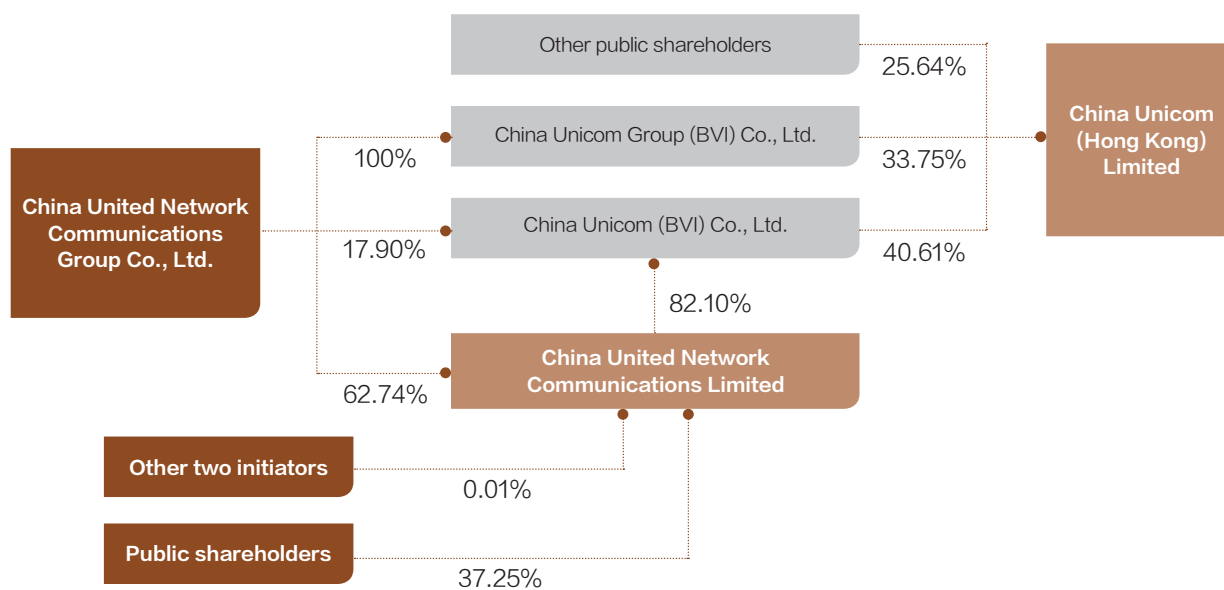
Deputy General Manager
Party Members



ZHANG Lianru

Party Discipline Inspection Team Leader
Party Members

Equity structure



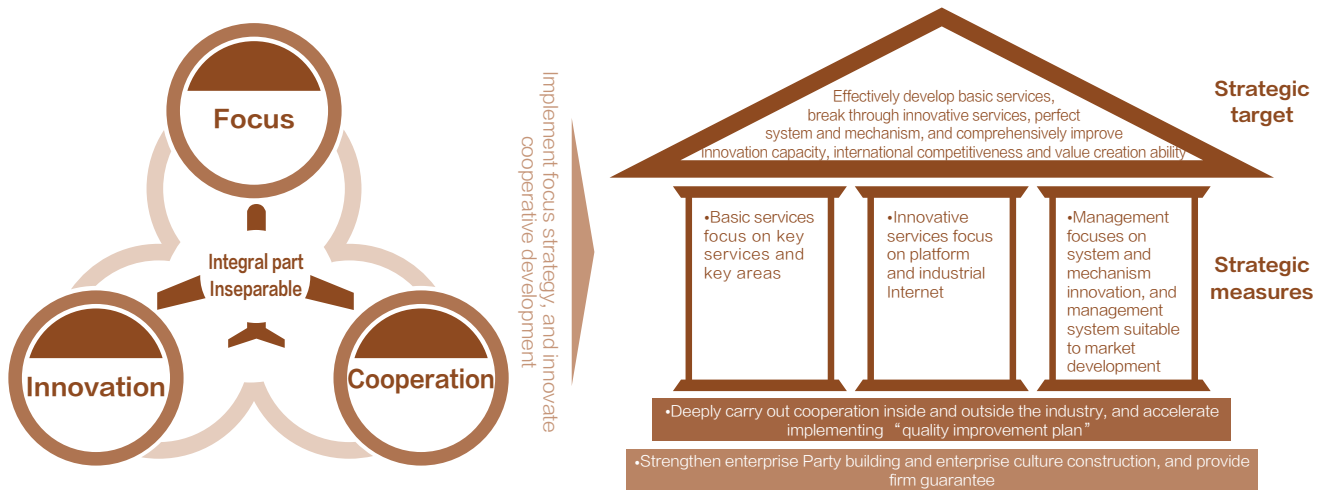
Equity Structure Chart of China Unicom
(As of Dec. 31, 2016)

From July 28, 2015 to closing on January 6, 2016, China United Network Communications Group Co., Ltd has accumulatively purchased 51,117,566 shares of China United Network Communications Limited, accounting for 0.24% of total issued capital stock. After shareholding increase, the former held 62.74% of total issued equity of the latter, and the proportion of public shareholders became 37.25%.

Development strategy

China Unicom carefully implements the development concepts of “innovation, coordination, green development, opening up and sharing”, formulates and implements focus strategy themed as focus, cooperation and innovation aiming at the complex and deep changes in the internal and external of company and around resource endowment of the enterprise, and leads future development of the enterprise. The essence of the focus strategy is to insist on key focus, innovation-drive, in-depth cooperation and the leadership of the Party; basic services focus on key services and key areas, innovative services focus on platform and industrial Internet and management focuses on mechanism and system innovation and management system suitable to market development. China Unicom deeply carries out cooperation inside and outside the industry, and strengthens Party building and enterprise culture development. After endeavors in three to five years, we have made great progress in strategic transformation, realized effective development of basic services, made breakthrough in innovative services, and improved system and mechanism. The innovative capacity, international competitiveness and value creation ability of China Unicom are improved comprehensively.

The year 2016 is the first year for China Unicom to implement focus strategy. China Unicom Group proceeded with confidence and forged ahead. The operation became stabilized, and the company realized favorable opening. In the future, China Unicom will continue to deeply and systematically implement strategy, gather force to tackle difficulties, go ahead steadily and continue to work hard for strategic targets of the Company.



Strategic Framework of China Unicom

Organizational framework

Since 2016, China Unicom downsized the enterprise and created capable and efficient operating system, and made some adjustments in organizational framework:

- Set up channel marketing system under large market deployment to better adapt to the development of telecommunication and Internet industry; based on the original sales & marketing department, integrate market front-end management functions, separate sales function and rename as marketing department. Based on the original “woego.cn” operation center, strengthen physical channel sales, and set up physical channel department; the original business operation center is integrated to the marketing department;
- Integrate external cooperation service, group equity management service and investment cooperation function with Telefonica based on the original planning and management department to strengthen unified management of company assets and equity; integrate ongoing management department and set up assets operation department;
- Set up China Unicom (Russia) Operation Co., Ltd. to further expand overseas market.



Note: companies marking *
are directly subordinates

Organizational Framework Chart of China Unicom



Compliance operation is stable and orderly

- 12 Strengthen Party building
- 13 Anti-corruption
- 13 Law-based company management
- 13 Risk management and control



Compliance operation is stable and orderly

Compliance operation is the internal requirement for stable and healthy development of the company. China Unicom insists on penetrating compliance operation to every link of the enterprise. In 2016, we comprehensively strengthened Party building, deeply promoted clean government building and anti-corruption, implemented law-based management, improved legal awareness of the employees, enhanced risk resistance ability, perfected audit supervisory mechanism and guaranteed long-term stability and sustainable operation of the company with effective compliance management mechanism.

Measures adopted in 2016

- Drove combination between Party building and production and operation, sorted out 28 rectification tasks and actually boost responsibility implementation; comprehensively carried out "studies on the theoretical and practical issues of Party building", strengthened supervision and inspection of talent selection and employment; included Party building to Articles of Associations; set Leading Party Group Office, Organization Department and Publicity Department in Head Office, and implemented Party building work accountability system.
- Drove clean government building and anti-corruption, built valid supervision pattern, carefully rectified problems fed back by central tour inspection group, and seriously investigated discipline violation and corruption problems of minority leaders.
- Strengthened law-based enterprise construction, perfected risk management system, innovated audit and supervision method, and carried out market competition in order.

Actions to be taken in 2017

- Push in-depth integration between Party building and production and operation, set up and perfect Party building assessment and evaluation system, boost Party building "soft indexes" transferring to "hard tasks", and transfer Party building to business development advantages.
- Strive to build the system of "afraid to, unwilling to and unable to corrupt", insist on focusing on discipline and rules and preventing "formalism, bureaucratism, hedonism and extravagance"; strengthen cadre selection and supervision, and strengthen cases investigation;
- Ceaselessly improve law-based company governance, compliance operation, normalized management and risk management and control ability; strengthen audit and supervision on operating performance and internal effective control, and promote healthy development of the Company.

Strengthen Party building

China Unicom firmly mastered directions of enterprise politics, greatly pushed combination between Party building and production and operation. In 2016, the Company carried out multiple Party building work, sufficiently played a role of Party group as leading core and political core of direction control, over situation management and implementation guarantee, and pushed extension of Party governance by discipline to the basic root, mainly including:

- Finished six items of key basic Party building work according to unified deployment of Organization Department of the CPC Central Committee;
- Carried out "studies on the theoretical and practical issues of Party building" education, strengthened learning of leading Party group (Party Committee) central group and leader Party spirit cultivation, and organized knowledge contest of "Party Constitution and Regulation and Series Speeches Learning" for all Party members;
- Insisted on the principle of placing cadres under Party supervision, innovated selection mechanism, and optimized management personnel structure;
- Started from enterprise culture construction to organize discussion on enterprise reputation promotion and employee code of conduct, and gathered power of teams;
- Carried out "Excellent Party Worker, Excellent CPC Member and Advanced Basic-root Party Organization" commend and basic-root Party cadre training; three basic-root organizations, three CPC members and two Party workers won the advanced title of central enterprises issued by SASAC Party Committee;
- Pushed basic-root Party building reporting and appraising of Party secretaries of branches and subsidiaries, and accepted open supervision of basic-root cadres and employees.



WANG Xiaochu, the Party Secretary of China Unicom, reviewed Party Constitution and rules as an ordinary Party member and exchanged feelings and experiences in the "studies on the theoretical and practical issues of Party building" learning and exchange meeting held in Head Office of China Unicom.



China Unicom Hubei Branch reviewed the Party Oath with supervision team of the Group Company



⚙️ Anti-corruption

🔍 Deepen reform of discipline inspection and supervision system and mechanism

China Unicom implements the requirements of CPC Central Committee and Central Committee for Discipline Inspection and deepens reform of discipline inspection and supervision system and mechanism.

- Implement nomination, investigation, appointment/dismissal and assessment of secretary and vice secretary of discipline inspection committee; allocate full-time secretary of discipline inspection committee of 38 provincial branches (subsidiaries) and head office direct subordinates, mainly by superior discipline inspection institution and human resources department;
- Formulate Management Measures for Discipline Inspection and Supervision Personnel of China Unicom Provincial Branches (Subsidiaries)(Trial), implement separate post series management of discipline inspection and supervision cadres, and smoothen two-way access of management series and specialty series;
- Cancel provincial branches (subsidiaries) supervision office system, and the discipline inspection committee will play the role of supervision office;

🔍 Deeply carry out anti-corruption

China Unicom strengthens “awareness of politics, overall situations, core and conformance”, and deeply carries out anti-corruption; focuses on discipline, and strives to create the atmosphere of clean government; prevents corruption risks, and pushes purification of enterprise political ecology; strengthens anti-corruption under high pressure, and treats both symptoms and root causes.

- Set up annual report system for Party leaders and cadres’ conformance to six disciplines, and issue the regulations of two disciplines and normalized management documents of “guide on anti-corrosion risk prevention in key fields”;
- Inspect and supervise eight provincial branches, carry out spot check for discipline and law violation problems;
- Establish discipline inspection and supervision report platform and multiple reporting channels such as correspondences, mails and phone calls; set rigorous and normalized management procedures to make sure the clues are controllable in the entire process;
- Set up China Unicom discipline inspection and supervision website, which shall provide functions of discipline education, work communication and petition report;
- All leaders of China Unicom, particularly “highest leaders”, shall sign the Commitment on Accountability for Implementation of Anti-corruption and Clean Party Building, and make open commitment on main liabilities for anti-corruption.

Law-abiding and compliance training **1,591** times

Law-abiding and compliance training **254,628** trainees

⚙️ Law-based company management

China Unicom deeply advances law-based central enterprise construction, and strives to create the company to become a law-based central enterprise with perfected governance, compliance operation, normalized management and law-abiding integrity.

- The Group establishes “Legal Construction Promotion Committee”, and every subordinate sets up legal construction group leading system under the leadership of “highest leader”; formulates “legal central enterprise construction and implementation plan” and “five-year plan for legal education”;
- Strictly control law examination of rules and regulations, economic contracts and important decisions; prepare China Unicom Compliance Manual, and list red lines of laws and regulations that cadres and employees must abide by;
- Strengthen the protection of patent, trademark, copyright and business secrets, form incentive mechanism in aspects of scientific and technological innovation and research findings commercialization, and meanwhile set strict verification process to avoid infringing intellectual property rights of others;
- Take law learning as required course of Party committees central groups at all levels; invite experts to give lectures on laws, propagandize laws and regulations and enhance the law awareness of entire personnel by internal control construction, building “law popularization field” and law popularization knowledge contest;
- Deeply study telecommunication market supervision policies and guide branches of each province to implement and make full use of policies; actively prevent and restrict irregular competition, protect the enterprise benefits, and promote the healthy and ordered development of telecommunication market.

⚙️ Risk management and control

China Unicom ceaselessly perfects audit and risk management system, effectively prevents operating risks to guarantee steady operation of the Company.

- Sufficiently use networking audit information system, and perform the responsibilities of supervision, evaluation and service; explore to establish the “three-tier collaboration” working mechanism between professional department, audited department and supervision system such as human resource and discipline inspection department to improve audit quality and efficiency;
- Set up comprehensive risk management system combining normalized risks and dynamic key risk management, and protect company operation by formulating risk prevention and control measures, performing risk evaluation and upgrading internal control regulation; there is no serious risk event occurred in the entire year, nor serious defect and substantial loopholes in internal control construction and implementation.

China Unicom Beijing Branch takes 8 months to study and publish Discussion on Internet+ Legal Thinking and Hot Legal Issues, which comprehensively summarizes the main points of Internet + legal risk prevention. This book covers legal risk research in six fields of Internet medical care, education, finance, transportation, big data and e-commerce. It is the first book in China introducing legal risk prevention by businesses in Internet+ field, and has acquired 2016 “Internet+ laws” Excellent Innovation Project Award.





Focus on development,
improve quality and
efficiency



Focus on development, improve quality and efficiency

- 16 Create ingenuity network
- 20 Create ingenuity products
- 23 Focus on ingenuity services
- 27 Enrich terminal supply



Focus on development, improve quality and efficiency

Quality is the core competitiveness of enterprises. China Unicom strives to create high quality network and product services. In 2016, we highlighted to establish 4G quality network and all optical network city, and greatly developed high-speed video service; strived to improve client service experience, jointly promoted quality terminal sales and promotion, sustainably optimized diversified channel construction, actively participated in the “Belt and Road Initiative” construction, expanded overseas market, and provided better information communication services to customers with ingenuity quality and help fast industrial development.

Measures adopted in 2016

- Accumulatively opened 740,000 4G base stations, realized 4G network rate and delay industry equivalence, accelerated optical improvement, and realized all optical network in ten provinces in North;
- Successfully finished significant activities such as Shenzhou Spaceship launch, G20 Summit, and Internet of Things Conference, and communication guarantee tasks during disasters such as typhoon and flood;
- Deeply carried out special action for telecommunication information fraud prevention, prevented junk SMS, crank calls and fraud information; strengthened resell phone number management, and maximally avoid property losses of users;
- Pushed out family video application product “WO + TV” which was mainly 4K video; optimized price policy to lower fixed broadband average price by 67%, and mobile phone data average price by 47%.
- Carried out terminal “Crowd Funding” activity, held Crowd Funding 3.0 and 4.0 Conference, and raised about 70 million terminals.
- Optimized diversified channel construction, strengthened Internet electronic service, promoted e-commerce professional operation and built digital business office; carried out special action of “shortening handling time on counter in business office”, and shortened average business acceptance time to 6.2min and integrated business within 13min.
- Set up listing/delisting mechanism to effectively improve complaint solution ability, pushed self improvement of business, network and services aiming at client public praise NPS, and sustainably improved client satisfaction.

Actions to be taken in 2017

- Focus on business volume demand, accurately improve mobile network capacity, accelerate improving broadband access network resource utilization rate, and make network client perception reach excellent experience standards in focusing area;
- Implement autonomous reform on operation and maintenance, create extremely convenient service response system, better serve clients and the market front line, and guarantee smooth communication;
- Complete information safety management system, and deeply carry out special action for telecommunication information fraud prevention;
- Enrich family Internet contents, popularize 4K super definition video, introduce consumption financial service, and services solving difficulties and improving perception of clients;
- Improve channel capacity, expand new contacts, provide new experience to clients, build O2O online and offline operation system, promote paperless business acceptance and “mobile APP + marketing equipment” light contact services, establish eSIM service system, and realize one-point access to serve the whole network;
- Sustainably carry out NPS public praise evaluation and Internet service investigation, strengthen contact service improvement, deepen listing/delisting mechanism, and improve client perception by pushing solution of key problems;



Create ingenuity network



Create 4G quality network

China Unicom actively implements network power strategy, and accelerates building high quality 4G network led by client perception and market demands; highlights key business, key area and indoor coverage; strives to build the ingenuity network with “faster speed, more extensive coverage and better perception”, and makes client experience more comfortable, consumption more assured and service more considerable. In 2016, China Unicom invested 25.9 billion yuan to build 4G network, and 340,000 4G base stations are increased, reaching 740,000 totally. Layout layer coverage is finished in downtown area and county area, in which campus coverage rate is 95%, eastern township coverage rate is 95%, and transportation line coverage rate such as trans-provincial high-speed rail and airport expressway is about 90%.

China Unicom has established 4G+ network with certain scale, and download speed is 1.4times, uploading speed is 5times as average value in the industry; interactive time delay is lowered to 10 millisecond class, and call quality is equivalent to industrial level. China Unicom ranks top in performance tests conducted by China Broadband Development Alliance, SOHO China, Thunder and China Railway.

Accumulatively opened

740,000 4G base stations

China Unicom Shijiazhuang Branch independently researched and developed APP and cloud application system, and built crowd funding network optimization system platform. The clients fed back network experience quality to cloud database by APP; the company side collects user network occupation, data business and voice service experience quality within 10m through the system to carry out in-depth and detailed evaluation on network quality, optimize network in time and improve mobile network client perception.

China Unicom Shandong Branch ceaselessly explored new program for network planning construction, adopted the most advanced 6D-ASP accurate planning method in the industry, and used big data analysis to accurately position indoor and outdoor service demands in network, adopted high precision 3D digital map to carry out planning calibration simulation of wireless propagation model, and greatly improved the matching degree between network deployment and user demand, so as to comprehensively guarantee network quality of 300M download and 75M upload. On that basis, Shandong Branch refreshed 4G speed to the new record of 375M by the technologies of frequency and capacity reduction, and three-carrier aggregation. (Note: 6D-ASP: accurate station planning of 6D data evaluation based on capacity distribution, user distribution, terminal distribution, income distribution, complaint distribution and coverage distribution).

In recent years, the scale of Beijing subway keeps expanding. The present network totally covers 18 lines, involving 341 stations, with 555km tunnels and daily average passenger flow of about 12.21million person-time. In order to further improve subway 4G network download speed, China Unicom Beijing Branch improved 4G network speed based on different scenarios such as subway entrance, tunnel, platform and station hall aiming at high flow density and short troubleshooting time limit, and comprehensively applied the technologies of artificial intelligent network and big data to improve Beijing subway 4G network speed to 35.8Mbps.



Accelerate the construction of fixed network

China Unicom, upholding craftsman spirits, strives to create a high quality broadband network for customers with good coverage and fast speed; implements different broadband construction strategies in South and North China, strengthens social cooperation, highlights port utilization rate improvement, and makes broadband network quality and capacity reach higher level through elaborate construction and optimization.

Speed up "all optical network" construction

In 2016, the net increase of broadband access ports reached 15.27 million, and the 10 provinces in North China realized all optical network, involving 139 cities; ports over 20M in downtown area accounted for 89%, ports over 4M in rural area accounted for 99%. The client perception improved obviously.

Free speed improvement is accelerated. Nationwide fixed broadband average access speed is about 30Mbps, proportion of broadband users over 20M reaches 75%, and over 50M reaches 36%; users enjoying free speed improvement are over 20 million.

Implement transmission system expansion

In the entire year of 2016, the Company finished 100G transmission system expansion, newly opened 490 100G end-to-end circuits, and supported high speed business of users. 169 backbone network speed and various technical performance indexes are further improved. Inter-network delay ranks the first among operators by the evaluation of MIIT. International inlet/outlet 600G capacity is finished, and international inlet/outlet network capacity is improved greatly. The Company advanced the construction of international data cache system, and firstly finished acceptance and commissioning in three operators, and realized over 180G international data cache capacity.

Totally **15.27** million broadband access ports are increased

All optical network cities reach **139**

The proportion of users for over 20M reaches **75%**

Users enjoying free speed improvement are over **20** million

Strengthen backbone network construction

The Company introduced 400G platform router and 100G wide broadband circuit construction in scales, sustainably pushed the construction of backbone directly-connected points, strengthened interconnection, and actively expanded capacity of broadband. In 2016, the domestic backbone bandwidth reached 170T, domestic Internet bandwidth reached 2881G, and international outlet bandwidth reached 1711G.

China Unicom Shangqiu Branch invested over 900 million yuan to build first GB all optical network in China. The private wire circuit optical-based upgrading is finished in totally 8121 enterprise big client, and over 500,000 broadband users realized optical full coverage in 177 township outlets, 4338 administrative villages and 1790 communities. Based on China Unicom Optical Network, Shangqiu Branch united with the People's Government of ShangQiu and Alibaba Group to jointly build Alibaba (Shangqiu) Industrial Belt, and promote and sell Shangqiu characteristics products online. Totally 1206 enterprises have stationed in Alibaba (Shangqiu) Industrial Belt, and online trade volume has broken through 1.6 billion yuan.



Guarantee smooth emergency communication

In 2016, China Unicom confirmed three emergency communication guarantee measures of “ingenuity network, guarantee innovation and focusing resultant force”, formulated and implemented emergency communication big data mining program and communication emergency scenario guarantee plan, and innovatively pushed successful completion of emergency communication guarantee.

Shenzhou Spaceship launch communication support

On Oct. 17, 2016, “Shenzhou XI” manned spaceship launched successfully. China Unicom activated four provincial branches to support communication, inspected optical cable, node machine room and equipment, monitored network in the real time, and ceaselessly inspected underground pipeline. Nearly 400 technicians and over 200 communication vehicles participated in periphery guarantee, and several supporters guarantee on site of Jiuquan and successfully finished the communication support task.

Internet of Things Conference communication support

In October 2016, the national Internet of Things Conference with the highest specification and largest scale in Internet of Things field—World Internet of Things Exposition was held in Wuxi, Jiangsu Province. China Unicom Jiangsu Branch started 7*24h preparation mode, sent over 100 persons every day to inspect power, lines, machine rooms and equipment and carried out troubleshooting; over 50 persons to test, optimize, regulate, build and maintain expo venue, nearby area and traffic lines; two emergency communication vehicles for field guarantee. Jiangsu Branch made sure smooth network, full coverage and failure-free maintenance, and guaranteed perfect network experience during the conference.

G20 Summit communication support

In September 2016, the 11th G20 Summit was solemnly held in Hangzhou, Zhejiang Province. In order to guarantee smooth communication of G20 Summit, China Unicom inputted 330 million yuan to newly build 497 4G base stations for G20 Summit, send 8652 maintenance personnel, and 1731 emergency vehicles. During the Summit, Zhejiang Unicom set summit service zone in business hall, hotline service and online business hall. G20 service guarantee lines are set in 10010 and 116114 to provide bilingual service for international roaming users and domestic nonlocal roaming users. Special topic page for G20 Summit was added in e-service channel for the convenience of users to check the agenda of G20 Summit, nearby scenic spot and cate, and travel information so that the foreign guests can comprehend the beautiful Hangzhou by pressing one button.



Guarantee smooth communication during disasters

In 2016, serious flood disasters occurred in some areas in China, and torrential flood, debris flow and landslide in local area. Typhoon “Nepartak”, “Nida”, “Meranti” and “Megi” successively landed in mainland China. Facing serious disasters, all employees of China Unicom took full responsibilities, overcame dangers and difficulties to fully guarantee the communication of important clients such as CPC, Political Department and Militaries, as well as flood control and drought relief command departments, and reduced company losses to the minimum. During the flood season, China Unicom accumulatively inputted 282.06 million yuan relief funds, 272,620 relief personnel, 100,701 rescue vehicles, 23,648 emergency equipment, 119,696 emergency oil engines, and sent 541.33 million public welfare and emergency SMS.

Maintain network information safety

Guarantee network operation safety

China Unicom aims at national security and long-term development, always remembers important position, significant role, functions and missions of network security, and sturdily guarantees network security. A series of measures are adopted to further improve the abilities of attack resistance, anti-virus, invasion resistance, paralysis prevention and information interception prevention of enterprise basic network and service system so as to guarantee the safety of basic network and important service system.

- Carry out the inspection of network safety protection management, communication network unit grading registration, conformance (up-to-standard) evaluation, risk appraisal, network data safety and user information protection;
- Enhance inputting in network safety technology, hinder network security protection foundation based on “synchronic planning, sub-step construction, operation consideration and autonomous controllability”, and reach the purpose of “whole-network perception, intelligent analysis, centralized dispatching and ability opening”;
- Strengthen the building of network security protection and supporting team, carry out over 50 times network safety protection training in various forms to over 1,000 trainees so as to improve technical level of network security protection personnel;
- Build whole-network security emergency work system, formulate Internet emergency plan, set up network security emergency team, and totally handle over 56,000 times of various safety events throughout the year.

China Unicom Network Technology Institute pushed out “safety comprehensive protection platform to enterprise users”, which is a set of product solutions with highly integrated functions, flexible resource calculation, customized services, flexible and opening interface combining the technologies of SDN/NFV and cloud computing according to safety protection demands of enterprise users. Meanwhile, around the relevant functions of the platform, the Company creates a series of safety value-added service products of China Unicom safety special line, safety data center, safety product ICT, and provides more efficient and convenient safety protection guarantee to users. The project is listed in “Telecommunication Industry Network Safety Pilot Demonstration Project” of MIIT.

Ensure steady information system

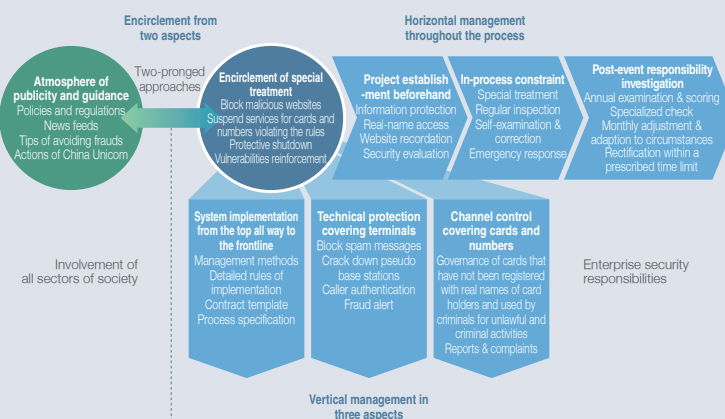
- Strengthen information system safety construction; deepen transformation from safety control to safety service; centering at data safety and business safety, carry out safety protection of central system, integrate and perfect safety system and ensure the safety of information system and information assets;
- Strengthen control over information safety risks; strengthen safety system construction, and make sure the safety risks knowable, controllable and manageable, and safety work effect evaluable; enhance safety management regulations and safety operation guidance of own system of provincial branches. No serious safety accident occurred in head office and provincial branch system in 2016.

Perfect information safety system

- Carry out website security inspection, and implement special action of fraud prevention;
- Take active responsibility, and provide nationwide crank call reminding services for average 2 million times per day;
- Sustainably carry out junk SMS treatment, and lower user report rate by 41.3% than that at the beginning of the year;
- Include resell number to junk SMS, crank call and communication information fraud treatment system;
- Provide cheat-proof public welfare services, covering the whole-network cell phone users, and retrieve large amount of economic losses for users, which gained written appraisal of the State Council Joint Office.

When technicians of China Unicom Sichuan Yibin Branch carried out routine call-data analysis, they found the daily call volume of two base stations in Guandou Town, Gong County, Yibin City was hundreds of times higher than normal index; after in-depth analysis on call signaling and base station environment, technicians deduced malicious calls may exist. They helped Yibin Criminal Police Team to accurately lock up and actively attack malicious calls, and successfully captured 14 equipment and 9 laptops.

China Unicom Beijing Branch established “one-horizontal, two-atmosphere, three-vertical” communication information fraud prevention system; “one-horizontal” focused on “process control” and guarantee “setting up regulation beforehand, restriction during the event and calling to account afterwards”; “two-atmosphere” created “overall effect” and formed “atmosphere led by publicity, and surrounding of special treatment”; “three-vertical” pursued “implementation power” and emphasized on “system implementation to front line, technical protection to terminal and channel management to card number”. The fraud prevention work of China Unicom Beijing Branch is approved extensively by the society. Followers of its official Weibo said “unexpectedly, fraud prevention is so complicated”; “it is no picnic”; “like such China Unicom Beijing Branch”; “thanks for your remind”.



Strictly prevent user information leakage

- Perfect user information protection and management system; realize real name registration of all users by strictly controlling real-name registration of new users and accelerating supplementary registration of old users; control four key links of user information collection, storage, use and destroy, and set up protection means and specific measures covering the entire process of business operation; strengthen the user registration data management of business hall and agencies, enhance user information protection during e-commerce process, and implement user information disclosure event report system. There is no serious information leakage event in the entire year;
- Normalize the extraction of mobile APP user information; revise “WO store APP Regulations”, implement the whole-process APP safety verification mechanism for online APP; forbid private information acquisition that has no relation with functions or without the permission of users, and guarantee that APP extracting private information of mobile users illegally is unavailable. Add safety retest frequency for online APP to guarantee thorough isolation from APP illegally acquiring user private information, malicious charge and binding download. WO store APP platform returned all 35 illegal APP, stopped and cancelled the account of relevant developers to protect legal rights of users.

Create ingenuity products

Optimize product price

In order to implement "Broadband China" strategy and "Speedup and price lowering" requirements of China, China Unicom ceaselessly optimizes product package, and pushes out multiple preferential price policies to realize "price lowering and benefiting the people". Meanwhile, in order to rapidly respond to client requirements in different regions, China Unicom greatly implements streamlining administration and delegating power. The Group Head Office releases verification and configuration right for products and marketing activities to provincial branches on the basis of clarifying their liabilities of operating entities to sufficiently bring operating vitality of provincial branches.

Average price of fixed broadband lowers by **67%**

Average price of mobile data lowers by **47%**

Reduce price of mobile broadband

- Lower the data price higher than 0.27yuan/MB to 0.27 yuan/MB;
- Sell 4G mainstream packages by discount, benefiting over 40 million users;
- Add existing 4G packages data, and adjust 76 yuan package data from 400MB to 800MB; 106yuan package data from 800MB to 1GB, benefiting over 20 million users;
- Push out upgraded version of data package, implement multi-step charging, 10 yuan for 100MB, and accumulative to 60 yuan for 1GB;
- Cancel long-distance and roaming charge in Chengdu and Chongqing urban agglomeration, benefiting over 20 million users.

China Unicom Yunnan Branch further reduced price level. The price of 10M fixed broadband dropped by 18.8% year on year, 20M dropped by 27.3%, 50M dropped by 26.2% and 100M dropped by 21.3%. In the aspect of mobile broadband, daily card is launched, and user can enjoy 500M data by 1 yuan; products such as monthly data package, daily data package and holiday data package are launched; long-distance and roaming charge is canceled in Central Yunnan Province; 2GB provincial data gifted by months is launched.

In 2016, China Unicom Beijing Branch implemented the fifth broadband speedup; in the aspect of fixed broadband, speed up one grade higher for free to monthly and annual package broadband users higher than 20Mbps; for new users, the latest broadband price will be implemented, maximally dropping by 16.9%. The fifth broadband speedup benefited nearly 3.92 million broadband users in the entire city; nearly one million of China Unicom broadband users enjoy free IPTV.

Lower the price of international roaming

For price adjustment of international roaming, voice price involves 130 countries and regions with average drop of 48%; data price involves 116 countries and regions with average drop of 72%. Meanwhile the 5 yuan data packages are expanded from 87 to 112, covering 33 directions of countries and regions along the "Belt and Road Initiative".

The average reduction of international roaming voice price is **48%**

The average reduction of international roaming data price is **72%**



China Unicom reached consensus with Nepal Telecom in aspects of reducing international roaming price and network interconnection. Nepal is one of areas with high price of global mobile roaming, and acquires larger mobile roaming income by roaming visit for a long time. Through interview and discussion, both parties signed the new roaming settlement cost agreement to lower voice and data settlement cost by about 60% on original basis.

Improve data service

China Unicom, relying on high speed and smooth broadband network, greatly improves data operation ability, and lays equal emphasis on forward and backward operation.

Enrich forward data operation products

- Based on multiple levels of month data optional packages, add monthly data package, daily package, holiday package and half-year package, and continuously enrich oriented data package preferences for various large data video, music and games;
- Open assured data function outside the package, launch upgraded version of assured data package, and implement multi-step assured data.

Expand backward data operation services

- Establish integrated data distribution platform with unified policy, unified access, unified support and decentralized management, and support commercial mode innovation of data operation; explore external cooperation mode of backward data + commission by key projects and company group marketing policies; in 2016, the Company totally had 57 partners for backward flow service access;
- In the aspect of oriented data, adopt integrated product mode with the third party application, ceaselessly enrich value added services, and WO+APP totally develop ten kinds of products such as WO+ video, WO+ music and Sina Wibo.

Enrich video experience

With the upgrade of all optical broadband network, the high-speed video service is becoming hotspot of information consumption. China Unicom has oriented video as strategic basic service in innovative field of the entire group.

Launch TV video services

China Unicom greatly develops video products based on broadband network, and launches family video application product "WO+ TV" which is mainly 4K video, covering multiple fields of video, games, music, education, shopping and health, and integrating over 100,000h video contents, over 1,400 games and over 50,000 songs.

Video contents are over **100,000** hours
Music contents are over **50,000** pieces
Games are over **1,400**

In order to promote information consumption led by video service, China Unicom organized and set up "4K super high definition industrial alliance", jointly formulated technical specifications for 4K intelligent STB with China Telecom, signed 4K Joint Innovation Agreement with Huawei, issued IPTV Technology White Paper, and actively pushed healthy development of 4K super high definition industry.

China Unicom Tianjin Branch, relying on own technical advantages, has developed a series of brand new services such as time shifting, replay, VOD, OTT HD video on IPTV except traditional live programs. China Unicom Tianjin Branch cooperated with Tianjin Broadcast & TV Network to successively launch multiple innovative programs such as "find me pretty anchors" and "seafood feast", and meanwhile carried out value added services based on IPTV. The newly developed "WO+ video" can realize video communication function between cell phone and TV.

Upgrade intelligent WO+ service

The Company greatly developed intelligent WO+ integrated services, with integrated package users of 19.67million, and bounded cell phones of over 32 million, which effectively promoted coordinative development of fixed network and mobile network users.

- Adjust package structure and realize the coverage of integrated service in fixed network and mobile network system;
- Enrich the connotation of intelligent WO+ package products, develop family Internet innovative products of WO+ video and WO+ manager;
- Optimize the rules of intelligent WO+ services, simplify package acceptance restriction and validity rules, and shorten average service acceptance time from 20min at the beginning of the year to 6min;

Intelligent WO+ – WO+ IPTV live channels of China Unicom Shandong Branch reached 140 lines, and 27 local channels; on demand programs including HD movies and hot TV series are over 50,000 hours (2000 hours upgraded every month); other 4K applications such as life information, online education, quality music, game and entertainment are provided. The "Intelligent WO+" family communication package of China Unicom Shandong Branch combines broadband, mobile data, voice and SMS by block pattern, and realizes the sharing of all services, multiple terminals and the entire family. Clients fed back that "the package seems expensive, but it is cheap because I selected China Unicom "Intelligent WO+" service. Paying by one people, the entire family can share the package. Cell phone, TV and broadband are all included in Intelligent WO+".

Aiming at large amount of demands of cell phone video, China Unicom Nanchang Branch taking advantage of Tencent Video and Youku Video oriented data packages, pushed out "Video Storm" first month free experience activity. Users can enjoy first month free experience by subscribing the data package. After the activity is launched, users gave fierce response. The click of reservation interface on WeChat Public Account is over 50,000 times. Within one month after the activity is launched, 15,000 users subscribed successfully; the month usage of data is improved from 889MB to 1085M, and meanwhile well received by extensive young users.

Expand international video service

China Unicom Global Limited signed Letter of Intent for Strategic Cooperation of China Unicom International Video Services with higher representatives of Chinese excellent new media services providers such as ICNTV, Oriental Pearl, Nanguang Media, Mango TV and Wasu Media to jointly build Internet TV overseas content distribution base and OTT video service global distribution center, expand Chinese culture communication and cooperation space, and strengthen international transmission capacity construction. Both parties, by respective advantageous resources, jointly cultivate, develop and share market results in promotion of global network TV market.



China Unicom Global Media Strategic Partners Signing Ceremony

Transparent product pricing

Simplify price package

- The packages shall be designed according to the principle of simplifying price structure, normalizing price publicity, improving price transparency and guarantying user demands to ensure simple structure and easy understanding, forbid to obscure price structure and use conditions and eradicate unreasonable charging items;
- Mainly recommend various packages with simple and clear price structure and unified standard for the convenience of users to understand and select;
- Normalize policy publicity of service price, make sure price package is easy to understand, open and transparent, and let clients consume transparently.

Disclose data price

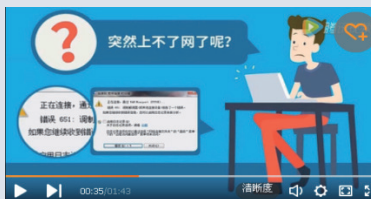
- Strengthen data pricing system detection, and improve normalization, standardization and transparency of data price;
- Strengthen data price monitoring, mainly monitor timely arrival rate of half-year package, day-on-day change of detailed data sheet, data price approval time difference fluctuation, and high phone bill, and provide warning for high data consumption and abnormal SMS;
- Set up abnormal data processing mechanism, communicate and analyze abnormal data fluctuation in time, and properly handle abnormal international data and cap abnormal data.

Strictly control over unclear charge of value added services

- Revise Value-added Service Management Method, further clarify secondary confirmation requirements of value-added service subscription, and mainly fight against the behaviors of forced value added service subscription, induced subscription, forged subscription relationship and user terminal "charging" illegally;
- Strengthen technical protection, and guarantee secondary confirmation and price instruction of services with more complaint by means of adding verification code;
- Strengthen punishment on illegal behaviors, and fine 54 million yuan for irregular value-added subscription behavior;
- Enhance internal accountability of own services, and circulate notices of criticism for operators charging compulsively.

Perfect consumption reminding

- Optimize consumption reminding scenario, and set up life cycle reminding system;
- Realize data reminding respectively by products so that the clients can understand specific situations of every data product conveniently;
- Realize whole process early warning for account balance, credit limit and arrearage;
- Optimize batch SMS sending system, and improve SMS sending success rate, timeliness and accuracy;
- Normalize service information publicity, and guarantee the online and offline consistency of service information such as service type, service time, price standard and service scope.

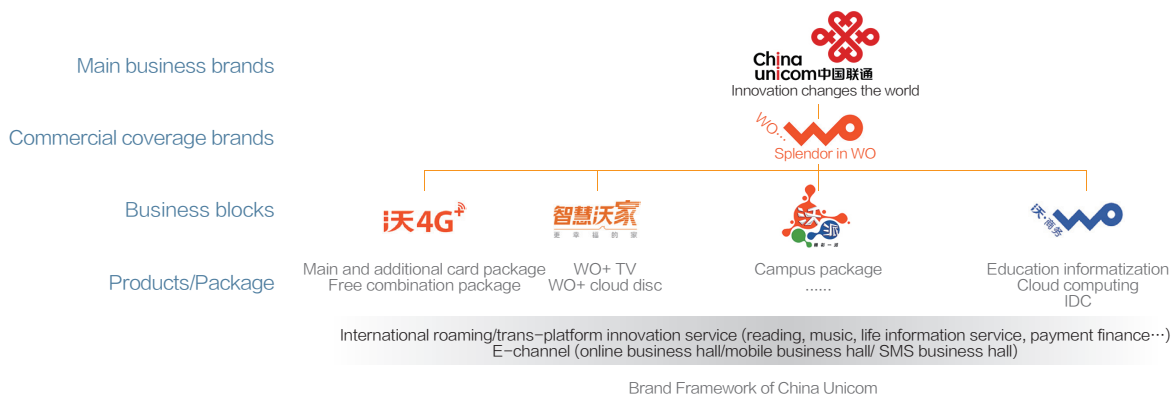


In order to make clients more easily and simply understand communication policies and knowledge, and correctly know the misunderstanding of communication services and habits, China Unicom Tianjin Branch produced series of "Let WO show you" videos, and played on well-known video websites such as Youku, Tencent and iQIYI. Such series of videos present the relevant communication policies, safety instruction, good products, new technologies, convenient services and practical skills with regard to client information by easy and ease Internet transmission modes. So far, totally 45 videos in eight categories are put online, with page views of 660,500 person-times.

Focus on ingenuity services

Improve brand image

China Unicom establishes whole service brand framework system under business brands. "WO" is a whole-service brand of China Unicom, and the core brand communicating with users, endorsed by enterprise brand of China Unicom. In 2016, China Unicom strived to set up 4G brand image, and create "ingenuity network", "ingenuity product" and "ingenuity services". NPS investigation in the fourth quarter shows the public praise of company brand is improved greatly.



Improve service ability

In 2016, China Unicom had 20,700 business halls, in which 15,000 business halls realizing terminal chain operation, covering 436 cities and regions in 30 provinces. It has become a terminal retail chain channel with largest domestic scale and most extensive coverage in China. By improving digital capacity of business hall hardware and software and optimizing business process, the efficiency and flow of business hall are improved greatly. The business subscription volume increases by 10%, flow rate increases by 30% and brand manufacturer stationed increases by 50%.

Improve business hall service capacity

The Company greatly promotes "joint construction and joint operation" mode by business hall and terminal manufacturers, improves terminal outlet atmosphere and sales capacity by virtue of terminal manufacturer resources, and creates "information terminal retail experience" outlet business hall with "good quality and best price"; introduces terminal brand special zone and special counter to business hall, and lets users experience personally on the scene by scenarized marketing services of the salesman.

The Company has successively marked self-support business halls on Baidu map nationwide, and provided LBS services based on geological position of the users and meanwhile presented mainstream products to users by the third party Internet platform, and guided users to outlets. (Note: Location Based Service is a value added service provided to users by acquiring position information of mobile terminal users through radio communication network of operators or external positioning mode under support of geological information system platform.)

Build digital business hall

In order to create the marketing mode of "normalized management, standard layout, modernized equipment, digital operation and paperless acceptance", China Unicom carries out "digital business hall" special construction around the themes of intelligent business hall and marketing equipment modernization.

- Integrate various hardware devices of the business shall to form integrated equipment and reduce maintenance costs;
- Provide "APP light contact + thin equipment" professional acceptance equipment to marketing personnel, which is convenient to operate and without consuming papers;
- Embed digital means such as paperless acceptance, scanning payment to save costs and improve efficiency.

Shorten the handling time of business hall

In order to effectively save waiting time of clients, the Company carried out the special action of "shortening the handling time of business hall counter".

- Promote queuing machine networking project, and provide the clients with inquiring real-time queuing situations and reservation services on mobile business hall and online business hall;
- Reduce the clients' queuing time by means of consultant's recommendation, setting rapid window for charge/invoice, dynamic shift on site and setting pre-acceptance/bill counter;
- Make the commitment of "hundreds of credits for overtime queuing", and pilots have been carried out in some own business halls;
- Put nationwide WO acceptance platform online to simplify foreground system operation.

Shorten average service acceptance time to **6.2** min

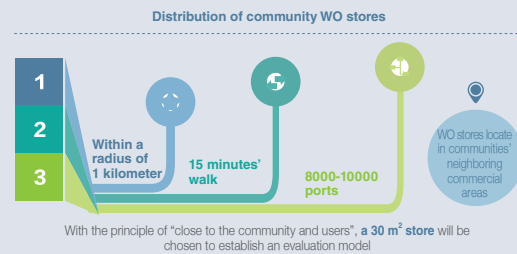
Shorten integrated service acceptance time to **13** min

Promote social channel transformation

Greatly promote transformation development of social channels to improve service ability of social channels.

- Focus on cooperation with channels with terminal sales ability, and carry out double-inlet of Gionee, OPPO and VIVO.
- Center at strategic channels of Gome, Suning, D-phone, and FunTalk, adopt different cooperative strategies aiming at different entities, and construct 21,000 community channels;
- Boost the establishment of end-to-end evaluation system, “one table for one channel”, and carry out efficiency evaluation based on every outlet;
- Improve operating ability and supporting ability of two platforms of WO store and WO Retail, and build “one body with two wings” differential channel expansion service platform; innovate online order grab mode. Over 20,000 channels have participated in pre-order activity.

China Unicom Fuzhou Branch launched “small but quality” community WO stores in center of area contracted and jointly built by agencies covering 1km radius and 15min walking according to the principle of “approaching community and users”. One community WO store is built for about 10,000 broadband ports. The community WO store integrates the functions of assembly, maintenance, service and sales, and makes sure fast marketing, fast service and fast response. The completed community WO stores have covered 418 communities.



Expand online channels

China Unicom strives to provide online services and value operation, ceaselessly improves e-commerce service ability, strengthens online channel construction and social e-commerce cooperation, accelerates expanding service contacts and boosts online and offline integrated operation.

- Comprehensively arrange internal and external online contacts, and set up Internet contact marketing system integrated WO store, JD flagship store, Tmall flagship store, WeChat public account and WeChat business hall via Internet or mobile business hall; sustainably promote O2O business platform such as online WO store, Buy by Code, and Air Network Access, and provide online/offline integrated marketing ability;
- Explore centralized order verification mode, and realize 7×24h ceaseless order verification services;
- Take advantage of physical stores to carry out bidirectional incentive of “salesperson+ users”, and new APP users are increased obviously.

By large-scale online marketing activities such as “Purchases for Spring Festival”, “517 Online Shopping Festival” and “Nov. 11 Carnival”, and cooperation with JD, Tmall and Tencent, the e-commerce development effect is obvious, and e-commerce turnover in the entire year reached RMB 84.77 billion yuan.

China Unicom Guangzhou Branch held an e-commerce festival themed as “Top of Internet, Cloud Time of Guangdong”. Guangzhou Branch WO TV cooperated with well-known e-commerce corporations to start new mode of “WO Purchase”, and strived to create online shopping environment with fast purchase and good quality for users. During the “Nov. 11”, Guangzhou Branch totally developed 24,280 e-commerce clients and generated 7.5 million IDC incomes. During the nationwide shopping, Guangzhou Branch provided a series of cloud safety solutions to protect network safety of e-commerce corporations and Internet financial enterprises.

Strengthen Internet electronic services

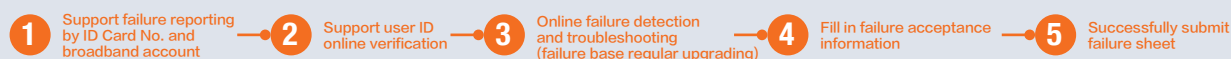
- Push Internet service ability sharing, and expand Internet service inlet. Online customer service deployment contacts reached 116, and nationwide primary contacts include online business hall, mobile business hall, WeChat business hall, WO Window, WO mailbox, WO music, WO TV, and WO Fortune etc.;
- Integrate Internet knowledge base, provide unified distribution ability of online channel, robot and hotline channel, and preliminarily realize “one-stop compilation and whole-channel sharing”, which supports various service channels;
- The new media publicity matrix of customer service keeps expanding; the new media matrix centering at “China Unicom Customer Service” manages 129 WeChat and Weibo accounts, gathers 207 Post Bar Alliance such as MI, CITIC Octopus Card and Meituxiuxiu, and expands 25 cooperative Internet new media resources outside the industry such as UC, 360, Le TV and Huawei;

- Strengthen opening and operation of service abilities such as online customer service and Baidu Zhidao, explore big data, and scenarized knowledge marketing, and intensify centralized operation of online customer service.



Online Business Hall of China Unicom

China Unicom Shanghai Branch strives to build whole-channel Internet service ability of “provide service where client needs”, and provides new functions in online business hall, mobile business hall and local WeChat, including broadband self-service troubleshooting, failure reporting, mobile network quality inquiry failure reporting, and complaint schedule inquiry.



China Unicom Beijing Branch comprehensively pushed customer service intelligence processing, introduced the technologies of intelligent voice navigation, customer label anticipation, and big data analysis, enriched Weibo and WeChat channels, and improved service efficiency. Customer service Weibo and WeChat public account of Beijing Brand won the honor of “2016 Most Influential New Media Secondary Account of Central Enterprises”.

Improve hotline service level

- Boost special rectification of irregular service, and realize zero complaint of irregular hotline service;
- Carry out international roaming customer perception improvement activity to improve online service handling ability of international roaming;
- Provide convenient smart service, and open intelligent voice navigation service in seven provinces;
- Carry out service marketing and maintenance integration, and handle business for customers online;
- Strengthen hotline basic operation management, and improve hotline service ability and level.

Pay attention to customer maintenance

China Unicom continuously strengthens client value operation and feedback, and makes client network age value explicit; those with longer network age have more privileges. The user retention rate of mobile users in 2016 increased by 3.75% compared to 2015.

- Push out prestore-free and pre-store at half price with gift charge/business contract for old users; users with network age for over two years can handle prestore-free and pre-store with gift charge/business contract; users with network age for one year can handle pre-store at half price with gift charge/business contract;
- Launch gift contracted mobile phone by pre-deposit or deposit with discount specially for old users; users with network age over 5 years can handle gift contracted mobile phone by deposit without pre-store; users with network age over 2 years can handle by pre-store with 70% discount; users with network age over 1 year can handle by pre-store with 40% discount;
- Launch 99 yuan deposit for iPhone6 and iPhone6S particularly for old users with network age of over 2 years.

Since becoming strategic partner with the Chinese Table Tennis Association in 2005, China Unicom carried out client maintenance activities by its table tennis resources. In 2016, China Unicom, facing fans and clients, held “Linking the World, Sharing Glories” activity in head office building, attended by Ping Pong stars such as Liu Guoliang, Zhang Jike and Ma Long. The activity was live broadcast by many network media, and warmly responded by fans on site and online. By this activity, China Unicom effectively fed back long-term trusts and support of clients.



China Unicom Held Social Party for Chinese Table Tennis Team

China Unicom Hainan Branch set up synergic maintenance system centering at client big data around contacts of client consumption behaviors, and provided “ease, comfortable and assured services” to clients. Concern for network access and ease price: establish call-back team to introduce package price and voice and data inquiry mode for new customers; concern for use and comfortable services: set up client communication system to know client demands and solve client difficulties at any time; business response and assured experience: depict characteristics of existing clients and manage by groups, recommend service products by call-back at time required by clients. In 2016, the client hotline contacted 500,000 person-time users monthly, with satisfaction of 98%; online contract handling amount is about 58,000.

Optimize service perception

China Unicom, targeting at customer satisfaction, strives to improve customer service level; smoothen after-sales service channels by means of perfecting business hall and e-service for the convenience of client communication. In 2016, the Company focuses on key service, key channels and main issues in disputes that clients concerned, carries out client service monthly analysis, sets up key problem listing/delisting mechanism, and forces internal departments to solve those problems actually. In 2016, totally 36 problems were listed, and 13 were delisted after systematic traceability and rectification, pushing effective solution of various problems gathered.

China Unicom Shandong Branch, based on the principle of “diligent service and sincere operation”, treats customers by sincerity, true heart and true work, enjoys trust of customers by quality services, and releases three commitments of “free and unconditional speedup, genuine rate and 480 time-limited service” of broadband to all sectors of the society. In order to guarantee commitment implementation, Shandong Branch set up business service outlets and professional maintenance service teams covering all areas, and opened 7 × 24h broadband expert hotline, and customer service WeChat and other vertical service acceptance system to realize “rapid response, fast solution and response to every complaint”. (Note: 480 time-limited service: repair in 4h, install/remove in 8h and 0 business acceptance blank zone in urban area and counties of the entire province; repair in 8h and install/remove in 8h for barriers in rural (towns and lower) area of the entire province).



In order to actually know the perception of clients, China Unicom Heilongjiang Qiqihar Branch painted, recorded, analyzed customer handling service and process perception from users arriving at the store till left. Through whole-process experience, Qiqihar Branch formulated targeted improvement measures, including setting counter for “simple services” to accept simple services such as invoice printing, card reissuance, start/stop business; the ushers in business shall actively lead users to use self-service payment terminal and reduce queuing; setting special zone and counter for intelligent WO+ experience to handle intelligent WO+ services particularly; revising code of conduct of business hall service personnel and strengthening salesperson training.

	Before improvement	After improvement	Average waiting time shortened
Queuing time	Totally 10 customers experienced, and average waiting time was 10min	Totally 10 customers experienced, and average waiting time was 8min	2min
Counter handling time	Totally 10 customers experienced, and average waiting time was 12.7min	Totally 10 customers experienced, and average waiting time was 10min	2.7min

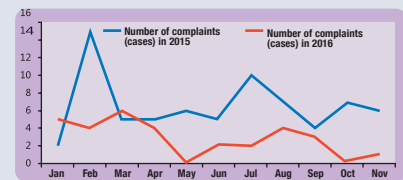
Improve complaint solution ability

The Company strives to handle user complaint, properly solve service disputes; build nationwide large service primary supporting platform, and form large service operation and management system with three-level organization structure of Group-Province-City covering eight specialties; deeply promote complaint classified and graded management, continuously trace and handle unsolved complaint problems with work order as carrier, and carry out strict appraisal and certification of problem solution effect to guarantee problem solution quality and effects, and end-to-end force backstage departments to solve client problems.

Set up complaint early warning model relying on big data platform; set up user characteristic portrait in six dimensions including user loyalty, character traits, user relationship circle, natural property, complaint process track and complaint business scenario, recognize the groups easy to complain, and help customer service representatives provide differential services to improve customer satisfaction.

In 2016, complaint solution rate of nationwide 10010 customer service hotline was 95.6%; monthly average complaint rate in the year was 3.61 person-time/million users, decreasing by 1.6% year on year.

China Unicom Shanxi Changzhi Branch ceaselessly strengthens complaint management and control, and perfects closed-loop treatment. Firstly, clarify handling time and requirement in each complaint link, smoothen handling process and implement the relevant responsibilities; secondly, formulate solutions and contingency plans aiming at common problems, hot and difficult service problems of complaints, and urge implementation; thirdly, mainly analyze user complaint reasons, unfulfilled services, and propose solutions and rectification requirements; fourthly, trace and handle unsolved and unsatisfied work orders, analyze reasons and formulate measures; in 2016, the number of complaints dropped by 57% year on year, and the number of provincial complaint cases dropped by 8%.



Carry out public praise evaluation (NPS)

The Company, starting from customer demands and perception, sustainably carries out NPS evaluation, and push self-improvement of business, network and services. In 2016, the Company has successively carried out public praise NPS comprehensive evaluation to the mobile and broadband clients throughout the group. Samples cover cities and counties, and the evaluation indexes are dissolved to professional lines to dynamically monitor self-improvement situations of client public praise, and changes in industrial competition difference, and push internal management improvement of each professional line around public praise. In 2016, NPS of 4G users improved 5.5points, and broadband NPS improved 4.5points.

Customer Satisfaction in 2016

Evaluation Object	2014	2015	2016
Overall satisfaction (Score)	76.4	76.5	77.5

Enrich terminal supply

China Unicom insists on orienting at customer demands, and strives to provide timely, various and low price terminals to customers.

- Cooperate with China Telecom to promote all-network terminal as industrial standard; currently, the all-network terminal has become mainstream in the market;
- Hold twice terminal crowd funding, sell 64.51 million sets 4G terminals and provide 4G terminal upgrade for 46 million users;
- Terminal crowd funding ceaselessly upgrades; in 2016 terminal crowd funding 4.0 partner conference, participants reached 1,500, terminal transaction volume reached 51.35 million sets and turnover reached 54.5 billion yuan;
- Sufficiently meet the demands of low-price terminal market, increase low-price terminal participating brands to 24, and rise shares to 28%.



2016 Intelligent Terminal Industrial Chain Whole Ecological Strategy Cooperation Summit & China Unicom Terminal Spring Trade Fair



China Unicom Communication Information Terminal Autumn Trade Fair & Crowd Funding 4.0 Conference

China Unicom has created three terminal "new cooperative modes" in terminal industrial chain cooperation field, promoted speedup and upgrade of 4G terminal industrial chain cooperation, and pushed whole ecological cooperation of communication industry.

New ecological cooperation mode: China Unicom + Le TV= "Network + Data + Terminal +Contents"

China Unicom cooperates with Le TV in aspects of network, data, terminal and innovation. Both parties strive to expand, serve and operate users, and form new ecological cooperation mode with terminal as bridge and user as orientation.

New special market cooperation mode for national mobiles: China Unicom + Partner ="in-depth customization + scale entrustment + rigid implementation + comprehensive support"

This is the cooperation mode pushed out by China Unicom to centralize resources for low-price terminal operation, various terminal product supply optimization and customized policy promotion. By sharing and building resources with manufacturers, this mode helps to boost low-price customized terminal industry.

New comprehensive cooperation mode: China Unicom + Gionee ="all products + all channels + all marketing + whole linkage"

This is a new mode for comprehensive cooperation between China Unicom and offline channel system. China Unicom will upgrade comprehensively in network, products, channels and service modes, and realize brand resource sharing and mutual-benefits with partners; as the representative of offline channel market rising, Gionee cooperates with offline open system created by China Unicom to realize win-win situation.







Lead reform by innovative development

- 30 Build innovation system
- 31 Key field layout
- 38 Carry out independent R&D
- 39 Deepen enterprise reform



Lead reform by
innovative
development



Lead reform by innovative development

Innovation is the primary power to lead development. China Unicom always places innovation in the core position of overall business development. In 2016, the Company comprehensively implemented “Internet +” action plan, sought for breakthrough in fields of cloud computing, big data and Internet of Things, focused on eight hot industries to push industrial Internet development, actively pushed network evolvement and restructure, innovated commercial mode for Internet enterprises, and deeply pushed system and mechanism reform and management innovation. Set up “innovation and venture” platform, and provide powerful support to promote public venture and innovation.

Measures adopted in 2016

- Pushed out reform stimulating basic-root unit in basic service fields, and promoted classified management and market-oriented reform of subsidiaries in innovation field;
- Set up “innovation and venture” platform, started “WO Maker” plan, and supported employees to start business; 35 projects entered incubator;
- Implemented streamlining administration and delegating power, and checked, sorted out and optimized rules, systems and powers;
- Provided packaged information application services in fields of ICT, IDC, cloud computing, Internet of Things and big data;
- Set 7 industrial Internet bases and 9 incubators in eight hot industries, and acquired a batch of large-scale “Internet+” projects.
- Realized leading international marine and land total bandwidth in Asia-Pacific, newly expanded 22 operators in countries along the “Belt and Road Initiative”, and realized full coverage of business of operators in ten ASEAN countries.
- Carried out forward-looking technology research on 5G, SDN/NFV and IPV6, released five ITU leading standards, and launched and applied a series of scientific innovation achievements.

Actions to be taken in 2017

- Sustainably deepen reform stimulating basic-root unit, explore innovation field system and mechanism reform, and build capable and efficient management institution;
- Focus on professional subsidiaries and application bases, improve R&D ability for products in fields of Internet of Things, cloud computing, big data and “Internet+”, and launch more diversified information application service.
- Perfect international service integrated operating system, strengthen international and domestic valid synergy to improve overseas market expansion ability and serve the “Belt and Road Initiative” construction;
- Closely concern 5G standard and industrial development, and gradually carry out technical experiment and network verification in key cities.



Build innovation system



Push market-oriented reform of subsidiaries

China Unicom implements classified management, authorization and evaluation of subsidiaries with innovative business; provides different management modes according to different situations of every innovative business subsidiary, and promotes responsibility and rights equivalence; not only offers due cultivation for subsidiary with innovative business, but also offers space for growth to urge it become a real market entity; pushes Zhiwang Technology Co., Ltd. and WO Store Technology Co., Ltd. to set up board of directors, and establish operation and management decision-making mechanism centering at “(board of) shareholders - board of directors, (board of) supervisors - operation and management level”. Meanwhile, the Group Company authorizes special powers in fields of investment, financing, employee compensation and marketing, and gradually establishes market-oriented operation mechanism of distinct property, clear powers and responsibilities, independent operation and sole responsibility for own profit or losses.



Explore PPP mode

In order to form competitive advantages of industrial Internet market, China Unicom explores to implement PPP mode. The core pursuit of PPP mode is to seek for business franchise rather than pure participation in market competition, seek for actual control over operation rather than pure gain on financial investment, and seek for long-term operating income rather than short-term profits. By building nationwide “Internet+” top design team, implementing PPP mode mainly in third-tier and fourth-tier cities, and creating integrated team of “top design + implementation plan + system integration + service providing”, China Unicom meets differential demands of different local governments. In the future, pilots will be carried out in some provinces and regions gradually.

Note: PPP (Public-Private Partnership), i.e. cooperation between government and social capital, refers to the long-term partnership sharing profits and risks between government and social capital by franchise, service purchasing and equity cooperation to enhance public product and service supply ability and increase supply efficiency.

Set up “innovation and venture” platform

Under the guidance of national innovation-driven development and “innovation and venture” strategy, the Company establishes an “innovation and venture” system around main business, based on innovative capacity platform and centering at cooperation and mutual benefits, including three core platforms:

- Internal innovate incubation platform: start “WO Maker Plan”, build special zone to support the ventures of employees relying on open resources of the incubation platform; the first batch of self-declaration projects are 416, in which 35 enters incubator;
- External capital investment platform: carry out external cooperation through “incubation service + investment platform” mode established by China Unicom Innovation & Venture Investment Co., Ltd.; 11 projects are invested and delivered, in which two finished listing on NEEQ; six projects finished new round financing with float profit of 1.5-9 times; two projects exited, with average annual return of 100%;

Open platform for innovative ability: gather various innovative resources by platform and open to social entrepreneurs to greatly lower innovation costs; support public innovation.



Full-time innovation during six-month incubation period



Offer salary and retain posts during incubation period



Support by 50,000–200,000 incubation fund



Resources of China Unicom are open



Decide to stay or leave China Unicom after incubation period

35 projects applied by employees have entered in incubators

“WO Maker” Plan of China Unicom

Key field layout

China Unicom insists on innovation-driven development, continues to make endeavors in the innovative service fields of Internet of Things, cloud computing and big data, and realizes trans-boundary integration between modern and traditional industry. Facing eight fields of medical care, education, manufacture, agriculture, environmental protection, tourism, transportation and logistics and government affairs management, China Unicom provides large amount of subdivided and centralized information communication services around ten hot application fields of electronic government affairs, education informatization, auto informatization, wearable equipment and mobile media, and makes positive contribution to implementing “Internet+” action plan of China.

Expand new space of cloud computing/IDC

China Unicom ceaselessly enhances resource input and development of cloud computing, keeps improving of cloud data/IDC resource ability, platform construction, key core ability of management research & development and innovative cooperation, and doubles the scale of business.

- Improve resource ability: China Unicom has deployed 35 public resource pools and 13 private cloud resource pools with computation ability of 160,000 core, storage ability of 10 PB, and network ability of 820G when implementing “M+1+N” resource layout (M means national level, international core node; 1 means one core node of one province; N means local edge node);
- Perfect platform bearing ability: establish CDN network covering the entire country with provincial capital cities and key cities as edge nodes; the network covers over 40 overseas accelerated nodes by cooperative operation, and bandwidth reserve is over 1Tbps;
- Strengthen R&D ability: finish 30 software copyrights, pass CMMI3 software certification, and newly add two product trusted cloud certification;
- Enrich product system: comprehensively build 5 product system, i.e. IDC, cloud computing, CDN, big data and cloud safety; develop Wo cloud platform to 4.0 edition, including 16 cloud computing products of calculation, storage, network and application; develop five key products of efficient block storage, cloud backup, full flash block storage, cloud cache and cloud database.

Initiate to establish “China Unicom Wo Cloud + Cloud Ecology Alliance”

China Unicom initiates to establish “China Unicom Wo Cloud + Cloud Ecology Alliance” jointly participated in by over 30 industrial leaders such as global chip manufacturers, hardware manufacturers, database manufacturers, software application service providers and integration service providers. The ecology alliance aims to gather advantageous resources of all links in cloud computing industrial chain, build complete cloud computing industrial ecosphere, and promote prosperous development of cloud computing ecosphere in China. Meanwhile, the Company pushes the upgrade of cloud computing standards, industrial application and industrial services in relevant fields of cloud computing.



Inaugural Meeting of “China Unicom Wo Cloud + Cloud Ecology Alliance”

Awards and certifications of China Unicom Cloud Data

- Cloud China, Cloud Computing Excellent Practice Organization, Most Influential Cloud Industry Company, and Excellent Cloud Computing Product Application Award issued by MIIT,
- “Most Innovative Award” issued by China International Big Data and Cloud Computing Expo;
- Green Data Center Award, Data Center Prominent Contribution Award, 2016 Excellent Operator Data Center Award of China Data Center Alliance;
- ISO9001 certification, ISO27001 certification, trusted cloud (cloud desktop and block storage) certification;



Shao Medicine Health Cloud 2.0, which technical support is provided by China Unicom Wo Cloud platform, was officially released on the 3rd World Internet Conference Wuzhen Summit. The platform is the first mobile intelligent medical care cloud platform with graded treatment as core and entity hospital as carrier in China. It realizes comprehensive cloud upgrade, and realizes integrated treatment of citizen medical insurance and medicine logistics and distribution by mixed cloud mode.

China Unicom Beijing Branch created “Innovation and Venture Cloud Service Platform” facing relevant government management departments as well as medium and small enterprises, built service network covering the entire countries by channels of government innovation and venture management departments, industrial alliance, public venture space and incubators, and realized national innovation and venture service implementation. In order to encourage innovation and venture, Beijing Branch allowed quality venture enterprises to use platform resources for free within limited period. The platform has gathered multiple “innovation and venture” enterprises such as SOHO China, Tsinghua SEM X-elevator, Zhongguancun Intelligent Hardware Dreamworks to jointly build benign innovation and venture ecosystem.

Expand new space of big data

In 2016, China Unicom promotes big data sharing, capacity open cooperation, continuously deepens industrial application and perfects service system.

- Perfect big data platform: China Unicom built big data platform with mixed structure centering at Hadoop, realized scale application of open source technologies such as Hadoop, Spark, Storm and Redis in actual production and service, and integrated container technology to realize unified operation service of resource, data and application in multiple levels;
- Strengthen data processing ability: China Unicom big data platform can realize five categories of data acquisition including IT production system, business platform, communication network, external Internet and partners, covering 400 million clients; daily data processing is over 400 billion pieces, and high value result data sedimentation is over 17PB. The platform supports multilayer capacity output by primary platform, internally covering refined management, marketing, client maintenance, customer service, network planning and network optimization, and externally realizing big data service of over 300 partners in over 10 industries;
- Enrich product system: independently research and develop six data products including user label, credit products, precision marketing platform, WO index products, location-based service product, and ability opening platform;
- Complete operating system: build information-oriented head office and provincial pre-sales team and group client national sales system, and carry out external big data cooperation service support to branches and subsidiaries;

Launch big data products

China Unicom releases big data personalized solutions in multiple industrial fields such as transportation, finance, automobile and Internet, and will focus on application in tourism, advertising and transportation as well as “small data” individual application facing public users; continue to provide whole-process solution to industry and individuals from information acquisition, data digging to business implementation relying on more abundant products, more open platform and more perfect operating system to boost enterprise and the entire society to realize new value.



China Unicom cooperates with over ten video industry partners such as Baidu and Tencent to jointly release China Internet Film and TV Big Data White Paper. This is the first big data white paper in the industry. By integrating excellent data resources, it comprehensively analyzes and judges the fluctuation trace of Internet film and TV industry, scientifically predicts development trend of future Internet film and TV industry and provides reference to government management departments, Internet video platform, film practitioners and investors.

Smart Steps Digital Technology Co., Ltd. is a joint venture company incorporated by China Unicom and Telefonica. The big data platform of Smart Steps smoothed data cooperation channels with partners such as China Telecom, Baidu, Union Pay and GPS, and used world leading “Smart Steps” location big data product to create industrial product model of position data after dozens of times upgrades and local adaption. As a position big data product, Smart Steps formed core ability in aspects of location label, API interface, data set/report and urban sensory perceptual system, and could comprehensively analyze time-space feature tags and attribute preference characteristics such as urban citizen residence, interest point, interest route, and trip mode. By anonymous, gathering and pushing data processing application modes, provide the highest level client data safety guarantee, and provide top big data insight and relevant services for government public management and social governance, and commercial intelligence, transformation and upgrade of enterprises.

Unicom System Integration Limited Corporation Heilongjiang Branch developed the “precision marketing platform”, which analyzed user behavior and characteristics to work out user’s preference so as to recommend different commodities and products by personalized algorithm according to different hobbies and interests of users, and truly realized targeted services to users. The results analyzed “know users better than themselves”.

Expand new space of Internet of Things

China Unicom mainly orients Internet of things for its innovative strategy, greatly develops the technology and application of Internet of things, accelerates building industrial system with international competitiveness, deepens integrated development of Internet of things and economy and society, and supports the construction of manufacturing and network power.

Create Internet of Things platform

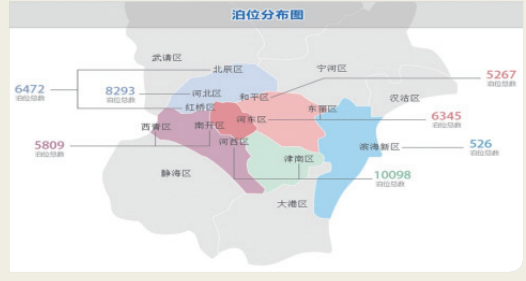
- China Unicom and Jasper, the leader of global Internet of things platform, cooperated to build world leading Internet of Things platform.
- Build private network element and special platform for Internet of Things, possess nationwide M2M service supporting ability, and create standard, open and centralized Internet of things operation and supporting system;
 - Adopt BIP air card opening technology in China to link SIM card directly with worldwide operators and truly realize “one-point access and global deployment”;
 - Possess real-time network accessibility, service self-diagnostic function and automatic engine, and provide outstanding visibility and controllability; actively prevent problems by monitoring equipment behavior, setting rules and real-time operation to improve stability while reducing costs.

Develop overall service solutions

Create overall service solution in Internet of Things fields of chip, module and application by cooperating with all parties of M2M industrial chain; introduce cooperation with remote contracting management platform, and mainly establish Global SIM service mode; unite with international operators to provide global Internet of Things solutions for transnational clients facing the fields of automobiles, transportation, consumer electronics and engineering equipment; meanwhile select finalist of Internet of Things communication module centralized tests, form name list of partners and create service ability of communication modules. In 2016, China Unicom Internet of Things accessed users reached 43 million. China Unicom Internet of Things M2M basic platform won 2016 Internet of Things Solution Award of MIIT.

China Unicom Taizhou Branch developed “Bianque First-aid System” by Internet of Things platform. Users can measure blood pressure, electrocardiogram, pulse, blood oxygen in the real time by the system, and display measurement results on health app of mobile phones and send to personal electronic health archive in the call center by Internet of Things service, and can also send to the mobile phone of kinships. The Chest Pain Center of Jiangsu Taizhou People’s Hospital established regional cooperative chest pain first-aid network with multiple basic-root hospitals relying on “Bianque First-aid System” to reconstruct emergency and severe disease process and obviously improve rescue efficiency and quality.

Aiming at tense parking lots in downtown area and prosperous area, China Unicom Tianjin Branch developed the “Intelligent Parking System”. After the geomagnetic vehicle detector sensed vehicle information, the parking lot occupation, parking hours and payment amount will be sent to POS machine of parking manager by 4G network. Citizens can acquire the services of “parking lot map inquiry, rapid pre-payment, arrearage payment, parking inquiry and bill inquiry” through APP. Currently, the system has covered over 20,000 parking lots in 500 parks in Tianjin to realize “make parking charge justice and transparent; man-money separation”. The parking management service company can strengthen supervision on parking managers by the platform.



Expand new space of industrial Internet

China Unicom focuses on eight hot industries, and plans to set up 16 bases. Every base researches and develops application products aiming at one industry. As of 2016, China Unicom has totally built 7 product operation bases and nine product incubation bases, finished R&D of 56 products, and promoted over 219 projects. The partners of bases reached 101, and the industrial alliance based on base products has been established preliminarily.

7 product operation bases
over 219 base promoting projects
9 product incubation bases
over 101 base partners

- China Unicom acquired "Outstanding Contribution Award of the 16th China Education Informatization Innovation & Development Forum" issued by the Ministry of Education.
- The "Internet + Logistics Localization Project of China Unicom in Jilin" won the "Third Prize of Progress Prize in Scientific and Collective Technology" issued by China Federation of Logistics & Purchasing.

Internet + agriculture

Aiming at the problems such as low utilization ratio of agricultural machinery resource and difficult issuance and management of government subsidy, China Unicom combines BeiDou Navigation Satellite System with Internet and agriculture to develop BeiDou Agricultural Machinery Information Management Platform. The agricultural machinery terminal positions agricultural machinery and acquires data. Information is processed by Internet of Things platform to realize refined management of positioning, dispatching and real-time measurement. It not only improves agricultural machinery operation efficiency greatly, but also helps the government more conveniently issue and manage subsidies.

Internet + tourism

China Unicom puts forward tourism big data platform, shows the relevant information of domestic scenic spot by "scenic spot overview", "passenger source overview", "scenic spot analysis" and "tourists analysis", and serves scenic spot management and tourism marketing. "Scenic spot overview" can present the analysis data such as scenic spot saturation and passenger flow and mark scenic spot position on maps; "passenger source overview" can show tourist source information in national, provincial and scenic spot levels in the real time; "scenic spot analysis" shows the information of food, hotel, travel, tourism, shopping and entertainment in the region by analysis on hot words and tourist Internet behavior; "tourist analysis" provides analysis information by tourist travel tracks, APP use situations and stop status.

Internet + medical care

China Unicom Smart Medical Care Cloud Platform adopts the mode of "Internet+ hospital alliance + doctors" to release medical resources, and provides quality, more convenient and safer medical health services to the public. The platform can provide medical cooperative services for medical institutions, medical supervision and health decision making early warning services for health authorities, health consultation, appointment register and report inquiry services for patients, and bidirectional clear referral, mobile consultation, medical linkage and doctors exchange services for doctors. The medical cloud platform also launches cloud image system, which can accept medical image reports such as ultrasonic testing and ECG, and can inquire in the real time. Doctors can realize medical image remote diagnosis by mobile terminals.

Internet + environmental protection

China Unicom and Institute of Atmospheric Physics, China Academy of Sciences signed strategic cooperation agreement. Both parties established strategic partnership in fields of air pollution forecast and early warning model, air pollution intensity monitoring, environmental protection big data and value-added service, and nuclear pollution forecast model to improve air pollution management informatization level, and provide scientific technology and information services for environmental protection and treatment in China.

Internet + education

In 2016, China Unicom realized scale breakthrough in the aspect of education informatization industry, and accumulatively developed 2.275 million mobile users, increasing by 120% year on year. 3iKids APP served over 20,000 kindergartens, 3iKids WO card mobile users reached 888,000, Class-Access was applied to 301,000 classes, and everyone-access card mobile users reached 1.038 million. It is honored as the "Only Operator of Systematic Education Information Solution in China" by the Ministry of Education.

China Unicom Guangdong Zhaoqing Branch launched "Interactive Smart Class" cloud administration end integrated solution centering at "education resources cloud platform + class-access/everyone-access application platform + intelligent terminal + wireless network". Zhaoqing Branch provided 34 demonstrative "Smart Class" for free, wireless broadband service and smart learning terminals with high quality and low price to middle and primary schools and kindergartens, and open "China Unicom tiny class" learning management platform to middle school and primary school students for free use. Meanwhile, Zhaoqing Branch cooperated with Zhaoqing Education Bureau to deeply integrate quality education resources of "China Education Cloud" and "Guangdong Education Cloud", develop local network course, integrate to "China Unicom tiny class" learning management platform, and provide quality education resources for middle school and primary school students and children.

Internet + government affairs

China Unicom, based on a series of new technical applications such as mobile Internet, cloud computing, big data and Internet of Things, launches a series of new "Internet + government affairs" industry application products, covering smart fire control, food traceability, safety mobile phone, ocean access, Internet of videos and Lanxin. These government affair industry applications will innovate government service mode, improve scientific decision making ability and management level of governments, and effectively improve government working efficiency and service ability.

China Unicom Zhejiang Taizhou Branch developed "ESHIAN" platform to realize Internet+ supervision of foods. The market supervision assistants can take photos and upload on site by mobile client, and register food safety basic-root supervision information to realize food safety supervision scene evidence obtaining, and report tour inspection information in the real time. Taizhou Branch also developed "ESHIAN" APP to realize daily tour inspection record, convenient information report and accurate illegal behavior investigation.

China Unicom Jilin Branch created provincial, municipal and county-level linkage online government affairs service platform for the People's Government of Jilin Province integrating transparent government affairs, handy service for the public and open data. Jilin Branch, by "integrated" government affairs service construction, pushed integrated government affairs data in the entire province, realized "online acceptance", "one-stop handling" and "whole process" efficiency supervision for administrative powers and convenient services, and promoted centralized stationing of authorized matters, centralized on-line service providing, centralized government affairs information opening, and centralized sharing of data resources.

Internet + transportation

China Unicom, through its subsidiary Zhiwang Technology Co., Ltd., provided differential products and complete services for auto industry users, mainly including information service, platform operation, call center, online store, content service and ICT; realized original supply chain integration of vehicle factory in front loading market; pushed "platform + hardware + data + operating service" binding service mode in after-loading market; mastered national policy environment on forced monitoring of new energy vehicle in new energy vehicle field, and promoted the comprehensive service of "vehicle monitoring platform + data + storage + operating service"; focused on the key fields of government bus lease, taxi online appointment and industrial fleet management in vertical industry market, and provided comprehensive solution for vertical industries. In 2016, Zhiwang Technology Co., Ltd. has cooperated with 38 overseas and domestic vehicle factories.

- Acquire the "Best China Telematics Award" elected by the Society of Automotive Engineers and Telematics@china Organizing Committee
- Acquire "Innovation Award of China Internet of Vehicles" selected by Internet of Vehicles Conference

China Unicom Xinjiang Branch built "hazardous vehicle safety management and control system" aiming at large-scale vehicles such as construction vehicles, passenger cars, buses and dangerous goods trucks. The system recognizes driver's identity, accurately positions driving route, devises electronic fence and remotely controls hazardously driving vehicles by mobile communication technology. It can strengthen the safety supervision on hazardous vehicles, and solve the difficulties of insufficient safety supervision personnel in government and legal departments, vertical interaction of stability maintenance information, and horizontal expansion of stability control surface so as to effectively restrict outburst events caused by vehicles. Currently, the system has been installed on 1815 large-scale vehicles, and become benchmarking demonstration projects for stability maintenance industry application in South Xinjiang.

Internet + manufacture

Facing manufacturers, China Unicom brings network coverage advantages into full play, and provides safe and reliable communication modules and fast and stable networking ability to help the enterprises carry out Internet-based online value added services such as failure early warning, remote maintenance, quality diagnosis and remote process optimization, and expand product value space.

Help "Intelligent City" construction

In 2016, China Unicom launched a series of application solutions covering industry, agriculture, medical care, tourism, communication and services based on new technology application of mobile Internet, Internet of Things, big data and cloud computing, and provided powerful support for "smart city" construction and the development of digital economy.

China Unicom Yinchuan Branch spared no efforts to link government planning, helped "Smart Yinchuan" construction, built the overall framework of "big data center cloud platform, 8000G all optical network and urban space geological GIS system", deployed 13 sub-modules in 10 systems of smart government affairs, smart community, smart transportation and smart environmental protection, and finished the construction of over 4,000 nodes such as security monitoring, smart transportation, electronic station board, WIFI, RFID information acquisition. Yinchuan is the only smart city in China with city as unit for top design. It realized city-level data communication and sharing to truly make data generate value so as to benefit multiple fields including city management, citizen life, industrial development, energy conservation and environmental protection.



Improve ICT ability

- Integrated implementation ability: set up “grand integration” service system and form integrated implementation framework serving national trans-regional key projects relying on communication network;
- Application development ability: set up a R&D system combining head office basic R&D and base application R&D;
- Service outsourcing ability: optimize outsourcing support system building, improve automatic monitoring and tour inspection level, set up unified maintenance command system based on ITSM (IT service management), explore to establish service outsourcing system meeting the requirements of IAAS (infrastructure as a service) and PAAS (platform as a service).

Expand new space of international market

In order to strengthen overall planning of international business and put more energy in expanding overseas services, China Unicom incorporated China Unicom Global Limited (hereinafter referred to as “Unicom Global”) in 2015. Unicom Global takes charge of global, all-business and all-client base operation of China Unicom, strives to become leading service provider for information communication between global enterprises and Asia-Pacific region, and contributes to the implementation of national “Belt and Road Initiative” strategy and “Internet +” action plan. Unicom Global sets up 29 marketing institutions in the world with overall development ideas of “focusing on key markets, based on Asia-Pacific and optimizing global institution layout”. Businesses of operators spread over the world, and commercial services are centralized in Asia Pacific, America, Europe and Australia, and mobile MVNO services are expended to Europe and America with Hong Kong as center.

Improve overseas network ability

- Newly add 9.3T international basic transmission bandwidth, and total bandwidth reaches 19.7T;
- Newly add 16 POP points on transmission network, and global POP number reaches 44;
- Data network, AS4837 has 15 POP, AS9929 has 35POP and AS10099 has 35POP.

Innovate overseas product system

- IDC basic products contain resource-oriented services such as trusteeship service, Internet access service and IP address lease service; IDC value-added products contain network safety, data application and IT operation and maintenance services;
- Launch new products of cloud computing, mainly including virtual private server (VPS), Cloud PRTG, cloud desktop and DDoS data cleaning;
- Launch packaged comprehensive information solution including information basic construction, software/hardware application services, and enterprise information software/hardware one-stop outsourcing maintenance; customers are overseas institutions of hundreds of enterprises including Union Pay International, ICBC International, China Merchants Bank and SPD Bank.

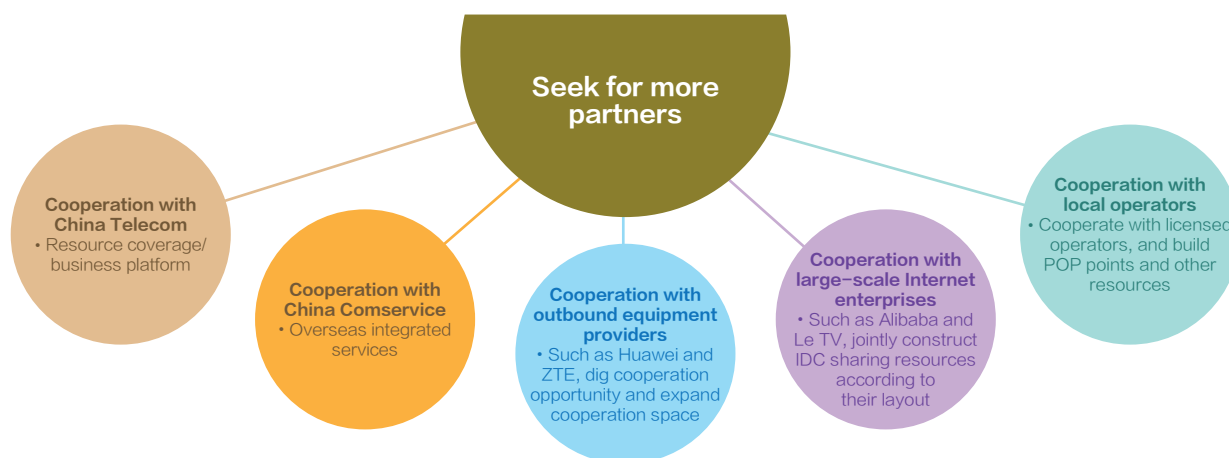
Unicom Global released CUUniq overseas SIMMAX virtual operation service in London, UK. Users can purchase overseas and select the mobile number of UK, Hong Kong and Mainland China, and enjoy the services of voice sharing in China, UK and Hong Kong, data sharing in 45 countries and regions, 24h Chinese-English bilingual customer service and online shop CUG Store inquiry service.

Note: CUUniq (SIMMAX) service, CU refers to China Unicom, Uniq means unique (exclusive, quality and unique), i.e. one SIM card can contain three mobile numbers in UK, Hong Kong and Mainland China.

Carry out global service cooperation

Unicom Global actively carried out global operator cooperation, and enhanced own resources and abilities by developing cooperation organization and joining in cooperation alliance.

- Develop favorable partnership with over 400 global operators, drive cooperation with Telefonica in South America to perfect Brazil-Cameroon submarine cable network, and promote Hong Kong-America new submarine cable cooperation;
- Carry out cooperation on voice and data international roaming with over 200 overseas operators or communication groups; China Unicom LTE roaming call out has opened 132 operators, and 147 operators for call in;
- Jointly push going abroad new mode of “sharing, competition and cooperation” with China Telecom, and make progress in aspects of international roaming IOT negotiation, reducing international roaming costs, overseas POP joint construction, trans-national land cable and international submarine cable joint investment;
- Establish global cooperation organization in ICT, Cloud service and CDN to promote trans-industrial resource integration, realize industrial cooperation and win-win, and urge output by industrial cooperation;
- Join in global alliance in fields of M2M and mobile service to rapidly acquire global resources and capacities.



Innovate international operation mechanism

The Company deeply carries forward GAM mechanism to realize transformation from horizontal management to vertical management. GA customer satisfaction keeps improving. The service is affirmed and appraised by customers including Telefonica, Vodafone, BT and AT&T.

Note: GA (Global Account) refers to a kind of large-scale customers with branches globally. GAM (Global Account Manager) is a customer sales service team particularly serving GA customers. GAM mechanism is a management mode innovation, transforming from horizontal management to vertical management. By flattened, centralized and vertical and unified management of head office, a global virtual team is set to take charge of customer demands, projects and customer service management during whole life cycle period before, during and after sales so as to improve operating efficiency.

Serve the “Belt and Road Initiative” construction

China Unicom accelerates perfecting global network layout and product system, emphasizes global service ability improvement, and actively inputs the “Belt and Road Initiative” construction.

- Accelerate network coverage in areas along the “Belt and Road Initiative”, participate in constructing AAE-1 (Asia-Africa-Europe -1) submarine cable system and SMW-5 submarine cable system to form double-route and double-system capacity in Europe-Middle East-Africa-Asia Pacific area, and change deficient resources in Europe, South Asia and West Africa by the network advantages of Burma Weishuang, Hong Kong and Shanghai;
- Actively promote Central Asia cross-border land cable project construction, and improve the network coverage in the Silk Road Economic Belt;
- Greatly expand operator clients, and provide more perfect service supply category and channel in areas along the “Belt and Road Initiative”. In 2016, China Unicom newly expanded 22 operator clients in ASEAN, India and Russia and other “Belt and Road Initiative” countries, and realized full coverage of operator services in ten ASEAN countries.

Hong Kong Global Center was put into use in 2016. It is the largest scale data center that China telecommunication operators plan and construct overseas. Moreover, it connects to domestic and international backbone network, is an international neutral data center, global cloud service gathering center and international financial customer service base in Asia-Pacific area, and will become the important hub connecting the “Belt and Road Initiative” information infrastructure.

China Unicom (Hong Kong) Global Center locates in Tseung Kwan O Industrial Park, the high-end data base of Hong Kong, covering an area of 14,900m², and building area about 37,000m². It owns 4,000 cabinets, and adopts environmental standards of international data center construction and certification. The service level has reached international TierIII standards.



China Unicom undertakes international submarine cable construction project in South Atlantic Ocean, and provides Brazil land site. After the South Atlantic Ocean international submarine cable is completed, it will constitute China Unicom global international communication network along with AAE-1, SMW-5, New China-America and Asia-Pacific direct cable, and provide infrastructure support to the implementation of national “Belt and Road Initiative” strategy.



Carry out independent R&D



Promote technical innovation

China Unicom is one of the first batch innovative enterprises of China granted by Ministry of Science and Technology, SASAC and All-China Federation of Trade Unions, always highlights technological innovation for company development, establishes profound technical innovation base and perfect technical innovation mechanism, and pushes out and applies a batch of technological innovation achievements.



Perfect technological innovation system

The Technology Department of the Group Company takes charge of technological management, and shall organize to prepare technical development strategy and network evolution plan, standards of targeted management communication technology, new technology development, and communication network resources. Research and development institutions contain three main R&D bases including Unicom Labs, Network Technology Institute and Software Research Institute, one post-doctoral workstation, as well as professional subsidiaries of system integration company, broadband online company, cloud data company and WO store Technology, and provincial branches.

China Unicom Post-doctoral Workstation has recruited and cultivated over 40 post-doctoral researchers up to now. In the comprehensive appraisal of China Post-doctoral Work Station carried out by the Ministry of Human Resources and Social Security and National Post-Doctor Regulatory Commission, China Unicom Post-doctoral Workstation is rated as "Excellent", and becomes the only national best post-doctoral workstation in communication industry.

China Unicom attached high importance to technological talents team construction. Currently, two experts in "Recruitment Program of Global Experts" worked and researched on relevant post, and have made certain achievements in aspects of big data, cloud computing and wireless network, and contributed to the promotion of technical service transformation and supporting enterprise sustainable and healthy development.

In 2016, China Unicom revised six technological management measures including "Incentive Measures for Technological Innovation", "Enterprise Standards Management Measures" and "Radio Frequency Management Measures" etc. to further normalize the process of technological management and stimulate new vitality of scientific and technological innovation.



Apply technical innovation achievements

The "SIM-based and command-free one-point safety certification system and scale application" is a convenient and safe certification service provided to mobile Internet users, and can effectively solve problems such as organization secrets theft and user privacy disclosure. Currently, the users of this project have reached 2 million. The project won the 2016 second prize of science and technology award of China Institute of Communications, and the GSMA Vision 2020 best origination award of 2016 Mobile World Congress.

The project "Research on Key Technology and Large-scale Application of TD-LTE and LTE FDD Integrated Networking" tackled multiple key technical difficulties about TD-LTE and LTE FDD network application and deployment, proposed systematic solution of integrated networking, and guided China Unicom to build the globally largest scale TD-LTE/LTE FDD integrated networking.



Perspective network evolution

China Unicom, targeting at technological development trend and business demands of the Company, carried out perspective technical research with emphasis, and gradually promoted advanced research of technology, technical test and pre-commercial services.



Research and develop 5G network

China Unicom actively carried out R&D on 5G network framework and key technologies and services, cooperated with multiple manufacturers, and participated in 3GPP international standard formulation, national IMT-2020 promotion and 5G frequency spectrum planning.

China Unicom actively conducted SDN/NFV research, carried out tests and pilots in different fields, and actively participated in standard organization and open-source organization activities.



Promote IPv6

Finish China169 backbone network IPv6 reconstruction, and carry out urban Four-star and Five-star IDC engine room upgrade and reconstruction; 13 platforms including WO store and central music platform possess conditions supporting IPv6, and background supporting systems involved in MAN in pilot cities have finished IPv6 reconstruction. LTE core network equipment has abilities to support IPv6, and has carried out small scale test on existing network.



Output scientific achievements

In 2016, China Unicom organized to implement 51 national scientific projects including "New Generation Wireless Broadband Mobile Communication Network 03 Special Project" of MIIT, "863 Project" of the Ministry of Science and Technology, national key research and development plan, "New Materials R&D and Industry Special Project" and "TD-LTE special project" of National Development and Reform Commission, involving the fields of 5G, cloud computing and big data, mobile Internet service and mobile intelligent terminal. China Unicom took the lead to finish national SDN/NFV industry alliance project, and displayed a series of important achievements such as 5G network structure, 5G air interface technology, 5G virtual base station and 5G Internet of Things service application in 2016 Mobile World Congress.



Participation in standard formulation

China Unicom actively participated in industrial standard revision to drive the development of communication industry. In 2016, China Unicom totally took

the lead to prepare or participated in preparing 226 industrial standards. Four persons serve as TC Chairman/Vice Chairman of CCSA, and 18 serve as group leader/deputy group leader. The Company participated in standard tracing, research and meeting of 21 international standard organizations, submitted 614 drafts of international standards, and led 31 initiations of standards (including 11 ITU), co-led 18 standard initiations (including 13 ITU), led to issue 19 standards (including 5 ITU), and co-led to issue 14 standards (including 8 ITU). China Unicom personnel take multiple posts in important international organizations such as ITU-T, GSMA and ONOS, realized series standard layout in advantageous standard fields such as carrier aggregation, intelligent terminal user experience and cloud computing, and deeply participate in open-resource community activities in emerging fields of cloud computing, SDN and NFV. In 2016, China Unicom totally acquired over 1 million yuan international and industrial standard subsidies.

Submit **614** drafts of international standards
Take lead to issue **19** standards,
including **5** ITU

Patent achievement

In 2016, China Unicom applied for 621 patents, in which 232 are granted; submitted 6 applications for international patents. Four projects gained the second prize and four projects gained the third prize of Science and Technology award of China Institute of Communications; four projects gained the second prize and four projects gained the third prize of science and technology award of China Communications Standards Association; one project won the first prize and one won the third prize of science and technology award of Chinese Institute of Electronics.

Apply **621** patents
Granted with **232** patents

Deepen enterprise reform

China Unicom actively adapted to the environmental changes, explored to change traditional operation mode by Internet thinking and method, deepened enterprise reform and solved the energy and power problem of development.

Promote mechanism reform

- Set up marketing system by channels under overall market planning, strengthen professional sales, development and maintenance of all channels, unify channel and terminal operation support, and optimize and regulate relevant business process;
- Boost reform on stimulating basic-root responsible unit activity, build “inverted triangle” service supporting system, transform management functions of Group, provincial and municipal branches to service support, and promote the building of small CEO team;
- Deeply push intensive operation and maintenance reform, compress levels and realize vertical- penetration management. The head office strengthens all-network operation supervision and production and operation ability; provincial branches implement differential and classified progress for south and north branches; the branches in the north reduce management layer and provide comprehensive support; branches in the south implement resource focus and provide support in key areas for key services;
- Push matching between the power and responsibilities of resource configuration, and strengthen benefit-orientation; pay attention to accurate and efficient resource input, sufficiently consider objective differences such as different regions, different resource conditions and different operating levels; centralize resources to guarantee network construction in key areas so that investment scale dropped greatly;
- Establish and perfect e-procurement operation system by virtue of information means, break the limit of traditional procurement functions and rebuild material procurement management mode;
- Systematically push human resources reform, link with benefits to configure labor costs and perfect total wages and senior management wage and profit budget linkage mechanism; innovatively create comprehensive employee incentive system, sustainably push “Internet + talent operation” mode, deepen personnel structure adjustment, optimize personnel allocation in innovative service field, and strengthen talent team construction.

China Unicom Chongqing Branch made the first move of employee venture, carried out employee contracting pilots in fixed network service area of Liangjiang New Zone, and tried independent operation of small CEO; set up four groups, confirmed four small CEOs; employees implemented two-way selection, and realized the transformation from “want me to do” to “I want to do”. After contracting is implemented, the business development and employee remuneration are improved obviously.

Accelerate downsizing

The Company implemented the deployment of “business downsizing” of the State Council and SASAC, actively reduced legal person numbers, downsized organizational institutions and functions of head office, separated management from production, strengthened reasonable labor division and responsibility and power clarification, and pushed the Company to form efficient organization management framework; strived to dispose “zombie enterprises”, accelerated liquidation, cancellation and loss reduction, greatly governed poverty enterprises, and strived to vitalize inventory real estate resources; comprehensively started “water, electricity and gas supply and property management” separated handover, and actively promoted large collectives reform of plant office.

Establish power list

In order to simplify approval matters and process, scientifically configure powers and resources and effectively prevent from risks and loopholes, the existing rules and systems, as well as power matters were comprehensively inspected, sorted out, optimized, normalized; a batch of rules and systems were abolished, retained, revised and completed. The proportion of system abolished and failed is 32%, and approval matter and report optimization rate of head office respectively reaches 39% and 30%. The Company, by the opportunity of inspection, sorting and optimization of rules, systems and power list, established a set of rules and management mechanism in favor of development, efficiency guarantee and risk prevention, and a normalized, transparent, simple and efficient power list matter management mechanism serving the basic root.







Co-creation and win-win by cooperative development

- 42 Set up cooperative platform
- 44 Promote partnership
- 45 Cooperate with Internet companies
- 45 Develop industrial ecology
- 47 Explore capital cooperation



Co-creation and win-win by cooperative development

Opening-up and cooperation boost the development and growth of enterprises. China Unicom always realizes mutual-benefit and win-win situation with partners by open and active attitudes. In 2016, China Unicom carried out in-depth cooperation on innovation with telecommunication operators, Internet enterprises and all sides involved in the industrial chain to form synergistic effect of development, and build prosperous and co-existing industrial ecosphere.

Measures adopted in 2016

- Carried out in-depth cooperation with China Telecom in aspects of resource sharing, emergent mutual assistance, saving CAPEX 3.3 billion yuan, OPEX 350 million yuan; promoted all-network as industrial standards;
- Carried out all-round cooperation with Internet enterprises such as DiDi, Baidu, Alibaba and Tencent in fields of mobile network, artificial intelligence, big data and basic communication service, and launched products of DiDi Top Card, Tencent Top Card and Ant Treasure Card;
- Urged synergetic development of enterprises in the industrial chain including equipment providers, contents providers, terminal providers, virtual operators and social channel operators, provided supporting services for industrial development, and promoted enterprises in industrial chain to perform social responsibilities;
- Explored capital cooperation in innovative service field, bought shares of Shanghai Data Exchange Corp. to boost big data industry development in Shanghai; participated in initiating China-ASEAN Information Harbor Co., Ltd. and helped the "Belt and Road Initiative" construction.

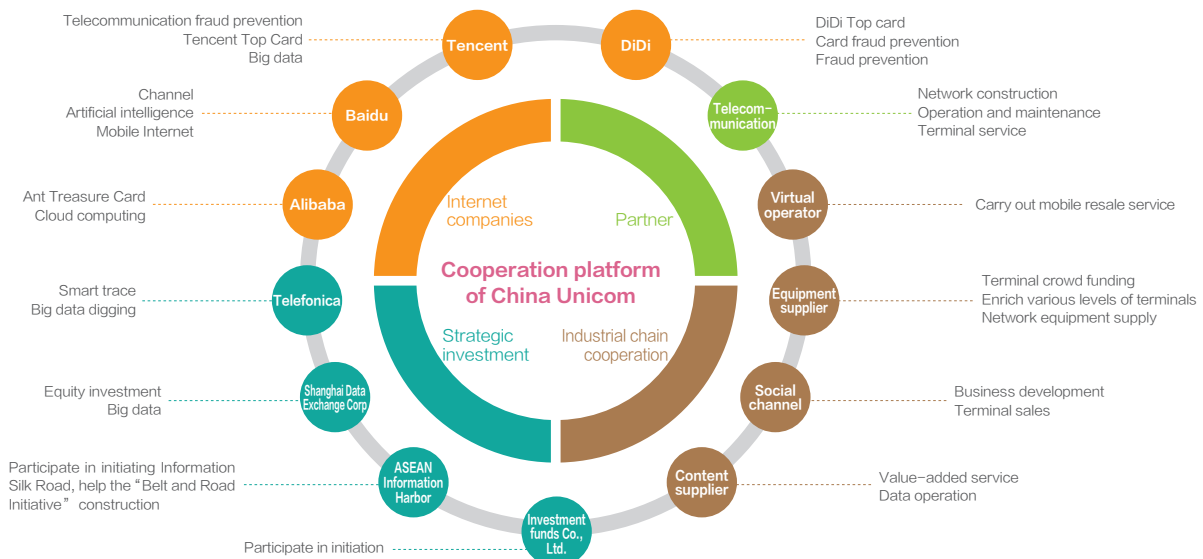
Actions to be taken in 2017

- Continue to drive the implementation of mobile network, transmission network, operation and maintenance cooperated with China Telecom, and improve networking ability of both parties.
- Strengthen social cooperation, actively explore cooperative operation mode, expand network coverage and improve marketing ability;
- Strengthen industrial chain cooperation, and cooperate in aspects of family terminal, STB, and Internet of Things terminal.
- Continue to actively explore business capital cooperation in innovative service fields of mobile network application, mobile finance, big data, cloud computing, Internet of Things and Internet+.



Set up cooperative platform

In order to implement the development strategy of "focus, innovation and cooperation" and make new progress in "co-development, mutual benefits and win-win" under the background of "Internet+", China Unicom cooperates with China Unicom, Internet companies, capital partners and enterprises in the industrial chain to explore shared economic mode, cultivate industrial ecosphere, and by setting up information sharing platform reduces communication costs, directly supports large-scale cooperation, promotes information interchange, resource sharing and benign interaction, and realizes sharing in the entire society so as to motivate "cooperation and win-win" of numerous partners.



In 2016, China Unicom firstly integrated “Channel, Terminal and Application”, and held grand partner conference to greatly promote all-round upgrade of 4G+ network and inject powerful innovation force to the industry. Over 5000 persons from 1500 partners attended the conference, and site visits reached 150,000 person-times, Internet transmission reached 100 million person-times. Totally 51.63 million terminals were traded on site, with the turnover of over 50 billion yuan. Five plans including terminal star plan, user phone change plan, card slot operation plan, ten thousand chain stores plan and contents operation plan, as well as two white papers about video phone development and Internet film and TV released in the conference caused resonance and response of the industrial chain. During the conference, China Unicom held high-level forum with Tencent, Baidu and Qualcomm, and all parties interpreted and looked to comprehensive in-depth cooperation. China Unicom will take this opportunity of partner conference to gather industrial strength, push technological innovation, build cooperative and sharing new ecology, and jointly promote the implementation of national information communication strategies such as “network power” and the “Belt and Road Initiative”.



2016 China Unicom Partner Conference





Promote partnership

In 2016, China Unicom continuously promoted in-depth cooperation with China Telecom to comprehensively implement the “customer service quality improvement plan”, and built new industrial development trend by opening and sharing various resources including network, business and services; jointly propelled supply-side structural reform such as network and terminal so as to reduce costs and increase efficiency, and improve operating efficiency of state-owned assets.

Save CAPEX **3.3** billion yuan

Save OPEX **350** million yuan

Unified standards	<ul style="list-style-type: none"> Jointly release Broadband Service White Paper and 4K Intelligent STB White Paper
Network construction	<ul style="list-style-type: none"> Build 39,000 4G wireless network sharing outdoor base stations, and cover 34,000 buildings for indoor network;
	<ul style="list-style-type: none"> Build 16,000km shared cable of transmission network, 19,000km pole lines and 2,700km pipelines;
	<ul style="list-style-type: none"> Save CAPEX 3.3 billion yuan and OPEX 350 million yuan.
Operation and maintenance	<ul style="list-style-type: none"> Cooperate in aspects of emergency guarantee and mutual assistance, basic resource sharing, mobile optimal cooperation, network operation linkage, maintenance system linkage, inventory base station sharing, spare parts sharing and mutual maintenance cooperation;
	<ul style="list-style-type: none"> Reconstruct 99 emergency base station trucks nationwide, carry out 37 times co-drill, provide 41 times joint emergency guarantee, and go for 9 times joint emergent rescue;
	<ul style="list-style-type: none"> Finish interchanging network optimization test data in 31 provinces, and share 32,908 inventory base stations and indoors resources;
IDC service	<ul style="list-style-type: none"> Reach cooperative agreement on spare parts in 8 provinces, and carry out maintenance cooperation in 9 provinces.
	<ul style="list-style-type: none"> Both parties will establish IDC-based interconnecting channels in ten interconnection nodes in China, optimize inter-network visit of IDC users of both parties; finish the formulation of specific technical program, and carry out pilots in Beijing in the early stage.
	<ul style="list-style-type: none"> Both parties signed co-negotiation agreement with Telus Canada on international roaming;
International network and service	<ul style="list-style-type: none"> China Unicom purchased 500G international network bandwidth from China Telecom;
	<ul style="list-style-type: none"> Reach cooperation intention on domestic optical cable resource of interchange China-Kyrgyzstan optical cable;
	<ul style="list-style-type: none"> China Telecom invited China Unicom to join in the construction of HKA submarine cable, and confirm cooperation intention of Singapore POP.
Terminal cooperation	<ul style="list-style-type: none"> Research to launch terminal industrial chain, and accelerate launching L900 and L800 terminal products.

China Unicom Jiangsu Branch and China Telecom Jiangsu Branch carried out in-depth cooperation in operation and maintenance.

- Emergency guarantee and mutual assistance: cooperate and coordinate for serious disasters, emergencies and important guarantee; China Unicom Jiangsu Branch and China Telecom Jiangsu Branch carried out in-depth cooperation in operation and maintenance.
- Basic resource sharing: perfect the maintenance mechanism of resource sharing, and guarantee proper maintenance of shared information;
- Mobile optimal cooperation: push cooperation, exchange and sharing of maintenance and optimization for LTE outdoor base station and indoor coverage built jointly, and provide satisfactory mobile network quality for users;
- Network operation linkage: both parties cooperate closely to implement network operation linkage process of each specialty;
- Operation and maintenance system linkage: both parties strengthen the exchange and sharing of maintenance management experience and innovation, and jointly improve overall maintenance level and customer service ability;

China Unicom Qinghai Branch signed strategic cooperation agreement with China Telecom Qinghai Branch to cooperate deeply in aspects of mobile network construction and optimization, maintenance service and trunk maintenance service. In 2016, in 4G network construction, Qinghai Unicom shared 54 outdoor base stations, indoor distribution of 16 buildings of Qinghai Telecom; Qinghai Telecom shared 54 outdoor base stations, indoor distribution of 32 buildings of Qinghai Unicom. China Unicom Qinghai Branch saved 70.48 million yuan investment in network construction and maintenance in the entire year.

China Unicom Payment Co., Ltd. deeply cooperated with Bestpay Co. Ltd in aspects of “resource ability opening, joint channel construction and sharing, and joint customer expansion” to realize the cooperative purpose of “maximum resource utilization efficiency, rapid and healthy service development, and expanded user scale”.

Cooperate with Internet companies

China Unicom actively explored cooperation with Internet companies, and signed strategic cooperation agreement with Tencent, Baidu and Alibaba to play respectively advantages in technology, resources and ecology in Internet industry, seize opportunity in the new round technical revolution, deepen cooperation and seek for win-win development themed as “mutual assignment, joint expansion and united innovation”, carry out in-depth cooperation in fields of basic communication service, mobile Internet and industrial Internet, and accelerate supply-side structural reform for mobile Internet.



China Unicom signed strategic cooperation agreement with Baidu



China Unicom signed strategic cooperation agreement with Alibaba



China Unicom signed strategic cooperation agreement with Tencent

In 2016, China Unicom cooperated with all parties to launch DiDi Top Card, Tencent Top Card and Ant Treasure Card, which gained favorable social responses.



DiDi Top Card: particularly for DiDi drivers



Tencent Top Card: oriented data card



Ant Treasure Card: for Alipay users

Develop industrial ecology

The importance of Internet era is communication and the essence is collaboration. China Unicom inherits the ideas of “cooperation, openness and win-win development”, and collaboratively develops with all industrial sides to support industrial development and surge enterprises in the industrial chain to perform social responsibilities.

Promote industrial cooperation

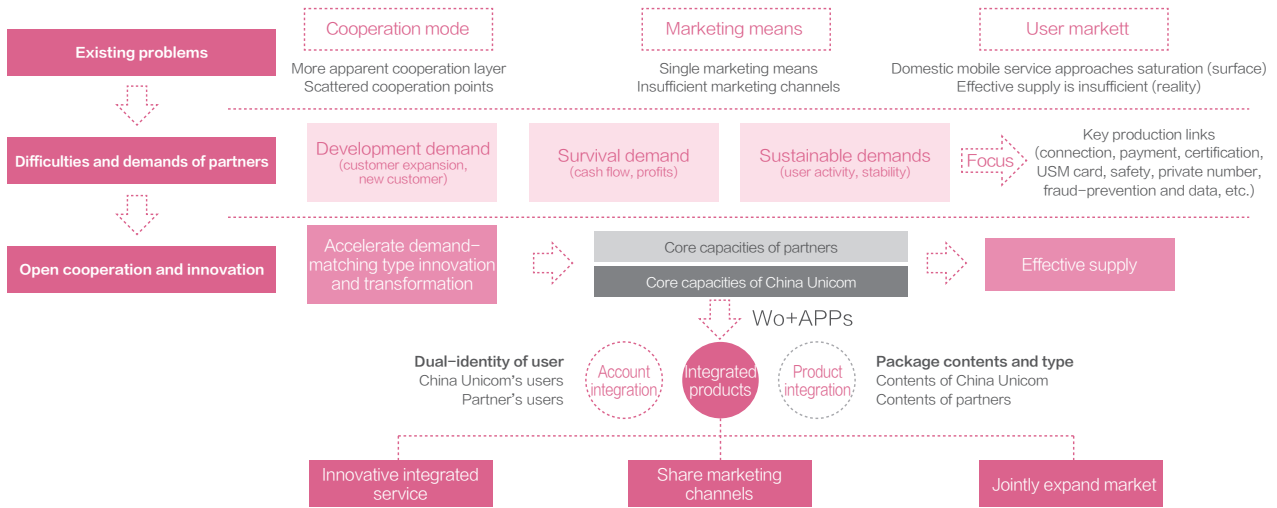
Cooperate with equipment supplier

In 2016, China Unicom's self-service portal suppliers reached 960,000. In order to better cooperate with partners, China Unicom, according to the ideas of “Internet resource access” and “whole-process collaborative trade”, adopted various measures to promote cooperation progress.

- Give great impetus to online purchase, realize open purchase information, electronic bidding and bid opening, and electronic order collaboration to make purchase more open and transparent and provide fair opportunities to suppliers. The 100% public bidding information can be inquired on “China Unicom Purchase and Bidding Website <http://www.chinaunicombidding.cn>” by classifications, 70.4% orders have realized online sending and receiving; China Unicom Head Office and 28 provincial branches realized online tendering and bidding by online CA certification;
- By the websites of www.chinabidding.cn, MIIT Telecommunication Construction Project Tendering and Bidding Management Information Platform and <http://www.chinaunicombidding.cn>, the open purchase information, online interaction of purchase documents, e-order and e-packing list collaboration are realized;
- Open purchase business data and realize transparent purchase; by e-order and e-packing list, information communication can be enhanced and trading costs can be reduced; by one-point settlement mode of group, the intensive business management and efficient settlement can be realized.

Cooperate with contents provider

Solve difficulties of partners, and actively explore new mode of cross-border cooperation



Cooperate with virtual operators

China Unicom pays attention to mobile resale pilots, and provides one-point linkage and all-network service to actively support the development of resale enterprises. The resale service aims to perfect operating ability, improve perception of resale enterprises and users, and prevent operating risks. China Unicom, giving play to the advantages of centralized operation integrating management, services and production, signed resale cooperative agreements with 29 enterprises, and carried out mobile resale services in 188 counties and cities of 29 provinces. In 2016, income from resale settlement reached 1.56 billion yuan, and resale users reached 31.69 million. The market share of China Unicom in virtual operator market in China reached 73%, showing favorable social responsibility and opening-up image under the background of national supervision policy opening China telecommunication industry to private capital.

Cooperate with social channels

China Unicom currently has 360,000 social channel partners. In order to promote cooperation, the Company ceaselessly optimizes centralized management system of channels to realize rapid payment and transparent display of social channel commissions; strengthens medium and small social channel terminal services, and develops WO store platform by generations; reduces social channel financing costs, and launches zero-mortgage "WO Finance" Internet finance services to social channel pilots.

Social cooperation for broadband

Expand external cooperation, push resource complementation with internal and external enterprises and jointly promote broadband market development. In 2016, the Company actively cooperated with advantageous privately-operated broadband companies or "capable individuals"; signed strategic cooperative agreement with Dr. Peng Group to penetrate product channel resources and complement each other's advantages.



China Unicom signed strategic cooperation agreement with Dr. Peng

China Unicom Guangxi Branch actively carried out social cooperation on broadband service, and cooperated with medium and small enterprises and individual contractors to build broadband network. In 2016, the signed social cooperative broadband projects of Guangxi Branch broke through 1000, increasing 2.7 times on the year-on-year basis; the number of cooperative ports reached 95,000, increasing 2.6 times on the year-on-year basis.

China Unicom Jiangxi Jiujiang Branch added 16,542 broadband ports by social cooperation mode, and the network coverage of town and rural area doubled.

Push industrial responsibility performance

China Unicom strives to perform social responsibilities together with partners of the industrial chain, drives partners to undertake social responsibilities on the basis of enhancing own responsibility performance ability, and jointly creates the “responsible” industrial environment.

- The partners' self-service portal of the Company for equipment purchase are interconnected with the website of National Administration for Code Allocation to Organizations, and verified by interface information to guarantee authentic and accurate supplier registration information; sustainably promote green procurement system, and clearly regulate equipment energy consumption standards and energy-saving function requirements in technical specifications for equipment procurement;
- Strengthen social responsibility guidance on content suppliers, and guarantee the value added products provided to users are environmental, safe and healthy. The Company implements strict test examination process for product marketing, carries out daily test, handles problems at the first time and finds out responsible entities according to the contract clauses; sets up negative list of service cooperation, regularly evaluates partners, and eliminates high-risk enterprises. The Company requires each provincial branch strictly implementing Value-added Service Management Measures, and providing responsible products;
- Consider after-sales service system and marketing performance when selecting terminal manufacturers;
- Help resale enterprises implement real-name system, strengthen intercept junk short messages online, propose rectification requirements for illegal enterprises through consultation, and offer different treatment to enterprises with insufficient real-name system implementation in development resources;
- Normalize social channel management strictly according to Notice on Prevention and Attack of Telecommunication Internet Fraudulent Crimes; systematically deploy real-name cameras, clear and eliminate channels not up to standard of qualification and real-name system verification; complete social channel black list management system; do not entrust black list channels to handle telephone networking and real-name registration procedures.

China Unicom Guangxi Branch evaluated terminals by big data technology to lead healthy development of smart phone terminal industry. The terminal quality evaluation system is established from three dimensions of terminal-based network signal receiving flexibility, terminal call, and terminal data service performance, and all-network terminal quality indexes are released every month. The company carried out big data statistics for network interaction data of hot Internet applications to smart terminals, analyzed terminal and Internet matching ability, and led Internet companies to improve OTT product quality.



In order to further implement the requirements of Notice on Further Accomplishing Communication Information Fraud Prevention released by MIIT, China Unicom Jiangxi Branch strengthened the management of 400 service agents, formulated 400 service management measures, enhanced user use process monitoring, perfected agent deposit and deduction mechanism, and implemented accountability and punishment system; cleaned 400 service sublease and resale in the entire province, strictly implemented account management and localized management, and implemented “shutdown and suspension” (shut down non-real-name customers, zero-call customers, non-white-list customers developed by agents, and suspend new service development of all agents) of irregular 400 service numbers. Totally 35,000 irregular 400 service numbers are shut down, and 150 illegal fraud calling numbers are suspended.

Explore capital cooperation

The Company, guided by focus strategy, combining market development situations and based on the demands of company service development, actively explored capital cooperation in innovative service fields of mobile Internet application, mobile finance, big data, cloud computing, Internet of Things and Internet+.

- The Company responded to the appeal of State to promote scheduled poverty removal and sustainable development in poverty-stricken areas, and input to incorporate Central Enterprise Poverty-stricken Area Industry Investment Funds Limited;
- To accelerate big data development process and promote “Internet+” development, the Company participated in big data industry development in Shanghai by equity investment, and explored new business mode for big data overall realization;
- In order to create information platform serving ASEAN and provide advanced, rapid and reliable communication information infrastructure and abundant Internet and industrial application for various enterprises stationed in information harbor, the Company participated in initiating China-ASEAN Information Harbor Co., Ltd. and promoted to set up closer China-ASEAN relationship.





Green and environment-friendly development

- 50 Create green network
- 51 Promote green operation
- 53 Carry out green actions



Green and environment-friendly development

Green development is the foundation to build “beautiful China”. China Unicom attaches importance to environmental protection, green and low-carbon development, and aims to build environmental-friendly enterprise. In 2016, we ceaselessly created green network, pushed green operation, strengthened green management, implemented energy conservation and emission reduction, carried out green public-benefit activities, promoted green ideas and contributed to urge the coordinated development between economic society and the nature.

Measures adopted in 2016

- Input 200 million yuan special fund for energy conservation and emission reduction in energy-saving transformation and energy technology promotion; the energy saving technology coverage rate of access network engine room and communication engine room respectively reached 64% and 72%.
- Strengthened energy-saving management, promoted special work in network downsizing and optical fiber reconstruction, carried out energy-saving and emission reduction publicity, and realized ceaselessly reducing unit information flow energy consumption.
- Implemented green actions, built haze detection network, carried out “mobile phone old for new” service, and pushed green travel.

Actions to be taken in 2017

- Further strengthen management energy-saving, promote energy-saving technology, carry out energy-saving publicity, enhance material cyclic utilization, deepen co-construction and sharing with brother enterprises, and push harmonious coexistence between enterprise and environment.
- More deeply integrate green ideas to production and operation, and more extensively carry out green practice.

China Unicom inherits the green idea of “information life” to reduce energy consumption and greenhouse gas emission, and strengthen the management on sewage and waste drainage during operation so as to minimize the influence on environment. Strengthen energy conservation and emission reduction management, and implement energy conservation and emission reduction to every link of equipment purchase, engineering implementation, equipment maintenance, marketing and administrative management. Set up and complete energy conservation and emission reduction management system including system standard system, statistical indicator system, assessment and reward/punishment system, energy-saving technology system and organization guarantee system, and guarantee the effective implementation of codes for energy conservation and emission reduction. In 2016, the Company inputted about 200 million yuan special fund for energy conservation and emission reduction in energy-saving transformation and energy technology application; the energy saving technology coverage rate of access network engine room and communication engine room respectively reached 64% and 72%; promoted special work in network downsizing and optical fiber reconstruction, carried out energy-saving and emission reduction publicity and saved 156,500t standard coal in the entire year.

Energy-saving technology coverage rate of access network engine room reaches **64%**

Energy-saving technology coverage rate of communication engine room reaches **72%**

China Unicom Head Office Building realized reutilization of reclaimed water, and produced about 800m³ reclaimed water. By water balance testing, the Company has become water-saving qualified company, realized rainwater - sewage separation and acquired License for Urban Sewage Draining to Network of Drains.



Create green network



Insist on green purchasing

Actively promote the procurement of energy-saving and emission reduction equipment, and implement green and safety purchase in terms of equipment model selection; clearly regulate equipment energy consumption standards and energy-saving requirements, and evaluate important purchase indexes such as energy consumption, energy-saving product certification and radiation index; promote centralized purchase of efficient and energy-saving equipment. In 2016, the Company finished group purchasing of DC system efficient module and intelligent double-circulation energy-saving air conditioning system to guarantee the implementation of subsequent energy-saving construction plan.



Apply energy-saving technology

Carry out present network test on three new energy-saving technologies including 336V high voltage direct current system, high-rate discharge battery and aluminum alloy cable. The “main commercial electric supply +336V high voltage direct current” supply mode is used to verify the energy saving effect of new two-circuit feeding mode; high-rate discharge battery is used to verify high current discharge performance and the effect of less configuration of new battery; aluminum alloy cable investigates the performance of new cable, and evaluates use environment, construction requirements and energy-saving investment effect.

In order to solve the problems of improved main equipment integration, ceaselessly increased single cabinet power and high energy consumption of traditional engine room, energy-saving mode engine room construction ideas are proposed to realize engine room air distribution optimization and engine room modularization from the angles of individuality, modularization and zoning, carry out study on standard green engine room construction mode and main equipment standardization, and finish the standard preparation of air distribution specifications and size of main equipment.

Green data center

- Hohhot Data Center has won advanced energy-saving technological innovation company in communication industry for two consecutive years;
- Langfang Data Center has won advanced energy-saving technological innovation company in communication industry for two consecutive years; acquired AAAA grade certificate of data center green energy conservation demonstration project; won the qualification of China green data center pilot jointly issued by MIIT, National Government Offices Administration and National Energy Administration;
- Gui'an Data Center has won the qualification of China green data center pilot.

Implement con-construction and sharing

Actively implement the requirements of State to promote ecological civilization construction, carefully implement the “Opinions on Telecommunication Infrastructure Co-construction and Sharing” of MIIT and National Development and Reform Commission, deepen cooperation between enterprises in construction fields of pole line, pipeline and indoor distribution system, reduce repeated construction and strengthen resource sharing. In 2016, the Company cooperated with China Tower to build 160,000 base stations and save investment of 11.5 billion yuan.

Responsible performance indicator	2014	2015	2016
Co-construction rate of indoor distribution system (%)	64.56	69.07	73
Sharing rate of indoor distribution system (%)	98.19	94.66	63
Pole line co-construction rate (%)	71.46	67.76	85
Pole line sharing rate (%)	94.79	94.16	92
Pipeline co-construction rate (%)	83.90	82.17	85
Pipeline sharing rate (%)	92.55	92.23	86

Manage electromagnetic radiation

Strengthen new technology application, and adopt advanced technical means such as Micro BS in intensive cities to optimize wireless network layout and make electromagnetic radiation indexes of base station superior to national standards. During base station construction process, the Company performed electromagnetic environment appraisal and as-built acceptance test procedures of base station and conscientiously accepted supervision management and inspection of environmental protection departments in accordance with the relevant requirements of Management Measures on Electromagnetic Radiation Environment Protection.

Bring the functions of new media platform into full play, actively advertise electromagnetic radiation knowledge, and continuously collaborate with government institutions and public-welfare organizations to popularize telecommunication knowledge; by multi-party collaboration and active communication, lead the public to correctly understand electromagnetic radiation influence of base station, and eliminate public doubts and misunderstanding through on-site demonstration, field inspection, and the popularization of base station equipment and telecommunication knowledge.

China Unicom Guangxi Branch strengthened the management of electromagnetic radiation, and minimized battery radiation from the following five aspects:

- Purchase equipment according to the frequency scope and rated power of national regulations, and change to low radiation equipment when proper;
- Adopt advanced technical means to optimize wireless network layout and make electromagnetic radiation indexes superior to national standards;
- Avoid kindergartens and primary schools when selecting the site of base station, and regularly communicate with nearby companies and residents to seek for understanding and support;
- Evaluate environmental influence of base station, disclose relevant reports in time and accept public supervision;
- Carry out activity to popularize knowledge of electromagnetic radiation, and offer professional explanation and base station radiation site inspection to eliminate public doubts;

In 2016, over 14,000 base stations passed environmental impact assessment carried out by Environmental Protection Agency and Radiation Environment Supervision and Management Station.

Promote green operation

China Unicom sustainably carries out green operation. In 2016, it inputted 200 million yuan to carry out technology energy conservation, management energy conservation, network downsizing and engine room integration to effectively reduce network energy consumption.

Promote technology energy conservation

- Popularize new technical application of high-frequency UPS, switch power supply efficient module to improve 4-5% of power operation efficiency; popularize energy-saving equipment of intelligent double-circulation air condition to reduce 20% of air condition energy consumption; check whole network switch power supply, UPS configuration, and close super-configuration switch power supply module, super-configuration UPS to improve 2% of system efficiency;
- Add “time controller” to indoor distribution system according to telephone traffic time period of indoor distribution covering scenes and the situation of almost no telephone traffic from 22:00pm -06:00am in office building, stations, large-scale supermarket, shopping mall and shopping area to supply power by time periods and reach the purpose of energy conservation and consumption reduction. Distribution to double-frequency high distribution stations, 3G high configuration base stations and macro sites with low traffic will be reduced during night and started in the morning automatically.

China Unicom Jiangxi Branch focused on core engine room and base station with large energy consumption, strengthened management and technical innovation, and promoted energy conservation and emission reduction. The first is to set up electric quantity benchmark of basic electricity theory, and analyze the difference between actual electric quantity and the benchmark every month to find out problems; the second is to install power supply time controller to indoor distribution system, and turn off the electricity during 0:00am–6:00am every day to reach the purpose of energy conservation; the third is to adopt buried way for outdoor (ground) base station battery, which can not only prevent from theft but also extend service life of battery. In addition, it provided “old battery for new service”, and supplemented batteries worth of nearly 1.6 million yuan, reducing environment pollution.

China Unicom Zhejiang Taizhou Branch implemented 2G/3G capacity and frequency reduction, and exited old equipment of fixed network; independently researched base station air conditioning controller, and turned on/off power of air conditioning automatically according to temperature change of base station engine room; automatically reduced distribution during night and started automatically in the morning for macro cell base station with low traffic; eliminated old electrical equipment of complex buildings, and used energy-saving air conditioning and lighting. In the entire year, the Company totally saved 3.987 million KWH electricity, converting to 1,610.75ton standard coals, and reduced 3,975.04 CO₂ emission.

Implement energy-saving management

- Formulate electricity benchmark value for engine rooms where various base stations, indoor distribution systems and access sites are located, and guarantee the difference between electricity consumption of similar engine room and benchmark value less than 10% by benchmarking work to eradicate leakage;
- Implement list system PUE management for communication engine room, set up historical account, and gradually reduce engine room PUE value by reasonably improving communication engine room air conditioning temperature, redundancy equipment switching off and lighting electricity saving;
- Actively consult with China Tower to adopt lump-sum charging of China Tower bills

China Unicom Jiangsu Branch strengthened electricity bill management, focused on base station and engine rooms with difference between actual electricity volume and theoretical electricity volume, analyzed reasons and found out problems. Through endeavor in over one year, the phenomenon of base station electricity bill “leakage” is reduced greatly.

Promote network downsizing

- Push 2G/3G frequency and capacity reduction, and SDR base station replacing old 2G equipment by evaluation of energy consumption situations, and continuously urge withdrawal of old fixed network equipment with high failure rate and high energy consumption; in the entire year, totally 18,556 base stations are closed, 28,694 SDR base stations are newly added, saving over 200 million yuan of energy conservation cost.
- Carry out the integration of optical reconstruction LAN address engine room; totally integrate 1,311 LAN address, 5,705 engine rooms; vacate engine room area of 375,000m², save electricity of 196 million yuan/year.

China Unicom Yunnan Branch greatly downsized network. In 2016, it totally vacated 531 base stations, and reduced energy consumption of 279,000W; vacated 77 old 2G base stations, and reduced network repeated investment cost; carried out ES energy saving special project aiming at 4G network, with daily average electricity conservation of 7,102KWH; carried out business platform downsizing plan, removed 118 sets of equipment, released 17 cabinets of engine room space, and reduced 13.79kw energy consumption. From 2013, China Unicom Yunnan Branch has acquired 1.23 million yuan of corporate income tax exemption rewards by energy conservation and emission reduction projects for three consecutive years.

Cyclic utilization of materials

In 2016, the Company ceaselessly improved material vitalization and utilization rate, and reutilized 300 million yuan materials in the entire year; recovery amount of scrapping and disposal reached 2.711 billion yuan, and material vitalization value reached 81,000yuan.

Reutilized **300** million yuan materials

Recovery amount of scrapping and disposal is **2.711** billion yuan

Material vitalization value is **81,000** yuan

Popularize paperless acceptance

Put paperless business acceptance system online nationwide, realize automatic ID information reading and preservation by photos. Users can finish electronic signature by handwriting panel, and form e-business acceptance bill. The paperless acceptance saves large amount of papers, consumables, printing, and inventory management costs, shortens service acceptance time and user queuing time, and realizes account automatic generation, electronic verification and electronic retrieval so as to improve work efficiency and reduce errors.

Carry out green actions

China Unicom insists on the ideas of “low-carbon communication and green development”, targets at environment protection and beautiful China construction, actively carries out green actions, promotes green ideas and boosts green social development; ceaselessly publicizes and promotes green lifestyle such as mobile recovery and battery disposal, popularizes environmental protection knowledge, and improves public awareness of environmental protection.

Aiming at environmental impact by old mobile phones, China Unicom carried out mobile phone old for new services, and cooperated with multiple mobile environmental recovery enterprises to initiate mobile phone recovery action in China Unicom business hall; the assessment links are open and transparent, which can effectively protect user information safety; in technical processing link, the cooperative recycling company extracted rare and noble metals by chlorination-free hydrometallurgical technology, and formed the process from innocuous treatment to cyclic utilization. China Unicom, by virtue of smooth mobile recovery chain of recycler, promoted cyclic utilization, reduced electronic heavy metal pollution, and created environmental protection value while serving users.

In order to cooperate with weather detection of Beijing, China Unicom Beijing Branch built haze detection network, and used abundant station resources, transmission resources and network construction experience to build 4G haze detection network integrating point and sphere; totally built 4,000 acquisition points, collected weather data and information by perception layer, and sent to central server of Meteorological Service every 5min after data transmission and reshaping. After haze monitoring network is arranged and promoted, social effect is prominent, and the precaution awareness of citizens is enhanced. The Meteorological Service improved timeliness of air quality index release, and greatly improved haze prevention and treatment strength of the entire society.

China Unicom Fujian Fuzhou Branch carried out youth fellowship activity themed as “volunteer in public welfare together”. Over 60 youth league members passionately participated in tree planting activity, and contributed to environment greening and air purification.



China Unicom Anhui Ma'anshan Branch carried out “Learning from Lei Feng” tree planting activity. Employees dug holes, planted trees and filled earth with clear labor division and high efficiency. The activity was at full blast. After two hours of work, rows of seedlings were planted.



China Unicom Guangdong Zhuhai Branch actively built communication and transmission network for public bike system, and helped “green travel” of Zhuhai citizens. From 2013 to 2016, Zhuhai Branch totally built three phases of bike lease system projects and provided VPN service to 595 stations, and released 13,000 public bikes

Based on the statistics of number of people taking bus for short journeys

a total of 2.36 million Yuan have been saved for citizens in November 2016 indirectly.

in November 2016, there were about 7,072 less private cars hitting the road in a single day, and each intersection saw 707 less vehicles passing through per day.

In terms of distribution amounts of private cars at intersections

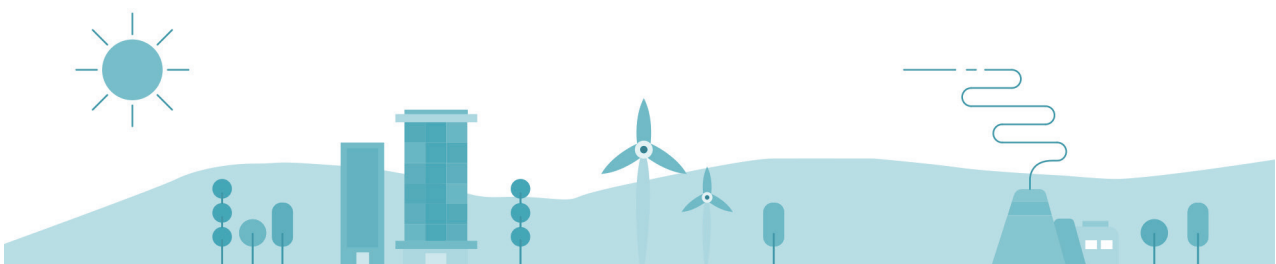
In terms of the amounts of gas consumption and carbon emission of private cars

In November 2016, about 0.25 million liters of gas were saved, and about 160 tons of carbon emission were reduced.

in November 2016, there were about 7,072 less private cars hitting the road in a single day, and each intersection saw 707 less vehicles passing through per day.

Based on the statistics of number of public bus passengers

Analyses and statistics of energy conservation and emission reduction





Harmonious development, people benefiting and sharing

- 56 Shorten digital gap
- 58 Improve employee value
- 63 Spread caring and public benefits
- 65 Integrate to local community

Harmonious development, people benefiting and sharing

Sharing is the origin and result of five development concepts. China Unicom has always insisted on improving business development realm by the sharing concept, sharing business development results with employees and society to joint build harmonious enterprise and jointly seek for business development. In 2016, we, following the people-oriented principle, maintained the rights of employees, cared for employee growth, encouraged employees to participate in management, paid attention to establishing harmonious labor relation, conscientiously participated in social public welfare services, helped the development of western regions, sustainably carried out targeted poverty alleviation, strived to eliminate digital gap, actively integrated to local community development and pushed to build harmonious society by actual actions.

Measures adopted in 2016

- Actively undertook universal service pilots, helped the development of western region, strengthened remote area network coverage and service channel construction; finished broadband construction of 4,489 administrative villages and built 620,000 ports in 2016.
- Carried out characteristic services for farmers, minorities and the disabled, deeply carried out Tibet assistance and targeted poverty alleviation, and strived to shorten regional development distance and digital gap.
- Comprehensively implemented promotion incentive system and 24% of employees get promoted; implemented corporation pension plan in 31 provincial branches and 13 subsidiaries.
- Built strategic talent team, and generated more than 550 backbone talents, over 1,100 cutting-edge talents, among whom 382 entered into overseas talent pool.
- Provided 16 terms of leadership training class, 259 terms of professional skill training, developed and introduced 27 electronic courses, and carried out 513 times skill competition and knowledge contest.
- Practically pushed worker's congress system, and implemented online employee message to general manager.
- Pushed equipment procurement and local employment, and earnestly participated in public welfare volunteer activities, and carried out responsibility investment.

Actions to be taken in 2017

- Strive to push the cooperative development in western region and rural area, and provide more convenient and rapid information services in western region and rural area.
- Pay attention to special people, push the implementation of Tibet assistance project, implement targeted poverty alleviation, and make people in underdeveloped region and weak groups share information development results.
- Perfect market-oriented compensation internal distribution system, push the implementation of comprehensive incentive system in branches and subsidiaries, and prominently show return acquired by employees from enterprises.
- Build potential management talents and professional strategic talents teams, and set up potential talent pool by specialties and levels.
- Strive to strengthen training in key fields and for key professional talents, and boost self-value improvement of employees.
- Extensively and deeply carry out "employee home building" action, implement "employee caring project", unify and mobilize employees to contribute to business development, and practically and efficiently provide services to employees.
- Promote overseas institutions to actively integrate to local communities, and push to build harmonious society.



Shorten digital gap



Help the development of western regions

China Unicom actively responds to the "Development of Western Region Strategy" of China, implements *"The 13th Five-year Plan" for Development of Western Region*, and promotes regional coordinative development.



Inclined service policy

In the aspect of mobile service, China Unicom allocates exclusive and targeted market service manager to branches in western provinces to take charge of business report and optimization, and offers special reply to service demands proposed by provincial branches in the west; approves some western provincial branches to open data package products to guarantee users in western area can afford and use data services; launches oriented data package, holiday data package, idle hours data package and night data package according to special needs of users in the western region.

In the aspect of fixed network service, China Unicom accelerates optical reconstruction speed of broadband, speeds up users with bandwidth lower than 10M, lowers the price of broadband products of 20Mbps, 50Mbps and 100Mbps, and improves copper cable user rate below 4Mbps or higher.



Investment in network construction

In 2016, China Unicom continued to strengthen telecommunication network infrastructure construction in western region, and finished investment in fixed assets of 12 billion yuan; preliminarily realized continuous coverage of 4G network in cities, counties, towns and administrative villages with population accumulation; the proportion of urban ports above 20M reached 82%, and of rural ports above 8M reached 99%. China Unicom built two large-scale data center in Hohhot and Gui'an, two cloud computing resource pools in Guangxi and Ningxia, and expanded three cloud computing resource pools in Inner Mongolia, Shaanxi and Chongqing.

Benefit remote areas

China Unicom actively provides universal communication services in rural and remote areas, and allows more farmers to use Internet by expanding effective coverage of optical broadband network and 4G network in rural area so as to help poverty alleviation by Internet.

Strengthen network coverage

China Unicom actively participated in 2016 telecommunication universal service pilots, and undertook broadband access tasks for 12,146 administrative villages in 17 provinces with total investment of 1.7 billion yuan; it has finished initiation in 9,487 administrative villages, finished construction in 4,489 administrative villages and built 620,000 ports.

Finish initiation in **9,487** administrative villages
Finish construction in **4,489** administrative villages

China Unicom Guizhou Branch responded to the requirements of national broadband strategy and targeted poverty alleviation, and undertook universal telecommunication service broadband construction projects in Guiyang and Anshun. It newly built 48 administrative villages, and upgraded 223 administrative villages in Guiyang; newly built 199 and upgraded 205 administrative villages in Anshun.

Build service channels

As of the end of 2016, self-owned business halls below county-level reached 13,300, including 10,200 rural and township business halls, accounting for 49%, basically reaching one business hall in one town in north China. The number of channel in rural and remote poverty-stricken area reached 260,000.

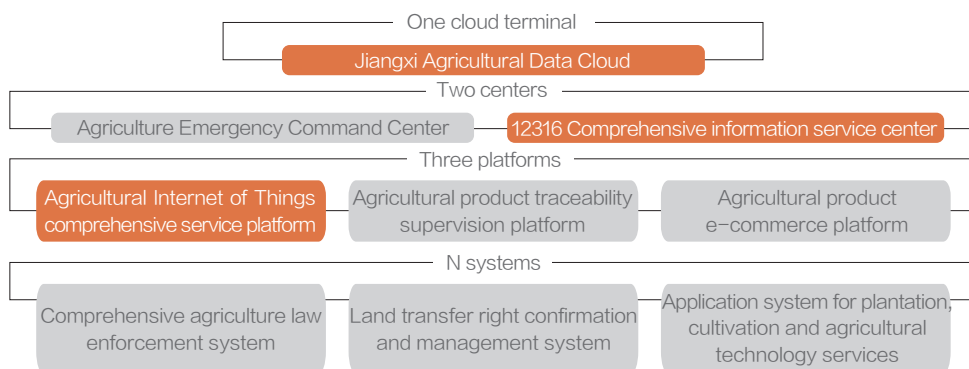
Self-owned business halls below county-level reached **13,300**
Channels in rural, remote and poor areas reached **260,000**

Preferential price package

Each local branch launched hometown card and Spring Festival card for the convenience of communication demands for farmers and migrant workers to work in nonlocal area and return to hometown; launched various integration packages so that various consumers can enjoy high speed 4G Internet service by lower communication expenditure, and various special groups can gain benefit from the convenience and welfare brought by technical progress.

Develop agricultural information application

China Unicom pushed out a series of information results in three agricultural information bases in Jiangxi, Shaanxi and Henan Province. One cloud, two centers and three platforms of intelligent agriculture built in Jiangxi Base have been put into market; Shaanxi Base has completed Agricultural Data Service Platform, Targeted Agricultural Production Platform, and Information Agriculture Benefiting Platform, and implemented 14 agricultural information projects; Henan Base designed and developed "Henan Agricultural Products Traceability Platform" and "Henan E-commerce in Rural Area", which are highly praised by the experts from Henan Academy of Agricultural Sciences and the leaders of Henan Department of Agriculture.



Red parts are undertaken by China Unicom

China Unicom Liaoning Branch strived to promote "Internet+ rural area" construction, invested over 3 million yuan to build provincial e-commerce rural access platform, and invested 2.7 million yuan to build rural e-commerce county, township, and village level service outlets and three-level logistics outlets in Qingyuan County so that rural people can enjoy the convenience of online shopping. On the one hand, it can buy quality commodities by low price to lower living and production costs of farmers; on the other hand, it can sell quality subsidiary agricultural products to improve the incomes of farmers.

China Unicom Shandong Branch pushed out the first "Beautiful Village" comprehensive information service platform of Shandong Province, including four blocks and over 160 functions, covering five-level organizations of province, city, county, township and village. The platform serves basic-root government affairs personnel, agricultural grower/farmers, and village-run enterprises, and provides the functions of administrative management, information consulting, e-commerce and entertainment. Shandong Branch also launched big data and low price products to users of "Beautiful Village" App, and promoted activities such as one-thousand yuan smart phone old for new service, and buying mobile phone at preferential price. The registered users of "Beautiful Village" APP reached over 100,000.

Serve special people

China Unicom always concerns communication demands of minorities and the disabled, and strives to offer preference and convenience to them by lower price and more convenient services.

Serve minorities

Launch exclusive information service product "WO• Deji" for people in Tibetan area in Qinghai, and customize the first Tibetan 4G mobile terminal in Qinghai to solve the problem that language and words restrict Tibetan users to enjoy mobile Internet services. In addition, China Unicom Qinghai Branch adds customer service personnel in Tibetan, and records Tibetan self-service leading system to provide service consulting and handling services to Tibetan people. The self-service of special Tibetan line has been used for over 100,000 times averagely every month, and hotline satisfaction improved 5PP than that in the beginning of the year.

China Unicom Xinjiang Branch launched special smart phone for "Xinhua News Agency Uyghur News Client". The most prominent characteristic of the client is to convert to voice mode by one key so that minorities who cannot read Uyghur words can easily know various kinds of information. The special service for Kazakhstan minorities "WO• Qiaxiu" is launched to bring benefits and convenience to Kazakhstan minorities by lower price, and pushes national information development.

Mongolian smart phone is launched in Inner Mongolia, the left vertical Mongolian typesetting mode and people-benefiting price are well accepted by extensive herdsmen. Abundant policies benefiting farmers and herdsmen as well as information of market demand, venture and employment and weather services bring more convenience to production and life of basic-root farmers and herdsmen.

Serve the disabled

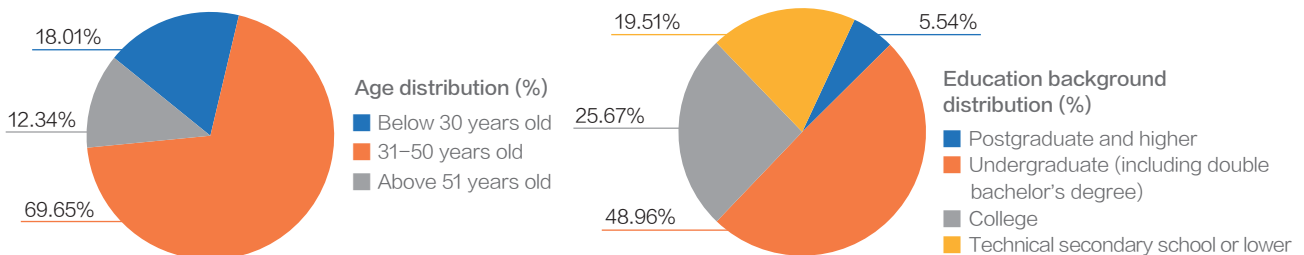
- Set disabled only customer service counter in business hall, and open special green channel for the disabled;
- Exempt nonrecurring expense for the disabled, launch annual broadband preferential package, and provide broadband expert service;
- Some provincial branches launch "Love Card" package to provide preference of voice and SMS services for persons with sight, listening and speech disability; meanwhile exempt cost fee of Love Card, and provide door-to-door card subscription services for the convenience of disabled users.

China Unicom Shanghai Branch provides fixed telephone preferential service for people with visual impairment. People above 16 years old with visual impairment can enjoy 810 times (first three minutes are counted as twice, and one minute later is counted as once service) local voice communication services by paying 25 yuan monthly rental.

China Unicom Fuzhou Branch launches preferential package to the disabled in the entire city. It provides preferential package to over 20,000 deaf-mutes, organizes full-time team to carry out field service in municipal Disabled Persons' Federation at weekends, and invites sign language teachers to help communication. Currently, it has carried out seven activities, and served over 300 deaf-mutes. This activity is highly praised by Fuzhou Disabled Persons' Federation and the disabled. President of Fuzhou Disabled Persons' Federation said that "Fuzhou Branch spared no efforts to respond the appeal of government to care the disabled, and provide convenient package to the disabled. Such caring deeply touched us, and also showed China Unicom's performing of social responsibilities".

Improve employee value

China Unicom always insists on people-oriented, actually guarantees employee benefits, and promotes co-development and co-growth between employees and enterprises.



Employees (person)	in-service personnel (person)	employment creation (person)	Gender distribution (male/female)	Proportion of management personnel (%)	Proportion of minority employee (%)
276413	253724	30271	1.48:1	8.85	6.78

Note: employees mainly contain in-service personnel and labor dispatched

Current status of China Unicom Employees

Guarantee basic rights

- Sign labor contract with employee of 100%, provide pension, medical care, job-related injury, maternity and unemployment insurance to employees and realize full coverage of employee annual physical examination, implement paid leave system, and retain work of employees after maternity leave/male maternity leave 100%, and set up annual pension guarantee to employees;
- Guarantee human rights, respect personal privacy, avoid any discrimination of age, nationality and gender for employees during recruitment and promotion. It is forbidden to use child labor and force labor. Provide smooth communication and complaint channel. No employee complaint event occurred in 2016.
- The Company strictly implements Labor Contract Law and Labor Dispatching Regulations, sustainably promotes employment optimization and normalized management, guides and urges branches and subsidiaries to dispatch labors according to law, reduces group labor dispatching proportion below 10% required by the country, basically realizing equal pay for equal work. The employee satisfaction keeps improving.
- Strengthen safety production management, sustainably promote the implementation of emergency plan management system, and create safe operating environment for employees. The Company has no occupational disease caused by hazardous factors listed in Occupational Disease Classification and Directory. In order to reduce diseases caused by natural environment, branches in plateau or special regions formulated precaution and labor protection measures to offer policy preference and special allowance except compensation to employees suffered from plateau-related diseases in arduous area. In 2016, no report regarding job-related death is received.

Promote career development

China Unicom concerns employee development, innovates promotion system, provides information and support for employee development, helps employees to evaluate self value, and provides opportunities for employees of experience expansion and promotion.

Perfect compensation growth mechanism

In order to promote co-growth of individuals and companies, the Company sets up dual-linkage mechanism regarding employee compensation and company performance, manages employee performance compensation by awards and punishment according to business performance completion situations, carries out refined classification in branches and subsidiaries, and links labor cost and total wages of all employees with company budget completion to implement differentiated management and control.

Promote occupational development

The promotion incentive system is implemented in Group comprehensively. Employees can get promotion by three modes of salary promotion, title promotion and post promotion. All employees can find out suitable development direction by nine promotion routes. Meanwhile, the Company, centering at talent use, implements full life cycle closed-loop management to strategic talents, and strategic talents can realize rapid promotion. The employee title promotion rate in the entire year reached 24%, and salary promotion rate reached 40%. Over 550 backbone talents and 1,100 cutting-edge talents in strategic key specialties are selected into strategic talent team.

Employee title promotion rate in the entire year reached **24%**,
and salary promotion rate reached **40%**
550 backbone talents and **1,100**
cutting-edge talents are selected in strategic talent team

Strengthen quality training

China Unicom pays attention to employee education training to improve overall employee quality; formulates *Key Points of China Unicom 2016 Training* as well as annual key leadership and professional skill training plan, and comprehensively carries out employee training.

Carry out various levels of training

Leadership training: The Company, around company development strategy and centering at boosting the implementation of focus strategy and strengthening the awareness of Party style and Party discipline, carried out 16 terms of leadership training courses, and finished whole staff training including deputy general managers of provincial branches, general managers (secretary of Party Committee) of prefecture-level branches, leadership group members of subsidiaries and internal directors of innovative subsidiaries, with trainees of over 1000 person-times accumulatively; and used quality external resources of "one university and five colleges" to train over 46 person-times of senior management personnel and expert backbone employees.



In strategic training course of senior management, Chairman WANG Xiaochu exchanged and discussed with trainees. The trainees of the training course reported the implementation situations of focus strategy in each branch/subsidiary, introduced typical experience and measures, reflected the problems and difficulties during production and operation, and proposed opinions and suggestions. Chairman WANG offered sufficient affirmation to the speeches of trainees, and answered some questions on site.



China Unicom Global held middle and senior management personnel leadership improvement training. Totally 45 persons from leadership, head office department and each operating organization management team of China Unicom Global participated in this training. The training further enhanced the work consciousness of self-recognition and efficient collaboration of China Unicom Global management personnel, and enlightened in aspects of mobilizing team enthusiasm, improving work efficiency, and establishing favorable relations with employees, customers and partners.

Professional skill training: The Company carries out professional skill training in fields of “accelerating 4G development, improving user perception, reforming management system and innovating resource configuration and incentive mechanism” with the principle of “supporting key business development, improving employee professional skills and solving difficult problems”. In the entire year, the Company carried out 259 terms of professional skill training with trainees of over 20,000 person-times, including 27 terms of high-end technology trainings to IT strategic talents and senior technical talents of IP/IT/wireless operation and maintenance.

China Unicom Xinjiang Branch held 4G stereoscopic sales and shop manager ability improvement camp to provide 5-day special training to 42 self-run business halls in four states of Yili, Altay, Bozhou and Tacheng. Focusing on shop operation, marketing skills, implementation, team building and drill, Xinjiang Branch adopted “trainee-oriented” C-P-C training mode, and carried out trainee interaction of the whole process. Trainees made rapid progress in ten aspects of shop operation, atmosphere creation, hall exhibition, cohesion creation, and attitude breakthrough etc.



Set up online course/micro course system

The Company developed and introduced 27 electronic courses to focusing on the improvement of self-leadership, team leadership, professional leadership and strategic leadership of various managers. In order to cooperate with the Company to stimulate vitality reform of basic-root unit and improve comprehensive management ability of person in charge of basic-root responsibility unit, 20 courses of small CEO comprehensive management skill series are developed by diversified “crowd funding and co-creation” mode aiming at four service lines of operation line, channel line, station cable and integrated line.

China Unicom College Chongqing Campus carried out micro course training to popularize the connotation, design and development to trainees, and stimulate the passions of employees to produce micro courses. In later “micro course contest”, over 100 works are received, in which 70 are selected in work perfection and in-depth development training, and help further improve micro source design and development skills, and perfect micro course works.

Innovate training mode

In order to improve problem solving ability, in-depth seminar, case and experience drill courses are carried out to improve the effect of knowledge application by sharing practical experience and solution co-creation. By virtue of new learning means of network course, cloud course, MOOC (large-scale open network course) and micro course, more new learning modes are introduced to training. Network course development is increased for the convenience of employee learning.



China Unicom Guangdong Foshan Branch established “Ivey League College” to select basic-root management backbone, new youth employees, network technology and group sales backbones, and cultivate management ability and service technology skills. “Ivey League College” sets management center and expert center, and provides comprehensive training, sharing and communication platform as well as various intensive trainings to 90 trainees in four classes. It establishes an excellent youth benchmark team “willing to learn and capable to work”. “Ivey League College” totally outputs 10 medium cadres and 10 basic-root management cadres in two years since foundation.

Perfect network learning platform

China Unicom strengthens the construction of network college platform and mobile phone “WO Course” APP client, and trains micro course development and production team by micro course competition and online learning. In 2016, the online courses reached 1,224, and trainees reached 4.585 million person-times with total learning hours of 3.75 million hours. The micro courses of mobile phone “WO Course” reached 3,030.

Carry out employee skill competition

In 2016, China Unicom carried out over 513 times skill competitions and knowledge contests including industrial application marketing skill competition and B field system integrated operation and maintenance skill competition, participated in by 10,251 person-times. The competitions and contests effectively improved business skill level of employees in all fields.



China Unicom Industrial Application Marketing Skill Competition



China Unicom B Field System Integrated Operation and Maintenance Skill Competition



China Unicom Guangxi Branch carried out “Ingenuity Service” customer service personnel skill competition



Hubei Branch won the third prize of nationwide communication network safety knowledge contest

Participate in business management

China Unicom encourages extensive employees to participate in management activities of enterprises to enhance the sense of identity of enterprises and teamwork spirits of the Company.

- Push workers' congress system construction, develop in a practical way, and list 20 items concerning the interests of employees which must be deliberated by worker's congress;
- Normally carry out general manager online activity to trace and reply opinions and problems proposed by employees. In 2016, the 1,671 employee questions and messages which are not replied by general manager online activity are sorted out and released reply contents on office platform.

China Unicom Anhui Branch held workers' congress, listened to the report of collective contract and salary special collective contract implementation situations in the previous worker's congress, listened to and deliberated employee leave, employee training and labor safety reports, and the report of financial budget and final settlement, business reception fee and welfare fee usage; deliberated and passed Anhui Branch Collective Contract and Anhui Branch Wage Special Collective Contract.

General Manager of China Unicom Hunan Branch exchanged with basic-root responsible employees online about the operation, work and life problems that employees concern; over 300 employees participated in the online communication actively, and the General Manager replied 14 problems on site. The General Manager's online email is open in the same period. Mails sent by employees will be transferred to relevant department after sorting out, and handling results will be replied to the proposer.

Care employee life

Employee mental state support	Open WeChat public account number of “Open Happiness Heart Vision” and psychological crisis intervene hotline, finish phase II EAP internal team recruitment, and select 63 EAP personnel and 71 metal-health counselors
“Support people in need” activity	Continuously carry out the activities of “provide health care in Spring, cooling in Summer, kinship in Autumn and warm in Winter”, and input over 22 million yuan of fund.
Support employees suffered from difficulties	Cover group insurance for serious disease and accident injury for employees by collective discussion and separate signing; since the implementation of the project, over 300 employees suffered from serious diseases acquired compensation provided by insurance companies.
Donation in disaster-affected area	In 2016, disasters such as floods occurred in many regions; family properties of employees in disaster area suffered from serious losses. The Company appropriated 600,000 yuan relief fund and made donations. Totally more than 5 million yuan is raised.

Input **9.67** million yuan to help and support employees suffered from difficulties

Input **35.71** million yuan condolence fund



China Unicom Liaoning Branch held EAP psychological counseling personnel training course. Over 45 EAP personnel, counselors and psychology fans from basic-root labor union participated in training. Trainees knew psychological capital improvement method, and laid foundation for future EAP tutorship by mastering psychological technology through experience-type learning.

To make sure every poverty-stricken employee can afford health care, China Unicom Jiangxi Branch set up “WO Love” caring and mutual fund to deliver concern and warm of the organization to every employee. Since the foundation of the fund, totally 256 person-times got subsidy with amount of 1.33 million yuan, equaling to per capita 5,194 yuan.



China Unicom Shandong Branch held Yoga Performance Contest



China Unicom Beijing Branch set up handwork club



China Unicom Shaanxi Branch held Internet singers contest



China Unicom Hunan Branch held employee table tennis contest



China Unicom Heilongjiang Branch organized activities of veteran cadres



China Unicom Guangzhou Branch built “Female Employee Health Care Room”

Spread caring and public benefits

China Unicom follows the donation principle of “acting according to ability, distinct rights and liabilities, and integrity”, and continuously returns to society.

Statistical Table of China Unicom 2016 External Donation

Donation Item	Amount (Ten Thousand Yuan)	Donation Item	Amount (Ten Thousand Yuan)
Donation to disaster area	39.5	Donation to culture and sports services	4.0
Donation to fixed-point poverty alleviation (poverty alleviation)	1429.6	Donation to environmental protection services	4.2
Xinjiang/Tibet assistance and supporting (Xinjiang/Tibet assistance)	565.3	Donation to energy saving and emission reduction services	2.0
Other targeted assistance areas	45.7	Donation to social public infrastructure construction	1.9
Donation to disabled service (disabled supporting)	2.1	Donation to other public-welfare relief and public welfare services	44.4
Donation to education (education supporting)	55.4	Other donation	106.9

Externally donate

23.010 million yuan

Public-welfare donation of

19.205 million yuan

Support the construction of Tibet

China Unicom carefully performs the liabilities and obligations to push economic and social development of Tibet, and comprehensively boosts the construction of harmonious Tibet; strengthens support of production and living construction of Geji County, knows the wish of local people to increase incomes in their hometown by field investigation and direct communication with the public, helps and leads poverty-stricken households to increase production and income by self-motility and get rid of poverty. In addition, the Company provides subsidy fund of 9.58 million yuan to Linzhou County to construct Five-guarantees household centralized supply service center (social welfare institute), which is well praised by local government and citizens.

During 2012-2016, China Unicom Tibet Branch assigned five batches of village-stationed personnel to strengthen infrastructure and benefit people. Totally 185 personnel are assigned to 10 administrative villages. Totally 50 people-benefiting projects have been donated to solve actual problems of residence, travel, production, life and education in those ten administrative villages, and generally approved by district Party Committee and various levels of Party and government organizations, as well as local citizens.

In 2016, the Company donated 5 projects with total input of 440,000 yuan.

Beneficiary village	Project Name	Investment amount
Binguo Village, Kagong Town, Chaya County, Changdu City	Office equipment purchase for Binguo Party Committee and Village Committee	40,000 yuan
Pagong Village, Wangka Town, Chaya County, Changdu City	Village road and bridge repair project	100,000 yuan
Paluo Village, Wangka Town, Chaya County, Changdu City	Village road and bridge repair project	100,000 yuan
Jiu Village, Jinga Town, Jiangzi County, Rikaze City	Newly built two sheepfold	100,000 yuan
Quzhu Village, Chawalong Town, Chayu County, Linzhi City	Fresh water pipeline, reservoir and household access pipeline project	100,000 yuan

Support poverty-stricken people

China Unicom carefully learned the spirits of Central Party Committee targeted poverty alleviation work conference, sorted out the requirements of targeted poverty alleviation policies of recent years, deeply implemented the requirements of SASAC and the State Council Leading Group Office of Poverty Alleviation and Development on central enterprises poverty alleviation and development work, and confirmed the targeted poverty alleviation ideas of China Unicom during the “13th five-year plan” period; clarified working principle, perfected organizations, assigned cadres to carry out field investigation, prepare poverty alleviation planning and deeply promote targeted poverty alleviation; strengthened supporting industrial poverty alleviation, transferred from transmission to production, and enhanced the sense of acquisition of people in Internet use. In 2016, China Unicom inputted 44.41 million yuan of supporting fund, and implemented 273 assistance projects.

Input supporting fund of **44.41** million yuan

Implement **273** supporting projects

In 2016, China Unicom Head Office assigned 5 cadres temporarily to four targeted poverty-stricken counties including Kangbao County of Hebei Province, Guyuan County of Hebei Province, Raohe County of Heilongjiang Province, and Ceheng County of Guizhou Province, investigated in targeted poverty-stricken counties 13 persons-times, input supporting fund of 23.4137 million yuan, and implemented 11 supporting projects to help poverty-stricken people get rid of poverty by means of industrial, medical, education supporting and infrastructure construction. The Company organized to prepare the “13th five-year” plan of China Unicom for Targeted Poverty Alleviation, and started the first year of the “13th five-year” plan favorably to lay foundation for the goal of targeted poverty alleviation.

China Unicom Xinjiang Branch continuously carried out “visiting people, benefiting people and gathering popular feelings”. In three years, it assigned over 690 Party cadres to 92 key villages and communities for stability maintenance; inputted various supporting funds of over 10 million yuan, consoled over 560 poverty-stricken households, and implemented 26 supporting projects.



China Unicom Guangdong Huizhou Branch supported Luci Village by principle of “one method and one policy for one household”; expanded e-commerce marketing channel, and taught farmers to use e-commerce platform to sell agricultural products. For villagers with technologies, helped them buy production tools, perfect production equipment and promote production and development; carried out teaching and book donation to Luci Primary School. In 2016, Huizhou Branch supported 300 person-times, provided 33,000 yuan of fund, and purchased over 17,000 yuan agricultural products.



China Unicom Hunan Branch adopted various measures to support Jiantang Village, Qiangongping Town, Fenghuang County, Xiangxi State. The first is to add the incomes of villagers by ordered pig raising, fish farming in rice field, goose raising and vegetable planting; the second is to implement road surface hardening project; the third is to build PV power station, and increase about 50,000 yuan every year; the fourth is to carry out dangerous building reconstruction, buy accident insurance for poverty-stricken households, and carry out supporting including skill training. In 2016, per capita income of the entire village increased 720 yuan, and per capita income of poverty-stricken household increased 900 yuan, and 105 persons from 26 poverty-stricken households got rid of poverty.

China Unicom Yunnan Branch, based on the principle of "production-oriented" poverty alleviation mechanism, carried out "Internet+ " poverty alleviation plan in Qinghua Town, Weishan County, Dali State.

- Internet+ communication---- realize full coverage of mobile network in county, township and village, and full coverage of broadband and 4G high-speed wireless network in Qinghua Town and villages;
- Internet+ e-commerce ---- Sell characteristic agricultural products such as black goat, walnuts and Yunnan safflower in large scale by cooperation with e-commerce.
- Internet+ employment ---- China Unicom Yunnan Branch and engineering construction and sales agents preferentially hire 100 graduates from poverty-stricken families;
- Internet+ tourism ---- use company network scale and transmission advantages to propagandize tourism of poverty-stricken area for free;
- Internet+ education ---- Realize Internet special broadband access above 10M to middle and primary schools of poverty-stricken area, open service of "S-F Communication" and "Class Communication", and realize interconnection of teaching with advanced area;
- Internet+ stability maintenance ----- Install mobile monitoring in village offices, middle and primary schools in Zhongyao, Yangjiang Village and Qinghua Town Government to build safe villages.

Be enthusiastic in public welfare activities

China Unicom actively mobilizes employees to carry out public welfare activities. In 2016, the number of registered volunteers reached 17,042. They actively carried out volunteer activities in promoting the development of science, education, culture and health services, and boosting harmonious community construction. Totally 25,386 person-times participated in voluntary activities.

The number of registered volunteers reached **17,042**

Totally **25,386** person-times participated in voluntary activities

Support scientific undertakings



Hainan Mobile Internet Science and Technology Museum belongs to China Unicom Hainan Branch. Since its foundation in 2012, it actively participated in mobile Internet popularization and transmission, and set up favorable learning and exchange platform for innovation and venture personnel, technicians and scientific popularization volunteers. The Mobile Internet Science and Technology Museum let "Internet +popularization of science" come into schools, communities and social groups and enhanced the entire society' awareness of Internet informatization, it totally received 358 batch-times, 5,236 person-times visitor groups; meanwhile irregularly carried out popularization exhibition and publicity activities to colleges, universities and relevant departments.

Support education services

China Unicom Ningxia Branch held the first undergraduate public-welfare summer camp in Ningxia. Students from 12 universities and colleges in Yinchuan participated in the summer camp themed as "future leadership, go with WO". The summer camp provided a platform for campus students to contact society, expand horizons and train abilities, helped them improve professional level and comprehensive quality in social practice and enhance innovation capacity, and provided favorable opportunities for future individual development.





Helping people
benefit and sharing

Support cultural services

China Unicom Xinjiang Branch initiated large-scale public-welfare activity themed as “accumulating love point by point, jointly building WO future”, appealed China Unicom users to donate credits and show love, and built “China Unicom Love Bookstore” in middle and primary schools with insufficient teaching conditions in remote areas of Xinjiang. From 2013, over 6 million China Unicom customers in Xinjiang totally donated 128 million credits to build 128 bookstores, provided over 120,000 books worth of 1.66 million yuan, benefiting over 73,000 middle school and primary school students of all nationalities. China Unicom Xinjiang Branch is awarded with honorable title of “Love Offering”.

“Individual’s ability is limited. But I believe the power of love from all people is infinitely great. I will continue to support and participate in such public welfare activities, and pass on the power of love.” --- HUANG Wansheng, customer representative in Love Bookstore launching ceremony.
“Children are the hope of China. The Love Bookstore helps promote further development of youth and teenager services, and meanwhile shows the enterprise spirit of China Unicom to serve the public.” --- JIN Yong, the Principal of 222 Tuan Children School in Love Bookstore launching ceremony.

Support health services

Beijing Unicom Information Navigation Service Center cooperated with Beijing Municipal Administration of Hospitals to carry out “Guardian Angel” volunteer recruitment service facing the entire society to provide voluntary services such as outpatient medical service guidance, diagnosis consulting, mental comfort, palliative care, health education and charity clinics consultation. Beijing Unicom Information Navigation Service Center sufficiently exerts the function of 114 “one number linkage”, realizes direct communication between volunteers and hospitals, and effectively improves the efficiency of recruitment.

Integrate to local community

Develop local employment

Overseas organizations of China Unicom strictly abide by laws of local countries and regions, and manage labor strictly according to local laws and regulations to guarantee legal rights of local employees; gradually strengthen employment of local employees. Total number of overseas employees of China Unicom is 614, in which 586 are local employees. In 2016, China Unicom hired 343 employees, including 237 local employees. The localization rate of European company employees reached 89%, including 53% of females. The localization rate of Singapore employees reached 95%. European company provided welfare such as kid coupons, and finished the preparation for pension implementation.

Localization rate of overseas employees reached **93%**
Localization rate of Singapore Unicom employees reached **95%**

Carry out local procurement

China Unicom Singapore Branch purchased 80% local equipment, and meanwhile required the suppliers promising honest operation, respecting intellectual property right, fair trade and guarantying all welfare and benefits provided to employees during product manufacture and service providing comply with local laws and regulations. China Unicom Burma Branch carried out six engineering projects, which are all undertaken by local enterprises, indirectly creating over 800 local posts; meanwhile assigned experienced domestic experts to Burma for technical exchange and training, helped local employees improve professional level and promoted the connection between local technical level and international technology.

Integrate to local communities

China Unicom America Branch regularly participated in various activities organized by US-China Chamber of Commerce; China Unicom Europe Branch actively participated in cultural exchange activities organized by government and industrial associations; China Unicom Japan Branch donated JPY 100,000 to earthquake stricken area in Kumamoto, Japan; China Unicom Australia Branch participated in the 10th Anniversary of China-Australia Chamber of Commerce and China-Australia Ecological Agriculture Summit. China Unicom Australia Branch acquired investment license issued by Australian Government, and became the only Chinese communication enterprise with legal communication service operation qualification in Australia.

Pay attention to responsibility investment

China Unicom Burma Branch, based on the comprehensive analysis of local social information service demand, successively built China-Burma international cross-border optical cable transmission system project throughout Burma and AAE-1 submarine cable Weishuang landing site project. The two projects, with total investment of over USD 30 million, are the largest fixed assets investment projects of China Unicom in overseas countries. During project construction, China Unicom Burma Branch strictly abided by local laws and regulations, sufficiently respected local belief and customs, carried out environmental-friendly construction, and strived to minimize the influence on local environment. China Unicom Burma Branch keeps close communication and favorable relation with local government and people, and the projects go smoothly. After put into operation, the projects will greatly improve local information communication level, drive local employment and promote local economic development.

Honors of overseas organizations

- China Unicom Global won the title of “2016 TOP Ten Outstanding Network Providers of Hong Kong” ;
- China Unicom Australia Branch is selected as the only council member of China Chamber of Commerce in Australia;
- China Unicom Europe Branch has been elected as 25 China-funded Enterprises with Rapidest Development in UK for four consecutive years.



■ Responsibility management

- 68 Responsibility strategy
- 69 Responsibility governance
- 70 Responsibility communication
- 72 Capacity for responsibility
- 73 Responsibility performance



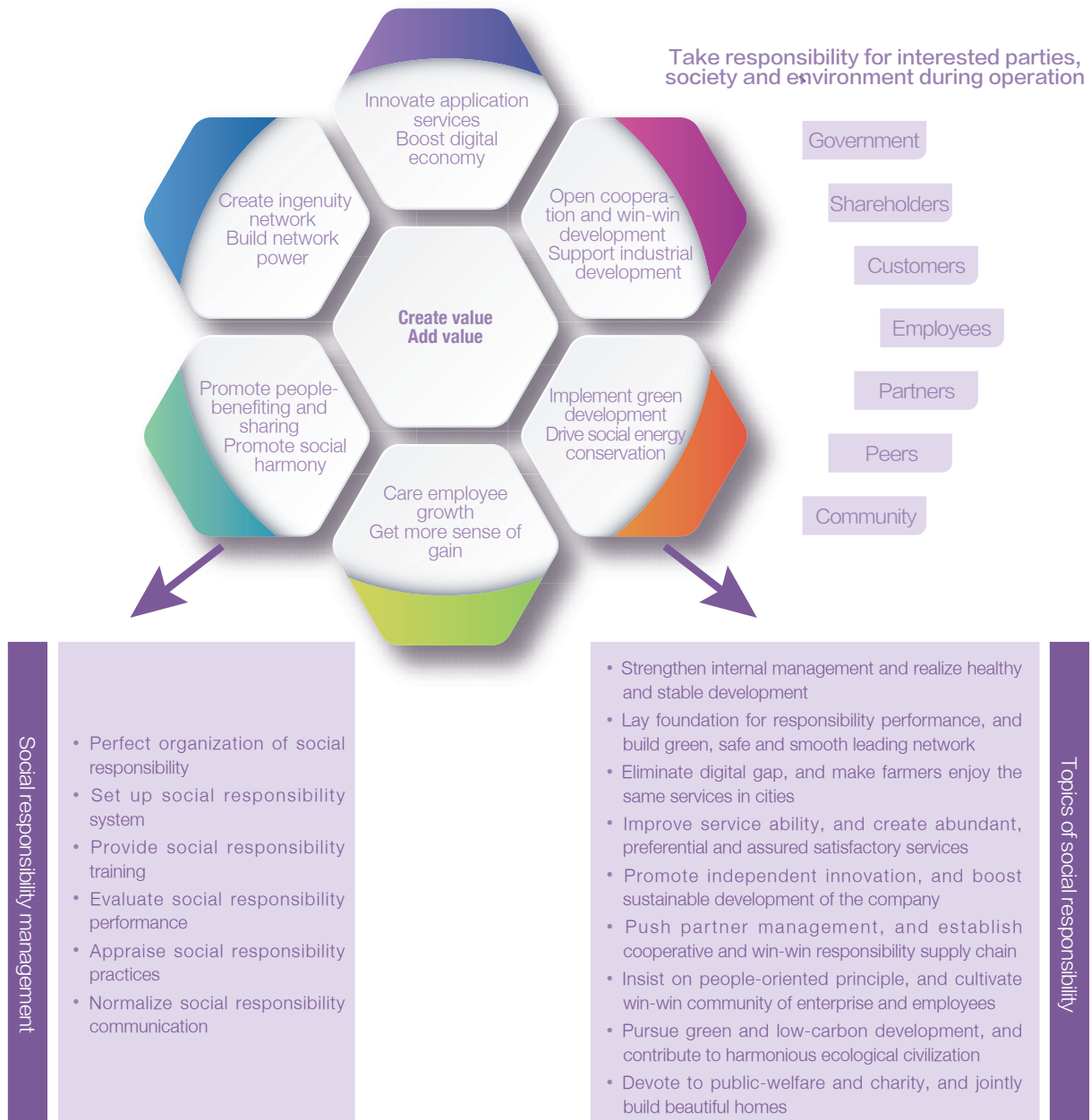
Responsibility management

In 2016, China Unicom carefully followed international and domestic social responsibility standards, actively implemented *Guiding Opinions on State-owned Enterprises to Better Perform Social Responsibilities*, further enhanced the awareness of social responsibilities, expensively carried out communication about social responsibilities, deeply pushed social responsibilities to integrate to business operation, and made unremitting efforts to become a “responsible” excellent corporate citizen.

Responsibility strategy

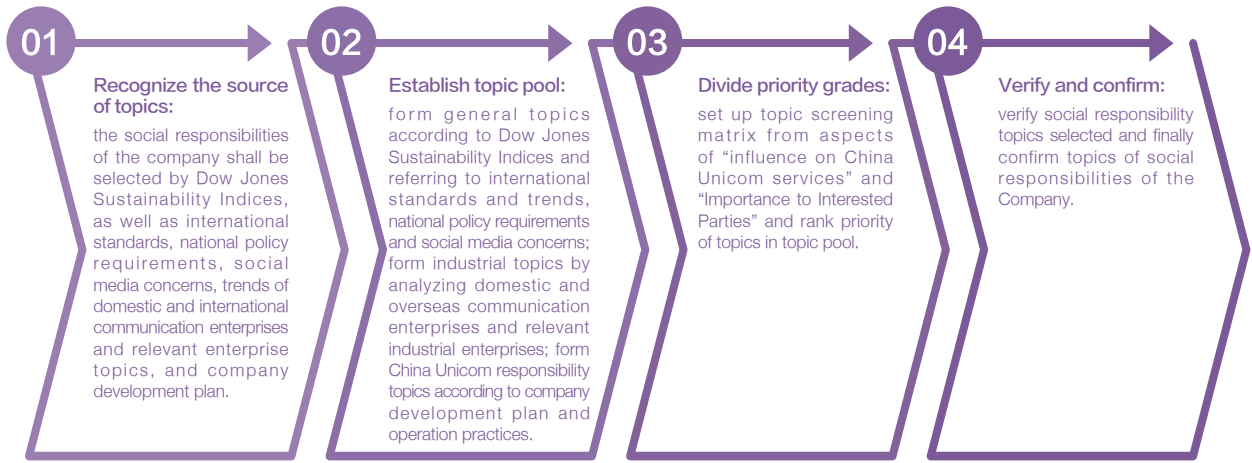
China Unicom, under the guidance of new development concepts of innovation, coordination, green development, opening up and sharing, implemented national strategic deployments such as network power, Belt and Road Initiative, and Supply-side Structural Reform by practical actions, undertook liabilities by responsible operation, and ceaselessly enhanced creativity of economic, social and environmental values to promote sustainable development and made due contribution to domestic economic and social information construction.

Social responsibility strategy of China Unicom



The Company, focusing on social responsibility management and practices, ceaselessly perfects the connotation of responsibility management, and carries out responsibility practices with company characteristics around the topics to support the implementation of responsibility strategy.

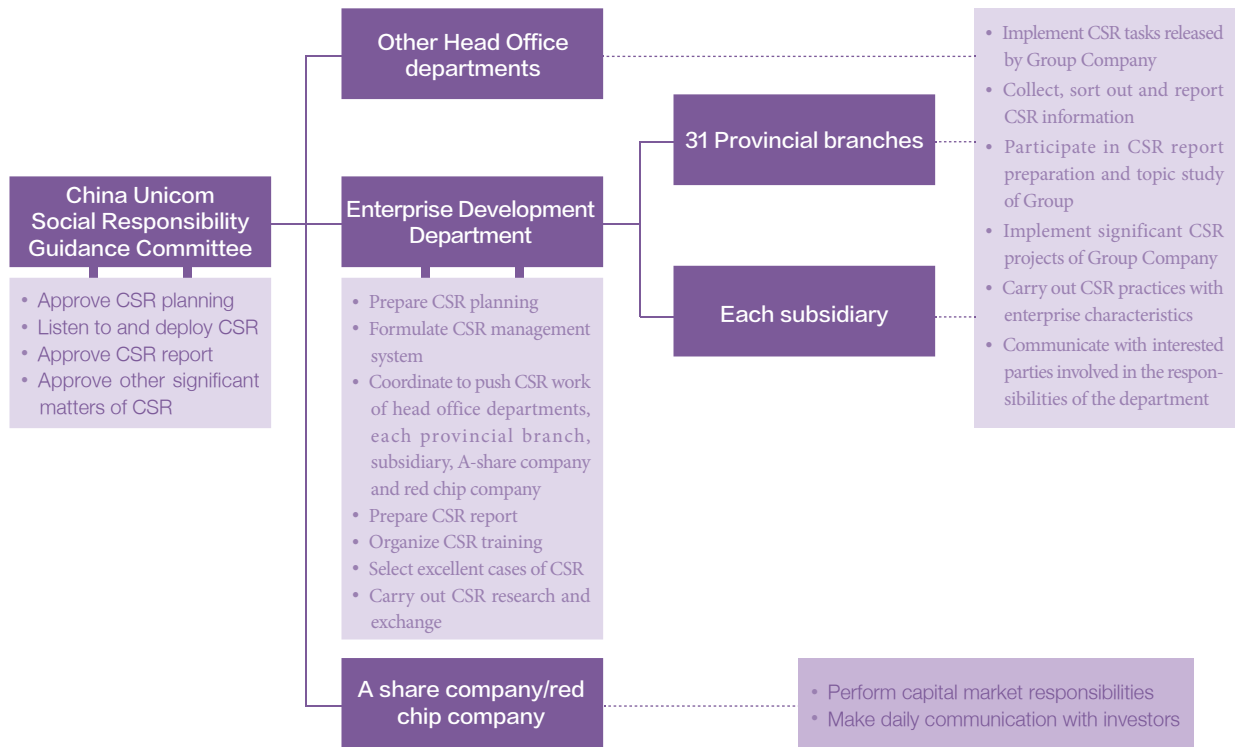
To make sure the topic of social responsibilities can be regulated according to the expectation of interested parties with changes of situations, China Unicom establishes social responsibility topic selection procedure with principle of “closely following instructions, regularly upgrading and sustainably improving”, and studies social responsibility topic every three years to confirm topic list and development goals.



China Unicom Social Responsibility Topic Selection Procedures

Responsibility governance

China Unicom established social responsibility organizational system covering the entire group. Under the leadership of social responsibility guidance committee, the Enterprise Development Department serves as office to take charge of daily work, each provincial branch, subsidiary, A share company and red chip company sets special department for social responsibility management and special liaison person to perform social responsibility. The social responsibility guidance committee shall review and make decisions on significant matters of enterprise social responsibilities, and uniformly lead the work regarding enterprise social responsibility. The Enterprise Development Department takes charge of daily work of social responsibility guidance committee, and systematically coordinates social responsibility promotion of all subsidiaries of the Company. Head office department, each provincial branch, subsidiary, A share company and red chip company shall implement significant projects of Group Company regarding social responsibilities, and organize to carry out social responsibility practices with company characteristics, and take charge of collection, settlement and report of information and data with regard to social responsibilities of each department.



China Unicom Social Responsibility Operating Institution and Main Responsibilities



Responsibility communication

China Unicom, according to the expectation of interested parties and combining substantial topics of social responsibilities, sets up social responsibility communication mechanism continuously carrying out targeted communication.

Substantial topics	Interested parties	Communication mode	Expectation to China Unicom
Strengthen internal management and realize healthy and stable development	Shareholders	<ul style="list-style-type: none"> Shareholder's meeting Investor communication meeting 	<ul style="list-style-type: none"> Timely and transparent information acquisition Long-term stable investment return Company governance and risk control Law-abiding and honest operation
	Government	<ul style="list-style-type: none"> Face-to-face communication Meeting 	<ul style="list-style-type: none"> Fair market competition order Efficiency improvement and cost reduction Network information safety Strengthen Party organization construction
	Social public and media	<ul style="list-style-type: none"> Telephone meeting and forum Internet communication mode 	<ul style="list-style-type: none"> Know company information in time Carry out information interaction with Company
Lay foundation for responsibility performance, and build green, safe and smooth leading network	Customers	<ul style="list-style-type: none"> Service hotline Weibo and WeChat NPS (net promoter score) investigation 	<ul style="list-style-type: none"> High-speed and smooth network Smooth network anytime and anywhere Safe and healthy network environment Personal information safety and secrecy
Eliminate digital gap, and make farmers enjoy the same services in cities	Customers in remote area	<ul style="list-style-type: none"> Interview Activities 	<ul style="list-style-type: none"> High quality network in remote area Abundant agricultural information application Convenient information service channel
Improve service ability and create abundant, preferential and assured satisfactory services	Customers	<ul style="list-style-type: none"> NPS investigation In-depth interview Meeting Customer activities 	<ul style="list-style-type: none"> New service improving life quality Preferential and transparent price policy Convenient and efficient service channel Effective after-sales service guarantee
Insist on people-oriented principle, and cultivate win-win community of enterprise and employees	Employees	<ul style="list-style-type: none"> Employee forum Workers' congress Democratic life meeting General Manager online 	<ul style="list-style-type: none"> Legal rights are guaranteed Training and occupational development space Opportunities to participate in democratic management Support for any difficulty Comfortable and safe operating environment
Push partner management, and establish cooperative and win-win responsibility supply chain	Partners	<ul style="list-style-type: none"> Partner meeting Meeting, interview Partner self-service portal 	<ul style="list-style-type: none"> Broad cooperation fields Fair and open cooperative opportunities Abundant and convenient supporting services
	Peers	<ul style="list-style-type: none"> Face-to-face communication Meeting 	<ul style="list-style-type: none"> Improve resource complementation ability Cost saving and efficiency improvement
	Customers	<ul style="list-style-type: none"> Interview, hotline 	<ul style="list-style-type: none"> Promote responsibility performance of partners
Pursue green and low-carbon development, and contribute to harmonious ecological civilization	Ecological environment	—	<ul style="list-style-type: none"> Green and environmental operation Pollution reduction by cyclic utilization
Devote to public-welfare and charity, and jointly build beautiful homes	Community	<ul style="list-style-type: none"> Meeting Forum Station in village to support 	<ul style="list-style-type: none"> Sustainably effective donation Strengthen poverty alleviation and assistance Carry out public-welfare voluntary activities
Promote independent innovation, and boost sustainable development of the company	All related parties	<ul style="list-style-type: none"> Meeting Interview Weibo and WeChat 	<ul style="list-style-type: none"> Adapt to business mode of Internet Management system adaptive to market Innovative and perspective communication technology

Interview with interested parties

To deeply know the feelings and expectations of interested parties to the Company, and listen to requirements and opinions of internal and external departments for the company face to face, China Unicom carried out field interview with group company, provincial branches and front-tier grid, and totally interviewed 1,285 persons in 317 interviews including various levels of managers and employees, retired cadres, business hall users, group clients, suppliers, agents and business partners. The investigation group and interviewees deeply exchanged about the problems of products, services and brands with favorable performance or those to be improved, and discussed how to adapt to market competition and meet customer demands, as well as future development direction.



China Unicom customers interviewed in business hall



holding forum with agencies and business partners

Carry out public interaction

In 2016, the Company extensively carried out public propaganda and new media interaction, and ceaselessly strengthened communication and liaison with social public to present a more open China Unicom.

- China Unicom held seven large-scale news propagandas including Intelligent Terminal Industrial Chain Cooperation Summit, China Table Tennis Team Fan Meeting, and China International Information Communication Exhibition; totally issued 96 press releases, organized 15 times press conference and media interviews, and organized 241 person-times journalists to participate in news report; the news released are published 7,585 papers by media;
- China Unicom created 298 million visits for important news and relevant topics released on official Weibo, and the Weibo account won awards of 2016 “Most Influential New Media Account of Chinese Enterprises” and “Most Influential New Media Account of Central Enterprises”, and ranked first in Central enterprise Weibo influence weekly list for 30 times.



2016 Advanced Correspondent Station and advanced journalists of Posts & Telecom Press stationed in China Unicom system



China Unicom won “Most Influential Top 500 Enterprises New Media Award” and “Most Influential Central Enterprise New Media Award”

China Unicom Tibet Branch collected customer opinions and suggestion by multiple channels to improve customer perception. The first is to invite customers to participate in “WO As First Choice, Solving by Crowd Funding”, evaluate use situations of network, channel and package data, and totally collect 54 valid questionnaires; the second is to carry out callback survey in seven cities in the entire zone to evaluate customer satisfaction, collect customer opinions, accumulatively calling 2,538 and visiting 508 households; the third is to carry out 14 perception experience of “mobile business hall experience comparison” and “invoice acquisition and verification” to accumulate first hand data for further optimizing services.

China Unicom Jiangxi Branch invited 4G users to participate in "You Complain, WO gifts". Users who propose opinions or suggestions in questionnaire can get data gifts and lottery. This activity totally received 839 questionnaires, and all users have acquired data gifts. In addition, in lottery drawing, Mr. Xu from Nanchang got one iPhone6S. He felt unexpected because he never thought to get rewards by complaining. Meanwhile, he said he would continue to pay attention to China Unicom activities and recommend it to friends and kinships.

China Unicom Tianjin Branch, relying on "Style Coordinates" column of Tianjin Radio Station, listed to customers' opinions by multiple channels, communicated with customers by hotline, and answered their questions in time. Tianjin Branch totally accepted and solved 118 problems from customers, and more directly, effectively solved problems for customers in a more authorized way.

Capacity for responsibility

Push responsibility development

In 2016, China Unicom deeply participated in social responsibility construction of information communication industry. Firstly, it joined in standard drafting group for social responsibilities of information communication industry, and supported smooth issuance of *Social Responsibility Management System of Information Communication Industry Enterprises in China*; secondly, it participated in the preparation of industrial social responsibility report and supported smooth issuance of *2015 Social Responsibility Report of China Information Communication Industry*; thirdly, it is invited as expert to review social responsibility practices of information communication industry, and supports propagandizing excellent cases, excellent enterprises and excellent individuals of the industry.

Participate in communications of the industry

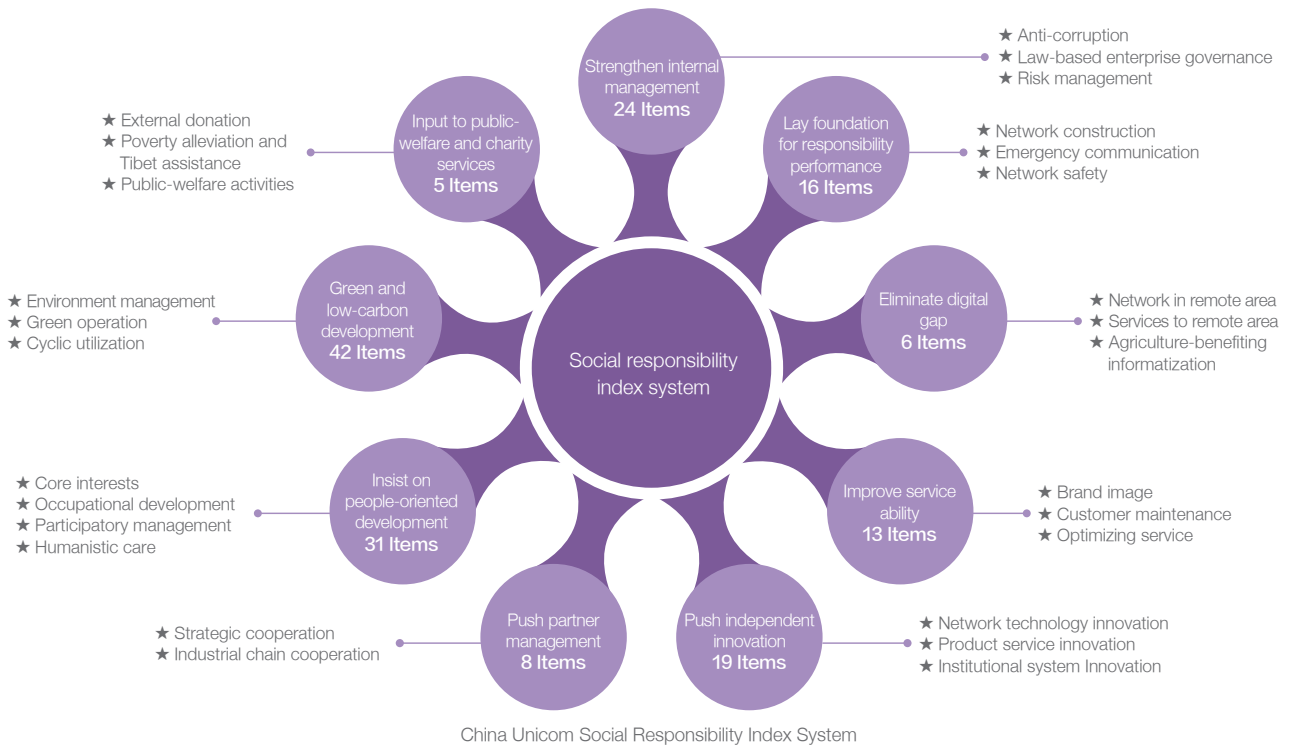
In 2016, China Unicom actively participated in various exchange and discussion activities held by the industry for social responsibility performance, concerned responsibility development trend, learned from excellent enterprises' experience, proposed ideas and opinions, and boosted sustainable and deep development of social responsibility.

Sponsor	Topics
Global Compact Network China	Light the bright future – 2016 China Summit for Realization of Sustainable Development Goals
Internet Society of China	2016 (the 3 rd) Social Responsibilities Forum of China Internet Enterprises
MIT Internet Enterprise Social Responsibility Research Group	Investigation on current status of Internet enterprises social responsibilities
Social Responsibility Special Committee of the Chinese Institute of Business Administration Enterprise Social Responsibility Promotion Center of China Federation of Industrial Economics China Industrial Enterprise Social Responsibility Think Tank Beijing Rongzhi Corporate Social Responsibility Institute	2016 Annual Conference of Chinese Enterprises for Sustainable Competitiveness
Xinhua net The Listed Companies Association of Shanghai Shanghai Federation of Economic Organization	2016 the Second China (Shanghai) Listed Companies Social Responsibilities Summit & News Conference for <i>Blue Paper of Shanghai Listed Companies Social Responsibilities (2016)</i>
The Listed Companies Association	Consultation meeting for <i>Standards for Information Disclosure of Social Responsibility Report of China Listed Companies</i>

Responsibility performance

Perfect index system

China Unicom follows international and domestic social responsibility standards, further perfects "China Unicom Social Responsibility Index System" around nine substantial topics of the Company and drives social responsibility to actually integrate to enterprise production and operation on that basis.



Honors and approvals acquired

In 2016, China Unicom sturdily performed social responsibilities, disclosed responsibility performance situations in time, and gained favorable progress in social responsibility performance.

- Five-star Evaluation of "2015 Social Responsibility Development Index of TOP300 Chinese Enterprises", Chinese Academy of Social Sciences;
- "Honesty" award in the 2nd China Enterprise Social Responsibility Appraisal for Shanghai-based Listed Companies;
- Best Social Communication and Innovation Award" in Public Transparency Evaluation of China TOP200 Enterprises;
- 24 Awards in excellent social responsibility performance cases, excellent enterprises and excellent individuals in China information community industry.

Appendixes

🏠 Responsibility performance

Type	Index	Unit	2014 年	2015 年	2016 年
Operation and development	Total assets	100 million yuan	5916.9	6607.9	6646.5
	Operating income	100 million yuan	2896.5	2783.4	2757.5
	Main business income	100 million yuan	2474.2	2343.6	2399.8
	Number of actual mobile users	Ten thousand	26657.9	25231.7	26382.2
	In which the number of 4G users	Ten thousand	—	4415.6	10455.1
	Number of local telephone users	Ten thousand	8205.6	7385.8	6664.9
	Number of fixed broadband users	Ten thousand	6879.0	7233.0	7523.6
	E-Commerce turnover	100 million yuan	748.7	921.6	847.7
Network ability	Productivity	Ten Thousand yuan/ Person · year	86.75	84.59	87.12
	Number of 4G base station access	Ten thousand	9.3	39.9	74
	Number of fixed network broadband access ports	Ten thousand	13480	16489	18906
	Broadband coverage rate in administrative villages in ten northern provinces	%	93	93	95
	Urban broadband network coverage rate above 20M	%	68	80	89
	Rural broadband network coverage rate above 4M	%	78	95	99
	Coverage rate of mobile network in township	%	97	100	100
	Coverage rate of mobile network in administrative villages	%	46	87	87
	International interconnection bandwidth	G	1037	1415	1711
	4G network access rate	%	—	—	99.69
	4G network call drop rate	%	—	—	0.10
	Number of channels in rural and remote poverty-stricken area	Ten thousand	31	28	26
Reinsurance input	Total times of emergency communication guarantee	Time	386	387	393
	Emergency communication vehicles called out	Ten thousand vehicle-time	10.6	12.9	12.4
	Emergency communication equipment inputted	Ten thousand set-time	10.8	12.4	11.5
	Personnel used	Ten thousand person-time	40	39.7	41.3
Independent innovation	Technological Innovation input	100 million yuan	29.4	36.3	48.2
	Number of personnel in technical activities	Person	3323	2759	4508
	International standard draft	Paper	495	647	614
	Industrial standard	/	204	247	226
	Number of patents applied	/	526	582	621
	Number of patents authorized	/	156	242	232
Customer service	Annual complaint rate per month	Person-time/million users	2.81	3.67	3.61
	Comprehensive satisfaction	Points	76.4	76.5	77.5
	Including: Fixed line user satisfaction	Points	78.8	79.9	80.4
	Mobile phone user satisfaction	Points	77.1	77.4	78.8
	Fixed broadband user satisfaction	Points	71.3	70.8	72.5
	Mobile Internet user satisfaction	Points	76.2	75.0	75.9
People-oriented	Gender proportion of employee	Male-female	1.48:1	1.48:1	1.48:1
	Proportion of minority employees	%	6.59	6.69	6.78
	Proportion of female senior management	%	11.5	11.7	11.7
	Input in employee training	Ten thousand yuan	31045	26243	30264
	Per capita training time	Hours	51	56	60
	Network College online learning person-time	Ten thousand person-time	256	310.7	458.5
	Total online learning hours of Network College	Ten thousand credit hours	127	130	375
	Times of safety production training	Time	32	32	32
	Coverage rate of safety production training	%	99.8	100	100
	Proportion of contracted employees in labor union	%	100	100	100
	Input in poverty-stricken employee support	Ten thousand yuan	1260	1323	967
	Input in condole fund	Ten thousand yuan	1236	1298	3571
	Employee separation rate	%	1.67	2.77	2.12

Type	Index	Unit	2014 年	2015 年	2016 年
Low-carbon development	Special investment in energy conservation and emission reduction	Ten thousand yuan	8	3.2	2
	Unit information flow energy consumption	kg ce/TB	15.89	12.4	6.47
	Petrol consumption	Ten thousand tons	6.27	5.76	4.56
	Diesel consumption	Ten thousand tons	1.8	2.03	1.28
	Natural gas consumption	Ten thousand m ³	1076.95	1030.96	1099.56
	Electricity consumption	100 million KWH	134.34	145.75	138.93
	Water resource consumption	Ten thousand tons	2462.67	2377.1	2289.25
	Greenhouse gas emission	Ten thousand tons	511.68	546.81	509.89
	Energy conservation	Ten thousand tce	76.49	58.74	15.65
	Recovery from scrapping	100 million yuan	2.7	14.87	27.11
Compliance management	Times of compliance training	Time	1567	1596	1591
	Trainees of compliance training	Person	226463	231549	254628
Community responsibility	Number of registered volunteers	Person	11944	14118	17042
	Person-time in volunteer activities	Person-time	17453	20026	25386
	Credit appraisal grade	Grade	AAA	AAA	AAA
	Total tax paid	100 million yuan	161.3	124.8	120.9
	Number of employees absorbed	Person	13407	15688	30271
	Total donation	Ten thousand yuan	2178.0	2886.2	2301.0

Note: The financial data in 2016 is bulletin data without audit.

Glories of Company

- China Unicom won the first place of "Best Managed Company Asia-Telecommunications, Technology and Media Industry" in the "2016 Best Managed Company Asia" selection held by *Finance Asia*; meanwhile, Mr.Wang Xiaochu, the Chairman and CEO of China Unicom, is awarded as the First Place of China Best CEO, and Mr. Li Fushen, the Executive Director and CFO, is awarded as the second place of China Best CFO.

- China Unicom is awarded as the "First Place of Most Revered Telecommunications Enterprises" of "2016 Best Company Management Team Asia" held by *Institutional Investor*; meanwhile, Mr.Wang Xiaochu, the Chairman and CEO of China Unicom, is awarded as the "First Place of Asia Best CEO (Telecommunications)", and Mr.Li Fushen, the Executive Director and CFO, is awarded as the second place of Asia Best CFO (Telecommunications).

- Mr.Wang Xiaochu, the Chairman and CEO of China Unicom, won "Best CEO Asia" in "2016 Asian Excellence Award" held by *Corporate Governance Asia*; Mr.Li Fushen, the Executive Director and CFO, is awarded as "Best CFO Asia". In the same time, China Unicom won the award of "Best Investor Relations".

- China Unicom won "Platinum Award for All-Round Excellence in Financial Performance, Management, Corporate Governance, Social Responsibility, Environmental Responsibility and Investor Relations" in 2016 Enterprise Award of *The Asset*;

- China Unicom ranked the 207th in 2016 Global Fortune 500 of *Fortune*;

- China Unicom won "Investor Relation Leap Award" in 2016 IR Magazine China; Mr.Wang Xiaochu, the Chairman and CEO of China Unicom, won "Best Senior Management";

- China Unicom won the title of "Best Employer" and "Best Employer

of IT Telecommunications" of ChinaHR.com and "Most Responsible Employer" of zhaopin.com;

- China Unicom Official Weibo won SASAC "2016 Most Influential New Media Account of Chinese Enterprises" and "2016 Most Influential New Media Account of Central Enterprises" as well as "Most Influential Top 500 Enterprises New Media Award" and "Most Influential Central Enterprise New Media Award".

- "China Unicom Customer Service" WeChat Public Account No. won top 10 influential new media account of SASAC.

- China Unicom won "Outstanding Contribution Award of the 16th China Education Information Innovation and Development Forum" of the Ministry of Education;

- China Unicom cloud data capacity opening platform and big data application won excellent cases of "Big Data Excellent Technical Results and Solutions"

- China Unicom OSS2.0 won 2016 TM Forum Outstanding Contribution Finalist.

- China Unicom representative team won the first place in ONOS Global First Training Camp & Hacker Marathon.

- China Unicom Cloud Data won MIIT "Cloud China Award", "Cloud Computing Excellent Practice Organization Award", "Most Influential Cloud Industry Company" and "Excellent Cloud Computing Product Application Award";

- Wo Music Culture & Technology Co., Ltd. won "2016 China Mobile Internet Gold Fingertip Award- Most Influence Brand", "Global Mobile Internet Excellent Achievement Award-Best Entertainment Application Award", "The Fourth China Music Industry Meeting-China Music Industry Annual Contribution Award".

Clubs and organizations

New organizations joined in by China Unicom in 2016

Name of Organization	Post
China Data Center Industry Association Technical Committee (CTO)	Initiator, leading member
Data Center Infrastructure Management Forum	Council member
Data Center Alliance Information Coordination Committee	Member
Openstack www.oschina.net	Member
Cyber Security Association of China	Executive member of council
International ICT Alliance	Initiator
International Capacity Cooperation Enterprise Alliance	Initiator, council member

China Unicom, according to the principle of strictly controlling participation in domestic and international standard organization, gradually evaluates and sorts out 28 international standardization organizations/open source organizations joined in and to be joined in, as well as 18 domestic standardization organizations and associations. The Company makes sure to exit and participate in some organizations, and finally confirms 21 international and 11 domestic organizations with consistent future development direction and without overlapped functions.

Instruction to report

Report period:	From Jan. 1, 2016 to Dec. 31, 2016, partly exceeding aforesaid range
Report release period:	The social responsibility report of China United Network Communications Group Co., Ltd is an annual report.
Scope of organization of report:	The report covers China Unicom Network Communications Group Co., Ltd and its subordinated institutions. For the convenience of expression, "China Unicom", "the Group", "the Company" and "We" are used respectively.
Reference standards:	Guiding Opinions on State-owned Enterprises to Better Perform Social Responsibilities, SASAC; Guidance of Shanghai Stock Exchange for preparation of Report of Social Responsibility Performance; Guidance on Environment, Society and Governance Report, HKEX; Social Responsibility Report Preparation Guidance of ACSIQ and SAC; Guide on Preparation of China Enterprise Social Responsibility Report (CASS-CSR 3.0), Chinese Academy of Social Sciences Guide on Sustainable Development Report of Global Reporting Initiative (GRI) (G4 Edition); Social Responsibility Management System of China Information Communication Industry Enterprises of China Association of Communications Enterprises;
Instruction to report data:	The data in 2016 quoted in this report is final statistical data. In case of any discrepancy between the financial data and annual report, the annual report will prevail. The monetary unit of the report shall be RMB.
Report quality guarantee:	The Board of Directors and all directors guarantee the information disclosed in the report is authentic, complete and correct, without any false record or misleading statement.
Report versions in different languages and claims:	The Social Responsibility Report of the Company is issued in Chinese and English in forms of paper and electronic editions. The online Chinese report can be seen in the website of China Unicom: http://www.chinaunicom.com.cn . The online English report can be seen in website: http://unglobalcompact.org .
Contact information:	Address: China Unicom Enterprise Development Department, No. 21 Jinrong Street, Xicheng District, Beijing Zip Code: 100033 Fax: 86-10-66258674 Email: yangwei3@chinaunicom.cn

Indexes

GRI G4

No.	Page disclosed	No.	Page disclosed	No.	Page disclosed	No.	Page disclosed
Strategy and analysis		G4-8	P6	G4-16	P39、76	G4-23	P8
G4-1	P5	G4-9	P6、9	Substantial aspect and boundary		Participation of interested parties	
Organization overview		G4-10	P58	G4-17	P9	G4-24	P70
G4-3	P6	G4-11	—	G4-18	P68	G4-25	P69
G4-4	P6、23	G4-12	P45-47	G4-19	P68	G4-26	P71
G4-5	P76	G4-13	P9、27	G4-20	P69	G4-27	P70-71
G4-6	P6、9	G4-14	P13	G4-21	P70	Report overview	
G4-7	P6	G4-15	P5	G4-22	—	G4-28	P76

No.	Page disclosed	No.	Page disclosed	No.	Page disclosed	No.	Page disclosed
G4-29	P76	G4-EN11	—	G4-LA4	P61	G4-HR11	—
G4-30	P76	G4-EN12	P50、53	Occupational health and safety		Complaint mechanism for human right problems	
G4-31	P76	G4-EN13	—	G4-LA5	—	G4-HR12	P59
G4-32	P76	G4-EN14	—	G4-LA6	—	Society	
G4-33	—	Exhaust emission		G4-LA7	P59	Local community	
Governance		G4-EN15	P75	G4-LA8	P59	G4-SO1	P42
G4-34	P69	G4-EN16	P75	Training and education		G4-SO2	—
Business ethics and integrity		G4-EN17	—	G4-LA9	P61、74	Anti-corruption	
G4-56	P5、13	G4-EN18	—	G4-LA10	P59、60	G4-SO3	P13
Disclosure of management method		G4-EN19	—	G4-LA11	P59	G4-SO4	P13
G4-DMA	P12、16、30、42、50、56	G4-EN20	—	Diversity and opportunity equality		G4-SO5	P13
Economy		G4-EN21	—	G4-LA12	P58	Public policies	
Economic performance		Sewage and wastes		Equal compensation for female/male		G4-SO6	—
G4-EC1	P6、74	G4-EN22	—	G4-LA13	P59	Anti-competition behavior	
G4-EC2	—	G4-EN23	P72	Supplier labor practice evaluation		G4-SO7	P13
G4-EC3	P59	G4-EN24	—	G4-LA14	—	Compliance	
G4-EC4	P39	G4-EN25	—	G4-LA15	—	G4-SO8	P13
Market performance		G4-EN26	—	Complaint mechanism for labor problems		Social influence assessment of supplier	
G4-EC5	—	Product and services		G4-LA16	P59	G4-SO9	—
G4-EC6	P65	G4-EN27	P23、24、52	Human right		G4-SO10	P19、47
Indirect economic influence		G4-EN28	P52、53	Investment		Complaint mechanism for social influence problems	
G4-EC7	P56、57、63	Compliance		G4-HR1	—	G4-SO11	—
G4-EC8	P56、57、63	G4-EN29	P13	Non-discrimination		Product responsibility	
Purchase behavior		communication and transportation		G4-HR2	P59	Client health and safety	
G4-EC9	P65	G4-EN30	—	Association freedom and collective bargaining		G4-PR1	P47、51
Environment		Overall situations		G4-HR3	P59	G4-PR2	—
Materials		G4-EN31	P50	Child labor		Product and service labeling	
G4-EN1	—	Supplier environment assessment		G4-HR4	—	G4-PR3	P23
G4-EN2	P52	G4-EN32	P47	Forced and compulsory labor		G4-PR4	—
Energy		G4-EN33	P47	G4-HR5	P59	G4-PR5	P26、74
G4-EN3	P75	Complaint mechanism for environmental problems		G4-HR6	P59	Marketing	
G4-EN4	—	G4-EN34	—	Security measures		G4-PR6	P55
G4-EN5	—	Society		G4-HR7	P74	G4-PR7	—
G4-EN6	P50、75	Labor practice and decent work		Aborigines rights		Customer's privacy	
G4-EN7	P50-52	Employment		G4-HR8	P65	G4-PR8	P19
Water		G4-LA1	P74	Assessment		Compliance	
G4-EN8	P50、75	G4-LA2	P59	G4-HR9	—	G4-PR9	—
G4-EN9	—	G4-LA3	P59	Supplier human right assessment			
G4-EN10	P75	Labor relations		G4-HR10	—		
Biodiversity							

Chinese Academy of Social Sciences CASS3.0

Name of Index	Page disclosed	Name of Index	Page disclosed	Name of Index	Page disclosed	Name of Index	Page disclosed
I. Forewords of report (Pseries)		P4.1	P6	G1.2	P5	G4.3	P73
(P1) Report standards		P4.2	P6、23	G1.3	P68	G4.4	—
P1.1	P76	P4.3	P9	G1.4	P68	(G5) Responsibility communication	
P1.2	P76	P4.4	P6、9	(G2) Responsibility governance		G5.1	P70
P1.3	P76	P4.5	P58	G2.1	P69	G5.2	P68
P1.4	P76	P4.6	P39、76	G2.2	P70	G5.3	P70、71
P1.5	P76	P4.7	P7、8	G2.3	P69	G5.4	P71
(P2) Report process		(P5) Annual progress		G2.4	P69	G5.5	P71
P2.1	P69	P5.1	P68-73	G2.5	P69	G5.6	P71
P2.2	P69	P5.2	P73	(G3) Responsibility integration		(G6) Responsibility capacity	
P2.3	P70	P5.3	P73	G3.1	P73	G6.1	P68
(P3) Senior management address		II. Responsibility management (G series)		G3.2	P47	G6.2	P72
P3.1	P5	(G1) Responsibility strategy		(G4) Responsibility performance		G6.3	P72
P3.2	P5	G1.1	P68	G4.1	P73	G6.4	P13、74
(P4) Enterprise profile				G4.2	P73	III. Market performance (M series)	

Name of Index	Page disclosed	Name of Index	Page disclosed	Name of Index	Page disclosed	Name of Index	Page disclosed
(M1) Shareholder responsibility		M2.35	P26、74	S2.10	P59	E1.5	P51
M1.1	P6、7	(M3) Value chain responsibility		S2.11	P59	E1.6	P51
M1.2	P6	M3.1	P42	S2.12	P59	E1.7	P75
M1.3	P6	M3.2	P13	S2.13	P74	E1.8	P75
M1.4	P6	M3.3	P13	S2.14	P58	E1.9	P75
M1.5	P6	M3.4	—	S2.15	—	E1.10	—
M1.6	P6、13	M3.5	P45–47	S2.16	—	E1.11	—
(M2) Customer responsibility		M3.6	P47	S2.17	P59	(E2) Green network	
M2.1	P25	M3.7	P47	S2.18	P59、74	E2.1	P50
M2.2	P22–24	M3.8	—	S2.19	P59	E2.2	P50
M2.3	P19	M3.9	—	S2.20	P59	E2.3	P51
M2.4	P22	M3.10	P13	S2.21	P62	E2.4	P51、52
M2.5	P23	M3.11	P47	S2.22	P59	E2.5	P51
M2.6	P23–25	M3.12	P47	S2.23	P59	E2.6	P50、51
M2.7	P30–39	(M4) Science, technology and informatization		S2.24	P59	E2.7	P50
M2.8	P26	M4.1	P38	S2.25	P59–61	(E3) Green operation	
M2.9	P16	M4.2	P74	S2.26	P59、61、74	E3.1	P24、52
M2.10	P16、17	M4.3	P74	S2.27	P62	E3.2	P24
M2.11	P16、17	M4.4	P39	S2.28	P62	E3.3	P50、52
M2.12	P74	M4.5	P38、39、75	S2.29	P62	E3.4	P52
M2.13	P74	M4.6	P31–35	S2.30	P59	E3.5	P52
M2.14	P6	IV. Social performance (S series)		S2.31	P59	E3.6	P50
M2.15	P74	(S1) Government responsibility		S2.32	P74	E3.7	—
M2.16	P18、19	S1.1	P13	(S3) Community responsibility		E3.8	P47、50
M2.17	P19	S1.2	P13	S3.1	P51	E3.9	—
M2.18	P19	S1.3	P13	S3.2	P51	E3.10	—
M2.19	P19	S1.4	P13	S3.3	P51、53、65	E3.11	P52、53
M2.20	P19	S1.5	P75	S3.4	P65	E3.12	P52
M2.21	P19	S1.6	P16、56、63	S3.5	P65	(E4) Environment friendly	
M2.22	—	S1.7	P63、65	S3.6	P63、64	E4.1	P50
M2.23	P18	S1.8	P75	S3.7	—	E4.2	P50
M2.24	P74	(S2) Employee responsibility		S3.8	P65	E4.3	P75
M2.25	P74	S2.1	P59	S3.9	P63	E4.4	—
M2.26	P58	S2.2	P61	S3.10	P64	E4.5	P50、51
M2.27	P58	S2.3	P61	S3.11	P64	E4.6	P53
M2.28	P56、57	S2.4	P74	V. Environment performance (E series)		VI. Report postscript (A series)	
M2.29	P57、74	S2.5	P59	(E1) Environment management		(A1)	P68
M2.30	P74	S2.6	P59	E1.1	P50	(A2)	—
M2.31	P74	S2.7	P59	E1.2	P50	(A3)	P76–78
M2.32	P58	S2.8	—	E1.3	P76	(A4)	P79
M2.33	P74	S2.9	P59	E1.4	P50		
M2.34	P26						



Stock Exchange ESG indexes

Name of Index	Page disclosed	Name of Index	Page disclosed	Name of Index	Page disclosed	Name of Index	Page disclosed
A1	P50	A2.4	P50	B3	P59–61	B6.2	P26
A1.1	P75	A2.5	—	B3.1	P59、60	B6.3	P13、65
A1.2	P75	A3	P50–53	B3.2	P74	B6.4	N/A
A1.3	—	A3.1	P50–53	B4	P59	B6.5	P19
A1.4	—	B1	P59	B4.1	P59	B7	P13
A1.5	P50	B1.1	P58、65	B4.2	P59	B7.1	P13
A1.6	P53	B1.2	P74	B5	P19、47	B7.2	P13
A2	P50–53	B2	P59	B5.1	P27、45、46	B8	P63–65、70、71
A2.1	P75	B2.1	P59	B5.2	P19、47、50	B8.1	P51、53、63–65
A2.2	P75	B2.2	P59	B6	P26	B8.2	P63、64
A2.3	P50、51、52	B2.3	P59	B6.1	N/A		



Feedback

Dear reader:

This report is the 10th social responsibility report released publicly to the society by China Unicom. To ceaselessly improve report preparation, we particularly wish to listen to your opinions and suggestions. Please help answer problems proposed in the feedback table, and feed it back by the following method.

Email: yangwei3@chinaunicom.cn

Fax: 86-10-66258674

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

● Your information:

Name:

Company:

Post:

Contact Number:

Fax:

Email:

● Please offer your evaluation in the following aspects

Options	Perfect	Good	Common	Bad	Worse
1. This report comprehensively and accurately reflects the significant influence of China Unicom on economy, society and environment					
2. Response and disclosure of the report to problems concerned by interested parties					
3. Information, index and data disclosed in this report is distinct, accurate and complete.					
4. Readability of this report, i.e. logic line, content design, language words and format design of the report					

● Please offer some suggestions:

1. What is the most satisfied content in this report?

2. What information do you think you need to know but not involved in this report?

3. What are your opinions on our social responsibility report issued in the future?



Address: No.21 Jinrong Street, Xicheng District, Beijing

Postcode: 100033

Website: www.chinaunicom.com.cn