

CORPORATE
SOCIAL
RESPONSIBILITY
REPORT
2019



CHINA UNICOM (HONG KONG) LIMITED
HKEx: 0762 | NYSE: CHU

CONNECTING PEOPLE
GROWING OUR RESPONSIBILITY



FORWARD-LOOKING STATEMENTS

Certain statements contained in this announcement may be viewed as “forward-looking statements” within the meaning of Section 27A of the U.S. Securities Act of 1933 (as amended) and Section 21E of the U.S. Securities Exchange Act of 1934 (as amended). Such forward-looking statements are subject to known and unknown risks, uncertainties and other factors, which may cause the actual performance, financial condition or results of operations of the Company to be materially different from any future performance, financial condition or results of operations implied by such forward looking statements. In addition, we do not intend to update these forward-looking statements. Further information regarding these risks, uncertainties and other factors is included in the Company’s most recent Annual Report on Form 20-F filed with the U.S. Securities and Exchange Commission (the “SEC”) and in the Company’s other filings with the SEC.

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MESSAGE FROM CHAIRMAN



The year 2019, marking the 70th anniversary of the founding of New China, beheld the country's stamina for holistic transformation amid downward pressure. During the year, the telecom industry was at the historic confluence of remolding the industry ecosystem and setting a 5G paradigm which supports short-term growth and benefits long-term development. We spared no effort to focus on the priorities, stabilize the macro environment and set the agenda for future development. In adherence to new development philosophies and the strategy of Focus, Innovation and Cooperation, we deepened the construction of "Five New" China Unicom, implemented Internet-oriented operation transformation, advanced the mixed-ownership reform, and insisted on a sustainable development path in a bid to shoulder greater social responsibilities in the course of operation and development of the Company and make new contributions to the fulfillment of people's increasing demand for better information living.

Implementing the Cyber Superpower strategy and empowering industry transformation and upgrade. We gave full play to our "key player" role in building cyber superpower and a digital China. We accelerated the construction of the next-generation information infrastructure characterized by high speed, mobility, safety and ubiquity, advanced the supply-side structural reform in the cyberspace, and leveraged a new model of network "co-build and co-share" to promote 5G development, thus achieving the doubling of network coverage, network speed and bandwidth. VoLTE has been enabled automatically on our 4G network while our 4G population coverage reached 93%. Our network speed remained leading in the industry. We had 221 million broadband access ports in aggregate, and showcased gigabit-to-the-home broadband service in 131 cities in addition to basic 100Mbps offerings. Thanks to our thorough implementation of speed upgrade and tariff reduction as well as the mobile number portability, our mobile data tariff, SME broadband and Internet leased line tariffs, and international roaming tariff further decreased by over 20%, 15% and 29% respectively. Mobile number portability was successfully rolled out nationwide, by which we genuinely shared benefits with the society and let customers truly enjoy the freedom of communication, facilitating information consumption upgrade. With the belief that "innovation is the primary driving force for development", we accelerated our pace in seeking breakthroughs in core technologies in such information fields as 5G, Cloud Computing, Big Data, Internet of Things ("IoT"), artificial intelligence ("AI"), Blockchain and quantum communications, and submitted 500 international standards drafts and 1,439 patent applications. We stepped up driving the in-depth integration between the digital economy and real economy, focusing on the key sectors such as government affairs, education, medical and healthcare, transportation, tourism and industrial manufacturing, etc. In addition, we strengthened our innovative business capability cultivation and provided an extensive range of "smart+" applications and 5G industry applications, with the view to facilitating the transformation and upgrade of traditional industries, the economy and the society, as well as the shifting of growth drivers.

Boosting the sustainable development of the society with people-oriented mindset. We are always committed to sharing the achievements of the communication industry with the wider society and regard it as our aspiration and destination to fulfil people's growing demand for better communication services.

In order to carry through the high-quality development requirements and advance innovation in services and business models, we scored a first in launching our 5G brand “5G” and the tagline “Let the Future Grow”. We strengthened our smart home product portfolio and rolled out cross-territory integrated services to create centralised and intelligent service experience. We increased our efforts in preventing and cracking down on telecommunication frauds, so as to provide customers with affordable, effective and reliable information services. In addition, we developed a grand scheme for poverty alleviation and engaged deeply in targeted poverty alleviation. We undertook designated aid missions for 1,198 impoverished counties, arranged 322 projects for supporting local industries, and had 84% of the administrative villages under the coverage of our mobile network thanks to our rapid progress in universal information access services and network-based poverty alleviation program, which catalysed the triumph in the battle against poverty and facilitated the building of a moderately prosperous society in all respects. We successfully completed the mission of providing communication support for the celebration of the 70th anniversary of the founding of New China and other major events. We fully devoted ourselves to the prevention and control of the COVID-19 pandemic and set a record in completing the communication network coverage for Huoshenshan (Fire God Mountain) hospital and Leishenshan (Thunder God Mountain) hospital, which demonstrated our strength and responsibility as a state-owned enterprise. Out of our deep conviction of the symbiotic relationship between humankind and nature, we appropriated more funds for the special programs on promoting low-carbon technology and eliminating legacy capacity, strengthened control over electromagnetic radiation, established green digital business outlets, developed a green supply chain system and innovated on green solutions so as to deliver ecological benefits for the society.

Advocating joint discussion, development and creation to map out a smart cooperation ecosystem. In consistent adherence to the cooperation philosophy of “mutual consultation, joint development and win-win cooperation”, we furthered the cooperation with our strategic investors and partners in the industry chain in all aspects. We announced a new smart ecology strategy, officially launched the ecological cooperation brand of “China Unicom Empowerment”, established a granular cooperation system and made extensive deployments in the ecosystems for smart home, big video and pan-intelligent terminals. In order to accelerate the establishment of the cooperative innovation system for 5G development, we set up the “5G Application Innovation Alliance”, initiated the “5G International Cooperation Alliance”, and launched the “pioneer programme” to incubate industry application products, innovate business models, formulate industry standards, and set up capital cooperation platform focusing on 10+ major sectors with the view to building a thriving 5G industry ecosystem. We expanded the platform-based cross-industry partnership and enhanced cooperation with nationwide business chains such as postal services, finance, insurance, lottery, petrol station and express delivery to achieve resource sharing and win-win cooperation. We deepened capital cooperation and established such joint ventures as Yunjingwenlv, Yundee and iCloud Shield with Tencent, Kingdee and QI-ANXIN respectively. Besides, Smart Steps brought in JD Digits as its strategic investor. We soldiered on promoting the development of industry ecosystems and rectified cutthroat rivalries that hurt customer interests and industry value, aiming to promote the sustainable and healthy development of the industry as a whole.

Seeking further advancement in mixed-ownership reform to improve the corporate governance capacity. We endeavoured to modernize our governance regime and capability. We continued to deepen our organisational streamlining and managed to reduce the number of institutions at provincial and municipal levels by 10.5% and 24.7% respectively. We furthered the subdivision reform iteratively with a total of 24,000 “mini CEOs” elected and 177,000 employees have joined the subdivided units. Employees’ sense of ownership was truly activated. We fully advanced human resources reform and implemented reform in three systems. We formulated the “20 measures” for employee team building and strengthened development of young management team. We pushed ahead supply-side structural reform in personnel with the total number of four tiers of professionals reaching 15,000. Our persistence in the incremental revenue sharing mechanism and reform of the education and training system also helped enhance employees’ sense of reward and happiness. We implemented Internet-oriented operation transformation focusing on experience, marketing, products, IT, network, platform and ecosystem and management, in a bid to drive corporate efficiency enhancement. We continued to deepen mixed-ownership reform at the operational level. We completed the contract-out reform of China Unicom Yunnan Branch across the whole province and pushed ahead China Unicom Guangxi Branch’s partnership with private enterprises in seven cities. In the rectification of the “institutionalisation” issues at the headquarters, we undertook 26 rectification tasks in 6 aspects, facilitating the high-quality development of the Company. In addition to consolidating the state-owned capital, the mixed-ownership reform of China Unicom also contributed new mindset for stronger, better and larger state-owned enterprises.

The year of 2020 marks the beginning of comprehensive 5G network deployment and operation. China Unicom will adhere to the general principle of advancing with stability, new development philosophies and the central theme of supply-side structural reform. We will take advantage of the driving force of deeper reform, persist in the strategy of Focus, Innovation and Cooperation, deeply advance the mixed-ownership reform and build a “Five New” China Unicom. Further, we will steadily push forward Internet-oriented operation transformation on all fronts under the guideline of “enhancing value, pursuing growth, solidifying foundation and being passionate”, in an effort to create a new paradigm of high-quality development.

Wang Xiaochu
Chairman & CEO
March 2020

WELCOME TO CHINA UNICOM

COMPANY PROFILE

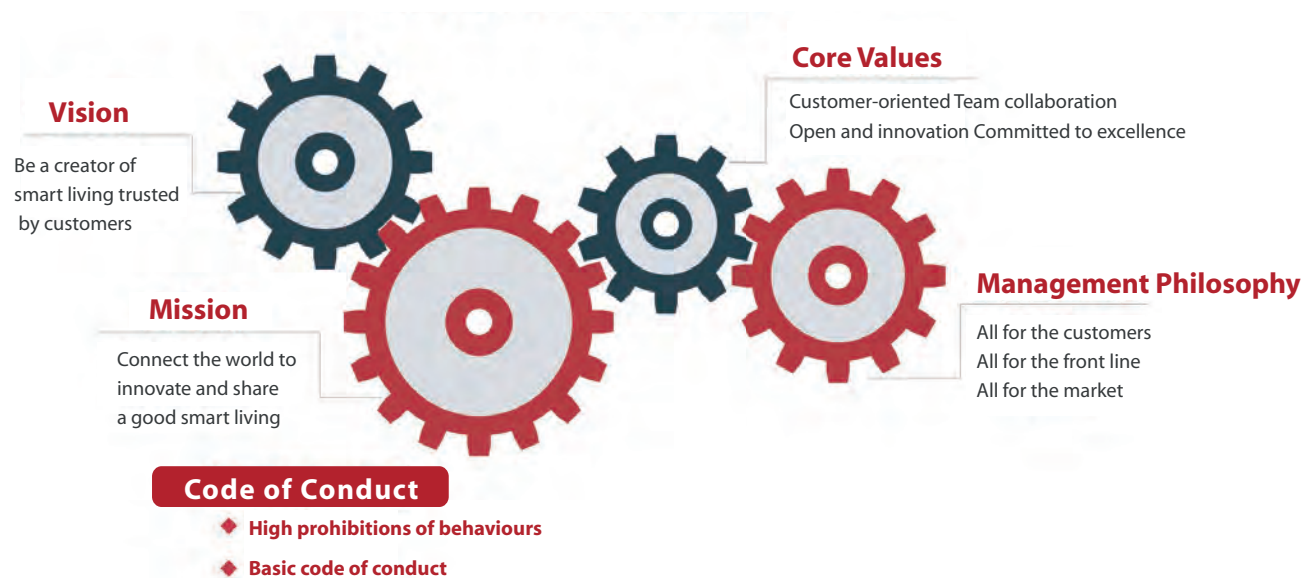
China Unicom (Hong Kong) Limited (“China Unicom”) is the Hong Kong-listed red-chip company of China United Network Communications Group Company Limited. It was incorporated in Hong Kong in February 2000 and listed on The New York Stock Exchange and The Stock Exchange of Hong Kong on 21 and 22 June 2000, respectively. The Company was admitted as a constituent stock of the Hang Seng Index on 1 June 2001. The Company merged with China Netcom Group Corporation (Hong Kong) Limited on 15 October 2008.

China Unicom’s principal operations include, among others, fixed-line service, mobile service, domestic and international communication facilities service, international satellite leased line service, data communication service, network access service, value-added services and system integration services related to communication and information services. On 28 April 2009, China Unicom launched “WO” as a new brand covering all of its services. It carries China Unicom’s servicing philosophy underpinned by consistent innovation, with the aim of providing comprehensive support to its individual, family and enterprise customers. The Company’s modern telecommunication network covers China and connects to the world. We are making vigorous efforts to drive bandwidth upgrades of our fixed-line and mobile networks as well as the implementation of the “Cyber Superpower” strategy at the corporate level, in order to provide users with a full range of high-quality information and telecommunication services. China Unicom is a dually 4G licensed operator in possession of permits for both TD-LTE and LTE FDD, and has entered the new stage of 4G development. China Unicom officially launched its 5G brand logo “5G” and the tagline – “Let the Future Grow” on 23 April 2019.

In 2019, China Unicom deeply practiced the new development philosophy and determined to implement high-quality development, took initiative to advance the industry ecosystem construction, exerted great efforts on the 5G network “co-build” and “co-share”, made ongoing effort to deepen the mixed ownership reform and continued to strengthen the establishment of “Five New” China Unicom. Looking forward, China Unicom will further implement the Focus Strategy, deeply advance the mixed ownership reform and make high quality development through innovation and transformation.

CULTURAL PHILOSOPHY

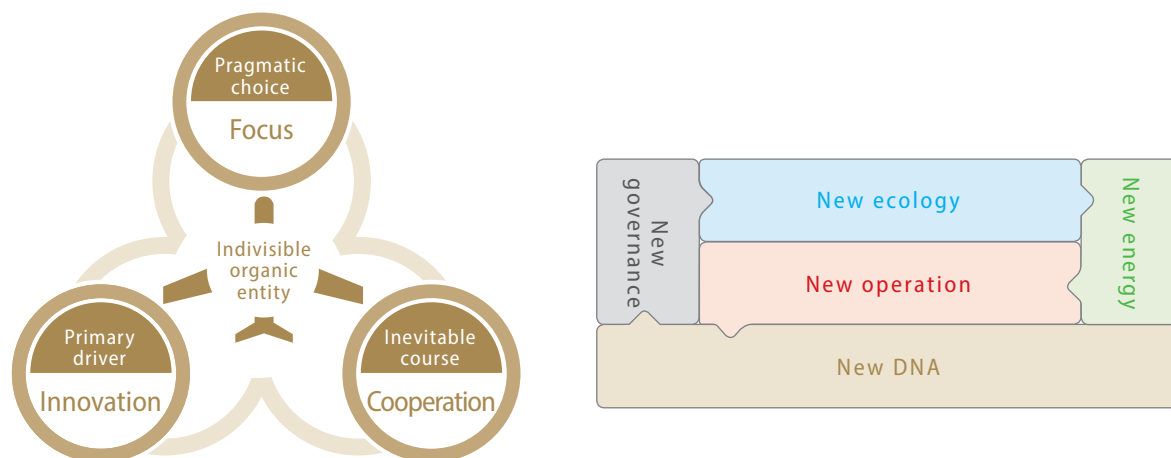
In 2019, China Unicom continued to engage in a corporate culture development exercise under the guidance of “building up the strength of Nation and thriving the Nation through cultural development” to advance the strategy of strengthen the enterprise through corporate culture. It devoted more efforts to corporate culture development to level up its soft power and competitiveness. The corporate culture system of China Unicom comprises a core value system, including the Company’s vision, mission, core values and business management philosophy, as well as the code of conduct formed by the “High Prohibitions of Behaviours” and the Basic Codes of Conduct.



China Unicom Corporate Culture System

🏠 CORPORATE STRATEGY

In meticulous implementation of the development philosophy of “innovation, coordination, eco-friendliness, openness and sharing”, and in persistent observation of the people foremost development vision, China Unicom, leveraging its edges and resources, continued to implement the strategy of focus, innovation and cooperation and deeply advanced the mixed-ownership reform. Meanwhile, as guided by the goal of developing into a “Five New” China Unicom, it firmly promoted the comprehensive Internet-oriented operation and made innovative reforms in respect of organisational structures, human resources, subdivision reform and mixed ownership reform of subsidiaries etc. Looking further ahead, the Company will continue to thoroughly implement its new philosophy while strengthening the enterprise through corporate culture, fostering solidarity among staff and intensifying reforms, so as to step on the journey of high quality development of China Unicom.



Strategic framework of China Unicom

🏠 CORPORATE GOVERNANCE

The Board of Directors of China Unicom is committed to maintaining high standards of corporate governance (including information disclosure) and recognises that good corporate governance is for the long-term success and sustainability of the Company’s business. As a company incorporated in Hong Kong, the Company adopts the Companies Ordinance (Chapter 622 of the Laws of Hong Kong), the Securities and Futures Ordinance of Hong Kong and other related laws and regulations as the basic guidelines for the Company’s corporate governance. As a company dual-listed in Hong Kong and the United States, the current articles of association is in compliance with the Rules Governing the Listing of Securities on The Stock Exchange of Hong Kong Limited and the regulatory requirements for non-U.S. companies listed in the United States. These rules serve as guideline for the Company to improve the foundation of its corporate governance, and the Company strives to comply with relevant requirements of international and local corporate governance best practices. China Unicom did not have any instance in violation of listing-related laws and regulations in 2019.

🏠 Responsibilities towards the capital markets

To further enhance the Company’s information disclosure system and to ensure the truthfulness, accuracy, completeness and timeliness of its public disclosures (including inside information), the Company has adopted and implemented the Information Disclosure Control Policy. In an effort to standardise the principles for information disclosures, the Company has established the Information Disclosure Review Committee which under the management and formulated the procedures in connection with the compilation and reporting of the Company’s financial and operational statistics and other information, as well as the procedures in connection with the preparation and review of the periodic reports. Moreover, the Company established detailed implementation rules with respect to the contents requirements of financial data verification, in particular, requiring the upward undertaking by the individual responsible officers at the major departments.

The Company’s effort in corporate governance (including information disclosure) is well recognised by the capital market, and was accredited with a number of awards.

🏠 Responsibilities towards the investors

The Board of Directors maintains ongoing dialogues with the shareholders, and in particular, to communicate with shareholders through annual general meetings. Pursuant to the Companies Ordinance, annual general meeting shall be held every year and the Company’s Directors and representatives of Board committees are usually attend the meetings. All matters at the Company’s general meetings are resolved by poll and the relevant procedures are explained at the meeting and the Company publishes the poll results in a timely manner, thereby offering protection of the shareholders’ rights and interests.

In addition to publishing annual reports and interim reports, the Company discloses major unaudited financial information and other performance indicators on a quarterly basis and announces operational statistics on a monthly basis in order to further enhance the Company's transparency and improve investors' understanding of the business operation of the Company. Upon the announcement of results or major transactions, the Company will generally hold analyst briefings, press conferences, and global teleconference with investors, during which the Company's management would accurately and thoroughly respond to questions raised by stakeholders.

The Company has set up the investor relations department to provide information and services requested by investors and maintain timely communications with investors and fund managers. The Company also arranges from time to time roadshows and actively attends investor conferences arranged by investment banks, through which the Company's management meets and communicates with investors to help them with an accurate understanding of the Company's latest developments and performance. Latest updates on the Company's significant business developments are being provided in a timely and accurate manner through announcements, press releases and the Company's website (www.chinaunicom.com.hk). Adoption of the Shareholder Communication Policy to ensure that the shareholders are provided with ready, equal and timely access to balanced and understandable information about the Company, in order to enable shareholders to exercise their rights in an informed manner, and to allow shareholders and investors to strengthen communication with the Company.

The Board of Directors and management

To serve the best interests of the Company and its shareholders, the Board of Directors is responsible for reviewing and approving major corporate matters, including, amongst others, business strategies and budgets, major investments, capital market operations, as well as mergers and acquisitions. The Board of Directors is also responsible for monitoring risk management and internal control, and reviewing and approving the regular announcements periodically published by the Company regarding its business results and operating activities. The Company has established three committees, namely, Audit Committee, Remuneration Committee and Nomination Committee, under the Board of directors.



Wang Xiaochu

Chairman
and Chief Executive Officer



Li Fushen

Executive Director



Mai Yanzhou

Senior Vice President



Liang Baojun

Senior Vice President



Zhu Keping

Executive Director
and Chief Financial Officer



Fan Yunjun

Executive Director
and Senior Vice President



Cesareo Alierta Izuel

Non-executive Director



Cheung Wing Lam Linus

Independent
Non-executive Director



Wong Wai Ming

Independent
Non-executive Director



Chung Shui Ming Timpson

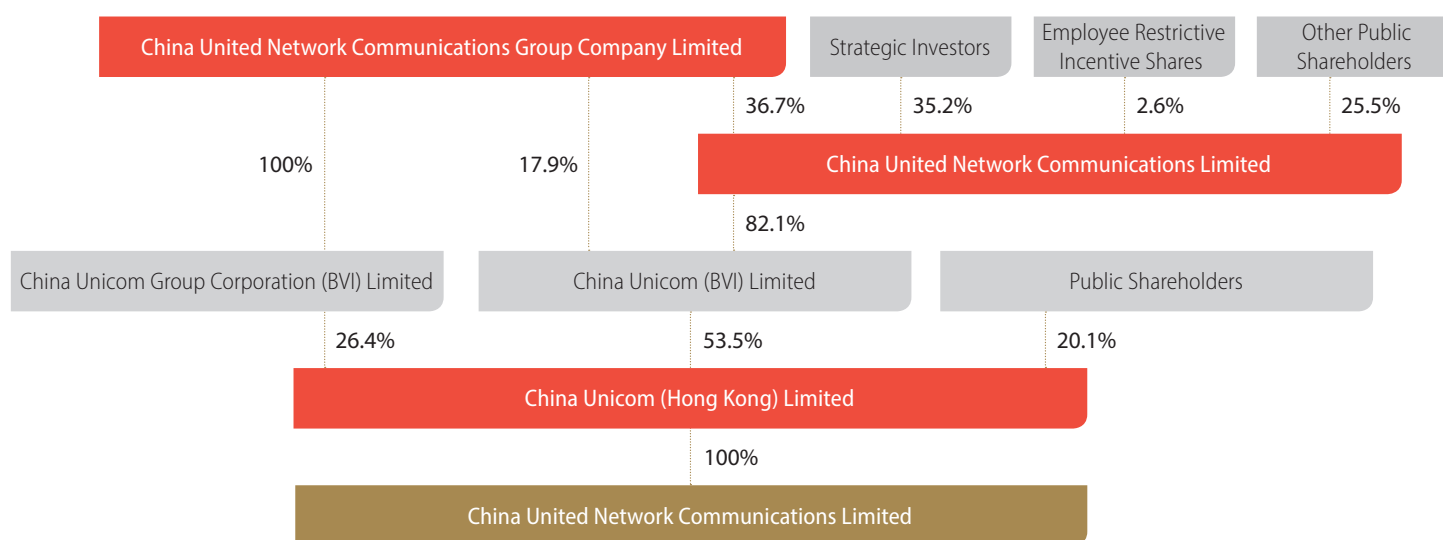
Independent
Non-executive Director



Law Fan Chiu Fun Fanny

Independent
Non-executive Director

SHAREHOLDING STRUCTURE



Shareholding Structure of China Unicom

Notes:

1. Information as at 31 December 2019.
2. The shares of China United Network Communications Limited held by strategic investors represented the shares acquired by the strategic investors introduced through mixed ownership reform from non-public share issuance and transfer of existing shares.
3. Shares held by China Unicom Group Corporation (BVI) Limited excluded the interest regarding the pre-emptive rights owned by China Unicom Group Corporation (BVI) Limited in 225,722,791 shares of China Unicom (Hong Kong) Limited.



A “PIONEER” IN DEEPENING THE REFORM OF STATE- OWNED ENTERPRISES

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A “PIONEER” IN DEEPENING THE REFORM OF STATE-OWNED ENTERPRISES

As the first enterprise to adopt entire group-based mixed-ownership reform, China Unicom deepened the implementation of mixed-ownership reform policy of “improving governance, strengthening incentives, focusing on main business and improving efficiency”. Upon the completion of “diversifying ownership”, China Unicom thoroughly promoted “reform” and deepened streamlining and re-organisation, the three system reforms, sub-division reform, mixed-ownership reform at the operation level and Internet-oriented operation transformation, which provided valuable experience for deepening the reform of state-owned enterprises.

Measures adopted in 2019

- Debates over the practice of “all endeavors for three purposes” were held for open supervision by the mass.
- Our efforts on the streamlining and re-organisation 2.0, with year-on-year decrease of 10.5% and 24.7% in the number of institutions at provincial and municipal levels respectively; and an average downsizing of 12% in the management staff at headquarters of provincial companies.
- Sub-division reform for all production units was carried forward, resulting in preliminary success in the sub-division of the network line.
- The national “Double hundred Action” was implemented earnestly, with China Unicom Yunnan and Smart Connection Technology being included in the first batch branch company/subsidiary pilots for mixed-ownership reform.
- On the basis of the Internet-oriented operation transformation 1.0, Internet-oriented operation transformation 2.0 was comprehensively promoted in the light of changes in the internal and external environments of the Company.

Actions to be taken in 2020

- Continue to strengthen the implementation of the results generated from debates over the practice of “all endeavors for three purposes” on regular basis.
- Further implement sub-division reform for all production units, and based thereupon, remold the organisational systems and structure of the marketing line and restructure the terminal production architecture following the customer-centric principle.
- Initiate the “deep diving” of mixed-ownership reform and explore the cooperation with socialised operational partners with China Unicom Guangxi.
- Implement the Internet-oriented operation transformation 2.0 to a deeper extent for improving the executive competency of organisations and optimising the supporting mechanisms.



Celebration of centenary anniversary of the May 4th Movement



"70 years of light and shadow" campaign of China Unicom



Activities of employees during the patriotic education month



Branches of China Unicom across the country tuned in or watched the live broadcast of the grand celebration of the 70th anniversary of the founding of New China



Furthering anti-corruption work

China Unicom deeply promoted the reformation of the discipline inspection and supervision mechanism. Through innovations to the organisational model and enhancement to the system and mechanism, the Company strengthened the supervision responsibility of the discipline inspection and supervision team, consolidated the overwhelming triumph in the anti-corruption battle for corruption-free development, promoted the idea of “deter, disable and discourage” corruption and strived to achieve high-quality development of the discipline inspection and supervision work.

- The Company promoted the reformation of discipline inspection and supervision system and mechanism, established sound supporting system and mechanism, and made adjustments and enhancement from the perspective of corporate discipline inspection and supervision leadership system, working mechanism and management system etc.
- The Company strengthened supervision over the rectifications as required during the central disciplinary examination, implemented day-to-day supervision in a practical and meticulous manner, deepened the work style construction through rectification of the notorious formalist and bureaucratic problems.
- The Company organised and promoted the “tripartite” special inspection and accountability work concerning physical channels, third-party channels and commission payment, and expected to recover losses of RMB388 million, including suspended and saved commissions of RMB288 million.
- Thanks to the Company’s consistent iron-hand measures on penalty to corruption, its corporate political ecosystem improved significantly. Complaints received in the whole system further decreased by 8% year-on-year in 2019 on top of a year-on-year decrease of 21% in 2018 as compared to 2017. Good names were restored to cadres having been wrongly accused or framed, and typical false reports were selected for public circulation in the whole system.
- The Company revised the “Measures of China Unicom on the Administration of Supplier Blacklist” to include the disciplinary penalty mechanism on those who commit corruption before resignation or commit corruption and accept bribery within three years before retirement.
- The Company strengthened discipline education and arranged relevant training on a regular basis. In 2019, 4 trainings on discipline education were organised for the Company to enhance their corruption-free consciousness on an ongoing basis.

Annual routine conversations were arranged for **21,000** person times
18 formalist and bureaucratic cases were circulated in **4** different times throughout the year.

Promoting operation in compliance

Operation in compliance with laws and regulations is indispensable for the sustainable and sound development of an enterprise. China Unicom always views compliance management as the cornerstone of its development, it is committed to outlining a compliance management landscape with full participation, clearly defined responsibilities and through supervision and creating a corporate atmosphere where compliance operation stands in the foreground by improving the corporate standards on compliance management, strengthening compliance operation responsibilities and supplementing compliance management system.

◎ Operation in compliance with laws and regulations

China Unicom has established the concept and management system of compliance with laws and regulations, and specified in particular “establishing a sound compliance management system and promoting effective implementation of compliance management” as the focus of China Unicom’s legal governance construction work in 2019.

- The Company issued the “Compliance Management Measures (Trial) of China Unicom” and the “Integrity and Compliance Manual of China Unicom” to pave the way for compliance management.
- The Company implemented the “7th Five-Year Plan” for general legal education planning to create a legal governance cultural atmosphere via various general legal education. It compiled the periodicals named “Management Officers’ Legal Education Journal” and “Information on rule of law” for 8 issues with more than 180 legal articles published thereon. It organised a number of general legal education campaigns such as “3.15” International Consumer Rights Day, “4.26” World Intellectual Property Right Day, Knowledge Contest on “12.4” National Constitution, etc. The Group’s Law Promotion Office was awarded as a National Advanced Unit of the “7th Five-Year Plan” for general legal education. Legal cases and knowledge were compiled and circulated through online and offline channels.

2,514 sessions of trainings on compliance with laws and regulations
245,000 trainees attended trainings on compliance with laws and regulations

- In the “Wo Compliance” short video competition of China Unicom, the Company collected 377 pieces of short video and promoted the award-winning ones on the China Unicom Pioneer Learning Platform.
- The Company opened the “Wo Compliance of China Unicom” WeChat public account to regularly update compliance management knowledge, introduced the new move on the Company’s compliance work, and built a corporate image with compliance management.
- Throughout the year, the Company entered into approximately 880,000 economic contracts, 100% of which had been legally vetted and duly performed.

◎ Risk Prevention

China Unicom continued to improve its internal control systems. To this end, it issued 83 rules and regulations, optimised the “Internal Control Manual of China Unicom” on an ongoing basis, and continued to improve its risk control level.

- In order to give full play to the joint role of internal supervision by means of internal audit and other internal measures, the Company continuously improved its internal supervision system, and implemented full coverage of audit for operating areas involving significant risks and key business segments under the principle of “all ought being audited and held accountable under heightened standards”.
- The Company attached great importance on process management and control, and issued differentiated “Comprehensive Evaluation Reports” for 31 provinces in this regard; it adopted unified business standards for the intelligent financial sharing services to consolidate basic financial management and provide strong support for operational risk control; it exerted great efforts to review the proposal on budgeting for maximum yield and cooperation scheme in relation to investment in joint ventures and associates, and to prevent risks arising therefrom.
- The Company dealt with irregular operation conducts in a rigid manner. It received 84 irregular operation clues in succession, held a total of 117 people accountable in accumulate, and recovered losses of RMB3.4 million.

⚙️ DEEPLY ADVANCING MIXED-OWNERSHIP REFORM

🔧 Improving efficacy through streamlining and re-organisation

China Unicom continued to carry out organisational reform by deeply advancing the streamlining and re-organisation 2.0 in 2019. Following the direction of Internet-oriented organisational systems and modernisation of governance capacity, the Company devoted greater effort to coordinate and concentrate sharing to give full scope to the functions of the frontline, the middle office and the back office, establish an organisational architecture with specified responsibilities, immediate response capacity and steadfast enforcement, and accelerate the Company’s progress of adopting entrepreneurial and market-oriented style in its management and operation instead of the government-type administrative tone.

The number of institutions at provincial and municipal levels decreased by **10.5%** and **24.7%** year on year, respectively

The management staff at headquarters of provincial companies downsized by **12%** on average

👤 Strengthening incentive in human resource reform

Focusing on the market-oriented initiatives, China Unicom hewed to the reform themes of cadre management, talent supply and positive incentive to strive for the systemic reconstruction of human resource management structure and mechanism innovation, and in turn stimulate vitality and cohesion in virtue of the innovation mechanism.

- The Company emphasized the strategic guidance and fully demonstrated the priority in resource allocation, effectiveness of vitalising and foresightedness of talents development so as to reshape the Company’s core competitiveness in human resources.
- The Company intended to carry out systemic, holistic and coordinated reform, aiming to achieve interplay of scheme designs, reciprocal promotion in the implementation process and complementarily satisfactory efficacy from various human resource systems and mechanisms.
- The Company emphasized the pertinence and accurateness of reform, it upheld the classified reform principle and specified organisation and personnel categories, and implemented differentiated resource allocation and management mechanism based on market standards. The Company also paid attention to the organic combination of market orientation and people orientation to filled employees with more sense of reward by virtue of the reform.

Remarkable results of sub-division reform

As a concrete resort to implement the major decisions and deployments of the state made at Central Economic Working Conference and the SOE reform symposiums, the sub-division reform for all production units is an important step to deeply advance the mixed-ownership reform. The sub-division reform for all production units also thoroughly implements the strategic deployment for the establishment of a "Five New" China Unicom and marks the actual moves to put into effect the "all endeavors for three purposes" of enterprises. In 2019, China Unicom deeply advanced sub-division reform for all production units. It established an assessment and incentive distribution model targeted at value creation and aiming for compatible responsibilities, authorities and rewards and built a service support system for efficient communication of customer and frontline needs within the enterprises. It strived to arouse the vitality of the frontline production units on a wider range and in a deeper level, thus achieving the vibrant resonance between employees and the enterprises and the jointly increase and sharing of value between employees and enterprises.

25,000 sub-divided units were formed across the nation **177,000** employees have joined the sub-divided units

Due delegation to the talent selection

The sub-division reform has generated remarkable results in stimulating the frontline initiatives, promoting development and increasing output and revenue, and the "mini CEOs" at the sub-divided units serves as an important part of the corporate reform. Irrespective of educational background, seniority and certifications, the "mini CEOs" at different levels are promoted emphatically based on their competency, performance and contributions rather than mere credentials. In the meantime, the streamlining and re-organisation was also carried forward to guide outstanding employees at all levels to enter the sub-division units, and in turn deliver fresh blood to the forefront.

Incremental income sharing mechanism has been adopted for the sub-divided units, which is also a necessary move to further inspire the vibrancy of grassroots units. As the incremental income sharing mechanism concedes a genuinely open budget, provides full empowerment and allows allocation of resources at lower levels, the grassroots units are able to carry out "independent cost administration, investment moves, and remuneration distribution", and the mini CEOs are encouraged to pursue "independent operation and self-management", which gradually promotes the sub-divided units to transform towards benefits and responsibility centers, effectively stimulates the operation vitality and value creativity, and arouses the working enthusiasm of the frontline staff.

Sub-division of network line for cost reduction and efficiency enhancement

In accordance with the general goal of improving quality and efficiency, China Unicom deeply advanced its sub-division reform in the network line based on key cost control units such as energy consumption cost and tower usage fee, and has inspired the transformation potentials and vibrancy of the maintenance staff. In 2019, grids and grid staff in the network line increased by 155% and 101% year on year, respectively.

The network optimisation grid segment of Luohe Branch in Henan established the network value operation system integrating "gross profit driving + incremental profit sharing + KXI assessment". As a result, it scored the rapidest in outdated equipment removal, and recorded effective reduction of network operation costs. Moreover, the team brainstormed to reuse the retired 2G equipment for production and operation upon modification. In 2019, the accumulated income from potential exploration and efficiency enhancement amounted to RMB7.84 million, contributing 16.8% of the profit; incremental income available for sharing amounted to RMB265,000, representing income per capita of RMB27,000, and an increase of 5.6% in labor output rate; average income per capita from grid segment and income of mini CEOs increased by 14.5% and 29.3%, respectively.



Reuse of Retired 2G Equipment in China Unicom Luohe on Posts & Telegraph
(Ren Min You Dian) dated 15 Oct. 2019

In accordance with the professional project model, China Unicom Hebei initiated and established the virtual micro-organisation, "Transmission BU". Under the project-based management mechanism, the BU specifies the reward and penalty measures by entering into open and transparent agreements. It focused on 9 major network projects and improved efficiency by intelligent means. It also reduced costs through network optimisation and enhanced capability through self-construction and maintenance. During the year, value creation incentives in a total amount of RMB4,095,000 was generated from the BU, which was attributed to the team members based on their respective performance instead of the egalitarianism.

◎ Empowering the frontline with role models

In order to leverage the success of role models, China Unicom gave the floor to outstanding local network practitioners and mini CEOs to share their experience as case study. In addition to arousing the enthusiasm and creativity of the frontline staff, such fresh and dramatic practical experience further provided enlightenments for advancing the reform comprehensively upon summarizing and subliming. China Unicom has established an outstanding case sharing mechanism for frontline employees, and actively organised frontline experience sharing video conference, on-site observation and learning tours etc. to strengthen the communication between provincial companies and the mini CEOs. In December 2019, the Company held the “Competition of Outstanding and Innovative Practical Cases from Grassroots Frontline Employees on Sub-division Reform” to select outstanding cases for replication, reference and promotion and to motivate and empower the frontline employees.



Competition of Outstanding and Innovative Practical Cases from Grassroots Frontline Employees on Sub-division Reform of China Unicom in 2019

◎ Boosting mixed-ownership reform at operational level

◎ “Xiaogangcun Reform” of China Unicom Yunnan

In May 2019, as the only provincial branch level company of the SOE under the “Double Hundred Action”, China Unicom Yunnan, on the foundation of previous socialised operational cooperation pilot program on municipal and prefectural level, entered into the Cooperation Agreement in Relation to Comprehensive Reform Under the “Double-hundred Action” with Jiangsu Hengtong Optic-electric Co., Ltd. (江蘇亨通光電股份有限公司), Ningbo Akin Electronic Technology Co., Ltd (寧波亞錦電子科技股份有限公司) and Beijing Ichinae Science & Technology Co., Ltd. (北京中電興發科技有限公司) which commenced China Unicom Yunnan’s socialised cooperation in the entire province.



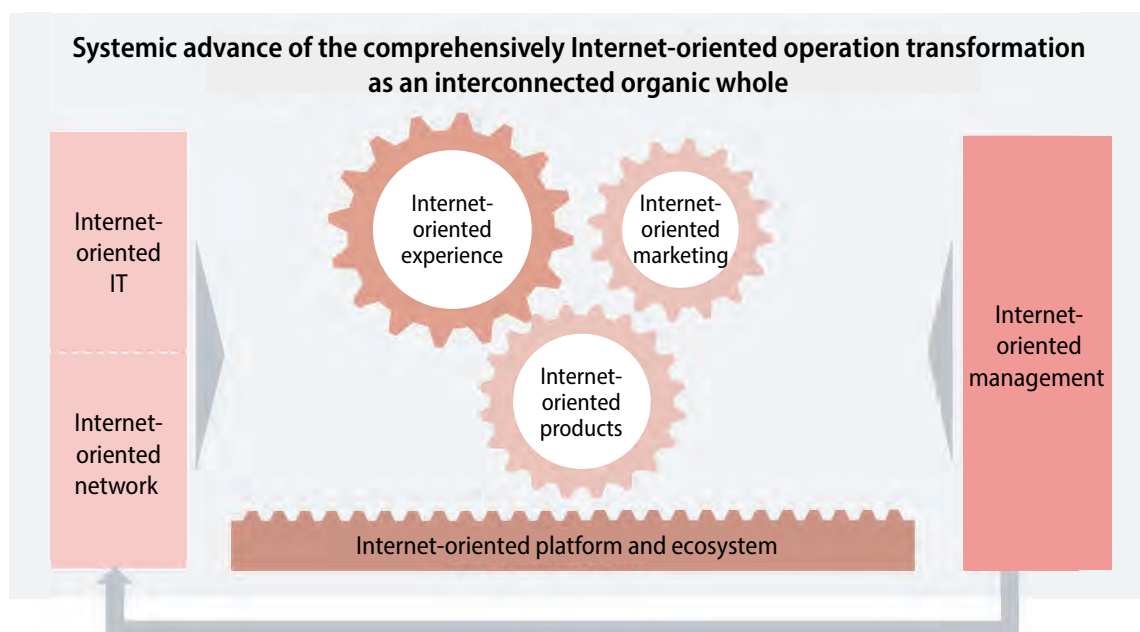
Signing Ceremony of Cooperation Agreement in Relation to Comprehensive Reform Under the “Double-hundred Action” of China Unicom Yunnan

◎ Mixed-ownership reform pilot program of China Unicom Guangxi

China Unicom Guangxi started to openly recruit socialised operational partners for its 7 subordinate prefecture level city branch companies, in November 2019. The selected partners would be responsible for the investment in construction of the access network and innovative business platforms in 7 subordinate prefecture level city branch companies of China Unicom Guangxi including Liuzhou branch company.

IMPLEMENTATION OF INTERNET-ORIENTED OPERATION

In 2019, on the basis of Internet-oriented operation transformation 1.0, China Unicom commenced Internet-oriented operation transformation 2.0 in the light of changes in the internal and external environments of the Company. It has been striving to become a creator of 360° digital living trusted by customers on its journey of establishing a worldwide top-notch enterprise.



The comprehensive Internet-oriented operation transformation 2.0 aims to serve the customers from the perspective of 360° digital living. For the benefit of user experience, the current product portfolio and marketing system were revisited and reformed. Through innovating platform and ecosystem, driving the outbound evolution of network and IT, releasing management restraints, unleashing organisational vigor, and advancing comprehensively Internet-oriented operation transformation in a systemic manner, customer perception, employee engagement and operation efficiency were continuously improved..





A “MAJOR PLAYER” IN BUILDING THE CYBER SUPERPOWER

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A “MAJOR PLAYER” IN BUILDING THE CYBER SUPERPOWER

China Unicom shares the mission of building industrial power and strives to be a major player in building China as a cyber superpower. The Company has continuously deepened the construction of information and communication infrastructure, constantly enriched communication products and services, and actively improved network quality and customer experience, in an effort to boost China's information technology development and laying a solid foundation for the country's high-quality development. By providing customers satisfactory and high-quality telecommunication services, we enable more consumers to share the benefits of technological advances and enjoy better service experience.

Measures adopted in 2019

- Marking the first year of the 5G era, the Company kicked off 5G commercialisation and introduced the 5G brand logo “5G™” and 5G tagline—“Let the Future Grow”.
- Continued to promote “speed upgrade and tariff reduction” by further reducing the average mobile data tariff by over 20%, the average broadband tariff for SMEs by 15%, and the data roaming tariff between mainland China and Hong Kong and Macau by 30%.
- Launched Phase I of the China Unicom cross-region products and services commercial trial on 6 November 2019 and fully implemented mobile number portability services on 27 November.
- Persistent to push forward the centralised construction of the all cloud-based smart networks to build a smart and highly effective Internet with better integrated data-carrying efficiency.
- 1.41 million 4G base stations and 5G base stations covering more than 50 cities as of 2019, covering 93% of the population.

Actions to be taken in 2020

- To provide users with comprehensive smart home solutions and to introduce more pan-smart terminals through multiple products and channels to create an integrated smart home ecosystem of China Unicom.
- To continue to advance the implementation of mobile number portability services and simplifying cross-region mobile products while promoting cross-region services in first-tier, second-tier cities and towns together.
- To fully improve Internet-based services to provide customers with rich and diverse online services conveniently.
- To optimise the information security accountability system and improve technical and operational management capabilities to firmly safeguard national cyber security and to protect the legitimate rights and interests of users.
- To consistently promote the centralised construction of the all cloud-based smart networks based on 5G networks, and to actively participate in promoting universal services and network poverty alleviation by strengthening the construction of network infrastructure in remote and impoverished areas.

NARROWING DOWN THE DIGITAL DIVIDE

Optimising network experience

Upholding the original pursuit of providing “premium networks”, China Unicom endeavoured to build premium networks to satisfy customers, paving the way for the full introduction of rich and diverse services and applications, especially high-speed, large-bandwidth, low-latency network services, offering fast and high-quality service support.

Enhancing mobile network perception

As of the end of 2019, 1.41 million 4G base stations were built, covering 93% of the population, 84% of administrative villages, and 95% of application scenes. The all-network VoLTE coverage rate reached 94% (96% in urban areas). In terms of 5G construction, the Company has cooperated with China Telecom to co-build the world's first co-shared 5G network. In 2019, 5G services had been commercialised in 50 cities, with the total number of 5G base stations reaching 62,000 (among which approximately 20,000 co-shared 5G base stations from China Telecom). According to the statistics of the Broadband Development Alliance, China Unicom delivered an industry-leading download speed of 25.2 Mbps.



Test flight of a China Unicom 5G drone and a photo taken by the drone

◎ Expanding broadband network coverage

In 2019, investment in broadband and data networks amounted to RMB8.4 billion, adding 12 million broadband ports, with broadband FTTH ports reaching 190 million, accounting for 85% of the total. In 2019, 4.39 million new broadband ports were added through cooperation with private capital, with the total number reaching 39.42 million, accounting for approximately 18% of all broadband ports, up 2 percentage points year-on-year.

◎ Promoting universal service construction

In an effort to fulfill social responsibility and enabling more people to enjoy high-quality network services, China Unicom, as always, spared no effort to provide universal telecom services by accelerating the construction of telecommunication networks in poverty-stricken areas, with the aim to speedily eliminate the “digital divide” in rural areas.

As of the end of December 2019, the fourth batch of universal services was completed, with 2,055 administrative villages participated. The scale of 4G base stations built included 2,076 base stations in administrative village and 22 border stations. The fifth batch of universal service had 2,859 administrative villages in 58 cities of 15 provinces participated. The scale of such 4G base stations built included 3,075 base stations in administrative villages and 176 border stations.

China Unicom had completed the construction of 521 base stations in administrative village in 2019. In the future, China Unicom will continue to build more base stations to “deepen coverage” and ensure “full mobile signal” in rural areas.

China Unicom Qinghai has long been marching on the journey of “National Universal Telecom Services and Information Poverty Alleviation”. In the fourth batch of universal service pilot projects, it undertook the task to assist 530 administrative villages in 18 districts and counties in 8 cities and prefectures to achieve 4G wireless network access. Since 2016, it has constructed universal telecom networks in Qinghai covering a total of 2,300 administrative villages (including 1,120 poverty-stricken villages), accounting for 39.29% of the 5,854 administrative villages of the province involved in the overall initiative, representing a significant contribution.

China Unicom Xinjiang Hami undertook pilot construction projects for universal telecom services in 18 remote administrative villages in Hami City, Balikun County and Yiwu County, enabling 3G and 4G network coverage in these regions. This effort greatly promoted the balanced economic and social development in the regions involved and helped narrow the digital divide between urban and rural areas, thus boosting rural revitalisation.



◎ Advancing network evolution

While maintaining the development and advantages of the existing networks, China Unicom continued to fully explore future-proof intelligent network architecture and evolution strategy, comprehensively improving its future-facing network operation capabilities.

- Newly built mobile networks were all deployed in a virtualised and cloud-based manner, and the newly constructed Internet of Things network was 100% virtualised. The Company continued to promote SDN upgrade and develop cloud-network integrated products, realising flexible adjustment and self-delivery of services in operation.

- China Unicom Industry Internet (CUII) posed to enhance the overall data-carrying capacity, continuously providing more diverse and intelligent WAN cross-cloud connection and networking solutions, as well as strong network support.

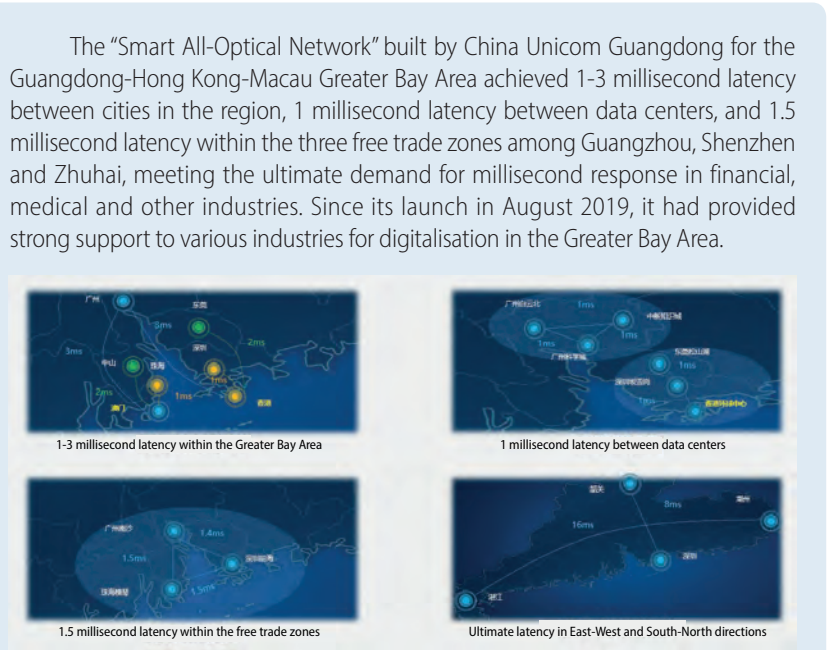
- The Company prepared the progressive plan of CUBE-Net 3.0 and published the White Paper on China Unicom’s Compute First Networking (CFN) and the White Paper on China Unicom’s Intelligent Metropolitan Area Network Technology.

- With a focus on the research and application requirements on open optical networks, the Company met with relevant OTN industry standards, formulated architecture and interface standards of OTN management platform, independently developed an OTN/WDM-CPE management platform, conducted tests on existing networks, and promoted low-cost deployment of integrated OTN.

- The Company completed the research and design of the overall reference architecture of white-box base station, and established an Open Test and Integration Center (OTIC) with China Mobile and China Telecom to expedite the growth of the white-box base station industry.

The average latency of the China169 backbone network maintained a leading position in the industry for 46 consecutive months.

The Company actively expanded the interconnection bandwidth of the points of interconnection. As at the end of 2019, domestic interconnection bandwidth had reached 7,911G. China Unicom completed the IPv6 transformation of all Internet backbone direct connection points, increasing the domestic IPv6 interconnection bandwidth to 7,662G. The capacity of the domestic backbone networks reached 288T, and international outbound bandwidth amounted to 2,460G.



Schematic diagram of ultra-low latency living circle illustrated by China Unicom Guangdong

independently developed an OTN/WDM-CPE management platform, conducted tests on existing networks, and promoted low-cost deployment of integrated OTN.

Deepening speed upgrade and tariff reduction

To firmly implement the deployment of the national initiative of “speed upgrade and tariff reduction”, China Unicom adhered to the people-oriented development notion, set up a dedicated leading group, improved the person-in-charge accountability mechanism, and implemented “precise tariff reduction and standardised package setting” through measures such as enriching package content, increasing package value, and expanding data packages without increasing charges. By doing so, the Company further cut down the average mobile data tariff by more than 20%, the average broadband tariff for SMEs by 15%, and the data roaming tariff between Mainland China and Hong Kong and Macau by 30%. In 2019, the Net Promoter Score (NPS) of China Unicom’s mobile network tariff perception increased by 85.4% as compared with 2017 while there were increasing satisfied consumer demands, which accelerated the pace of high-quality development, and promoted the development of digital economy and information consumption upgrade.

Mobile broadband tariff reduction policy

- **Data tariff:** increased efforts in promoting large-data products and expanding the use of supplementary-SIM cards, and reduced the average data tariff by expanding data packages without increasing charges while also promoted content offerings to increase package value, as well as promoted cost-effective product offerings such as discounted data packages and “Data Usage at Ease” packages.
- **Roaming charges:** Launched preferential roaming data packages to reduce roaming charges in Hong Kong and Macau while also carrying out promotional activities.
- **Poverty alleviation packages:** Introduced the 2019 guiding opinions on poverty alleviation packages to incorporate the development of such packages into the 2019 special tasks; required the targeted poverty alleviation packages in each province to offer at least 50% discount as compared to relative general packages, and encouraged regional branches with good conditions to introduce packages with greater special offers; improved the user experience over targeted poverty alleviation packages by ensuring that mobile packages have 3/4G Internet access and broadband packages has a downlink speed of at least 100Mbps in principle.
- **Standardised package settings:** Strictly controlled the product system and sorted out packages based on the four full-service product series.

Fixed-line broadband tariff reduction policy

- Lowered the average tariff of broadband and dedicated Internet access for SMEs.
- Launched basic enterprise broadband products to meet enterprises’ basic needs for Internet access.
- Promoted comprehensive informatisation solutions for enterprises integrating “cloud + network + applications”, carrying out targeted speed upgrade and tariff reduction to assist the informatisation upgrade of SMEs.
- Stepped up the promotion of product tariffs and special offers to enable more customers to learn about and enjoy the special offers.

Implementing mobile number portability

As an initiative that benefits the general public with extensive social impact and significant social benefits, “mobile number portability” is firmly supported by China Unicom comprehensively and the Company also firmly believed that it will further enhance information and communication services to better benefit the public while boosting the Company’s ongoing network improvement and service quality. China Unicom strengthened the overall responsibility to provide mobile number portability service, enhancing its overall coordination to practically and well doing the implementation of mobile number portability, so as to enable users to enjoy the communication freely.

- Actively organised and conducted research and surveys in five provinces and formulated a nationwide implementation plan for mobile number portability, while the Company adhered to the “user-centered” approach to improve the network, business, service quality in an all-round manner to make users’ experience more comfortable and satisfied.
- Organised a team of 2,000 people to make unremitting efforts in completing all the preparations for mobile number portability effectively and efficiently, and formally launched the nationwide mobile number portability service on November 27.
- Refined relevant rules to ensure well-regulated rendering and use of mobile number portability service.
- Organised group-wide training on mobile number portability in multiple steps and rounds to ensure that the relevant measures have uniformly been implemented by branches at provincial, city and county levels, and that front-line personnel could accurately understand and thoroughly know the policies and operational procedures for mobile number portability.
- Rolled out the online-to-offline integrated guaranteed mobile number portability service, allowing users to apply for the service at home.

To implement the requirements of mobile number portability and provide guaranteed precise services, China Unicom Gansu, China Unicom Fujian, and China Unicom Hunan organised rounds of training sessions specifically on mobile number portability, with the aim to offer better and more convenient services to the customers. The training sessions had received positive results.



Training session of China Unicom Gansu



Training session of China Unicom Fujian



Training session of China Unicom Hunan

SHARING DIGITAL BONUS

Ingenious brand building

China Unicom took the lead to launch its 5G brand logo “5Gⁿ” and the tagline — “Let the Future Grow” and constructed its 5G branding framework. The 5G promotional programme “Forerunner” was accredited the gold award at the China International Advertising Festival (CIAF) for its in-depth marketing. As the Winter Olympics approach, China Unicom, as a Winter Olympics partner, created 10 applications for three scenarios — watching, joining and hosting the Winter Olympics basing on the theme “China Unicom 5G Empowering Smart Winter Olympics”, and helped carry out a series of promotion, display and theme activities for the Winter Olympics. The hashtag “China Unicom 5G Empowering Smart Winter Olympics”, had made the front opening page of Weibo, with over 130 million times of top reads and over 62,000 comments of discussion, as well as ranking No.6 on the hot search list of Weibo.



China Unicom has continuously given its brand with richer connotation and deepening its brand image of being young and energetic, open and cooperative, innovative and eager. In 2019, China Unicom's brand story and brand communication case were selected into the pool of excellent promotional materials of central State-owned enterprises maintained by the SASAC and won the "Best Organised Enterprise" award in the brand story competition held by the SASAC.

China Unicom, the Beijing Organising Committee for the 2022 Winter Olympics and a group of high schools across the country jointly launched a three-party initiative to kick off the “Winter Dream Ambassador” recruitment programme with an aim to sow the seeds of the Olympic spirit among the youth and students on campus and popularise the knowledge and culture of the Winter Olympics, as well as to promote winter sports to the public and hoping to achieve the country's goal of “having 300 million people to stay active in winter”.



Winter Dream Ambassador Training



Winter Dream Ambassador Finals

As a decade-long strategic partner of the China Table Tennis Association and the International Table Tennis Federation, China Unicom has been committed to facilitating the popularisation and development of table tennis. In the first year of the 5G era, China Unicom leveraged its technology strength to empower table tennis and made a major breakthrough in broadcasting table tennis matches domestically and internationally, being a part to contribute to building the country's sports superpower.



5G interactive live broadcast of the national finals at the 7th China Unicom “Table Tennis at WO” Tournament

Diligently-produced products

China Unicom continued to push forward the Internet-oriented transformation and building a value-oriented operation system for high-quality development. The total number of users served by China Unicom reached 460 million, including 320 million mobile billing subscribers, 250 million 4G subscribers, and 83.478 million fixed-line broadband subscribers. The integrated user penetration rate reached 58.6%, up by 7.9 percentage points year on year.

Significantly expanded capacity for 5G packages with five-star experience on membership privileges

China Unicom's newly launched 5G packages, based on its current 4G packages, providing expanded capacity including more data, richer content offerings and better services. The 5G packages are divided into seven price levels at RMB129, RMB159, RMB199, RMB239, RMB299, RMB399 and RMB599, with data capacity ranging from 30GB to 300GB. Users who have previously made reservation with the 5G packages could directly enjoy monthly discount for 6 consecutive months, and loyal subscribers who used our services for at least 3 years would be entitled to a 30% discount. China Unicom's 5G package subscribers would also be entitled to exclusive membership privileges such as 5G video privileges covering VR, 4K ultra HD, AR, and ringback video, as well as music/reading privileges such as WO Reading and WO Music, and other discount privileges.

月费 (元/月)	流量 (GB)	语音 (分钟)	联通会员	网络服务	备注
129	30	500	4项 内容 权益	5G专享服务	套餐外每分钟0.15元 短信0.1元/条 套餐外流量3元/GB
159	40	500			
199	60	1000			
239	80	1000			
299	100	1500			
399	150	2000			
599	300	3000			

Smart home Internet

In the field of home Internet, China Unicom continuously improved the "1+4+X" smart home product system, with a focus on the key services of "WO Family Video, WO Family Network Deployment, WO Family Fixed Call and WO Family Surveillance", in an effort to meet user demands for comprehensive informatisation services such as "HD video, intelligent networking, security surveillance and AI smart voice". Meanwhile, the Company deepened the construction of retail chain outlets to provide consumers more space to experience smart home. The Company coordinated various parties in the value chain and empowered the partners to build a smart ecosystem with win-win cooperation.

Rich terminal supply

China Unicom has been persistently maintaining a mechanism of open and fair cooperation to share with suppliers, cooperating with more than 100 upstream and downstream terminal suppliers to iteratively optimise the entire terminal supply chain and steadily improve terminal operating efficiency, so as to ensure that users enjoy better quality terminal products and services from China Unicom's channels.

- Completed negotiations with 47 suppliers for cooperation throughout the year, the Company introduced hundreds of smart living terminals with a total sales volume of approximately 4 million units.
- Successively working with 26 chip, module and terminal manufacturers, ODMs, handset manufacturers, and Internet application providers to build a joint laboratory for 5G terminal innovation, a 5G R&D centre and a 5G application cooperative innovation centre. In addition, China Unicom's 5G experience centres were set up in 300 self-operated service outlets and 311 social channels and terminal manufacturers directly operated stores, to bringing 5G experience to more public users.

Innovative pan-integrated products

In order to meet the demand for services arising from huge population traffic and movement, China Unicom launched Phase I of a commercial trial for its cross-region products and services on 6 November 2019, further enriching cross-region service offerings by adding non-local e-invoice issuance and non-local international roaming activation/deactivation. As of the end of December, the Company handled a total of 617,648 orders for cross-region services nationwide (including previously introduced services such as cross-region replacement of SIM cards).

Meanwhile, China Unicom continued to hold the Internet-oriented mindset to refine the operation procedures and optimising the rules for registering for the integrated services while promoting simplified service sign-up procedures. Currently, branches in 19 provinces have already adopted the simple interface for the handling of integrated services, shortening the duration of service sign-up at the counter by 40% and the handling duration by 50%.



China Unicom's cross-region products

◎ Differentiated products benefiting the general public's livelihood

China Unicom's 116114 hotline continued to introduce additional services for the benefit of the people, providing daily life service information including healthy community and remote medical consultation services, vehicle moving, law, employment, education, agriculture, psychological counseling. As of the end of 2019, approximately 28 million information inquiries had been handled, providing legal consulting and other services for millions of individuals and corporate users nationwide, including vehicle moving services for nearly 15 million users.

◎ Considerate quality services

◎ Improving customer perception

Guided by customer experience as the main goal, China Unicom focused on addressing obstinate issues and constantly improved service quality to enhance customer perception.

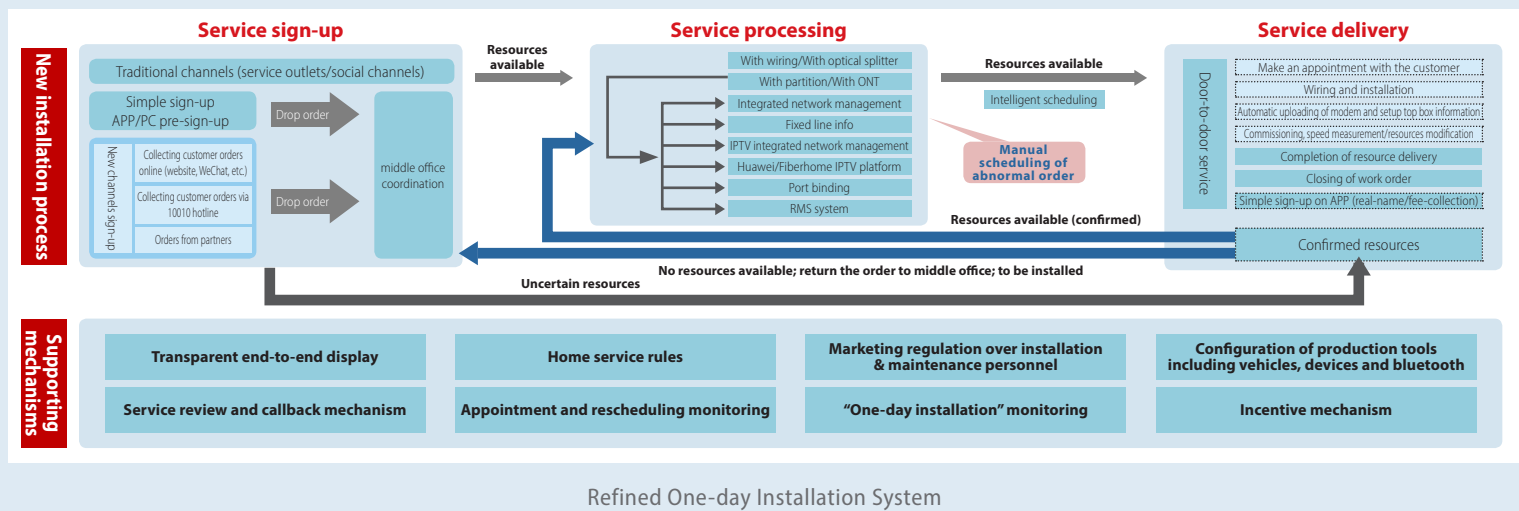
- The Company improved the system for real-time evaluation of customer perception, evaluated service quality based on the customers' voice, and established a customer perception evaluation barometer. It also refined the product experience management system through all newly launched products being examined and tested by the product experience centre of the customer service department, while products that failed to pass the test shall not be put on sale. Brand experience and communication were strengthened to fully enhance customers' brand awareness.

- An omni-channel interactive system with coordinated and consistent services was established to solve the critical and persistent issues in offline channels and to improve the readability and user-friendliness of online channels. After screening and optimising the key problems of offline channels, the complex problems concerning integrated services were reduced by 45% and 96 user scenarios were improved.

- The centralised sharing capacity of the building of the platform was strengthened, providing professional support for front-end applications, and continuously optimised service handling procedures, thereby cutting the steps and duration of service sign-up by more than 50%, as well as lowering the duration of service sign-up at service outlets to less than 10 minutes. A smart customer service intensive operation system was built to achieve the interactive customer service delivery between personal service and digital platform and through swift and optimised procedures, along with unified standards, duration to solve users' issues could be minimized, which would comprehensively improve customer service perception.

- A supervisory system to promote problem-solving was established, achieving significant results brought by the major inspection by the State Council and improving the satisfaction in both the frontline staff and customers.

China Unicom Heilongjiang reviewed and refined the organisational structure, management mechanism and production tools process of broadband installation, enabling the delivery of installation service within 24 hours and posting transparently the whole installation process online. Users could check the installation progress at any time, and also comment on the services of the smart home engineers. With such efforts, "one-day broadband installation" was fully realised and improved broadband customer perception.



◎ Innovative Internet services

China Unicom has actively developed Internet services and keeping up with the Internet development trends and customer needs. China Unicom has set up service channels on various Internet platform including WeChat, Baidu Baike, Zhihu and Douyin. Meanwhile, through a series of measures such as search engine optimisation and the opening of robot capabilities, the Company continuously scaled up the Internet services and handled 1.21 billion service orders through tier-1 channels. In particular, knowledge about China Unicom on Baidu Knows had been read over 300 million times, whereby China Unicom was rated TOP 1 partner of Baidu, exceeding Xiaomi and Huawei.

◎ Improving service quality

China Unicom pushed forward the rectification and resolution of key issues in the principle of drawing lessons from one case to another. The Company stepped up the efforts in rectifying and addressing key issues on the occasion of the major inspection by the State Council.

- With problem-solving as the notion, issues such as the Company's system, procedures and rules were fully reviewed, achieving to deal with each kind of issues by addressing one issue of a kind.

- The Company continued to push forward the rectification and management of key issues nationwide through solving the issues as via systematisation, reorganisation of procedures, and stressing focus to solve with the different rights between new and old subscribers, deduction of value-added service fees and repeated visits to the service outlet.

- The event “Doubling the satisfaction as it was the initial intention” was carried out with high targets as initiative, problem-solving mechanism was consolidated through comprehensive appraisal and special evaluation.

- A complaint-driven problem-solving mechanism was established integrating closed-loop resolution, professional coordination, early service warning, management accountability, and rectification to address the root causes of problems. In 2019, the Ministry of Industry and Information Technology received 219.1 valid complaints per million subscribers, down by 50.3% year on year.

◎ Actively responding to complaints

In 2019, China Unicom continued to strengthen the matrix-like complaint management system by improving complaint management and control, and achieved significant results in this regard as evidenced by the fact that there were no complaints filed about abusive charges in the entire year.

- With an aim to improve customer perception, the Company raised the criteria for closing complaints, shortened the cycle of handling complaints, and strictly implemented the principles of first one taking the responsibility system, empowering front-line staff to offer service remedy and immediate commitment, thus improving both the quality and efficiency of complaint handling.

- A “double closed-loop” complaint handling mechanism for single problems and similar key issues to resolve one kind of problems by addressing a complaint of the kind had been adopted.

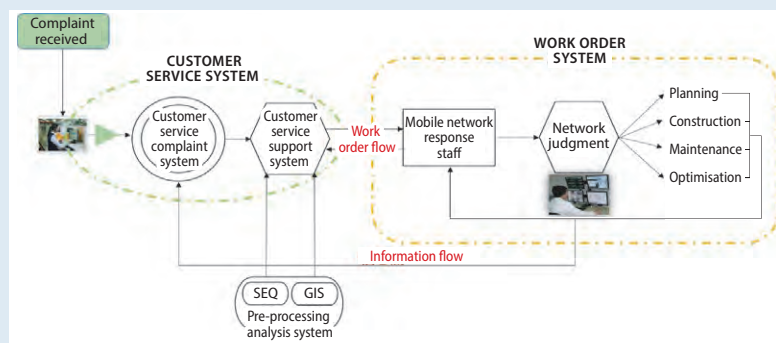
- To prevent complaints, the Company carried out the “Three-All” corporate culture discussion activity to screen out more than 30,000 issues affecting customer perception, adopted a transparent resolution process and put key issues under the supervision of the Group, effectively solving a host of long-standing and difficult issues affecting customer perception.

- In 2019, the total number of complaints made through the 10010 hotline was 20.776 million, down by 22.0% period over period, representing a monthly complaint rate of 38.5 complaints per 10,000 users, down by 23.7% period over period. The rate of resolution of complaints stood at 98.1%, up by 0.3 percentage points period over period.

China Unicom Shandong had an interactive meeting with grass-roots personnel. By communicating with users and collected complaint data to conduct analysis and case study, it gathered the key factors affecting NPS, and then targeted measures could be taken to improve customer perception.



China Unicom Shanxi built up a “complaint-driven mobile network front- and back-end integrated” management system through network-side big data mining, process reengineering and management innovation. In the process of handling a complaint, the cause of failure has been identified, and information on terminal, failure on terminal, and network perception have been provided to the front desk department to facilitate the communication with the customer. By doing so, China Unicom Shanxi greatly shortened the duration of service handling and improved the rate of resolution of online work orders, thus realising rapid response to complaints and enhancing customer perception.



Order work flow

China Unicom Beijing fully integrated system resources and built a complaint monitoring and early warning system, representing a 3-dimensions complete early warning system that enabled real-time monitoring and early warning covering overtime, repetition and repeated reminders, manual warning with repetitive complaint and increasing force, as well as manual warning with service risks. In doing so, customer situations were real-time monitored, and relevant departments would push forward to resolve the root causes of key issues, thus improving customer perception and service efficiency.



Real-time monitoring and early warning module

◎ Improving customer reputation

China Unicom continuously strengthened brand experience and communication to comprehensively enhance customers' brand awareness, sending positive messages to attract users.

- A series of service measures were launched such as renaming the 10015 hotline as the consumer rights protection hotline, and giving the guarantee to response the solution within three business days.
- The NPS (customer satisfaction) evaluation was conducted in 2019, with the NPS for mobile increased by 7.2 points and the NPS for broadband services increased by 8.1 points. As to mobile network, the NPSs for network, business and service increased by 7.4, 10.3 and 23.4 points respectively, reaching the industry-leading levels.

◎ Guaranteeing transparent billing

In accordance with the "Law of the People's Republic of China on the Protection of Consumer Rights and Interests" and other laws and regulations on the protection of customer rights and interests, China Unicom has strictly regulated the billing and charging practices, and has been protecting customers' right to know about the services they consume, and has also been strengthening the awareness of know-how on products and services among consumers.

- Increased publicity leveraging both traditional media and new Internet media which integrated with self-owned channels resources such as service outlets and mobile app were able to disseminate various information on products and services to consumers in a timely, accurate, and easy-to-understand manner.
- Special control over illegal marketing activities such as bundling sales and unauthorised changes in user packages were closely monitored and serious penalties would be implemented should there be user-unauthorized sign up, trial service, change, and service subscription.
- Focusing on promoting various nationwide-uniform packages which stressed on the simple and clear tariff structure and standard, thus reducing the number of products.
- Form-free templates to ensure that users well understand about the services they subscribe had been continuously optimised.

🏠 Building solid channels

◎ Improving the efficiency of self-operated service outlets

China Unicom advanced and pushed forward the operation of its self-operated chain outlets, and created a new type of service outlets with digitalisation, premium experience, complete product categories and providing more superior services and better service experience to customers.

- Efficiency of service outlets were comprehensively improved, and smart living chain stores were carried out while service outlets went more digital, in the efforts to provide customers more comprehensive services focusing on user experience.
- Service capabilities of servicing team at business outlets were improved. Through moving simple services to online channels, optimising processes and empowering salespersons via training, as well as improving staffing number, it built great servicing teams for chain outlet operation.

◎ Building an integrated online and offline channel ecosystem

China Unicom optimised its integrated online and offline channel ecosystem based on the life routines of its customers to make services available to them anytime and anywhere, covering all touchpoints and application scenarios.

- Centralised management of e-channels continued to push forward, putting all 2I2C products under centralised management.
- The optimised and integrated marketing model which iterated Buy By Code 2.0 and Internet-based smart mid-platform continued to advance and fully pushed forward the construction of a large delivery network, achieving a number of key online functions

🌐 CREATING A CLEAN CYBERSPACE

🏠 Implementing "real-name registration"

China Unicom has strictly implemented real-name registration according to the requirements of the Ministry of Industry and Information Technology. Currently, 100% of the Company's telephone users have gone through real-name registration.

- The dynamic portrait comparison technology was fully employed in all physical offline channels from 1 December 2019, strictly implementing the standard practice of real-name registration, while also stepped up the review of real-name registration information for new subscribers, improving and strengthening the control over cooperative channels.

In order to enhance customer service perception, China Unicom Yunnan introduced "Five-star Customer Privileges" which comprised of six privileges including premium network service, priority access to manual customer service, VIP access at service outlet, free service migration, free SIM card replacement, and exclusive privilege day, further enhancing the service perception of high-end customers.

- Multi-level services, including five-star privileges programme offering six privileged services, were offered.

China Unicom Guangdong upgraded the service equipment of business outlets, improved outlet environment through intelligent retrofit, specified the service standards, promotion and sales pitch at the business outlets, and conducted service skill evaluation and process optimisation to improve the services of business outlets and enhancing user experience in an all-round manner.



including cross-region delivery, integrated services sign-up, customer maintenance, value enhancement, and etc.

- Product standardisation strengthened to phasing out a number of 2I2C packages in batches, optimising the product tariff structure.
- High-traffic apps were developed to constantly improve service experience and better basic product functions. The Company actively explored new operating models and built an ecosystem of win-win cooperation among channels, users and provincial branches.

- The “Person-ID Consistency” review of existing subscribers continued and screening on real-name registration of IoT cards was conducted.
- The contract signing rules were heightened, publicity reminders and monitoring of abnormal network access risks were carried out and reinforced.
- The accountability mechanism for real-name registration was refined, and two rounds of third-party secret investigation were carried out.
- The Company actively cooperated with the Ministry of Industry and Information Technology on the joint debugging and online launch of the “Telecom User Registration Information Verification Platform”.

Protecting user privacy

China Unicom actively implemented the requirements of the Cyberspace Administration of China and the Ministry of Industry and Information Technology regarding the legal collection and use of user personal information, and supplemented and amended the “China Unicom User Privacy Policy” and “China Unicom Customer Network Access Service Agreement” to fully protect user privacy.

Cracking down on telecom fraud

In an effort to fulfill its social responsibility as a state-owned enterprise, to maintain the normal telecommunication order and protect the legitimate rights and interests of users, China Unicom firmly implemented the state’s policies on preventing and cracking down on telecom fraud.

- Screening of scam calls, harassing calls and spam SMS messages were carried out. In 2019, 50.38 million overseas scam calls and 1.16 billion spam SMS messages were intercepted and 936,000 scam and harassing phone numbers were shut down, leading to a decline in the overall number of cases as reported by users.
- Data security control has been strengthened to timely prevent the risk of data and personal information leakage, while four rounds of self-examination and rectification were carried out, and with technical testing and problem rectification for app with more than one million users being conducted, there was no major data security incidents identified in the process.
- Fully leveraged the advantage brought by big data technology resources, the Company developed models for abnormal equipment identification which found a large number of GOIP and similar devices, effectively helping the public security administrations to pin down fraud dens.

China Unicom Shanghai has set up a real-name registration system to strengthen risk control and fraud prevention. In 2019, it activated and conducted spot checks and supplementary review of photos under real-name registration for 4,273,800 subscription orders, and found 91,900 non-compliant orders. All non-compliant phone numbers were immediately shut down.

In August 2019, it was found in a real-name photo review that an agent of Pudong branch had illegally approved more than 40,000 cases, all of which had been shut down, thus eliminating the potential danger of fraudulent use of such numbers by criminals.

Beijing Unicom leveraged its capabilities in Internet big data analysis and targeted intervention to address the frequent complaints about medical institutions and disguised medical institutions deceiving patients and consumers by establishing a high-risk website library and setting up mobile phone pop-up reminders to assist the government to regulate services in the healthcare industry.



China Unicom Henan continued to build a new anti-fraud and anti-harassment phone management system integrating accurate identification of malicious phone numbers, rapid shutdown, rectification & supervision, and source accountability, which improved the accuracy and effectiveness of the fight against fraud and harassment, effectively protected user communication and property security, enhancing customer perception.

Protection on network security

With the mission to be the protector of network security, China Unicom has constantly optimised its network security products and strengthened its service capabilities. For government and enterprise customers, China Unicom continued to improve the China Unicom Cloud Shield product series by increasingly enhancing DDoS scrubbing capacity to the comprehensive protection level of 3 Tbps by adding intelligent filtering techniques and capabilities in protection of IPv6 traffic. Furthermore, the Company officially launched domain name security products, and fully carried out research and development of various security tools covering web security, vulnerability scanning, DC security, and etc. These efforts helped guarantee the network security for important events as the NPC and CPPCC Sessions, the Belt and Road Summit, and the Military World Games.

For public customers, the Company continuously carried out network security promotion and education. Since the launched of the international call reminder and SMS notification service in January 2019, the Company had a total of 100.67 million call reminders, and 1.53 billion SMS and MMS security alert messages sent through mass texting.

China Unicom Tianjin developed the “Three-dimensional Security Electric Fence” to monitor and protect areas such as data collection, data access and data transfer, covering all network traffic of the China Unicom Tianjin mobile core network. Through this initiative, it achieved “data access protected”, “data encryption”, “data integrity” and “identity authentication” over basic network information, improving the network and data security of the platform system while lowering the security risk of data leakage.



AN “ESSENTIAL PILLAR” IN IMPROVING PEOPLE’S LIVELIHOOD

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AN “ESSENTIAL PILLAR” IN IMPROVING PEOPLE’S LIVELIHOOD

China Unicom holds high regard for and strives to tackle livelihood problems. In this connection, we take an active part in community charity leveraging our own expertise and technical strengths, earnestly engaged in emergency telecommunication assurance, targeted poverty alleviation, charitable donations, disaster and poverty relief and volunteer services. Further, we uphold the philosophy of growing together with employees, and conduct all aspects of our overseas operations in a responsible way, thereby contributing to harmonious development of businesses and communities.

Measures adopted in 2019

- Participated in emergency rescue and disaster relief, ensured reliable communication during flood season and the epidemic outbreak, and provided secure communication services for the Beijing International Horticultural Expo, the Belt and Road Forum for International Cooperation and the celebrations of the 70th anniversary of the founding of New China.
- Engaged in targeted poverty alleviation through poverty alleviation charity activities such as providing communication services, purchasing products and services from poor areas and supporting the development of local industries in poor areas.
- Took part in community charity and cared for the underprivileged by engaging in voluntary poverty alleviation and community services and other voluntary activities. Actively fulfilled overseas corporate responsibility.
- Built a warm and harmonious labour relationship with employees through safeguarding the legitimate rights and interests of employees, caring for their physical and mental well-being, and enhancing their sense of fulfilment.

Actions to be taken in 2020

- Enhance emergency drills and conduct safety inspections, delivering our commitment to providing ever better, reliable communication network services.
- Leverage corporate, industry and reform edges to offer precise aid with various parties with a focus on local industries, livelihood and information technology, thereby fulfilling our social responsibility in the field of poverty alleviation.
- Actively participate in charity activities, with an aim to build a unified volunteer service brand embodying our corporate cultural values.
- Push forward with the market-oriented reform of human resources systems to share the success of our development with employees and continuously improve their sense of fulfilment.

ASSURING EMERGENCY COMMUNICATIONS

Participating in emergency rescue and disaster relief

Improving emergency response plan and conducting emergency drills

In 2019, China Unicom amended its emergency response plan for communication assurance, organised emergency drills, carried out safety inspection and completed rectification before the flood season. In addition, China Unicom adopted a daily reporting system, launched the emergency command system in a timely manner after occurrence of unexpected disasters and introduced a 7*24-hour roster so that emergency repair personnel could be dispatched to the emergency sites as early as possible.

Ensuring communication security during flood season

During severe floods, flash floods, mudslides, landslides and other disasters in 2019, China Unicom, with a high sense of responsibility, braved difficulties and dangers to ensure communication security during the flood season for important authorities such as the organisations, government and military agencies, and flood and drought control offices. In 2019, China Unicom committed an aggregate of RMB258.38 million to emergency work, despatched emergency personnel for 97,850 person-times, emergency vehicles for 39,676 unit-times, emergency devices for 3,688 unit-times and emergency power generators for 40,266 unit-times, and sent 391.27 million emergency SMSs.

In 2019, we committed RMB **258.38** million to emergency work, and despatched emergency personnel for **97,850** person-times.

All-out efforts to combat Typhoon Lekima

In August 2019, super typhoon Lekima battered Taizhou of Zhejiang province, damaging communication facilities, and disrupting the power supply in Wenling. In response, our staff worked together to fight the typhoon. We arranged and despatched 310 portable power generators, 68 mobile power-generator trucks, as well as woven sandbags, water suction pumps, optical cables, power cables, concrete poles and other resources. Our technicians, braving the dangers of flood, carried equipment and rushed to the site, and repaired communication facilities and restored network signals at the fastest speed.



Provision of communication assurance services

Providing communication assurance services for Beijing International Horticultural Exposition

The 2019 International Horticultural Exposition was held in Beijing from 28 April to 9 October 2019. China Unicom, via its Beijing branch, provided dedicated circuits, mobile 3G/4G/5G network services, and relevant services for 5G intelligent medical projects for the exposition, which involved 115 3/4/5G key base stations, 19 new 5G base stations and 508 key districts. A total of 653 technicians were deployed and 96 vehicles and 3 emergency communication vehicles were arranged to ensure superb communication services for the exposition with the strictest standards, the best quality, the highest level, the most effective measures and the best effect.



Providing communication assurance services for the 2nd Belt and Road Forum for International Cooperation

China Unicom was responsible for assuring communication services, network security and information security for the 2nd Belt and Road Forum for International Cooperation held in Beijing during 25 to 27 April 2019. China Unicom provided various communication services and innovative service applications such as network security situational awareness, big-data traffic monitoring and analysis, and cloud integration for the China National Convention Centre and the Beijing Yanqi Lake International Convention & Exhibition Centre, and provided video transmission services for China Central Television (CCTV), Xinhua News Agency, Beijing Media Network and other media. The E1E2 news centre, the Huairou core island and the No. 9 Villa news centre were fully covered by 5G signals. 394 new dedicated lines were deployed for the forum, and a total of 766 dedicated lines were in service.

Providing communication assurance services for the celebrations of the 70th Anniversary of the founding of New China

The celebration ceremony for the 70th anniversary of the founding of the People's Republic of China was held on 1 October 2019. Be it the grand military parade, heart-stirring mass procession, ear-splitting gun salute ceremony or gorgeous firework displays, China Unicom spared no effort to ensure the reliability and security of communication network, deploying 1,315 staff and 138 vehicles, and 7 magneto telephone sets, 643 telephones, 324 analogue dedicated lines, 664-core optical fibres and 309 video transmission channels at 356 key locations.



Highlight 1: World records at football pitch – “Project Splendour”



Highlight 2: 5G + 4K HD video footage transmission



Highlight 3: Blockchain technology – the simplest identity authentication



Highlight 4: Perfectly precise timing of fireworks firing system

Every member of China Unicom acted in unison to battle the COVID-19 epidemic— an account of China Unicom making all-out efforts in epidemic control and prevention

If the epidemic was an order, controlling it would be our responsibility. Since the outbreak of the COVID-19, China Unicom has dutifully completed all tasks delegated by the government, and earnestly delivered our mission as an operator of basic telecommunications services. Acting in unison, we fully mobilised all our resources in the endeavour to fight and defeat the epidemic.

Rallying for the fight against the COVID-19 outbreak

Upon outbreak of the epidemic, China Unicom immediately issued a notice on system-wide prevention and control of the epidemic, and set up a leadership team headed by Chairman Wang Xiaochu to take charge of epidemic prevention and control. In addition, the internal liaison and communication mechanism was improved, more manpower was put on emergency duty shifts, and a daily reporting system for epidemic prevention and control was put in place at the first possible time.

On 28 January 2020, the epidemic prevention and control leadership team held a meeting to restudy and redeploy the arrangements for prevention and control of the epidemic, requiring full utilization of the advantages of China Unicom to contribute to the prevention and control of the epidemic.

Demonstrating our strength and responsibility as a state-owned enterprise

China Unicom has made every effort to ensure emergency communication and network security, and assure smooth communications. We swiftly invoked our nationwide emergency response mechanism to ensure smooth communication of the government command systems. As of 7 February 2020, we had put a total of 150,000 man shifts on emergency guard, despatched emergency communication assurance personnel for 130,000 person-times, despatched emergency response and repair vehicles for 46,000 unit-times and guaranteed the operation of 34,000 dedicated lines. During the epidemic prevention and control period, we proactively cooperated with government authorities, and sent a total of over 6.7 billion public SMSs covering epidemic warnings, traffic conditions, public health alerts and tips on epidemic prevention and control, contributing to the prevention of wrong information and rumours spreading online.

Help coming from all sides

China Unicom provided medical supplies for epidemic prevention and control to Hubei at the earliest time possible. As of 27 January 2020, China Unicom had collected and distributed nearly 250,000 face masks, 300,000 pairs of medical gloves, a large number of protective suits, disinfectants and other aid supplies, and delivered two batches of medical supplies and communication support to Hubei.

Joining Wuhan's fight against the epidemic

In order to deploy network coverage for the newly-built hospitals in Wuhan as fast as possible, China Unicom invested nearly RMB10 million in network construction. Staff of our Hubei branch rushed to the front line and worked day and night in the cold winds, completing the 3G/4G/5G network coverage for Huoshenshan Hospital in only 36 hours and for Leishenshan Hospital in only two days, setting a new record for the speed of launch of new base stations. In addition, we completed the capacity expansion and speed enhancement of the dedicated lines connecting Hubei Centre for Disease Control and Prevention with all its city-level offices, and the dedicated lines of BGI Genomics Co., Ltd. which undertook a large amount of nucleic acid tests. As of 31 January 2020, our Hubei branch had despatched communication assurance personnel for 3,861 person-times and vehicles for 1,435 unit-times, inspected telecommunication lines of 14,317 kilometres, identified and addressed 1,141 faults, and sent 128.54 million public SMS alerts about epidemic prevention and control, making it an important force in Hubei's battle against the epidemic.



China Unicom Hubei branch's network deployment team at the construction site of Leishenshan Hospital



Network deployment at Huoshenshan Hospital

Intelligent services to aid the fight against the epidemic.

We provided a variety of products and services in relation to epidemic prevention and control for ministries and commissions of the government, media agencies, healthcare, education, business, ecological & environmental protection and other institutions and organisations. For the 39 key dedicated lines connected with the Chinese Centre for Disease Control and Prevention, we upgraded the network speed from existing 300M "gold" dedicated lines to 500M free of charge. We also provided free cloud video conferencing services during the epidemic outbreak to meet the needs of emergency command and deployment, remote medical consultation, high-definition video conferencing, etc. In addition, we provided cloud learning platform, big data analysis in epidemic prevention, thermal imaging for detecting and monitoring body temperature, management platform for epidemic control supplies, AI robots for collecting information from recovered patients and other services to aid the fight against the epidemic.

- Adopting special policies such as delaying service suspension for subscribers with overdue bills. We delayed service suspension for 250 million subscribers in 19 provinces hit hard by the epidemic, and gave away RMB520 of tariff credit to each of the China Unicom subscribers among the medical workers sent to aid the Hubei medical system. Besides, we made every effort to meet telecommunication demand, and offered subscribers in Hubei with free dedicated data packages for watching videos and 7-day video membership, benefiting 130,000 subscribers.
- Our cloud video conferencing system facilitates telecommuting for nearly 18,000 institutions and departments in 31 provinces, autonomous regions and direct municipalities, serving 122,200 registered users and 44,600 video conferences.
- We provided big data services for epidemic prevention and control, developed 13 data models for epidemic prevention and control, delivered 7 big data platforms for epidemic prevention and control, developed 6 AI products for epidemic prevention, sent 3,920 data and analysis reports in encrypted form, set up 2,511 data visualisation accounts, and sent 60.442 million SMSs in respect of epidemic alerts and reminders.
- In response to the Ministry of Education's call – "study must not stop", we rolled out an innovative integrated solution – "WO Family Online Classroom" – for primary and secondary schools.
- We organised and launched IPTV and 5G WO video free-viewing campaigns. Total viewing time of on-demand TV dramas and movies amounted to 163 million hours during the Spring Festival.

Note: the above data are as of 18 February 2020.

ENGAGING IN TARGETED POVERTY ALLEVIATION

Introducing poverty-alleviation packages

China Unicom adopted a preferential tariff policy for impoverished areas and rural areas to ease the burden on subscribers in need.

- Offering poverty-alleviation packages, which have benefited over 530,000 registered poverty-stricken subscribers in a practical way.
- Providing concessionary packages for rural areas, such as "King Card", "Data King" and "Basic Integrated Package", and enabling farmers to enjoy tariff concessions and more privileges through financial instalment, privileges plus intelligent terminals and applications promoting rural development.
- Our branches in Tianjin, Hebei, Liaoning, Jilin, Anhui, Hubei, Hunan, Guangdong, Chongqing, Sichuan, Guizhou, Yunnan, Tibet, Xinjiang and other provinces and regions offered preferential broadband and integrated packages in impoverished areas with reference to the local conditions.

Developing intelligent services to help fight poverty

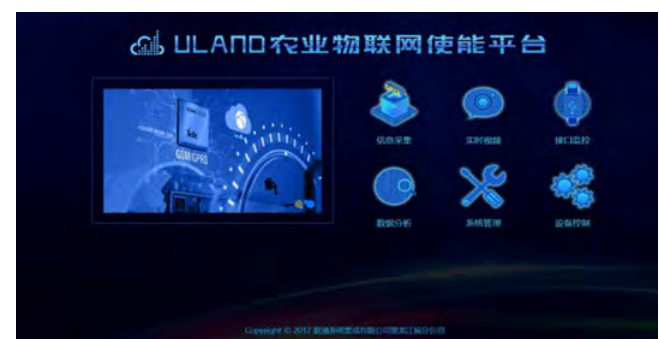
China Unicom integrates next-generation information technologies such as mobile Internet, cloud computing, big data and Internet of Things into agricultural production, operation, management and services in an all-round way, so as to speed up the transformation of agricultural production model, innovate the distribution channels of agricultural products, achieve efficient and transparent agricultural management, and promote agricultural information services among rural households, thereby eventually establishing a new informatisation paradigm that supports the development of modern agriculture and the integrated development of urban and rural areas.

- The WO Land smart agriculture cloud platform utilises mobile Internet, cloud computing, big data, remote sensing and other technical means to develop an "Internet + Agriculture" solution covering the entire value chain of agricultural production, operation, management and services, and thus develop a regional modern industrial ecology for the agricultural sector.
- The agricultural production environment monitoring cloud platform provides comprehensive functions such as information collection, data analysis, IoT information display, health examination, video management, equipment management and coordinated control at the sensing layer of the agricultural IoT, and provides data support and open capability for agricultural applications such as agricultural product traceability and agricultural e-commerce platforms at the upper level.

In 2019, the number of channels in rural and remote impoverished areas reached

184,000

China Unicom Shandong branch provided heavy tariff concessions for poverty-stricken households in such services as "Beautiful Countryside Voice Package", "Shandong Traffic Data King", and "Optical Broadband 100M", benefiting 43,600 households in poverty with total concessionary value of RMB7.9 million. In addition, the branch joined hands with relevant government agencies to assist Houji Village, Houji Town, Cao County, Heze City, including giving mobile phones and one-year tariff credit to the elderly living alone, setting up vegetable greenhouses, constructing sewer systems, performing road hardening and other infrastructure works.

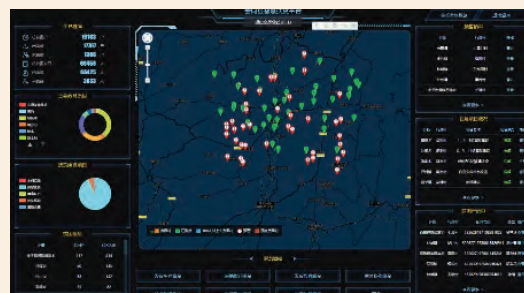


Through Fuzhou Welfare Funds Supervision Platform, China Unicom Fuzhou branch has developed an accurate model with data covering 70 types of welfare funds valued at RMB6.9 billion benefiting 1.6 million people. In the model, any abnormal grant of fund can be automatically identified, and all the fund grants are publicised online in an intuitive manner. Since its launch over a year ago, the platform's average daily hits have exceeded 50,000, with the total number of visits exceeding 28 million. After discovery of clues concerning irregularities involving 597 persons, 208 persons were given disciplinary and administrative sanctions, and 323 persons were penalised by other organisations. The platform has become a daily life website that provides convenient and efficient service for the people, satisfaction for the officials and robust supervision.

China Unicom Hunan branch innovatively adopted the “big data + targeted poverty alleviation” model, and developed a “smart poverty alleviation” platform which uses such technologies as big data, cloud computing and mobile Internet to develop such functions as data comparison, data-based early warning, poverty alleviation policy, and “grand infographic display”, which enables poverty alleviation “from villages to households and to specific persons”. In 2018, it effectively helped lift Huitong County in Hunan Province from poverty. In 2019, it reviewed and compared one by one the information and data concerning aid policies and measures adopted for the 69,458 registered poverty-stricken residents in 19,163 households in the county, and completed more than 300,000 accurate data comparisons, fighting poverty with the help of informatisation.



Integrated management platform for intelligent poverty alleviation



The “grand infographic display” portal of intelligent poverty alleviation

🎯 Fulfilling targeted aid missions

China Unicom actively undertook its aid missions for targeted areas covering 1,855 impoverished villages in 1,198 counties. A total of 1,440 employees from over 500 operating units joined the fight at the frontline of poverty alleviation. With a focus on ensuring targeted aid recipients are free from worries over food and clothing and have access to compulsory education, basic medical services and safe housing, China Unicom, leveraging targeted efforts and industry advantages, strove to improve people’s livelihood in targeted areas by such means as supporting local industries, purchasing local goods and services, improving education and undertaking infrastructure construction, and implemented a large number of aid projects in the impoverished areas. In 2019, China Unicom helped lifting 43,300 registered impoverished households from poverty.

- Adopting a caring policy for cadres engaged in poverty alleviation efforts, giving aid to more than 1,440 cadres to relieve their worries. Our Xinjiang branch has allocated special funds to improve the working and living conditions of over 200 in-village workers and to insure them against special health and accident risks.
- Setting up 322 local industry support projects, providing trainings for rural labour force and technical backbone for more than 5,200 person-times, providing aid to 1,338 poor students and invested in medical and health resources, benefiting a total of 2,242 impoverished people.
- Poverty-relief products were given priority when purchasing employee benefits and festival gifts, and all staff were encouraged to give priority to buying products from poverty-stricken areas at China Unicom’s poverty-relief flagship store. Poverty-relief products purchased by the whole Group amounted to over RMB73 million.
- In aiding Tibet, China Unicom focused on the implementation of the exemplary construction project of a well-off village in Wenbudangsang Township, and demolition and reconstruction of dilapidated buildings for registered households in poverty and relocation project, thereby solving local residents’ housing safety problems and providing safe housing for poor households.

China Unicom Hainan branch adopted the “Supporting Education and Aspiration” approach in delivering its designated aid mission towards Wenxin Village of Lingao County, and made targeted aid efforts in the areas of education, healthcare, industrial development and ecological protection. In 2019, it invested more than RMB200,000 in poverty alleviation efforts. It carried out the beautiful countryside construction campaigns, planting more than 16,000 green plants such as bougainvillea. It supported the development of local industries, developed an “experimental papaya plantation” at deteriorated forest, planting 160 papaya seedlings, and launched an “exemplary project on coconut plantation”. Besides, it set up “anti-poverty e-commerce supermarkets” in 11 townships and some large administrative villages in Baisha County, where poor households and ordinary villagers, upon registration, may get credit points in return for labour service and redeem such credit points for products at agricultural aid supermarkets, thereby providing guidance and support for the development of the local agricultural Taobao shops and village-level e-commerce service stations.



China Unicom Henan branch supported the development of local industries in its targeted poverty-aid area Nianzigou Village. It invested a total of RMB1.035 million for development of local industrial projects and infrastructure construction in Nianzigou Village, and helped introduce poverty alleviation funds of RMB1.37 million. Fully exploiting the local resources, it built an exemplary beekeeping project with an annual honey output of 400 kg, a Lu's chicken farm with a monthly output of 45,000 green-shell eggs, and a forsythia tea processing workshop, and developed the corn grits processing industry, which quadrupled the local collective income in 2019.



Exemplary beekeeping project before and after construction

Lu's chicken farm before and after construction

Corn grits processing plant

China Unicom Shanxi branch has sent 218 cadres (including 3 from provincial level branch, 14 from city-level branches and 124 from county-level branches) to 141 poverty-stricken villages to carry out concrete aid efforts. In 2019, 36 villages, involving 3,734 households and 8,939 residents, were lifted out of poverty, and a total of 28,618 households and 70,462 residents benefited from China Unicom's aid efforts. In addition, China Unicom Shanxi branch promoted the sales of agricultural by-products for these villages through a variety of channels and ways, helping Chaijiayao village sell 140 tons of corn and 5,000 kg of millet, and helping Pingluguoyuan village sell dried persimmon.



As co-development fellow units, China Unicom Jiangsu and Xinjiang branches gave full play to their complementary advantages in resources. China Unicom Jiangsu has purchased agricultural products from Xinjiang on a continued basis to address the difficulty local poor residents faced in sales of their agricultural products. It sent staff to Xinjiang in batches to support poverty alleviation efforts in Xinjiang, and carry out joint projects in respect of marketing, information technology, human resources, etc. In addition, it also provided equipment aids. In 2019, a total of RMB4,326,300 was invested in poverty alleviation work, of which RMB1,480,000 was invested in poverty alleviation projects and RMB2,846,300 was spent on purchasing poverty-relief products. Nine poverty alleviation projects were implemented. Joint poverty alleviation efforts between the two branches saw remarkable achievements.

Engaging in poverty alleviation charity

We are committed to poverty eradication and charity undertakings, bringing warmth to the poverty-stricken areas.

- Nearly 10,000 volunteers took part in voluntary poverty alleviation activities, benefiting nearly 50,000 people, and over RMB8 million poverty alleviation fund was raised through pairing-up aid programs, charitable donations and purchasing of poverty-relief products.
- We innovatively explored the "credit points plus cash donations" model for carrying out charity poverty alleviation. We joined hands with the China Youth Development Foundation to issue a charity action proposal—"earn credit points to aid impoverished students", appealing to the public and employees to make donations and show their love. The campaign raised RMB4,007,000 in donations with 363,000 participants, benefiting 3,350 poor students in the targeted poverty aid counties.
- Trade union cadres went into the frontline of poverty alleviation work, and organised volunteer teams to hold activities for supporting local education (voluntary teaching), sales of local products and donation of computers and clothing. Our Guangdong branch carried out targeted poverty alleviation operations in 75 impoverished villages, helping 10,000 poor residents get out of poverty.
- We organised the "China Unicom-United Power to Fight Poverty" photography competition and exhibition, so as to promote poverty alleviation philosophies and mobilize employees at all levels to show their care.



China Unicom Jiangmen branch visited children at the local welfare home



China Unicom delivers "Warm Scarfs" to children in Geji County, Tibet



China Unicom Hunan branch gives out "warm winter supplies" to residents of Dongjiu Village

China Unicom Zhejiang branch organised the 3rd Charity Customer Day—"Dazhan Township Juicy Peaches" live-streaming event, which amassed 10,889,100 views, 838,100 live views, and 4,554,000 likes, helping Duishan Village in Dazhan Township of Xianju County to sell 3,080 boxes of juicy peaches, totalling 7,700 kg. In addition, the branch helped build a live streaming studio for Duishan Village to promote their products, set up a Taobao shop named "Xianju Magic Fruit Flagship Store", and taught the residents live streaming and store operation skills, turning "farmers" into "shopkeepers"



China Unicom Zhejiang branch launches live streaming marketing for Duishan Village



Local farmers and live-streaming hosts call for participation in public welfare activities

DEEPENING COMMUNITY INVOLVEMENT

External donations amounted to RMB **2.23** million in 2019

Charitable donations

China Unicom has established robust management policy governing its charitable donations, proactively undertook and fulfilled social responsibility taking into account the advantages of its operations, and endeavoured to give back to the society and promote the sustainable development of public good undertakings.

Cause of donations	Amount of donation (in RMB thousands)
Donations to areas of targeted poverty alleviation (anti-poverty aid)	470
Donations to cultural and sporting programmes	420
Donations to education (student aid)	490
Donations for the construction of social and public facilities	90
Donations for other purposes (charitable reliefs, healthcare and environmental protection)	760
Total	2,230

Caring for the underprivileged

China Unicom has always placed fulfilment of social responsibility and care for the underprivileged high on the agenda. We strive to get in-depth understanding of the real needs of the disabled, children and college students, migrant workers and others, and deliver our aid and care through initiatives such as corporate donations, charity shows, employment assistance and social services.

- We actively participate in the charitable activities organised by the China Disabled Persons' Federation, and provide disabled persons with services such as monthly fee reduction, concessionary packages and ancillary dedicated services. At our service outlets, special desks and special green channels are arranged to provide priority services for people with visual, hearing or speech impairment. We also provide door-to-door service for those with travel difficulties.
- We provide traffic-data king package at the floor price of RMB8 for low-income and elderly groups, effectively protecting the rights and interests of consumers, which had benefited about 3 million subscribers by the end of 2019.

China Unicom Huzhou branch held the Little Swallow Charity Campaign—“Innovating and sharing a good smart living” and gave a series of lectures for the elderly on the use of smart phones, anti-telecom fraud and other aspects. The branch also engaged in voluntary services such as charity sales on the International Day of the Deaf, social services held by the city’s Disabled Persons’ Federation on the National Special Olympics Day, and the disabled athletes’ curling competition, demonstrating its care for the disabled. In 2019, 106 charity lectures were held, serving 1,995 elderly people. 94 voluntary service activities were held to contribute to urban construction. 2,541 people benefited from charity services.



Showing the elderly how to use smartphones



Providing assistance for the disabled athletes’ curling competition

China Unicom Chongqing branch launched the “WO Charity Programme” to help special needy groups such as impoverished children and college students who are morally and academically excellent, left-behind children or children with mental disorders. It donated RMB280,000 and 3,000 mobile phone cards, and raised RMB180,000 donations for 100 impoverished primary and secondary school students in Chongqing. In addition, it built 12 “China Unicom Chongqing Charity Libraries” and held a variety of activities such as handicraft classes to improve the spiritual and physical life of teenagers in an all-round way.



WO Charity Fund held a campaign for donating credit points to “China Unicom Charity Libraries”

In 2019, China Unicom Sichuan branch built 62 “Energy Refilling Stations” to mainly provide free drinking water, rest areas, mobile phone charging service, Wi-Fi access and other conveniences for social groups in need of help such as sanitation workers, couriers, the disabled and stay-behind personnel, serving a total of more than 1,500 outdoor manual workers.



Serving sanitation workers



Serving couriers



Heart-warming activities held by China Unicom Shenzhen branch

China Unicom Shenzhen branch upgraded its “warm homecoming way” campaign, and launched 12,439 caring activities such as “Loving Pengcheng”, “Pengcheng in Spring”, “Volunteer City 3.0 Construction” and “Caring for Huaxi People”, which benefited more than 400,000 people from various sectors such as construction workers, sanitation workers and the disabled, paving a road of love that resonates with the slogan—“Once you’ve come, you’re a Shenzheners”, and creating a new model of “cross-sector coordination, sharing resources and caring together”.

Engaged in voluntary activities

China Unicom, with a voluntary service system in place, upholds the voluntary spirit of “dedication, friendship, mutual assistance and progress” and carries out through various means voluntary service activities such as poverty alleviation, community services, caring for children, and serving the elderly and orphans, putting into practices the core socialist values.

- We have joined more than 1,800 volunteer service organisations, with over 55,000 man-times of participation in volunteer service activities for supporting education, serving the community and aiding the needy, helping a total of 240,000 people.

- We joined hands with charitable organisations. We launched the “Warm Scarfs” charity activity with the China Youth Development Foundation, raising a total of more than RMB290,000, and online soft articles amassing over one million views. 3,015 sets of winter clothing and items were purchased for children in kindergartens, primary schools and junior high schools in Geji County, Tibet, and the remaining fund was transferred to the “China Unicom Credit Points-based Student Aid Program” to provide financial aid to registered impoverished students in Geji County.

47,930 registered volunteers

55,004 man-times of participation in volunteer service activities

- We held the large-scale charity event—"Make their dream come true – offering ping pong supplies for Xinjiang children", and all donations received at the event were delivered to the children in Kizilsu Kirgiz Autonomous Prefecture, Xinjiang.
- In 2019, China Unicom was honoured as a "Best Charity Partner of Project Hope" by China Youth Development Foundation.

China Unicom Shandong branch's Jinan No.1 Call Centre held a number of charitable donation activities. In particular, the call centre donated 149 books, 121 pieces of school supplies such as notebooks, pencils and crayons to children in Chenzhuang Village, Liji Town, Yuncheng County, Heze City; donated nearly 1,000 pieces of winter clothing and other supplies to impoverished residents in Labai Village, Hongmo Township, Mianning County, Xichang City, Liangshan Yi Autonomous Prefecture and Yisong Zhai, Aba Tibetan and Qiang Autonomous Prefecture, Sichuan Province; and raised funds to purchase cotton-padded clothes, thermal clothes and other daily necessities for the children in the Angels Home of Jinan Children's Welfare Centre. The call centre did their best to give back to the society with practical actions.

China Unicom Sichuan branch launched heart-warming winter charity activities. Teenage members from 23 junior units participated in volunteer services for more than 2,000 man-times, such as planting trees, providing public services, caring for the underprivileged, paying caring visits to war veterans and sanitation workers. In particular, over RMB7,000 was donated to the "Warm Scarfs" campaign and other charity activities; and China Unicom Sichuan donated more than 8,000 pairs of gloves to targeted poverty-stricken townships, the underprivileged, and schools in impoverished areas.

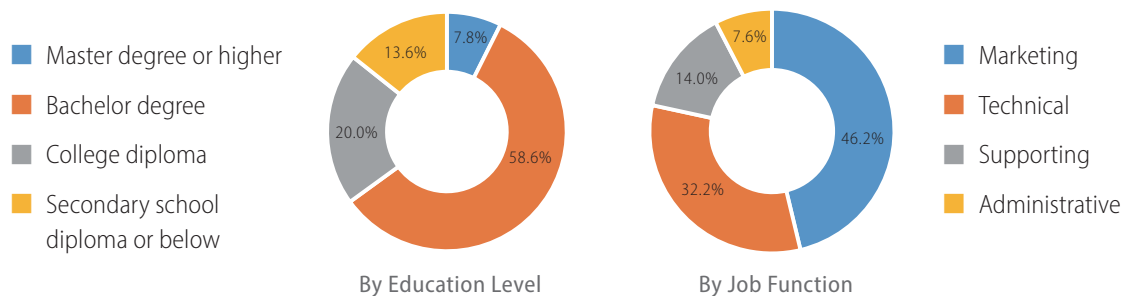


Heart-warming winter charity activities held by China Unicom Sichuan

China Unicom Xinjiang branch has been organising the "China Unicom Charity Library" donation initiative since 2013. As at the end of 2019, 295 libraries had been built and 270,000 books had been donated for the benefit of nearly 160,000 primary and secondary school students of different ethnic groups in Xinjiang. In the year, the branch held a live streaming activity for the kids in Tougebasite (托各巴斯特) Primary School in Jiashi County of Kashgar Prefecture and three other primary schools, allowing the children to interact live with people who donated credit points, which amassed over 7.8 million views. In this way, the branch managed to attract more customers to participate in the activity, and enabled more people to get a real glimpse and better understanding of Xinjiang.

CARING FOR EMPLOYEE GROWTH

China Unicom always upholds the philosophy that employees are the cornerstone underpinning corporate development, and expressly states that human resources represent the primary resources of the Company. In 2019, the Company addressed the concerns of employees through 20 practical measures concerning employees' career development, remuneration and benefits, personal growth and success, and work and life. Our market-oriented reform of the human resources system made it possible for the Company to share development results with employees and continuously enhance their sense of fulfilment. The Company effectively safeguards the legitimate rights and interests of employees and cares for their physical and mental health, creating a warm and harmonious labour relationship, enhancing employees' sense of fulfilment and happiness and thus achieving the mutual growth of both the Company and employees.



Total number of employees	New recruits	Gender Distribution (Male/Female)	Proportion of ethnic minority employees (%)	Turnover rate (%)
243,790	9,913	1.53 : 1	7.33	1.85

Note: The total number of employees includes only in-service employees.

China Unicom Henan branch established a work journal system and clearly defined following six key tasks for team building: (i) incorporating the promotion of the "20 Measures" for team building into the key tasks of the thematic education campaign; (ii) establishing a policy for the "five necessary conversations" with employees; (iii) launching "Me and China Unicom" series of activities, and a creative contest of "20 Measures Infographic", and the employee happiness show "I am a spokesperson for China Unicom"; (iv) assessing the current status of professional teams and formulating employment plans accordingly; (v) providing funding for the projects undertaken during the Group's "undertaking to tackle" activity; and (vi) driving the completion of the "five small" construction at township business units and improving the working and living conditions of junior employees.

China Unicom Fujian Ningde branch strictly implemented the "20 Measures for Team Building" and strengthened employee education on ideals and beliefs through a series of activities such as lectures on "Enhancing through Learning", the "Me and My Motherland" poetry recitation and music performance and the "Remembering Original Aspiration and Mission" singing contest. In addition, the branch held "WO delivering health" and "Tea Party" activities for junior employees, and set up yoga clubs for employees, aiming at boosting the physical and mental well-being of employees; and set up "staff home" activity facility which integrates fitness room, yoga room, physiotherapy room and a tea lounge to improve working environment.



China Unicom Mudanjiang branch closely integrated the "20 Measures" for workforce development with its own "Vanguard Culture" campaign to enhance care for employees from tiny aspects. The branch held the "I am thankful for having you" family open day and invited representatives of employees selected as "Pioneering Individuals" and their families to visit the company and get a taste of its culture and atmosphere. In addition, a "Welcome Home" themed event was held for retired employees, and a special "homecoming" visit was arranged for 48 retired employees who strived for their aspirations and loved the Company.



Safeguarding employees' rights and interests

China Unicom acts in strict compliance with the "Labour Contract Law of the PRC" and enters into an employment contract with every employee. In particular, 20 provincial branches have also signed the "Collective Contract for Protection of Female Employees' Rights and Interests" and 16 provincial branches have signed the "Collective Contract for Wage Negotiation". China Unicom strictly complies with the "Interim Provisions on Labour Despatch", continuously promotes employment improvement and standardized management, and adopts the policy on equal pay for equal work in accordance with national requirements, resulting in growing employee satisfaction.

The Group strictly complies the national policies and regulations on social insurance, housing provident fund and enterprise annuity. It makes contributions to pension, medical, work-related injury, maternity and unemployment insurance schemes for employees, and has set up an enterprise annuity plan for employees on a voluntary basis. The Company effectively protects employees' right to rest and leave, puts into effect paid leave policy, provides allowance or leave in lieu for overtime work, and preserves job positions for employees who take maternity/paternity leave, protecting the legitimate rights and interests of employees. In addition to annual health checks for all employees, the Company has arranged health lectures, critical illness insurance and other health programs for employees, continuously improving its employee health protection system.

China Unicom attaches great importance to protecting human rights and respecting personal privacy. Any discrimination against employees on grounds of age, ethnicity or gender in the process of recruitment and promotion, and the use of child labour and forced labour are strictly forbidden. A mechanism has been established to protect employees' rights and interests and ensure a proper channel in place for employee complaints. The Group has established 131 labour dispute mediation organisations at different levels, equipped with 251 mediators. In 2019, 7 labour disputes were submitted for mediation, and no incident of discrimination occurred.

China Unicom has improved the mechanism for fixing total payroll and conferred the remuneration management authority on the Board of Directors. Remuneration distribution for front-line employees is based on an incremental value sharing mechanism, and the employees' average salary increased by 7% year-on-year. The Company insisted on an efficiency-oriented and fair approach for adjusting existing pay structure and reduced the existing staff costs in five provinces by RMB220 million, breaking away from the rigid remuneration distribution in the past. In addition, more incentives have been allocated in innovative businesses, and the average pay of employees in the innovative business special zone increased by 22% year-on-year. The Company has established a long-term incentive system framework and improved the flexible employee benefit system, with a view to further enhancing employees' sense of fulfilment.

Underscoring talent development

Through the establishment of a four-level talent system, China Unicom has put in place a dual track system for the development of professional talents. It carried out the echelon construction of talent teams in the professional fields of IT, network operation and maintenance, industry Internet, finance, human resources and law. 15,000 professionals have been selected to form four-tier professional talent teams comprising team leads, experts, core members and new talents. An employee selected into a talent team may be quickly promoted to a position of the same rank as the management level, which helps form a benign mechanism and ambience in the Company for gifted talents to perform.

◎ Establishing an innovative talent zone

A new market-oriented talent mechanism has been established based on the principle of “six breakaways”. For the leadership of subsidiaries engaged in Internet innovative businesses, the traditional management hierarchy was eliminated. Besides, the Special Plan for Recruitment of Leading Experts was formulated to strengthen the recruitment of high-end talent. In addition to recruitment of top talent and industry experts in the fields of cloud computing, big data, Internet of Things, artificial intelligence and security, more efforts were also made to identify and attract high-end talent overseas through various channels.

Special resources invested in innovative businesses amounted to approximately RMB **1,490** million.

11 high-end talents and **20** top talents and industry experts were recruited.

- Increase in volume: Continuing to implement the “U Graduates”, “Elite Hunt” and “New Vitality” programmes to increase the talent supply through recruitment of fresh graduates, head-hunting for high-end talents and mobility of existing staff. The total number of special talents in innovative businesses exceeded 7,000.
- Capability enhancement: Continuing to implement the “U Growth”, “Engine” and “Accelerator” programmes to enhance the IT and innovative capabilities of fresh graduates, existing personnel and innovative talents. The Company has developed 24 professional competence standards and curriculum systems with more than 1,000 online courses, and built up an IT professionals training base which provided in-depth training for 70,000 person-days and organised certification exams for 24,000 persons.
- Efficient utilisation: Continuing to implement the “co-creation” and “sharing” programmes, which encourages value creation through cross-organisation centralised deployment and establishment of knowledge sharing system.

◎ Reconstructing education and training system

China Unicom issued the Annual Key Training Programme of China Unicom, aiming to form the overall framework of a group-wide education and training system and promote the implementation of the training system in all operating units.

- The Group organised a total of 951 training sessions for management personnel, with more than 27,000 participants.
- Continuous improvement of training curriculum. Focusing on innovative businesses, the Company established the aptitude standard and curriculum systems for 17 sub-fields of 7 subjects, comprising 318 course syllabuses; the aptitude standard and curriculum systems for 11 sub-fields of 4 subjects in the network area, comprising 274 course syllabuses; and 3 professional competence standards for government and enterprise businesses.
- Increasing efforts in development of online colleges and online courses. By fully utilizing Internet-oriented operation, the Company continued to improve the functions and applications of the online learning platforms. During the year, more than 1,041 new courses were added, bringing the total number of courses to 8,071, with over 18 million participants.
- Facilitating the new Internet-based operation through employee skill competitions. During the year, a total of 1,400 skill competitions were held at various levels, of which 34 were group-wide competitions, covering more than 200,000 employees, hitting new records in terms of the numbers of competitions, participants and fields covered.

Target participants	Training topics
Management	In combination with the thematic education campaign, 12 sessions of training in rotation were held, with a total of 901 participants; A “Going Out” training programme was adopted, and 90 senior management members had communication and exchanges with strategic partners in the mixed-ownership reform; Focusing on key business areas such as the industry Internet, the Company held cooperative training for 115 middle and senior management members in professional areas.
Outstanding young cadres	An advanced training programme for young and middle-aged cadres was held, with a total of 87 full-time participants; and a demonstration training class for outstanding young cadres was held, with a total of 52 participants.
Innovative and professional talents	190 professional skill training sessions were held at the headquarters, with a total of over 15,000 participants. In particular, more than 90 training sessions focusing on key business areas were held, with a total of more than 5,000 participants; 26 special training sessions were provided for innovative talents, with a total of more than 2,500 participants; two training sessions were provided for key employees at the headquarters, with a total of 78 participants; and 8 training sessions were provided for B-class talents in network profession, with a total of 440 participants.
Front-line employees	Approximately 70,000 training sessions were provided for front-line employees engaged in sales, installation and maintenance and call centre services, with a total of more than 1.97 million participants. A competency certification programme was launched for front-line employees, and the number of employees certified throughout the year reached 39,000.



China Unicom IT Innovation Skills Competition



China Unicom Big Data Innovation Competition & "Cloud Fibre Smart Enterprise" Facilitating Corporate Cloud Migration Development Competition



China Unicom Smart Home Engineer Skills Competition



Customer Service Skills Competition held by China Unicom Fujian branch



Home Delivery Marketing Skills Competition held by China Unicom Tianjin branch



Business Skills Competition held by China Unicom Zhejiang branch



Customer Complaint Handling Skills Competition held by China Unicom Hunan branch

◎ Promoting outstanding young cadres

China Unicom issued the Notice on Measures for Further Strengthening the Development of Young Cadre Teams, which set the near-term and medium to long-term goals and set forth 17 specific measures from five aspects for developing a long-term mechanism for the development of young cadre teams. Since June 2019, a total of 11 second-tier deputy management officers were promoted by the Company, of whom 6 were aged 45 or below, accounting for 55%, representing an increase of nearly 30% as compared with the previous three years.

👤 Respecting democratic participation

In 2019, China Unicom amended the rules governing the democratic corporate management of China Unicom member companies at the city-provincial-headquarters levels, updated the rules of procedure of the staff representative assembly, formulated the operational workflow template for staff representative assembly, clarified the responsibilities and obligations of staff representatives, and strengthened the organisational guarantee for trade unions to serve as the working bodies of staff representative assemblies. Trade unions at all levels, serving as the working bodies of the staff representative assembly, have adopted a policy on reporting before and after staff representative assembly, so as to put into effect the guiding, supervising and monitoring roles of staff representative assemblies at all levels, and ensure that material matters of the members of the Group at all levels and matters concerning the interests of employees are submitted to staff representative assemblies for consideration.



The sixth meeting of the second session of the staff representative assembly of China Unicom



Staff representative assemblies and corporate open forum held by provincial branches

493 staff representative assemblies at different levels were held throughout the year

211 sessions of "Online Meeting with General Manager" at different levels were held in the year, with a total of **80,000** participants

Emphasising employee service

In consistent adherence to the philosophy of serving employees, serving the overall interests and putting people first, China Unicom strengthens its employee service system on a continuing basis by innovating on measures to better serve employees and promoting corporate culture, thereby creating a positive, healthy and harmonious atmosphere.

Innovating on the system for serving female employees

China Unicom provides innovative services to female employees, insists on safeguarding their rights and interests, promotes gender equality and equal pay for equal work, and ensures equal exercise of their rights according to law. The Company has earnestly implemented the safe production and sanitation systems for female employees and formulated policies and measures to care for female employees who are in pregnancy or lactation period, thereby safeguarding the rights and interests of female employees in a more standardized and institutionalized manner.

In order to stimulate the enthusiasm of female employees to pursue professional growth, make more contribution and move up in their careers, the Group's trade union launched the "We are heroines in the new era" campaign, providing a platform for female employees to grow and develop and achieve success in their careers. In 2019, 106 "Female Pacesetters with Great Contribution" at group-wide level and 104 "Women Model Posts" were selected and honoured.

In order to enhance the support and care for female employees, the trade unions at all levels proactively carried out activities for female employees such as special health lectures, training courses, talent shows, EAP counselling, and other cultural, art and sports activities, and put into effect the policy of "Mothers' Station" and "Expectant Mother-only Parking Spaces". Besides, the trade unions held a wide range of activities for female employees such as lectures on protection of rights and interests and marriage law forum, took out female health insurance, provided special health check-ups for female employees, set up breastfeeding lounges, and conveyed the care and support of the Company to every female employee.



Recognition ceremony for women with great contribution hosted by China Unicom Xinjiang branch



China Unicom Guangxi branch celebrated March 8th Women's Day

◎ Caring for employees' life

China Unicom always cares for employees' life, and pays close attention to and focuses on solving the most pressing, most immediate issues that concern employees. In respect of nursery services, service scope was further expanded and curriculum was further enriched; and the number of classes and the number of kids enrolled significantly increased in 2019 by 40.4% and 18.6% year-on-year to 309 and 8,308, respectively.

Our branches in Shanxi, Shandong and Hunan provide nursery services for children of all local employees. Our branches in Fujian, Shaanxi and Jiangsu launched nursery programmes at county-level branches, helping more employees to relieve their worries. The 10 nurseries administered by our branches in Guangdong, Shanghai, Jilin and Inner Mongolia were honoured as "2019 National Trade Union—Loving Nurseries" by the Women Workers' Committee of the All-China Federation of Trade Unions.



The Company continuously improved the working and living environments of employees in sub-divided units. With a focus on the production activities of sub-divided units, we strived to improve the environment and conditions in respect of canteens, drinking water and heating for front-line employees. During the year, we completed the improvement work of 3,800 sub-divided units, which provided strong support for the sub-division reform of the Company.

In terms of the mental health of employees, the trade union of the Group continued to promote the Employee Assistance Programme (EAP), constantly improved the platform for mental-health publicity and education campaigns, training and assessment and counselling services, and strengthened its psychological counselling teams.

We offer critical illness insurance for all our employees at all times with no contribution and coverage gap. In 2019, the insured amount of 28 operating units exceeded RMB200,000, and the types of insurance purchased were gradually expanded, resulting in significant improvement in overall insurance coverage. Our branches in 13 provinces have purchased critical illness insurance for non-contracted employees, and our branches in 25 provinces have established mutual aid funds, which further extends the scope of insurance and forms an aid system comprising critical illness insurance, mutual aid fund and supplementary medical care insurance.



Wang Xiaochu (Chairman), Li Guohua (then President, now retired) and Li Fushen (Executive Director) took part in the 2019 Chinese New Year's Greeting Party held for retired cadres at the headquarters.

A total of **300** certified EAP specialists and psychological counsellors, providing more than
over **40,000** individual psychological counselling sessions in 2019

◎ Strengthening employee safety management

The Company attaches great importance to production safety. In rigorous implementation of the "Production Safety Law of the People's Republic of China" and other relevant laws and regulations, the Company has developed a long-term mechanism for production safety, and further strengthened the system concerning the primary responsibility of branches and subsidiaries at all levels for their own production safety, and the responsibility of management members at all levels and the responsibility of all employees for production safety. It is required that each branch or subsidiary at provincial level should designate a department to take charge of production safety management and act as the safety supervision department, and have a "safety director" and safety officers. The Company formulated and amended 13 Group-level safety management rules and regulations (including emergency plans); and implemented a dual-protection system comprising tiered risk management and identification and prevention of potential hazards, and a pilot run of standardisation of basic safety management for junior staff. In addition, various methods such as induction training, regular safety trainings and emergency drills are adopted to ensure that employees have a good knowledge of relevant safety operation procedures and safety precautions, accident prevention and emergency response measures. During the year, there was no safety incident involving casualties.

87 training sessions on production safety **100**% production safety training coverage

◎ Diversified cultural and sports activities

China Unicom is actively promoting culture and well-being among junior staff. Taking into account practical circumstances, employees' personal interest and needs, branch companies organises a wide range of cultural and art activities such as variety performances, speech contests, family days, singing contests, get-togethers, poetry recitations, photography exhibitions, calligraphy and painting exhibitions, and a variety of sports and fitness activities such as football, balloon volleyball, table tennis and badminton games, and yoga, swimming, brisk walking and marathon events. The cultural and sports work of the Group is characterized by junior staff-orientation, wide participation, rich forms and Internet applications. The number of comprehensive sports games and cultural and artistic shows have increased, and relevant clubs, associations and interest groups have been playing increasingly important roles. These activities have been very popular among junior employees. Besides, festival activities and birthday parties are also organised, such as making dumplings to celebrate Winter Solstice festival, making moon cakes to celebrate Mid-Autumn Festival, making rice dumplings to celebrate Dragon Boat Festival and holding birthday parties for employees, which greatly enhanced employees' sense of belonging..



China Unicom Staff Badminton Competition 2019



China Unicom National Staff Futsal Match 2019



Mid-Autumn Festival and Dragon Boat Festival activities held by provincial branch companies

◎ Helping employees in need

China Unicom has generally put in place a registration system for needy employees at provincial and municipal levels. In 2019, the number of employees in need reached 4,400, representing a year-on-year decrease of 36%. Branch companies have adopted targeted aid measures for employees in need, such as home visits, festival gifts, mutual aid funds, education aid and living reliefs, so as to solve their difficulties and help them get out of poverty as early as possible. Besides, thanks to its continuous effort to innovate the measures for aiding needy employees and relevant management approaches, the Group set up a group-wide online platform for managing the personal files of needy employees, and formulated targeted aid measures and poverty eradication schedules, which enables electronic and dynamic management of the whole process from registration filing, aid actions to poverty eradication.

25 branch companies have established their charity and mutual aid funds, and 150 of their local network branches have established mutual aid funds, which aided 1,500 employees involving a total aid payment of RMB12 million during the year.

Committed RMB **79** million to aiding employees in need

🌐 RESPONSIBLE OVERSEAS OPERATIONS

Committed RMB **28.75** million to consolation fund

🌐 Serving the "Belt and Road" initiative

◎ Contributing to interconnectivity through significant improvement in interconnection of communication infrastructure

- In 2019, China Unicom's total overseas investment in international operations amounted to RMB1,180 million, of which RMB610 million was invested in regions covered by the "Belt and Road" initiative (the "BRI").

- The SEA-ME-WE 5 (SMW5) capacity expansion project, Asia Pacific Gateway (APG) project and the New Cross Pacific (NCP) project were put into operation, adding 7.14T of submarine cable capacity to the BRI regions. Following the commencement of these projects, the number of submarine cable systems covered by the Company exceeded 40, with a total bandwidth capacity of 34T, of which 18.27T was attributable to submarine cable systems having landing points in, or directly connecting to, the BRI countries.

- The China–Mongolia, China–Kazakhstan and China–Laos cross-border land cable system projects were newly launched, with an additional capacity of 1.1T. Following the launch of these projects, the number of cross-border cable systems built by the Company exceeded 20, enabling interconnection with 13 neighbouring countries and regions.

- The points-of-presence (POPs) in Mandalay of Myanmar, Bangkok of Thailand, Sao Paulo of Brazil and Manila of the Philippines were delivered, bringing the number of the Company's self-built overseas POPs to 64, of which 18 are distributed in the BRI countries.

- The Shenzhen border international communications gateway exchange was upgraded to regional international communications gateway exchange.

◎ Facilitating exchanges among peoples through providing high quality international roaming services in the BRI regions

- In active response to the government's call for speed upgrade and tariff reduction, China Unicom further adjusted its international roaming services tariffs and enhanced customer perception. For 40 popular countries along the Maritime Silk Road and in Europe and the Americas, the high-speed data traffic allowance has been increased to 1GB/day and the international roaming service charges have been reduced by 29%, with average drops of 2% and 30% in voice roaming charges and data roaming charges, respectively.

- In 2019, the number of users of international roaming services travelling in the BRI regions increased by 38% year-on-year, and data traffic increased by 1.2 times.

- In a consistent effort to enhance user experience in respect of international roaming services, the Company launched daily data packages for travellers in 58 BRI countries.

◎ Facilitating trading and financing activities through growing capacity to serve the BRI

- We have set up 30 overseas branch offices covering major countries and regions in the world, including 13 branch offices in the BRI regions. We provide corporate customers around the globe with comprehensive end-to-end global integrated telecommunication services, including global connectivity services, Internet access, ICT services, cloud computing, Internet of Things (IoT), video conferencing, unified communications, content and security services, and provide individual customers with global voice and data services. In addition, we have successively launched new products to cater to international markets, such as the Premium Network in the Guangdong-Hong Kong-Macao Greater Bay Area, which provides ultra-low latency networks for customers in the financial industry and connects domestic and global intelligent video networks, covering 15 core nodes.

- We have established long-term partnerships with more than 300 international carriers and the number of ICT global partners reached 120. We provide global connectivity and ICT services to over 2,000 corporate customers while serving more than 500,000 international mobile users.

- We strengthened coordination with partners in the mixed-ownership reform and jointly launched cloud-network integrated (CCN+SAG) products for enterprises "going global".

- We upgraded our capability in providing global innovative services and rolled out commercial IoT roaming capability in 50 BRI countries.

◎ COMPLIANCE WITH LOCAL LAWS AND REGULATIONS

◎ Ensuring legal compliance in business operations

We keep improving our legal compliance system, and insist on comprehensive prevention, focused review and targeted countermeasures. The "three systems" of accountability, internal control and supervision were further standardized and refined, and achieved full coverage. 81% of 115 historical risk factors were downgraded or delisted.

- Most of our PoPs are on leased premises in order to satisfy the leasing conditions for equipment rooms under the local laws. The construction of submarine cables is carried out in strict compliance with local laws and regulations. For the construction of IDC and land cables, we seek the support of local governments, comply with local ecological and environmental requirements, and give reasonable compensation to local residents.

- Through deployment of network coverage, we have established efficient and stable information channels between the mainland China and overseas regions, facilitating the development of the communications industry, boosting local economic activities and employment, and providing impetus for the development of the national economy.

◎ Operating with integrity

In adherence to customer-centric principle and honest practices, we are committed to providing customers with the most professional solutions and most attentive services, and seek to grow together with our customers and create a better future.

- During the China Unicom International Partners Meeting held in Shanghai in June 2019, we launched a number of "U"-themed initiatives, including "UP Program" – a global carrier partnership platform, "U Plus" – an international product system and "CUniq" – our overseas MVNO brand, fully addressing the needs of business partners, products and solutions as well as MVNO business.

- In 2019, China Unicom won the honours of "Outstanding Cross-border Information Service Provider" and "Best Data Centre Service Provider". At the Global Carrier Awards 2019, China Unicom garnered the "Best Asian Wholesale Carrier", "Best Subsea Innovation" and "Best 5G Deployment" awards, being one of the three carriers (the other two being Deutsche Telekom and PCCW Global) bagging three awards among the 420 carriers worldwide.

◎ Pursuing localised operations

We continue to promote localised procurement, create job opportunities for local communities, employ local residents and communicate with local communities.

- By means of unified standards, procurement requisition approval, procurement plan review, localised procurement and scenario-based authorization, we are able to keep the whole procurement process under control. In 2019, around 70% of our procurement worldwide are localised.

Our Europe subsidiary actively participates in the twice-yearly lessors' meeting and quarterly tenants' security meeting, providing suggestions and participating in joint management and maintenance.

- As at the end of 2019, China Unicom Global Limited had 874 employees, of whom 763 were based in overseas locations, including 287 foreign employees and 318 female employees overseas.

Our South Africa subsidiary joined South African Chinese Economic and Trade Association (SACETA) as a council member. It actively participated in the activities organised by the association and maintains, through the association, sound communication channels with embassies, consulates and local Chinese enterprises.

Earnestly fulfilling social responsibility overseas

China Unicom Global Limited operates China Unicom's overall international business. With the vision of becoming "Your valued and trusted partner in global information services", China Unicom Global Limited is actively involved in overseas charity activities and earnestly fulfil its social responsibility overseas.

On 1 March 2019, China Unicom Global Limited was awarded the "Caring Company" logo by The Hong Kong Council of Social Service.



China Unicom Global Limited continued to join hands with Heep Hong Society to hold charity activities and encouraged employees to raise donations for children and young people with special needs.

On 12 September 2019, China Unicom Global Limited attended the annual work conference of the Women's Council of the Hong Kong Chinese Enterprises Association 2019 to provide to serve the local senior executives and young women's organisations and show care for women.



On 27 October 2019, China Unicom Global Limited participated in the "InnoThon 10KM 2019", which was jointly organised by Hong Kong Information Technology Joint Council and Hong Kong Science and Technology Parks Corporation to promote healthy lifestyle to the IT industry practitioners and general public and encourage a low-carbon life.

On 25 February 2019, our Australia subsidiary participated in the first charity luncheon organised by the China Chamber of Commerce in Australia, which aimed to raise funds for children suffering from cancer and cancer research in the Children's Hospital at Westmead.

On 28 July 2019, our Singapore subsidiary participated in the "China Taiping FunRun 2019" charity event. It actively fulfils social responsibility and contributes to local development, winning recognition and praise from the local government and the public.

Our Americas subsidiary actively participated in the local "No-Shave November" charity event and donated to the cancer centre of St. Jude Children's Research Hospital.

In December 2019, our Americas subsidiary participated in the Toy Drive Event hosted by the Washington D.C. Mayor's Office on Asian and Pacific Islander Affairs (MOAPIA) to help 140 needy children aged between 3 and 15, and its effort was highly appreciated by CGCC Foundation.



A “NEW FORCE” IN TECH INNOVATION AND DEVELOPMENT

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A “NEW FORCE” IN TECH INNOVATION AND DEVELOPMENT

Science and technology, the most powerful weapons of a country, enable a country to be stronger, an enterprise to outperform peers and the people to live a better life. As an enabler of digital economy, China Unicom fully leveraged technological innovation, a key factor to overall development, focused on technological innovation in key areas, deepened the deployment of innovative business, and devoted continuous efforts to seek breakthroughs, thus facilitating the transformation and upgrade of the economy and the society as well as the shift of growth drivers.

Measures adopted in 2019

- Achievements were made in technological innovation system and regulations through actively promoting technological management innovation.
- Built a comprehensive technical support hub to support network leadership and facilitate Internet-oriented transformation.
- Commercialised the results of product research and development, provided application solutions and established high-end knowledge base to provide innovative support and reference for the Company's decision-making. Developed a value chain cooperation ecosystem to deepen internal and external cooperation.

Actions to be taken in 2020

- Further improve technological innovation system, mechanism and process. For the research of futuristic technologies, make reasonable deployment in key R&D fields and carry out R&D activities under the guidance of the technology development plan.
- Continue to commercialise technology R&D, and consistently innovate on application solutions to strengthen industry development of China.
- Enhance the coordination between cloud computing, big data and IoT capabilities and government & enterprise businesses. Nurture industry ecosystem through innovative capital and business cooperation.

DEVELOPING FUTURISTIC TECHNOLOGIES

China Unicom proactively played its role as an innovation engine, intensified efforts to seek breakthrough in core information technologies, and made contributions to the building of a cyber superpower by virtue of its own innovation capability.

Propelling the evolution of 5G technology

In active response to the national 5G strategy, China Unicom devoted itself into research and development and trials of 5G technology, and took the lead in the completion of a number of 5G standards-based specifications and projects, which have greatly advanced the progress of 5G development. It was the first operator to complete the Non-Standalone (NSA) trials in China, and initiated the new Standalone (SA) network trials in 11 pilot cities. Further, it completed the in-field and out-field trials of 5G carrier network and drove the decoupling of 5G carrier network equipment from different manufacturers.

The issue of “China Unicom White Paper on General Technical Requirements for 5G Industry Terminals” and “China Unicom White Paper on 5G Common Modules” provides guidelines for the value chain partners on research and development and innovation of 5G industry terminal products.



Taking a cloud business-driven approach

Focusing on a cloud business-driven approach, China Unicom formulated the overall development strategy of cloud business featuring cloud and network integration, security and reliability, multi-cloud collaboration and service customisation. Underpinned by the cloud business, the Company established a new integrated product system through enhancing the full-stack component capacity of Heavenly Palace and Smart Enterprise platforms and integrating intelligent network, IoT, big data, industrial Internet applications and other products, thereby providing complete solutions for vertical industries. In 2019, the resources on our cloud platform included 267,000 virtual central processing units (vCPUs), 876.2T memory and 26.4PB of storage capacity, and the percentage of cloudified resource pool increased to 62.3%

☉ Enriching cloud products and services

- In terms of public cloud, China Unicom persistently expanded the supply capacity of “WO Cloud” products and cooperated with the partners to provide customers with integrated cloud computing services under the “WO Cloud” brand. Currently, more than 250 basic and application products have been rolled out on “WO Cloud” public cloud, 45 application products are provided on WO Cloud market and 116 functions have been launched on “WO Cloud” public cloud platform.
- In terms of private cloud, continuous efforts were devoted to build safe and reliable cloud platform and cloud products, including 312 functional points under four major categories. China Unicom succeeded in proprietary research and development of core technologies, and obtained more than 100 software copyright certificates.
- In terms of industry cloud, China Unicom continued to explore and practise in key industries, and provide customers with professional and high-quality industry cloud solutions and products by leveraging on the unique advantages of WO Cloud in cloud network integration as well as multi-cloud collaboration.
- In terms of cloud-network integration, China Unicom vigorously advanced the construction and deployment of intelligent networks and built new networks integrating cloud and network.
- In terms of cloud integration service, China Unicom relied on the localised operation and service teams to strengthen self-implementation capability, improved the professional operation and service capabilities such as cloud integration, cloud migration and cloud security, and rendered customers one-stop services including consultation on cloudification planning, solution development, implementation of the integration, cloud migration and security defence.
- In terms of the application of cloud platforms, the Heavenly Palace and Smart Enterprise platforms were rolled out in Guangdong, Sichuan, Shandong, Beijing, Jiangsu, Henan and other provinces, providing robust support to applications such as computing, transactions and big data.

☉ Improving WO Cloud product system

- China Unicom formulated four major plans which focus on the promotion of “31411” projects, i.e. construction of three-layer cloud pool, cloud networking, four major platforms, WO Cloud products and cloud markets.
- Backbone cloud pools with certain industry attributes have been established in 31 provinces to support provincial business and specialized local industry applications, as well as industry cloud business.
- Based on business demand, China Unicom created edge nodes in line with industry standards for local networks or major customers, so as to cater for the edge cloud demands such as 5G and IoT.
- Sub-brands including “Ling Cloud”, “Zhi Cloud” and “Jie Cloud” are under planning.

In respect of WO Cloud products, the Company was granted “Trusted Cloud – GPU Trusted Cloud Certificate”, “Trusted Cloud – Cloud Service Enterprise Credit Rating AAA Certificate” and “Trusted Cloud – Cloud Distribution Service Certificate” by China Academy of Information and Communications Technology. China Unicom Wo Cloud Multi-Cloud Management Platform, Beijing Resource Pool System of China Unicom WO Cloud Platform and WO Cloud Content Distribution System have received Grade III security certification. In 2019, China Unicom WO Cloud was included in the list of “Cloud Platforms Passed Cloud Computing Service Security Assessment” published by the Cyberspace Administration of China. In addition, China Unicom was accredited with “2019 Leading Company for Cloudification of Millions of Enterprises” and “2019 Excellent Industry Solution for Cloudification of Enterprises” at the 2019 Annual Conference for Cloudification of Millions of Enterprises and the Cloud Ecology Summit.

In 2019, China Unicom consistently optimised WO Cloud products and services, and implemented the projects such as Liuzhou Government Services Cloud (Phase II), Xining Traditional Chinese Medicine Hospital in Qinghai and Handan Education Cloud. Meanwhile, it continued to provide quality services to Qinghai Government Service Cloud, China Tower, High Court and other customers.

☉ Strengthening big data capabilities

China Unicom vigorously cemented its basic big data capabilities, carried through the national big data strategy and implemented the “Big Data Capability Enhancement Plan”. By virtue mainly of proprietary research and development, the Company constructed an open and shared, safe and controllable, and industry-leading big data capability system, in an effort to become a data intelligent service expert trusted by users, as well as a key player in building digital China.

• **Consolidating proprietary research and development capabilities:** Through enhancing proprietary modelling capabilities, the Company is capable of PB-level technical data processing as well as real-time analysis and modelling for extremely large datasets. It has developed a matrix of industry models covering 10 industries such as finance and education.

• **Enhancing data asset integration capability:** Processing more than 180T incremental data, 16,000 sheets and 500,000 characters per day, the Company has developed an entire life-cycle data management and governance system, and realised value-oriented operation of internal and external tenant data models.

Serving over **1,000** online and offline customers
Providing various data services with a daily average of over **3 million** times

- **Strengthening security capability:** Through building a proprietary, safe and controllable big data security system, the Company has been equipped with security management and control capability covering the entire life cycle of data, thereby protecting national data and user privacy.
- **Building basic AI capabilities:** Breakthroughs were made in computer vision capabilities for faces, license plates and objects through self-developed AI application innovation platform. As at the end of 2019, we provided more than 20 proprietary capabilities such as face recognition and image recognition/search.
- **Enriching product capabilities:** The Company's products vertically cover finance, public security, population, regulation and other industries and fields, and horizontally constitute a multi-tier product system, serving over 600 tourist attractions, and over 200 government organisations, financial institutions and Internet companies.

The Company initiated the construction of a data middle platform and launched a data security platform internally to enable data interoperability among various scenarios, and expanded data sharing and accessibility to build a data middle platform ecosystem within the Group while ensuring data security. Meanwhile, it started to develop data quality system, with audit ratios for 31 provinces' online logs remaining below 120%. The establishment of customer insight system, customer scenario perception system and centralised operation system for existing customers has empowered the Company's marketing efforts and operational decision-making.

China Unicom established joint laboratories with four universities including Beijing Institute of Technology, and engaged in strategic cooperation with Aisino Corporation and State Grid Xiong'an Financial Technology Group. The market share of China Unicom's big data business increased from 32.1% at the end of 2018 to 53.7% in 2019, ranking first in the telecom industry.

Enhancing the value of IoT

Centered on the basic platform, China Unicom's IoT business aggregated upstream and downstream partners in the value chain for collaborative innovation through connectivity services, application services, component services and solution integration services and contributed to the digital transformation of cities. It strives to become a value enabler in the era of IoT and enable people to enjoy smart life. China Unicom ranked 4th among the world's top 500 IoT enterprises in 2019.

Strengthening platform development

- **Improving capability of connectivity management platform:** The carrying capacity and various capabilities of the cellular connectivity platform were optimised in a continuous manner, with an average of 2.2 billion API calls per month.
- **Building capabilities of equipment management platform:** The Company developed capabilities of equipment management platforms for industrial sector, public utilities, safety and others. Currently, the equipment management platforms serve more than 1,000 customers.
- **Advancing application enablement:** The Company kept enhancing customer-oriented platform capabilities such as real-name registration system and 2C ordering. Meanwhile, riding on the general demand of the industry and the development of innovative technology, it has built up the vision intelligence (VI) capability.
- **Deepening proprietary platform research system:** Having received the CMMI3 certification, the Company's software sophistication has reached a new level. Thanks to its stronger internal research team, the Company undertook all platform upgrades on its own in 2019.

Improving product system

Focusing on four major areas including smart manufacturing, smart city, digital supply chain and consumer electronics, the Company developed nearly 40 IoT products and solutions to bolster its nationwide IoT business. It supported nearly 100 projects in 2019, such as Guangdong smart water supply management project, Liaoning manhole cover project, Jiangsu Nanjing smart construction site project and Zhejiang bearing quality inspection project.

187 million

 IoT connections


Established IoT Joint Laboratory with Intel



Established IoT + Blockchain Joint Innovation Center with Wanxiang Blockchain

◎ Building Industry Ecosystem

- **Cementing our alliance:** China Unicom IoT Industry Alliance counted 304 partners along the IoT value chain as members.
- **Expanding the joint innovation mechanism:** In 2019, the Company established IoT joint innovation centres with 13 leading enterprises from various industries to carry out joint research and development on innovative products. It actively cooperated with external alliances and associations. For example, it participated in the compilation of the “White Paper on Supporting the Development of Smart Cities through Intelligent Lighting” of the Lighting Association.
- **Innovation Accelerators:** Collaborating with the government, professional institutions and other resources, China Unicom aims to empower the IoT industry clusters through the spiral model of “Industry + Capital + Base”, and strive to build a leading IoT innovation ecological centre within 3-5 years.

🔍 Focusing on Breakthroughs in New Technology

◎ Accelerating AI Innovation and Empowerment

China Unicom takes artificial intelligence (AI) as an important strategic tool to enhance technological competitiveness and gives full play to the steering role of AI.

- Self-developed the China Unicom Network AI Experimental Platform and completed the certification of the ITU intelligent network grading standard. China Unicom led the formation of the first ITU-T smart education standard based on next-generation AI technology, and released the ITU-T intelligent network grading standard.
- Provided support for implementation of more than 10 intelligent applications and related solution design, such as analysis and application of smart work orders and inspection of equipment rooms by smart robots. An AI-based intelligent platform for IPRAN network featuring alarm, analysis and positioning has been put into application, boosting the efficiency by over 85%.
- Hosted various AI competitions and online AI forums.

◎ Contributing to the Rise of Quantum Communications Industry

China Unicom proactively carried out network technology research, demonstration and application based on quantum encrypted communication, propelled ITU-T to establish the quantum encrypted communication focus research team, built the world’s first pre-commercial quantum encrypted trunk line between Beijing and Xiong’an, and developed various applications such as quantum encrypted video conferencing system. The Company was granted the most distinguished award at the 2019 World Summit of Information Society.

🔍 Further developing standards and regulations

China Unicom promoted technological management innovation through a series of measures such as setting up a science and technology committee, exploring the establishment of a shared capital pool, and improving the TIC evaluation system and the technological innovation incentive system, thus creating a positive environment for technological innovation.

- In terms of international standards, China Unicom held more than 100 positions in a number of important international standards and open-source organisations, including more than 20 key management positions, and almost covering all important organisations in international communication and IT fields. The Company led the formation of 38 new standards and the publication of 24 standards. It joined more than 40 domestic technical organisations, and led more than 50 CCSA industry standards and participated in 280 CCSA standards.
- China Unicom participated in the project “NB-IoT Key Technology Research and Development, Standardisation and Application”, which was accredited with the first prize by China Institute of Communications. It also participated in two projects including 3GPP International Standards which were awarded the first prize by CCSA.
- A number of systems have been developed to cater for the needs of production, including Heavenly Palace System 2.0, WO Sales (Bee Action) System and Natural Person System, which greatly boosted production efficiency and powered the business development.

China Unicom has put in place database resources and a service team for the whole Company, providing patent-related services to more than 8,800 persons from 25 provincial-level branch companies, 13 subsidiaries and 10 departments at headquarters. The proportion of provincial-level branches and subsidiaries as major inventors of application patents increased from 9% to nearly 15%.

Responsibility performance indicator	2019
International standard documents (article)	500
Industry standards (item)	280
Number of patent applied (item)	1,439
Number of patents granted (item)	658

EMPOWERING INDUSTRIAL UPGRADE

China Unicom vigorously explored the deep integration of technology and industry, and consistently promoted technological innovation to facilitate industrial upgrade and empower the transformation of growth drivers, fostering new cutting edges for China's high-quality development.

Deployment in smart education

China Unicom believes in the in-depth integration of information technology with education and learning. Focusing on digital campus and the application of big data and artificial intelligence in education, China Unicom further opened up its capabilities and nurtured ecosystem, so as to contribute more to education informatisation and drive education modernisation.

Leveraging on big data and AI technology, China Unicom Zhejiang branch developed a comprehensive service platform for the new scheme of college entrance examination to help parents and examinees to submit their college preferences in a reasonable and efficient manner, so as to narrow or even eliminate the differences and inequities caused by information asymmetry, enable more examinees to submit college preferences on an equal footing, and help the examinees choose appropriate universities and majors rationally.



China Unicom's comprehensive service platform for Zhejiang's new scheme of college entrance examination

China Unicom Guangdong branch proactively leveraged on its expertise in 5G and education informatisation to facilitate balanced allocation of educational resources. Through 5G + AR/VR, it realised remote interaction and immersive learning, enabling the quality education resources to be shared among different campuses, schools and regions, and more students in remote areas to enjoy such quality education resources.



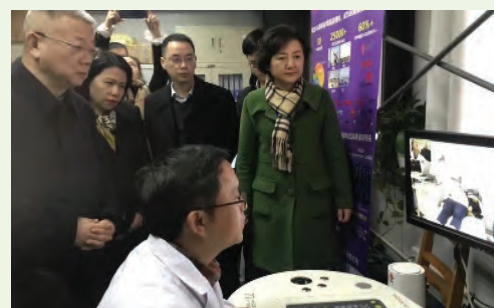
Interactive Teaching and Learning at Guangdong Experimental Middle & High School

Innovative Smart Medical Care

China Unicom focuses on cloudification of hospitals and regional healthcare informatisation, continuously deepens the integration of new technologies and healthcare services, facilitates the interoperability of regional medical data and sharing of quality medical resources, promotes the implementation of hierarchical diagnosis and treatment system, and tackles the "difficulties in accessing affordable medical treatment", thereby enabling people to enjoy basic medical and healthcare services in a convenient manner and realising balanced allocation of medical service resources.



5G-aided cross-city emergency transport in Liaoning



Remote ultrasonic medical consultation in Sichuan



Live footage of a surgery proceeded through remote medical guidance in Heilongjiang



Intelligent mobile unit for emergency and critical care

China Unicom Sichuan branch assisted the affiliated hospital of Northern Sichuan Medical College in remote support of AIDS prevention and treatment in Meigu County, Liangshan Prefecture. The “5G + Remote Medical Care” model greatly improved the quality of diagnosis and treatment in Meigu County, and helped break geographical barriers and limitations on available medical resources, letting more people enjoy high-quality and convenient assistance.



Remote medical consultation at Northern Sichuan Medical College

Advancing smart transportation

China Unicom actively develops big data product system and city vehicle management product system, and provides 5G + smart transportation and logistics solutions. By further optimising resource allocation, it helps improve the efficiency of urban transportation and reduce pollutant emissions, bringing positive changes to economic development, social life and ecological environment.



Travelling around the airport via face recognition

China Unicom designed a smart travel integrated service system for Beijing Daxing International Airport, which comprehensively utilised the latest “5G + AI” technology and built three-dimensional smart travel services based on three perspectives, namely “travelling around the airport via face recognition”, “intelligent experience via Internet connection” and “managing baggage via a chip card”, bringing brand new intelligent travel experience to passengers and helping Beijing Daxing International Airport build a fresh image as the new national gate.

Through intelligent transformation of road berths and the comprehensive management of unmanned parking lots, China Unicom Changzhou branch effectively advanced the perception of urban comprehensive parking system, and addressed the inconvenience and disorder in parking for the residents.



Smart parking lot in Changzhou, Jiangsu

Developing smart public administration services

Actively responding to the appeal of the state and the real needs of the society, China Unicom is committed to building and operating new smart cities, with a view to improving operational efficiency of the government, strengthening scientific decision-making ability and enhancing perception of the public and enterprises. By building a new smart city platform and nurturing core capabilities of new smart cities such as integrated urban perception and AI-based data governance, China Unicom endeavoured to support the building of digital government and a co-built, co-managed and co-shared social governance paradigm.

China Unicom Xining branch in Qinghai assisted the local government in building the “Internet + government services” platform, realising “one number, one window, one website, one gate and one time” service for the public. Currently, there are 300 high-frequency service matters, 400 “physically present one time at most” service matters and 100 “only subject to remote processing” service matters on the platform.



Qinghai Government Services Platform

The Jiaxing “Smart People’s Congress” online platform built by China Unicom Jiaxing branch in Zhejiang enables the general liaison station to share information with 74 liaison stations as well as centralised deployment and management, providing information support for scientific and democratic decision-making of the People’s Congress and its Standing Committee and an efficient information platform to facilitate the performance of duties by the deputies to the People’s Congresses.

Contributing to smart agriculture

China Unicom constantly drives the innovative integration of new technologies and smart agriculture applications, and provides comprehensive support, from research and development, planting to sales, for the social value enhancement of agricultural products, building a smart agriculture ecosystem.

China Unicom Guangdong branch assisted the local government in building a big data platform for 5G precise cultivation of see-mew rice, which enabled intelligent perception and precise management in the whole production cycle of see-mew rice in Zengcheng. This project will greatly promote the standardised application of rice cultivation in China. It could also be applied in other crop cultivation processes, which will significantly facilitate the revitalisation of agriculture and rural areas.



Data from 5G real-time monitoring on rice growing environment

Building smart factories

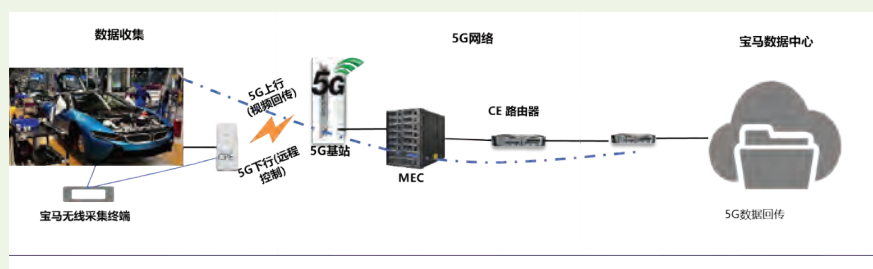
China Unicom is committed to becoming an enabler and service provider of 5G + AI industrial Internet. Building on 5G + industrial edge cloud and data service core capabilities, it supports the transformation and upgrade of China's manufacturing industry, leading to improved efficiency and optimised operation. It helps large enterprises build "5G all-connected smart factories" while offering small and medium manufacturing enterprises with industrial internet platforms aggregating regional industry clusters as well as application services.

China Unicom Guangdong branch helped Yangjiang City, a city lauded as "the Capital of Knives and Scissors in China", to build the hardware, knife and scissor industry cluster cloud platform, which provides enterprises with a full range of services covering research and development, design, production, sales and supply chain. It facilitated the evolution of innovative entities from single enterprise to multiple enterprises, innovative processes from sequential to parallel processes, and the innovative systems from closed to open systems, contributing to the transformation and upgrade of small and medium enterprises, and creating a new model for industry cluster development.



Yangjiang hardware, knife and scissor industry cluster cloud platform

China Unicom Liaoning branch took full advantage of the high bandwidth, low latency, high reliability and other features of 5G network for innovation. It conducted comprehensive cooperation with BMW Brilliance in intelligent manufacturing and industrial vision. It built the first automobile production base of BMW Group in the world leveraging 5G + MEC applications, and successfully applied 5G + MEC in the production process, effectively improving the production efficiency.



Networking solution for data collection



A “CHAMPION” OF ECOLOGICAL CIVILISATION

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A “CHAMPION” OF ECOLOGICAL CIVILISATION

Eco-environment is irreplaceable. While it is easy to exploit the environment, it is hard to recover once lost. With a belief in the symbiotic relationship between humankind and the nature, and in adherence to the fundamental national policy of resource conservation and environmental protection, China Unicom takes eco-environmental protection seriously, and has implemented green management, green network and green operation to promote eco-environmental protection and bequeath the future generations with a beautiful homeland with blue sky, green land and clean water.

Measure adopted in 2019

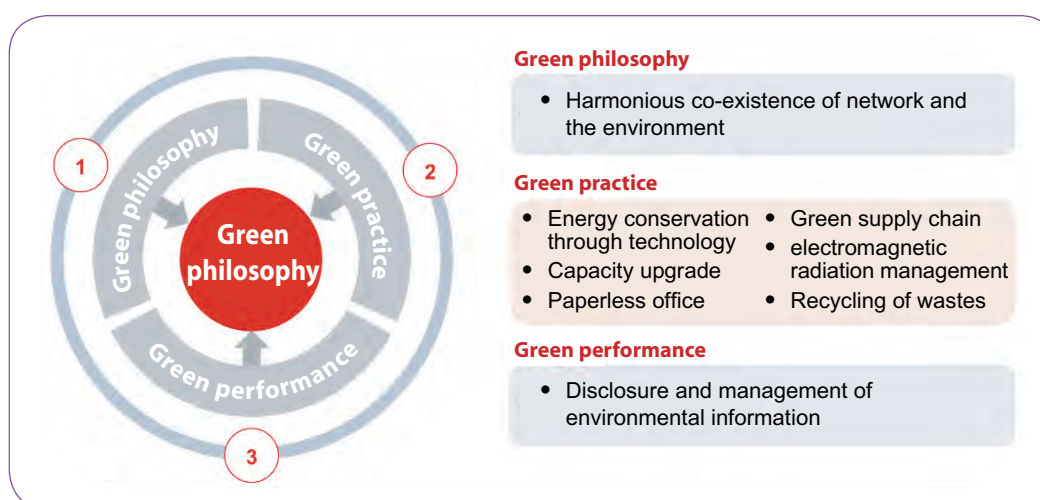
- Appropriated RMB104 million in special funding for energy conservation and emission reduction to promote low-carbon technology and upgrade legacy capacity. Energy-saving technology coverage reached over 70%.
- Enhanced the management of electromagnetic radiation, and established an electromagnetic radiation information platform.
- Developed green business outlets and strengthened green service supply. Upcycled assets amounted to RMB360 million.

Actions to be taken in 2020

- Continue to advance researches on energy conservation technology and apply proven energy conservation technology to the befitting equipment rooms of the whole network.
- Keep abreast of future network development trends, in particular in relation to network energy conservation, and develop 5G smart power monitoring system.
- Accelerate research on and application of new energy in communications network.

In 2019, in adherence to the environmental protection philosophy of “harmonious co-existence of network and the environment” as well as laws and regulations pertaining to environmental protection, such as the Environmental Protection Law of the People’s Republic of China and the Energy Conservation Law of the People’s Republic of China, China Unicom continued to promote energy conservation, eliminate inefficient production capacity, reduce network energy costs, and alleviate the impact of greenhouse gas emissions on the environment, thereby contributing to the prevention and control of pollution and bringing ecological benefits to people.

ENHANCING GREEN MANAGEMENT



“three-in-one” green management system of China Unicom

China Unicom has established a “three-in-one” green management system comprising green philosophy, green practice and green performance. It continued to execute the “Special Plan for Energy Conservation and Emission Reduction for 2017-2020”, and formulated and implemented the “Special Action Plan for Cost Reduction and Efficiency Enhancement” and the “Special Plan for Implementation of Pollution Prevention and Control”. It strives to improve environmental management capabilities, reduce greenhouse gas emissions, enhance refined management, establish a long-term mechanism for green development, and contribute to pollution prevention and control. The Company is committed to increasing the efficiency of water consumption as active efforts have been made to promote the recycling of water resources. The Company promoted awareness in water conservation, while conducting regular maintenance checks in each part of the water supply system to eliminate water resource wastage and leaking. The Company’s water resources mainly comprise tap water in buildings or properties. During the reporting period, there was no issue in sourcing water.

- The Company updated the “China Unicom Infrastructure Construction Regulations”, setting out the management targets of energy use efficiency (“PUE”) and promoting the use of new green technologies and solutions in new and renovated projects as appropriate.
- The Company formulated and implemented the “Priorities for Energy Conservation and Emission Reduction in Equipment Rooms of China Unicom Cloud Data Company Limited in 2019”, which set out quantitative assessment on energy conservation practices and PUE performance. Subordinate data centres then drew up work plans, optimised the operational procedures of major systems, further refined facilities’ ledgers and carried out energy conservation measures.
- Aiming to improve network efficiency, guided by the “5K” indicators, the Company developed differentiated capabilities of low-cost network operation, improved the ability to control network cost and reasonably reduced unit resource maintenance cost.

- The Company continued to invest in energy conservation and emission reduction, for example, energy-saving renovation of heat-pipe air-conditioners, distributed photovoltaic power generation and replacement of outdated power equipment with high energy consumption.

- The Company joined the Climate Change Working Group established by GSMA to engage in network energy conservation and reduction of greenhouse gas emissions.

The Company released the "China Unicom Data Centre Construction Standards (V2.0)", which regulated the selection of air-conditioning systems and utilisation of outdoor chillers and specified the PUE performance requirements for different areas, taking into such factors as climate zoning, climate conditions, energy availability and air quality.

- In terms of energy conservation in mechanical and electrical engineering, the Company provided guidance on energy-saving equipment, circuit loss, quality compensation, direct supply of municipal electricity, new-type batteries, cold-water energy storage and utilisation of waste heat.

- In respect of energy-saving civil works, the Company provided guidance on forestation, prevention and control of light pollution, reuse of rainwater, water resources planning and utilisation of renewable materials.

Special funds for energy conservation and emission reduction amounted

to RMB **104** million in 2019

China Unicom Global Limited actively carries out environmental protection and low-carbon operations, and practically adopts innovative environmental protection technology and green management. In April 2019, thanks to its high-standard equipment and innovative green management, it was honoured with a Merit Award in the "Hong Kong Environmental Excellence Award" organised by Environmental Campaign Committee together with nine other organisations including the Environmental Protection Department and The Hong Kong General Chamber of Commerce.



DEPLOYING GREEN NETWORK

Promoting green and low-carbon technology

Fully leveraging on technology innovations, China Unicom earnestly practices green development philosophy. In order to optimize total cost of ownership ("TCO"), it actively advanced the DC-oriented re-architecture of infrastructure, and vigorously promoted green data centres and energy-saving and low-carbon equipment rooms. By using high-efficiency power modules, intelligent dual-cycle air conditioning and self-developed cloud cabin closed channel technology in new communications system, the Company's infrastructure achieved an overall energy-saving rate of 50%. In addition, the cloud cabin closed channel technology was granted "utility model patent" by the National Intellectual Property Administration.

Energy conservation in buildings

In building green equipment rooms, the Company uses thermal insulation rooftops and walls, green rooftops and heat-reflective glass to reduce energy consumption. Rockwool and other insulation materials are used for exterior walls and rooftop based on energy-saving calculation, and aerated concrete blocks are used for constructing the maintenance structure. In terms of lighting, the fluorescent lights have been gradually replaced by LED energy-saving lights which have luminous efficiency 50% higher than that of ordinary metal halide.

Energy conservation in power transformation and distribution system

In the newly commissioned equipment rooms, modularised uninterruptible power supplies ("UPS") were adopted, which can increase the load rate of single set UPS on condition of underload and reduce wastage by approximately 10%. With the use of high-voltage direct current technology, 240V high-voltage direct current and direct supply of municipal electricity technology were introduced for the first time, and approximately 15% of electricity could be saved as compared to traditional UPS by switching off overly configured modules and foregoing excessive power supply systems. The Company employed the non-crystal alloy dry transformers, which are energy-efficient, biodegradable and recyclable in materials, pollution free and tainted with low noise.

Energy conservation in air-conditioning systems

The Company used the adaptive air-conditioning system, which can avoid the competitive operation of air-conditioners so as to prevent underheating or overheating in the equipment room, and help save energy by more than 10%. The energy-saving automatic control system was adopted to achieve optimum matching between the cooling system and the load volume, thereby reducing energy consumption. The Company adopted large-volume centrifugal water cooling units and variable frequency circulation pumps, and made full use of climate conditions for natural cooling, having saved approximately 33.6% of electricity during the year.

China Unicom's Ningxia Zhongwei Data Centre is the first data centre among domestic operators to adopt the fresh air free cooling systems. It combines various advanced energy-saving technologies such as fresh air, evaporative cooling, wind walls and hot channel closure, etc. As a result, refrigeration compressors were used for only 8 days throughout the year, and the PUE was only 1.28.

Energy-saving technology coverage rate for access network equipment rooms: **73%**

Energy-saving technology coverage rate for communications equipment rooms: **71%**

Overall energy-saving rate of new communications infrastructure: **50%**

Exploring clean energy

The Company actively carried out trials of photovoltaic energy power supply system, which resulted in substantial energy savings. A 3.3KWp solar power generation system in a single base station could save approximately 4,253kWh of electricity in a year. The Company actively conducted research on the use of clean energy powered by the aluminium-air battery, which is seen as a low-carbon and eco-friendly alternative to lead-acid battery for communications backup power.

China Unicom has built its Deqing Data Centre Base Project into a nationwide leading green and eco-friendly cloud data base. It is the largest data centre in China that uses the combined cooling, heating and power technology, and is also the first distributed energy project among domestic operators. 20,000 tons of standard coal can be saved for each year.



The Urumqi core equipment room of China Unicom Xinjiang branch was equipped with the first full evaporative cooling air-conditioning system in China, which can reduce the PUE value to 1.17. The project was awarded the “Best Energy-Saving Project Award” for energy-saving innovation in respect of ICT infrastructure by China Association of Communications.



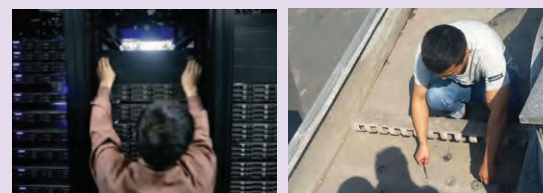
Promoting capacity optimisation and upgrade

A lot of ageing equipment, which is bulky, noisy and energy-inefficient, consumes excessive social resources. China Unicom earnestly implemented cost reduction and efficiency enhancement following the lead of supply-side structural reform. It continuously streamlined 2/3G networks and retired ageing equipment to drive scenario-based energy conservation for base stations and continuously improve economic and environmental efficiency.

- Mobile network: the Company completed the full retirement of 2.6 GHz TD-LTE base stations as scheduled. Compared with 2016, the 2G carrier frequency of the whole network decreased by 1.064 million units, representing a decrease of 52%. The proportion of 3G single-carrier base stations reached 83.7%, signalling a further streamlined and optimised network.
- Core network: the Company completed the retirement of 21 sets of DC1 switches, 4 fixed-line HSTP switches, and replaced 6 outdated and suspended mobile HSTP switches.
- Transmission network: 23,000 terminal equipment were retired.

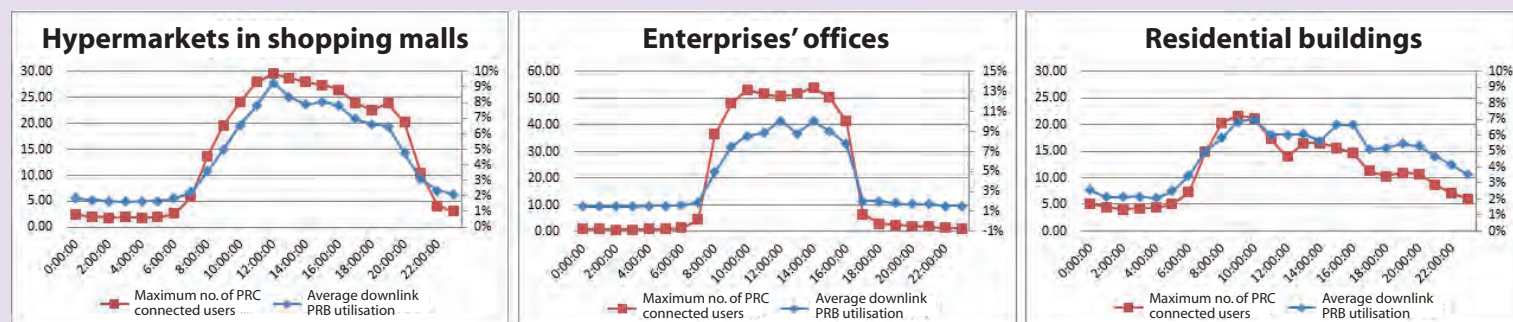
Committed to energy conservation, environmental protection and facilitating the sustainable development of enterprises, China Unicom Shandong branch spared no effort to streamline network and eliminate legacy capacity. In 2019, it completed the retirement of 9,404 sets of 2G independent ageing equipment and 4,594 WLAN hotspots, saving RMB34,447,000 in electricity cost for the year, a win-win for the Company’s operating efficiency and the environment.

China Unicom Hangzhou branch innovatively carried out “one reduction and two increases” energy conservation sub-division reform for IDC equipment rooms. It promoted robust energy conservation and emission reduction in communications infrastructure by improving the cooling efficiency of external air conditioners, strictly controlling office power consumption, enhancing lighting efficiency in equipment rooms, etc. In the past two years, it has cumulatively saved 6.87 million kWh of electricity and reduced carbon emissions by about 6,849 tons, setting a successful model for the green operation of Internet data centre equipment rooms.



The “one reduction and two increases” energy conservation sub-division reform for IDC equipment rooms

With the increasing number of 4G base stations, energy consumption has been rising correspondingly, resulting in increasingly prominent energy consumption problems. Under such circumstances, China Unicom Suihua branch in Heilongjiang worked out differentiated energy-saving solutions based on the application scenarios of different base stations. While minimising the impact of energy conservation on user perception, it switched on the energy saving mode according to the application scenarios with a view to turning off unnecessary resources during idle time and reducing equipment power consumption.



Utilisation rate of network resources at different scenarios

Strengthening the management of electromagnetic radiation

In accordance with the requirements of the Ministry of Ecology and Environment of the PRC and the local ecological and environmental departments, China Unicom has formulated the “Regulations on the Management of Electromagnetic Radiation of Communication Base Stations for Environmental Protection of China Unicom (Trial)” to strengthen the management of electromagnetic radiation in the construction of mobile communication base stations and to ensure that the electromagnetic radiation of base stations meets the national standards.

In 2019, the requirement to file registration forms on the environmental impact of construction projects was fully implemented during the construction of mobile communication base stations. Upon completion of the construction, electromagnetic radiation tests were conducted on the base stations, and test results were disclosed on the Internet for public scrutiny. During the construction of base stations, the Company educated the public on electromagnetic radiation through various means such as SMS, WeChat and distribution of promotional materials.

Developing green solutions

Deeply engaged in the field of “intelligence + environmental protection”, China Unicom makes comprehensive use of its technological advantages such as big data, Internet of Things, cloud computing, 5G, AR, etc., to continue its innovations in green products and applications, and put forward digital green solutions, aiming to drive the transformation and upgrade of the low-carbon and environmental protection industries.

China Unicom Dongguan branch in Guangdong Province uses the big data AR technology and data from real-time monitoring of pollution sources to create a visualised, full-process and remote platform, resulting in scientific and comprehensive environmental decision-making, precise supervision and convenient public service. Currently, more than 4,000 radioactive sources across the city are being monitored in an itinerant manner. The eco-environment data and service platform has greatly improved the daily environmental supervision and the ability to respond to environmental emergencies and major pollution accidents, and effectively reduced the losses caused by environmental pollution to the country as well as the safety of people’s life and properties.



Comprehensive display of the eco-environment data through GIS



Data displayed on mobile Apps

In earnest implementation of the “green construction” requirements of the provincial government, China Unicom Jiangsu branch developed a cloud platform named “WO Cloud Construction Site Smart Supervision Platform” to provide paperless site environment supervision for regulatory authorities as well as vehicle management, equipment management, green construction and other services at construction sites. When PM2.5 or PM10 exceed safety standards, the platform can automatically activate dust reduction equipment to rinse dust and mud off vehicles entering and exiting the construction site, so as to relieve air and road pollution around the construction site and safeguard the environmental quality for the surrounding people. The platform was accredited as an “outstanding cloud and digital product” by Jiangsu Economic and Information Technology Commission.



China Unicom Tianjin branch and Tianjin University jointly developed the “Dolphin 5G Unmanned Surface Vehicle”, which integrated measurement instruments such as atmospheric monitoring LIDAR and in-situ water quality analyser with unmanned USV technology and 5G technology to enable the collection of information on seabed terrain, pollutants discharged by watercrafts and water quality at the same time. The real-time transmission of images and monitoring data to the monitoring centre through the 5G network enabled real-time analysis of dynamic data on marine environment. This marked a first in the industry to experiment on multi-parameter intelligent stereo monitoring of the marine environment based on 5G.

With the belief that waters and mountains are invaluable assets, China Unicom Jiaxing branch in Zhejiang Province helped build the “Jiaxing River Chief Management Information System”. It allowed static display, dynamic management and routine tracking of river management information, serving as a helpful tool for the goal management, task supervision and performance appraisal of river chiefs’ work across the region. It effectively helped the construction of the aquatic environment governance system and the modernisation of the governance capability in Jiaxing.



Dashboard of Jiaxing river chief management platform



Comprehensive map of Jiaxing river chief management platform

BOOSTING GREEN OPERATION

Building green business network

In adherence to the notion of “low carbon, emission reduction and green office”, China Unicom has established a green and intelligent business network characterised by “regulated management, reasonable layout, modernised equipment, digitalised operation, comfortable experience, and paperless processing” by building green digitalised business outlets and smart living stores. The Company integrated various types of equipment in the business outlets into a single equipment, thereby reducing the cost of operation and maintenance. At the same time, the Company implemented digitalised operation, paperless processing and electronic promotion to save paper for work orders and promotional posters.

Strengthening upcycling of wastes

In order to promote the overall improvement of the energy conservation and eco-environmental protection management of central state-owned enterprises, China Unicom has formulated the “Guidelines for Revitalisation of Network Assets and Resources” to encourage inter-provincial re-allocation of idle resources among different branches, thereby saving investments and improving resource utilisation efficiency. The Group disposed of RMB965 million of assets by auction, comprising RMB620 million of scrap cables, RMB140 million of used storage battery and RMB205 million of general waste materials.

Subscribers’ network access agreements set forth the procedures for returning terminals when services are terminated. The Company further strengthened recycling and reuse of obsolete optical modems, including terminals returned from customers when services are terminated, faulty terminals and terminals returned due to service changes and refurbished for further use. In addition, recycling incentives and rewarding points, etc. were set up to encourage installation and maintenance personnel to recycle obsolete assets. In 2019, around 3 million sets of optical modems were recycled, saving terminal costs of about RMB300 million.

Assets upcycled were valued at RMB **362** million;

Assets disposed by auction totalled RMB **965** million.

Building a green supply system

China Unicom implemented its energy-saving responsibilities from the source of procurement, and procured the suppliers to fulfil their green supply responsibilities throughout the service life cycle covering design, production, packaging, transportation and consumption. China Unicom has put forward, in its technical specifications for tender procurement of network equipment, clear standards and requirements for the power consumption and energy-saving technical parameters of equipment. Our future 5G network equipment procurement plan will include the power consumption of equipment as a key performance indicator in order to drive the green development of the value chain on a continuous basis.

Green transportation

We actively promote self-pickup at business outlets for online orders to lower logistics and transportation costs and reduce emission of exhaust and pollutants. At the same time, efforts were made to improve the ability to process complex services at online platforms, boost the success rate in service delivery, and enhance the green operation of the Company.

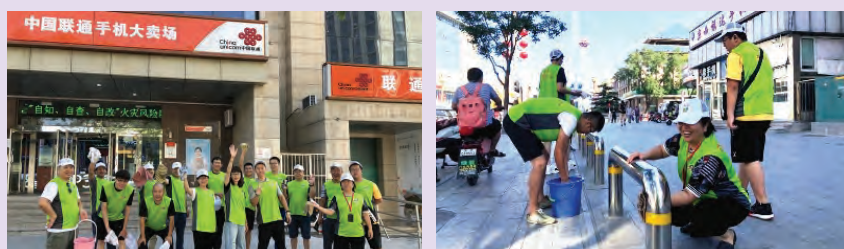
Green consumption

We actively promoted the use of electronic top-up cards to reduce the consumption of paper cards. We strongly advocated the application of eSIM to replace physical SIM cards so as to reduce the consumption of raw materials by operators and telecommunication users in the production, transportation, storage and replacement of physical SIM cards and reduce environmental pollution.

Engaging in green charity activities

Centring on such themes as “energy conservation paving the way for green development” and “keeping the sky blue with low-carbon initiatives”, and bearing in mind the guiding principles set out in relevant documents in relation to energy conservation and emission reduction jointly issued by 14 departments including the National Development and Reform Commission, China Unicom organised green energy conservation promotion and charity activities, taking into account the actual production and operation circumstances, in a bid to create a favourable atmosphere for efficient promotion of green corporate development.

In August 2019, Mentougou office of China Unicom Beijing branch organised a volunteer service activity called “see you around on clean ground”, with the participation of over 20 employees and their children. Everybody benefits from a better urban environment. The office will continue to organize and carry out various voluntary service activities to pass on love, spread civilisation and contribute to the society in the future.



From September to December 2019, China Unicom Global, in cooperation with the World Wildlife Fund (WWF), successively held the “Yuen Chau Tsai, Hong Kong • Marine Debris Survey and Coastal Clean-up Volunteer Activities” and “Mai Po Nature Reserve Volunteer Activities - Removal of Invasive Plants and Climbers”, etc., thereby vigorously advocating the concept of protecting the local natural ecology, and strengthening the employees’ environmental protection awareness.



Volunteer activities of China Unicom Global



The “remembering original aspiration and creating forested landscape” themed tree planting activity of China Unicom System Integration



The “building a beautiful Tibet” tree planting activity of China Unicom Tibet branch



AN "ENABLER" OF INDUSTRY VALUE CO-CREATION

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AN "ENABLER" OF INDUSTRY VALUE CO-CREATION

In the face of changing environment in the era of Internet of Things (IoT), seeking mutual benefit and win-win results through partnership and cooperation seems natural to the pattern of economic laws and social development. Placing cooperation as the fundamental strategic direction, China Unicom adheres to the cooperation philosophy of "joint discussion and development for win-win", and has integrated core capabilities to empower its partners to achieve complementarity of ecological edges across industries and win-win cooperation, thereby building a smart partnering ecosystem meeting with people's growing demand for a smart life.

Measures adopted in 2019

- Pushed forward 5G network "co-build co-share, saving RMB3.5 billion in investment.
- Launched the smart ecology strategy and introduced the eco-partnering brand of "China Unicom Empowerment", creating the three major ecosystems for smart home, big video and pan-intelligence terminals.
- Promoted the synergic development among value chain enterprises such as equipment suppliers, terminal suppliers and mobile virtual network operators and the fulfilment of social responsibility.
- Strengthened platform-based cross-industry partnership and deepened innovation in cooperation.

Actions to be taken in 2020

- To continue to push forward quality implementation of 5G network "co-build and co-share" and strive to building a premium 5G network.
- To take advantage of 5G marketing opportunities to explore 5G product-based new cooperation models with partners, so as to build the China Unicom 5G Internet products brand.
- To enhance cross-industry and cross-field cooperation and expand cooperation scenarios to drive in-depth cooperation, thereby building a smart ecosystem.
- To further deepen cooperation with strategic investors.

DEEPENING COLLABORATION WITH PEERS

In order to uphold the cyber superpower strategy, as well as promoting the supply-side structural reforms to achieve high-quality development of the industry, China Unicom actively pushed forward the complementarity of edges and in-depth cooperation among industry peers in the fields of resources and innovation with the principle of "win-win cooperation for joint development", so as to create the synergies in development and boosting telecom infrastructure and resources through co-build and co-share, thereby facilitating network construction and promoting cost reduction and efficiency enhancement.

Joining hands with industry peer to co-build 5G network

In thorough implementation of the new development philosophy, China Unicom joined hands with China Telecom to push forward the co-build and co-share of 5G network. Through building a single nationwide 5G network together, it could reduce duplicated construction while accelerating the deployment of the 5G network coverage, fully unleashing the resource advantages of both parties and maximising user perception and network performance.

Strengthening cooperation management

Adhering to the principles of "starting with easier tasks before moving on to harder ones, roughing out before refining, prioritising urgent tasks, advancing swiftly, and improving speedily", the Company spared no effort to promote the all-round coordination and communication of all parties and teams. The "Network Operation Plan and Management Rules concerning Co-building and Co-sharing 5G NSA by China Telecom and China Unicom" jointly issued to specify on work division, data sharing, operational coordination, and other management mechanism, as well as major production workflows, achieving the expected goals of maintaining consistency in user perception, business experience, network quality and service support.

Optimising co-work plans

The 5G network co-build co-share will be based on co-share of access network and 5G spectrum resources but with core network to be constructed independently by each party. Both parties will delineate and designate the regions for construction of 5G network by each party. The party who is responsible for the construction in a designated region will bear the relevant investment, maintenance and operating cost of the network.

Achievements of network co-build co-share

In 2019, remarkable results were achieved in the 5G network co-build co-share, with over 50 cities achieved carrying network sharing and base stations in 31 provinces activated for sharing. The two parties co-built and co-shared approximately 20,000 base stations, and China Unicom saved approximately RMB3.5 billion in investment.

Strengthening network resources cooperation

Besides 5G network and through co-built and co-shared communication infrastructure facilities such as pole lines, pipelines and indoor distribution systems, China Unicom has achieved RMB650 million investment saving in construction in the year.

- Co-built and co-shared 30,400 route-km of local transmission pole lines, 10,700 route-km of pipelines and 7,099 indoor distribution systems.
- Entered into agreement with China Telecom to co-sharing the domestic section of the Pak–China optical cable system in the OFC project and Jinan–Qingdao and Kaifeng–Xuzhou primary trunk cables, enabling China Unicom to co-sharing over 800 km of optical cables built by China Telecom.
- Reached agreement with China Mobile and China Telecom to co-building to the optical cables along the Lhasa-Linzhi section of the Sichuan-Tibet railway, in which the three parties would construct a 144-core optical cable system with approximately 443 km by way of cable combination.
- Continued in-depth cooperation with China Telecom on construction of 4G base stations in areas with cooperation intention such as transportation lines, administrative villages, counties and towns and indoor.

Responsibility performance indicator	2017	2018	2019
Co-building rate for indoor distribution systems (%)	71	79	79
Co-sharing rate for indoor distribution systems (%)	93	93	86
Pole line co-building rate (%)	88	91	91
Pole line co-sharing rate (%)	95	95	97
Pipeline co-building rate (%)	92	94	92
Pipeline co-sharing rate (%)	98	96	93

BUILDING INDUSTRY ECOLOGY

Embracing the new era of the Internet of Things and facing the value chain with an open mind, China Unicom has expanded cooperation through forming innovation alliances with different parties, developing business models and sharing high-quality resources, jointly exploring new space for 5G-integrated development and broadened cooperation in areas such as technology, business, resources and capital, thereby building a positive and rewarding industry ecosystem.

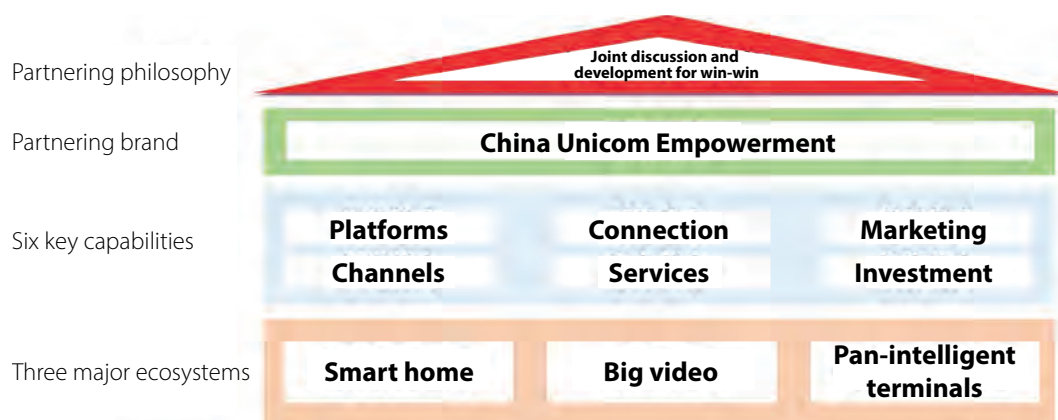
In October 2019, China Unicom held a smart ecology cooperation conference in Beijing, at which it released the new strategy for smart ecology and officially launched the eco-partnering brand of “China Unicom Empowerment”. Meanwhile, the Group has also established a multiple cooperation system by grading, stratification, tiering, which provides convenient and highly efficient communication channels and cooperation portals as it identifies suitable partners for cooperation based on differentiated resources, project support and involvement.



Wang Xiaochu (Chairman) presented at the smart ecology cooperation conference



Launch of the eco-partnering brand of “China Unicom Empowerment”



China Unicom's brand new smart ecology strategy framework

“China Unicom Empowerment” will consolidate the resources and strengths of all parties along the value chain to jointly create the three ecosystems of smart home, big video and pan-intelligent terminals.

◎ Mapping out smart home ecosystem

Launching smart home in 2019, China Unicom unveiled the “1+4+X” smart home product ecosystem, aiming to coordinate the efforts of all parties in the value chain by empowering our partners and created a win-win intelligent eco-cooperation system, leading the trend for future smart home development.



◎ Mapping out big video ecosystem

China Unicom, together with its partners, jointly created a 5G mobile video product – “WO Video”. Integrating a variety of new content formats such as 4K ultra-high definition video, VR video, AR application and 5G games, WO Video is a brand new product that provides users with a fully integrated entertainment experience.

◎ Mapping out pan-intelligent terminal ecosystem

China Unicom launched the 5G pan-intelligent incubation program for its partners, which supports the dual modes of “open cooperation and self-customisation” to build multi-form 5G pan-intelligent terminals and consumer data terminals for consumers and businesses respectively, thereby popularising 5G products in an effective and efficient way to million households.



◎ Strengthening cooperation with equipment vendors

◎ Enhancing regulated management

- The Company has established the management systems of “1+2+N”, “1+3+N” and “1+4+N” for purchasing control, e-commerce platform management and supplies management.
- Electronic procurement practice continued to pursue, while e-tendering platform further improved by introducing e-negotiation rooms, activating online payment of tender fees and enhancing system usability and risk control capability, as well as achieving standardised, cost-effective and transparent operation.
- The capabilities of e-commerce platform boost up comprehensively by introducing product manager workbench, enriching procurement tools, improving the mechanism for quick product listing and establishing a price monitoring system, satisfying more than 240 user requirements throughout the year.

Registered a total of **41,000** e-commerce platform vendors, added **19,000** new vendors in the year.

◎ Driving equipment suppliers to fulfill responsibilities

- With the continuous update on the operating rules of the e-commerce platform, post-event evaluation mechanism is fully implemented resulting, suppliers with grading and ranking.
- A blacklisting mechanism has been implemented to terminate business with disqualified suppliers. Through the e-tendering platform to verify the IP address and MAC address of each tender submission and to prevent irregularities in the tendering process while ensuring the compliance of participation of suppliers.

◎ In-depth cooperation with terminal suppliers

◎ Building a partnering and sharing mechanism

- To respect the terminals suppliers and adopt relevant reasonable opinions while making improvement accordingly, the Company joins to provide users with rich terminals and pleasant mobile Internet experience, thereby driving rapid development of the 5G value chain.
- The cooperation model for multiple terminal suppliers at the national and provincial levels was launched to establish an open and fair co-sharing mechanism for partnering with suppliers. The Company cooperated with more than 100 upstream and downstream terminal suppliers in a mutually beneficial way to iteratively optimise the entire supply chain, and to ensure that users enjoy better terminal products and services from China Unicom's channels.
- The Group introduced 174 cooperative strategic terminals. In order to meet with the needs of the growing pan-terminal market, the Company continued to increase cooperation with suppliers of new pan-intelligent terminals, introducing 119 new products throughout the year.

In April 2019, China Unicom Global Value Chain Partner Conference was held in Shanghai, at which the Company released the brand-new 5G brand logo, "5Gⁿ", and the tagline slogan – "Let the Future Grow". The establishment of the "5G Application Innovation Alliance" was also announced in the conference, and the "5G International Cooperation Alliance" was jointly launched, with a number of internationally renowned telecom carriers and digital service providers. Additionally, the Company announced the first batch of 5G-enabled products, including 6 mobile terminals, 5 industry terminals and 4 module products. The jointly built "5G terminal innovation R & D center" was also announced, with 9 renowned manufacturers and brand-owners to design and create more innovative 5G terminals such that consumers can personally experience the changes 5G will bring to the daily life.



◎ Facilitating the development of 5G terminal industry

- 2019 witnessed the 5G commercial rollout in China. During the year, the Company formulated and improved relevant industry standards for 5G terminals by issuing a 5G terminal white paper and a series of specifications, and promoted the rapid maturity of 5G commercial terminals by establishing a specifications system and inbound process for the full range of 5G terminals to provide product guidance in advance and assure product quality from the source, in an effort to bring the 5G users leading 5G terminals and superb experiences on networks.
- In order to cater users' personalised needs, the Company actively drove the value chain to enrich product offerings and categories, accelerating the maturity of 5G and eSIM terminals commercialisation.

◎ Driving terminal suppliers to fulfill responsibilities

- The terminal suppliers have been required to earnestly fulfill their social responsibilities, performing rigorous checks on their credentials in accordance with national policies and regulations, quality certification, environmental certification, etc., and to have a comprehensive after-sales service mechanism in place so as to protect the interests of customers.
- In respect of product testing, special attention has been placed on power consumption and other factors that affect users' direct experience and effort is put to work with manufacturers for continuous improvements. In respect of security standards, suppliers are required to have passed national grading tests on terminal safety and to pre-install applications in compliance with relevant national standards so as to ensure the user information security on the terminals.
- The suppliers' responsibility is stressed in the terms of the legal cooperation agreements. Since 1 January 2013, all partner manufacturers have signed the "Test Undertaking", pursuant to which, any partner manufacturer who violates pertinent national regulations leading to a negative impact on the society, shall assume full responsibility in respect thereof.

🌐 Innovative platform-based cross-industry cooperation

🕒 Clear cooperation philosophy with channel partners

• Aiming to enhance Internet-oriented operation capability, the Company continued to innovate cooperation and deepen capability to empower transformation. Through resources consolidation, capability transfer and privilege cooperation, the Company created an ecological channel cooperation mechanism featuring win-win results among operators, channel partners and users, with sustainable high-quality development.

🕒 Innovating cross-industry cooperation model

• By introducing platform-based partners, an exemplary model in cooperation with the postal industry was created, enabling replication of promotion of such model by cooperating with key partners focusing in finance, insurance, lottery, petrol station, and express delivery, achieving resource sharing and win-win cooperation were achieved.

• Leveraging finance, supply chain, platform tools and other enabling tools to expedite business processing, speed up commission settlement, enhance operation capability, and drive partners' transformation and development.

In April 2019, China Unicom and China Post entered into a strategic cooperation agreement in Beijing to deepen the partnership on channel touchpoints and business cooperation, pursuant to which both parties shared 54,000 China Post-owned channels, 620,000 Ule stores and 18,000 China Unicom self-run service outlets and 37,000 core social channels. Through leveraging each other's channels and promoting each other's core products, both parties were able to achieve channel extensions. Additionally, by profiling existing users of both parties, generating traffic among typical scenarios and improving service capability of users on different networks, China Unicom has created a new mode of platform-based cross-industry partnership.



🕒 Driving channel partners to fulfill responsibilities

• Cooperation agreements were better amended to further define the duties, rights and obligations to prevent and combat telecom fraud, regulate business development, and cooperate and operate in good faith.

• Lightweight tools, such as portrait comparison technology, identity verification devices, card writers and etc., are provided and applied to implement the "real-name registration system" and help partners to conduct sales in compliance with laws and regulations.

Channel partners reached **200,000**

🌐 Expanding cooperation with mobile virtual network operators (MVNO)

🕒 Broadening the width and depth of cooperation

• China Unicom has always actively supported the development of MVNO enterprises in a "proactive, cooperative, open and win-win" manner. In 2019, the Company conducted MVNO business in cooperation with 30 enterprises, expanding the scope of pilot operations to cover nearly 300 prefecture-level cities.

• China Unicom has been actively promoting healthy development of the MVNO business, activating electric leakage warning, voice VPN, message alert billing, colour ring back tone and other functions and services, assisting MVNO partners to make business innovation. As at the end of 2019, the number of MVNO users reached 80.93 million.

🕒 Assisting MVNO operators in blocking nuisance phone calls

In implementing the development concept of putting people first, China Unicom has established a long-acting mechanism covering the whole process (i.e. ex ante, interim, ex post management) to strengthen the management of MVNO partners over nuisance phone calls, thereby safeguarding network information security for its users.

• China Unicom has activated the network "Hawk Eye" system to automatically identify suspected nuisance call numbers and provided the same to MVNO partners for verification and shutting down services nuisance phone numbers. A total of about 1.4 million pieces of "Hawk Eye" warning data were provided to MVNO partners, involving more than 500,000 phone numbers.

• Connecting 12321 complaint platform, China Unicom organised MVNO partners to respond swiftly, and urged MVNO partners to handle more than 90,000 complaints on nuisance calls and spam SMS messages, effectively safeguarding users' rights and interests.

• China Unicom has supervised and urged MVNO partners to make rectification and improvement by enforcing face-to-face enquiries, service suspension and other means. In 2019, five supervising meetings on healthy development were held, meeting among MVNO enterprises for more than 90 times, and monthly phone number allocation were suspended for 98 times.

Approximately **80.93** million MVNO users as at the end of 2019

DEEPENING INNOVATION AND COOPERATION

Strengthening public consumption cooperation

◎ Promoting in-depth integration of business cooperation

- Leveraging its network resources, centralised platforms and other advantages, China Unicom conducted in-depth business cooperation with partners, resolving partners' critical pain points and optimising their products to provide users with secure and convenient services and enhance user experience, achieving all-rounded winning results among users, partners and China Unicom.
- China Unicom continued to deepen the expansion into the market sub-segmenting of cooperative business area, and sought for more access entries through product innovation, resource allocation, privilege cooperation and other means to increase exposure of key touchpoints and enhance traffic generation capabilities.
- China Unicom strictly honoured cooperation agreements, optimised supporting process and perfected product solutions, while offering personalised services externally for specific scenario solutions and diversified settlement rules, so as to ensure high-standard cooperation and high-quality development.

◎ Driving cooperation partners to fulfill responsibilities

- China Unicom has strictly implemented the real-name registration system and other relevant requirements for phone users, earnestly fulfilling its primary responsibility. Any cooperation partner who failed to adopt proper policies to prevent and combat on telecom fraud shall be held accountable according to the applicable laws.
- China Unicom shall strictly review the qualifications of cooperation partners and assess the safety and reliability of the privilege products being provided. China Unicom would also closely examine the advertisements placed by partners for co-branded products in various channels so as to properly manage risks and ensure a healthy and safe cooperation between both parties.
- China Unicom has persisted to the centralised management of its products and customers, in order to maintain healthy and orderly market development.

◎ Promoting innovation and cooperation with government and enterprises

China Unicom has fully played the advantages of the mixed-ownership reform and actively engaged in extensive and in-depth business cooperation with strategic investors in areas such as cloud computing, big data, Internet of Things and industry Internet.

- The cooperation with Alibaba and Tencent on public cloud continued to deepen, recording a total of 92,000 customers; the cooperation with Alibaba and Tencent on secure IoT SIM cards was also launched; the Company deepened cooperation with strategic partners on IoT connections, adding 9.35 million new connections in 2019; the cooperation with Tencent on financial anti-fraud big data products has rolled out as well.
- In cooperation with Baidu, Alibaba, Tencent, Huawei and other cloud service providers on cloud networking, the Company has offered customers with capability in hybrid cloud networking.
- The Company cooperated with JD.com to jointly launch big-data-based credit score products.

◎ Building capital cooperation ecology

China Unicom furthered expanded capital cooperation with strategic investors from the mixed-ownership reform, namely Baidu, Alibaba, Tencent and JD.com (BATJ) as well as industry-leading players, mutually driving business cooperation and meeting with customer demand.



Inaugural ceremony of Yunjing Wenlv



Inaugural ceremony of China Smart Cultural Tourism Industry Association

- In March 2019, Yunjing Wenlv Technology Company Limited was established as a joint venture with Tencent aiming to push forward the integrated development of "technology + culture + tourism", with the focus in areas such as all-region tourism, big data and artificial intelligence, and cultural tourism marketing services, providing customers with intelligent, diversified, decent and high-quality information services for smart cultural tourism. Six products have been launched so far, with supporting work for key projects well underway across the country. Meanwhile, China Smart Cultural Tourism Industry Association was formally established, acting as an important platform for China Unicom and the industry partners to jointly serve the cultural tourism industry.

- In April 2019, Smart Steps, a joint venture formed with Telefónica S.A., successfully introduced JD Digits as its strategic investor, which enabled it to integrate JD Digits' capabilities and resources for business development. The joint venture has rolled out four key products – “Jice”, “Jimu”, “Jizhi” and “Jidun”, and has provided services to various government ministries and commissions under the State Council and provincial and municipal governments and a number of global top 500 companies.



Signing ceremony for JD Digits' strategic investment in Smart Steps



Inaugural ceremony of Yundee

- In August 2019, Yundee was established jointly with Kingdee Group to primarily engage in the R & D and operation of industrial Internet platform. Through in-depth integration of the Internet and traditional industries, it aimed to support China's manufacturing industry to accelerate and evolve towards digitalised, network-oriented and intelligent operations, thus pushing forward the high-quality development. As of now, China Unicom's Yundee's industrial Internet platform has officially launched.

- In December 2019, iCloud Shield (云盾智慧安全科技有限公司) was established jointly with Qi-Anxin to engage in development of network security products and services. iCloud Shield aims to boost the basic security protection and efficiency from the three aspects of “website security, situational awareness and security services” and provides customers with a variety of professional information security services, thereby creating a new ecology for network information security.



China Unicom and Qi-Anxin signed strategic cooperation agreement



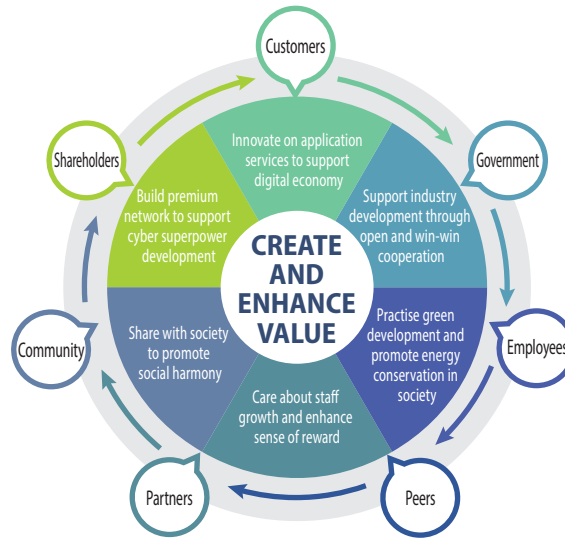
Inaugural ceremony of iCloud Shield

RESPONSIBILITY MANAGEMENT

STRATEGY OF RESPONSIBILITY

China Unicom has been committed to developing itself while giving consideration to greater social responsibilities to strive for harmonious development of corporate benefits and social goals. In 2019, under the consistent guidance of the new development philosophies of “innovation, coordination, greenness, openness, and sharing”, the Company took practical steps to contribute to the “cyber superpower” strategy, “Belt and Road” initiative, supply-side structural reform, three critical battles and other national strategic deployment, resulting in continuous enhancement in social responsibility awareness and extensive promotion of communications on social responsibility. It continued to enhance its ability to create comprehensive economic, social and environmental values, seeking to promote sustainable development and make due contribution to China’s economic, social and informatisation development.

Social responsibility management
Improving the organisation of social responsibility
Establishing a system for social responsibility
Providing training in social responsibility
Assessing performance of social responsibility
Evaluating social responsibility practices
Institutionalising social responsibility communications

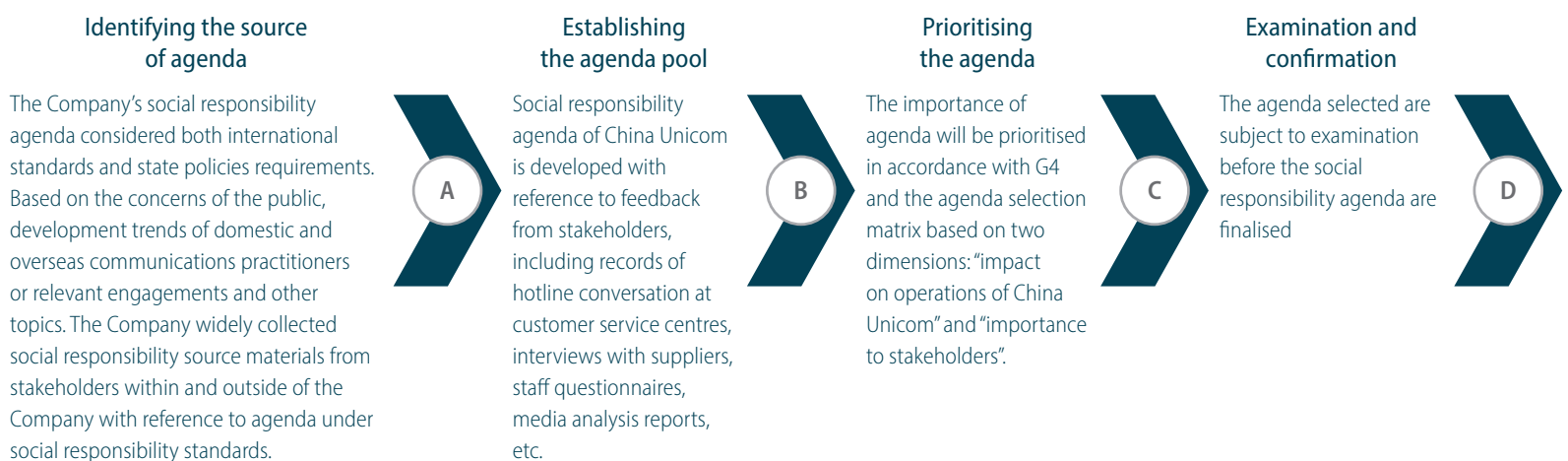


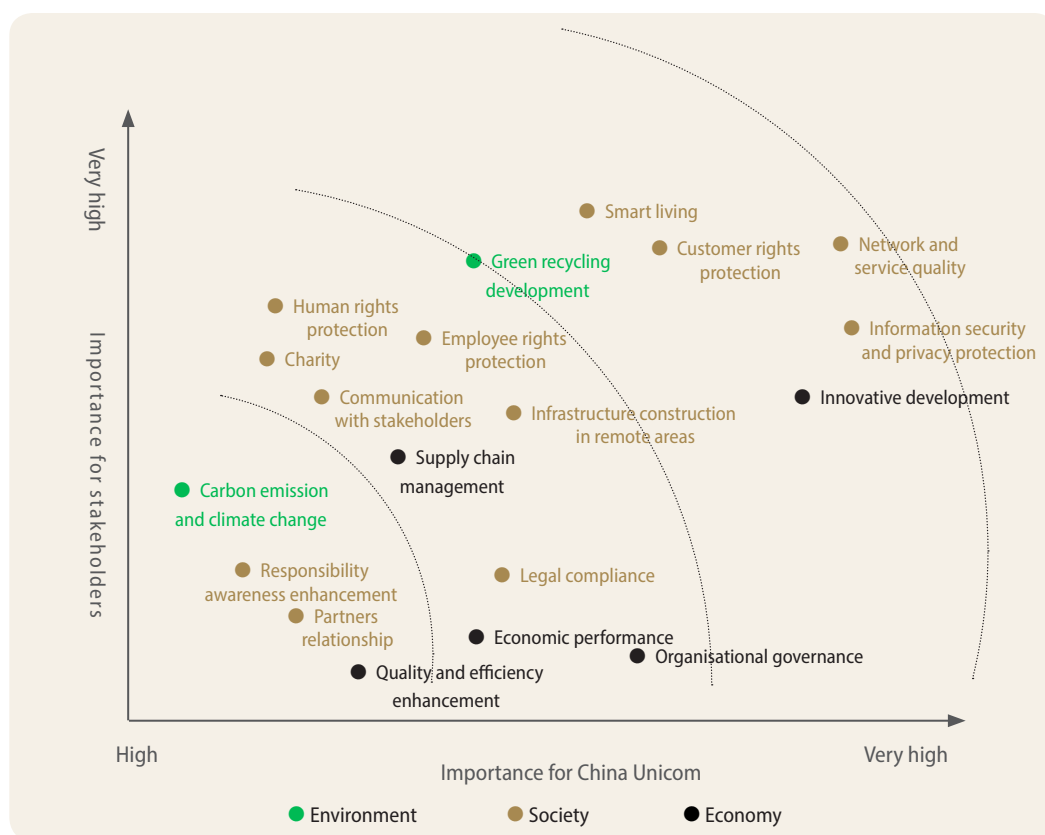
China Unicom's Social Responsibility Strategy System

Social responsibility agenda
Cyber superpower development
Technological innovation and development
Social livelihood support
Ecological civilisation development
Deepening reform of state-owned enterprises
Industry value creation

China Unicom has formulated the 2018-2020 three-year social responsibility plan and determined six substantial agenda according to social responsibility agenda selection procedures established under the principle of “closely following standards, regularly updating and sustainably improving”. Our social responsibility agenda will be updated and improved on a continuous basis in close tandem with international developments and domestic trends as well as the standards of advanced enterprises, such that social responsibility implementation is guided by scientifically selected agenda to ensure the effectiveness, high standard and positive influence of our social responsibility implementation.

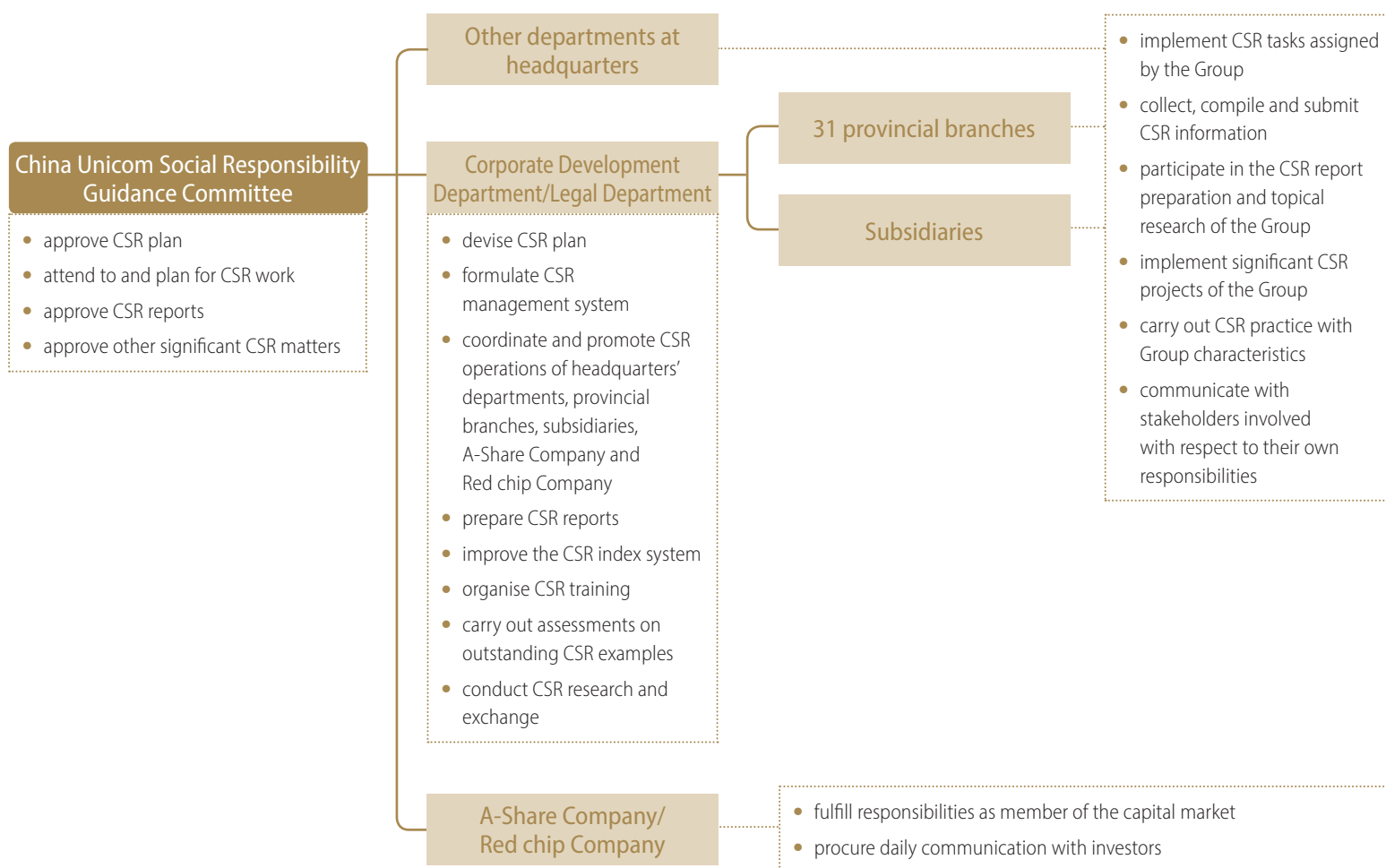
CHINA UNICOM'S PROCEDURE FOR THE SELECTION OF SOCIAL RESPONSIBILITY AGENDA





ORGANISATION OF RESPONSIBILITY

China Unicom has formulated the “China Unicom Social Responsibility Administrative Measures” and established the social responsibility architecture with the Social Responsibility Guidance Committee as the core. The Corporate Development Department/Legal Department in headquarters is in charge of the daily work of the Social Responsibility Guidance Committee, and makes comprehensive arrangements to promote the social responsibility work of the units within the Company. Other relevant departments of the Group, the provincial branches and subsidiaries are responsible for social responsibility implementation and carry out responsibility practice in their respective business specialisations.



China Unicom's social responsibility working organisation and major duties

SYSTEM FOR RESPONSIBILITY

The Company's social responsibility management system comprises of organisation management, implementation management, communication management and performance management etc. In operation, we adhere to the principles of management first, incorporation into operations and joint actions by higher and lower levels. The formulation of social responsibility plans, promotion of social responsibility implementation and preparation of social responsibility reports are based on the said system.

In strict compliance with international and domestic social responsibility standards, China Unicom focused on six substantial agenda of the Company and further optimised the "China Unicom Social Responsibility Performance Indicator System", which include 35 categories and 110 indicators, and drove social responsibility to be effectively integrated into enterprise production and operation on that basis.



China Unicom CSR Indicator System

CAPABILITIES ON RESPONSIBILITY

In 2019, China Unicom actively participated in various forums and seminars and training organised by social responsibility groups, paid attention to the social responsibility development trends, learned from the experience of outstanding enterprises and contributed its own ideas, in order to support the ongoing in-depth development of social responsibility.

Host	Event participated
State-owned Assets Supervision and Administration Commission of the State Council	Ceremony on Concentrated Publication of Social Responsibility Reports by Central Enterprises; Topical research titled "Research Report on Corporate Social Responsibility of Central Enterprises (2019)" and "Research Report on Corporate Social Responsibility of Central Enterprises in the overseas market (2019)"; Two session of 2019 Social responsibility Training courses for Central Enterprises
UN Global Compact	The Award of "2019 Best Corporate Practice on Achieving Sustainable Development Goals" at "2019 China Business Summit on Achieving Sustainable Development Goals (SDGs)".
Global Reporting Initiative (GRI)	Training Courses on GRI Standards in 2019
Hong Kong Green Finance Association and CECEP	Interview on corporate ESG matters in 2018 and 2019
China Sustainability Tribune	The "deepening responsibility and remolding value" theme discussion over progress and development trend of corporate social responsibility in China and the world

© Advancing the development of social responsibility in the information and communication industry

The 2019 Annual Forum for Social Responsibility of Information and Communication Industry themed with “fulfilling responsibilities and striving for mutual benefits in the new era” was held in Beijing on 5 December 2019. As the rotating chairman unit, China United Network Communications Group Company Limited shared its experience and practice in implementing the requirements of the State Council on fulfilling social responsibilities and insisting on seeking sustainable and responsible development, and would continue to cooperate with the fellow peers in good faith to promote better and faster progress in fulfillment of social responsibilities in the information and communication industry with concerted efforts, and make greater contributions to the sustainable development of China’s economy, society and environment.



Mai Yan Zhou, Senior Vice President of the Company, making speech on behalf of the rotating chairman unit



Award ceremony for outstanding cases on social responsibility practice

China Unicom signed the proposal on “fulfillment of social responsibilities by information and communication enterprises” initiated at the Annual Forum. It also acted as the member of the drafting panel and participated in the compilation of two industry standards, namely the “Corporate Social Responsibility Management System of Information and Communication Industry in China” and the “Corporate Social Responsibility Evaluation System of Information and Communication Industry in China”.

PARTICIPATION OF RESPONSIBILITY

China Unicom has established a social responsibility communication mechanism focused on ongoing specific communication based on stakeholders’ expectations and its substantial social responsibility agenda.

Practical issue	Stakeholder	Form of communication	Expectations for China Unicom
Deepening reform of stated-owned enterprises	Shareholders	<ul style="list-style-type: none"> General meeting of shareholders Investor meeting 	<ul style="list-style-type: none"> Timely and transparent information access Long-term stable investment gains Corporate governance and risk control Legal compliance and corruption-resistance operations
	Government	<ul style="list-style-type: none"> Face to face communication Meetings 	<ul style="list-style-type: none"> Fair competitive market order Efficiency enhancement and cost reduction Modernisation of governance capacity and system
	Public and media	<ul style="list-style-type: none"> Phone communication and forums Internet-based communication 	<ul style="list-style-type: none"> Timely acquire the Company’s information Interactive communication with the Company
Building a cyber superpower	Customer	<ul style="list-style-type: none"> Meetings Service hotline Weibo/WeChat NPS (Net Promoter Score) survey 	<ul style="list-style-type: none"> High-speed and smooth networks Innovative smart network services High-quality networks in remote areas Favourable and transparent tariff policy Convenient and efficient service assurance Network information security assurance

Practical issue	Stakeholder	Form of communication	Expectations for China Unicom
Ensuring people's livelihood	Community	<ul style="list-style-type: none"> • Meetings • Forums • Villages support station 	<ul style="list-style-type: none"> • Sustainable and effective donations • Greater effort in poverty aid and relief • Charitable volunteering programmes
	Employees	<ul style="list-style-type: none"> • Staff forums • Staff representative assemblies • Democratic informal meetings • Online communication with the General Manager 	<ul style="list-style-type: none"> • Protection of lawful rights and interests • Training and career development opportunities • Opportunities for participation in democratic management <ul style="list-style-type: none"> • Support in adversity • Safe and comfortable work environment
Development through technological innovation	All stakeholders	<ul style="list-style-type: none"> • Meetings • Visits • Weibo/WeChat 	<ul style="list-style-type: none"> • Smart products that enhance the quality of life • Innovative and futuristic communication technologies • Internet-oriented management systems
Building ecological civilisation	Ecological environment	<ul style="list-style-type: none"> • — 	<ul style="list-style-type: none"> • Green and eco-friendly operations • Reduction of pollution through recycling
Co-creating industrial value	Partners	<ul style="list-style-type: none"> • Partners' conference • Meetings, visits • Self-service portals of partners 	<ul style="list-style-type: none"> • Wide scope of cooperation • Fair and open opportunities for cooperation • Extensive and convenient support services
	Peers	<ul style="list-style-type: none"> • Interviews • Meetings 	<ul style="list-style-type: none"> • Stronger ability for complementary use of resources • Cost savings and higher efficiency
	Customers	<ul style="list-style-type: none"> • Interviews and hotlines 	<ul style="list-style-type: none"> • Driving partners' accountability

In 2019, the Company took serious control of the political direction of news and public opinions, made great efforts to promote news publicity and public opinion guidance, and earnestly carried out major event promotion. It also enhanced communication with the public and the media and vigorously developed a new ecosystem of corporate communication with internal and external interconnections, presenting China Unicom's open approach to communication. Throughout the year, a total of 205 pieces of press releases were issued and 38 thematic publicity campaigns were organised.

- Had a well-established working system and mechanism in place to strengthen the development of propaganda front. Efforts were made to further promote the construction of the press and publicity center, establish press and publicity workstations across the country and organise press and publicity training sessions. In addition, it also fully manage and utilise its existing self-owned propaganda fronts including the intranet, corporate website, Weibo and WeChat to strive for integrated development of the media.

- Managed to be covered by the Posts & Telecom on four full pages as the China Unicom special issue; furthered promotion on deepening mixed-ownership reform special programmes, vigorously carried out series of publicity campaigns in relation to the "Belt and Road" initiative, poverty alleviation endeavors, speed upgrade and tariff reduction, mobile number portability, etc; advanced the China Unicom 5G promotion in an orderly manner through accurate control of the 5G development and commercialisation pace, delving into key businesses, and creating hot topics and phenomenal reports.

- Set up the mechanism for monitoring, reporting, feedback and handling of public opinions, which resulted in significant improvement of the ability to make judgment on and deal with public opinions. It continued the round-the-clock monitoring over public opinions and had issued 228 regular public opinion reports.

- Secured nearly 200 million followers on national new media matrices such as Weibo and WeChat, and over 1.5 billion views per year on the Group's new media platforms. The Company was accredited with the most influential new media account among PRC enterprises and central enterprises 6 years in a row, the top enterprise for new media influence among PRC enterprises for 5 years in a row; and was honoured with the most influential short video account among central state-owned enterprises, New Media Broadcast Power Award, the annually responsible enterprise in poverty alleviation among central state-owned enterprises, Dandelion Top 10 New Media among PRC enterprises, etc.

◎ Honours and recognitions

In 2019, China Unicom sturdily performed its social responsibilities and disclosed responsibility performance promptly. The Company gained recognition from the society with its effective responsibility communications work.

- 12 cases on social responsibility practice submitted by the Company were rated as 2018 Best Corporate Practice Cases by China Association of Communication Enterprises.

- The Award of "2019 Best Corporate Practice on Achieving Sustainable Development Goals" among the PRC network practitioners issued by UN Global Compact.

APPENDICES

KEY PERFORMANCE

Category	Indicator	Unit	2017	2018	2019
Operations and development	Total assets	RMB billion	571.98	540.32	562.5
	Operating revenue	RMB billion	274.829	290.88	290.51
	Service revenue	RMB billion	249.015	263.7	264.39
	Profit before income tax	RMB billion	2.593	13.081	14.17
	Mobile billing subscribers	Million	284.163	315.036	318.475
	of which: 4G subscribers	Million	174.876	219.925	253.766
	Fixed-line local access subscribers	Million	59.997	55.899	54.215
	Fixed-line broadband subscribers	Million	76.538	80.880	83.478
	Online 2I subscribers	Million	42.48	53.81	54.74
	Productivity	RMB Thousand/Person • Year	923.9	1,007.9	1,196
Network capability	Number of 4G base stations	Thousand	852	987	1,410
	Population coverage of 4G	%	83	90	93
	Number of fixed network broadband access ports	Million	202	215	221
	Broadband coverage rate in administrative villages in ten northern provinces	%	95	96	95
	Urban 100M or above broadband network coverage rate	%	52	77.7	86.3
	Urban 20M or above broadband network coverage rate	%	93	97	96
	Rural 4M or above broadband network coverage rate	%	100	100	100
	Coverage rate of mobile network in township	%	100	100	100
	Coverage rate of mobile network in administrative villages	%	89	89	90
	Total number of administrative village with coverage of broadband network	Thousand	274	282	299
	Co-construction rate of indoor distribution system	%	71	79	79
	Sharing rate of indoor distribution system	%	93	93	86
	Co-construction rate of pole lines	%	88	91	91
	Sharing rate of pole lines	%	95	95	97
	Co-construction rate of pipelines	%	92	94	92
	Sharing rate of pipelines	%	98	96	93
	International interconnection bandwidth	G	2,072	2,427	2,460
	4G network access rate	%	99.72	99.77	99.74
	4G network call drop rate	%	0.1	0.09	0.06
	5G commercialised cities	Number			50
5G base stations	Thousand			62	
Internet of things connections	Million	72	109	187	
Number of channels in rural and remote poverty-stricken area	Thousand	200	200	184	
Commitment in Major Assurance Initiatives	Total times of emergency communication guarantee	Times	361	407	578
	Emergency communication vehicles called out	Thousand vehicle-times	137	133	152
	Emergency communication equipment inputted	Thousand set-times	109	94	119
	Personnel used	Thousand person-times	471	482	641
Independent innovation	Technological innovation input	RMB billion	5.81	11.5	10.26
	Number of personnel in technical activities	Persons	4,195	7,703	9,155
	International standards documents	Articles	649	545	500
	Industry standards	Items	228	285	280
	Number of patents applied	Items	648	1,121	1,439
	Number of patents granted	Items	346	441	658

Category	Indicator	Unit	2017	2018	2019
Customer service	Monthly average complaint rate in the year	Person-times/million users	2.73	2.96	18.26
	Overall satisfaction rate	Points	77.9	80.42	81.11
	Including: Fixed line user satisfaction rate	Points	82.45	85.73	87.9
	Mobile phone user satisfaction rate	Points	79.13	81.94	82.02
	Fixed broadband user satisfaction rate	Points	74.62	76.17	81.51
	Mobile Internet user satisfaction rate	Points	75.05	77.83	78.49
People-oriented	Gender proportion of employees	Male:female	1.48:1	1.50:1	1.53:1
	Proportion of ethnic minority employees	%	6.89	6.77	7.33
	Proportion of female in senior management	%	10.6	11	11.9
	Input in employee training	RMB million	321.57	422.99	374.36
	Per capita training time	Hours	62	66	63
	Network college online learning person-time	Thousand person-times	15,333	11,250	18,078
	Network college total online learning hours	Thousand credit hours	13,096	7,040	9,163
	Proportion of contracted employees in labor union	%	100	100	100
	Input to help and support employees suffered from difficulties	RMB million	9.37	30.22	79.00
	Input in condolence fund	RMB million	28.38	28.53	28.75
	Employee turnover rate	%	1.94	2.16	1.85
	Low-carbon development	Special investment in energy conservation and emission reduction	RMB million	100	100
Energy consumption per unit of information flow		Kg standard coal/TB	7.5	3.14	4.26
Petrol consumption		Thousand tons	29.1	28.6	41.75
Diesel consumption		Thousand tons	24.5	8.1	13.74
Natural gas consumption		Thousand m ³	7,081	10,145.2	5,136
Electricity consumption		Billion KWH	13.986	14.19	15.81
Water consumption		Million tons	22.2106	18.5731	18.095
Density of water consumption		Tons/RMB million	80.62	63.85	62.27
Coal consumption		Thousand tons	72.7	58	77
Energy conservation		Thousand tce	169.2	163.2	172.8
Coverage rate of energy conservation technology		%	61	66	70
Greenhouse gas emission		Million tons	5.19	13.13	13.20
Total direct emission of GHG (category I)		Million tons		0.37	0.39
Total indirect emission of GHG (category II)		Million tons		12.76	12.81
Carbon emission intensity		Tons/RMB million	18.88	45.13	45.40
Sulphur dioxide emission		Thousand tons	8.9	2.4	1.8
Chemical oxygen demand (COD)		Thousand tons	25.4	21.1	26.1
Recycling upon scrappage and disposal		RMB million	1,242	621	965
Scrappage and disposal of cables		Thousand tons			155
Scrappage and disposal of battery		Thousand tons			10.2
Scrappage and disposal of general materials	Thousand tons			10.9	
Disposal of used terminals	Thousand tons			1.8	
Compliance management	Compliance training sessions	Times	1,576	1,920	2,514
	Participant attending the compliance training	Thousand persons	254	248	245
	Production safety training sessions	Times	37	40	87
	Coverage rate of production safety training	%	100	100	100
Community responsibility	Number of registered volunteers	Persons	23,998	43,873	47,930
	Participants in volunteer activities	Person-times	39,966	50,412	55,004
	Credit rating ¹	Grade	AAA	AAA	AAA
	Total paid	RMB billion	8.156	7.889	5.25
	Employment creation	Persons	10,458	10,869	9,913
	Total donation	RMB million	12.65	11.04	2.23

Note:

1. This is rated by China Chengxin International Credit Rating Co., Ltd. to our wholly-owned subsidiary, China United Network Communications Corporation Limited.
2. Data in the report: The data and information disclosed in this report mainly sourced from relevant data collection systems and relevant statistical statements inside our company and cases about corporate social responsibility practice submitted by provincial subsidiaries. There is no material change in relation to the methods used for prepping the disclosure. The 2019 data quoted in this report are final statistical data. In case of any discrepancy between the financial data herein and those in annual report, the annual report shall prevail. The monetary unit adopted in this report is RMB.
3. Reference: Guiding Opinions on Better Fulfilling Social Responsibilities of State-owned Enterprises, The State-owned Assets Supervision and Administration Commission of the State Council (SASAC); Guidelines for preparation of Report on Performance of Corporate Social Responsibility, Shanghai Stock Exchange; Environmental, Social and Governance Reporting Guide, HKEX; Guidelines for Preparation of Social Responsibility Report, ACSIQ and SAC; Guidelines for Preparation of China Enterprise Social Responsibility Report (CASS-CSR 4.0), Chinese Academy of Social Sciences; Sustainability Reporting Guidelines (Latest Edition), Global Reporting Initiative (GRI); Social Responsibility Management System of China Information and Communication Industry Enterprises, China Association of Communications Enterprises.
4. Quality assurance: The Board of Directors and all directors undertake that the information disclosed in the report is authentic, complete and correct, with no false record or misleading statement

HONORS AND RECOGNITION

- China Unicom ranked 251st in “The Forbes Global 2000” for the year 2019.
- China Unicom ranked 262nd by revenue in “Fortune Global 500” for the year 2019.
- The A share company of China Unicom was rated the 2018- 2019 top grade information disclosure (Grade A) by the Shanghai Stock Exchange.
- The A share company of China Unicom was honoured with the Best Information Disclosure Award in the “3rd China Excellent IR Award”.
- China Unicom was honoured with the awards of “Best in Communications Sector” and “Best IR by a Senior Management Team” by the “IR Magazine”.
- China Unicom was voted “Asia’s No.1 Most Honored Telecom Company” for four consecutive years in “2019 All-Asia Executive Team” ranking organised by Institutional Investor. The Company was honoured to rank No. 1 in all categories in telecommunications sector, including “Asia’s No.1 Most Honored Telecom Company”, “Asia’s Best CEO (Telecoms) – 1st”, “Asia’s Best CFO (Telecoms) – 1st”, “Asia’s Best Corporate Governance (Telecoms) – 1st”, “Asia’s Best ESG Metrics (Telecoms) – 1st” and “Asia’s Best Investor Relations Company (Telecoms) – 1st”.
- China Unicom was awarded “The Best of Asia – Icon on Corporate Governance” by Corporate Governance Asia.
- The Company was accredited with “Gold Award – Excellence in Corporate Governance, Social Responsibility & Investor Relations” in “The Asset ESG Corporate Awards 2019”.
- The Company was voted again as “Asia’s No.1 Best Managed Telecommunications Company” and “No. 1 Best Growth Strategy in China” by professional investors and analysts in “Asia’s Best Managed Companies Poll 2019” by FinanceAsia, an authoritative financial magazine in Asia.
- The Company was awarded as “Enterprise with Outstanding Contribution in Technological Innovation” from 2016 to 2018 by SASAC.
- China Unicom ranked 4th in respect of brand influence in China under the Research Reporting of Chinese Brand Influence compiled by Chinese Academy of Social Sciences.
- The Company’s website (www.chinaunicom.com.hk) won the Best Website Grand Awards in iNova Awards, Mercury Awards and Astrid Awards, respectively.
- China Unicom Global was awarded as “Best Data Centre Service Provider” in the service provider category at the 22nd Telecom Asia Awards in 2019.
- China Unicom Global won the Application Benefit First Prize and Technological Innovation First Prize in the Award of Information Technology Progress in Guangdong-Hong Kong-Macao Greater Bay Area by HKITDA.
- China Unicom Global was honoured with “Best Asian Wholesale Carrier”, “Best Subsea Innovation” and “Best 5G deployment” in the 15th 2019 Global Carrier Awards.
- China Unicom Global won the “Best Cross-border Awards” in the 2019 “Asia’s Best E-Tailing Awards” jointly held by the Office of the Government Chief Information Officer, Hong Kong Management Association, ACCA, InvestHK, etc.
- China Unicom Big Data Company won various awards including the “2018-2019 Most Valuable Big Data Enterprise” “Leader in Intelligent Upgrade”, “2019 Big Data Pacesetter in Constructing a Digital China”, “Excellent Enterprise Award”, “2019 Big Data industry in China - Enterprise with Greatest Growth Potential”, “2019 Innovation • Excellent Enterprise of Dual-recommendation”, etc.
- China Unicom Smart Connect Technology was awarded the “Influential Brand with Growth Contributions by the China Initiatives propaganda episode”.

ORGANISATION

Key organisations China Unicom joined in 2019

No.	Name of organisation	Post
1	Zhongguancun Anxin Online Identity Authentication Industry Alliance (OIDAA)	Vice president
2	Internet of Things Special Committee of China Federation of Logistics & Purchasing (CFLP)	Rotating president
3	Digital China Industry Alliance	Vice president unit
4	Smart-city innovation league of Xiong’an New Area	Vice president unit
5	5G Applications Innovation Alliance	Founding unit
6	5G Cloud Gaming Alliance (5GCGA)	Executive member unit
7	Internet Society of China	Member unit
8	Edge Computing Consortium (ECC)	Member unit
9	Citizen Science Alliance (Category IV)	Member unit
10	International Organisation for Standardisation O-RAN Alliance	Member unit

No.	Name of organisation	Post
11	China Association of Travel Services	Member
12	Fintech Industry Development Alliance	Vice president unit
13	China Electric Power Big Data Innovation Alliance	Member
14	Beijing Information & Telecommunication Association	Executive member
15	Artificial Intelligence Industry Alliance	Member
16	China Tourist Attractions Association	Member
17	Association of Communications Across the Taiwan Straits	Chief executive member
18	China Working Group of Digital Economy under BRICS Business Council	Working Group Leader
19	Weixun International Exchange and Cooperation Centre in Xiong'an, Hebei	Executive member

DESCRIPTION TO THE REPORT

Reporting Period:	From January 1, 2019 to December 31, 2019, with some sections exceeding aforesaid period.
Release frequency	The social responsibility report of China Unicom (Hong Kong) Limited is an annual report.
Organisational coverage	The report covers China Unicom (Hong Kong) Limited and its subsidiaries. For the convenience of expression, "China Unicom", "the Group", "the Company" and "We" are used respectively in this report.
References	Guiding Opinions on Better Fulfilling Social Responsibilities of State-owned Enterprises, The State-owned Assets Supervision and Administration Commission of the State Council (SASAC); Guidelines for preparation of Report on Performance of Corporate Social Responsibility, Shanghai Stock Exchange; Environmental, Social and Governance Reporting Guide, HKEX; Guidelines for Preparation of Social Responsibility Report, AQSIQ and SAC; Guidelines for Preparation of China Enterprise Social Responsibility Report (CASS-CSR 4.0), Chinese Academy of Social Sciences; Sustainability Reporting Guidelines (Latest Edition), Global Reporting Initiative (GRI); Social Responsibility Management System of China Information and Communication Industry Enterprises, China Association of Communications Enterprises.
Clarification about the data	The 2019 data quoted in this report are final statistical data. In case of any discrepancy between the financial data herein and those in annual report, the annual report shall prevail.
Quality assurance	The Board of Directors and all directors undertake that the information disclosed in the report is authentic, complete and correct, with no false record or misleading statement.
Language versions and availability	The Social Responsibility Report of the Company is issued in both Chinese and English and provided in electronic copy. Website: https://www.chinaunicom.com.hk .
Contact information	Address: China Unicom Corporate Development Department/Legal Department, No. 21 Jinrong Street, Xicheng District, Beijing Zip Code: 100033 Fax: 86-10-66258674 Email: yangwei3@chinaunicom.cn

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Note:

- For further details about data set forth in 102-24, 102-25, 201-4, please refer to the Annual Report of China Unicom (Hong Kong) Limited at www.chinaunicom.com.hk.
- Material gases such as ozone depleting substances (ODS), nitrogen oxides (NOx), sulphur oxides (SOx) cited in 305-6, 305-7 are not the major emissions of the Company.
- Relevant systems or processes as described in 102-28 and 102-56 will be gradually established.

Chinese Academy of Social Sciences CASS4.0

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Note:

- As China Unicom is a massive entity and its business covers a wide geographical region, currently the Company is not able to produce full statistics over its waste production (including hazardous and non-hazardous categories) as prescribed in A1.3 and A1.4. Upon identification of material topics, we mainly report on the recycling and reuse of main resources utilised by the Company in the course of operation including cables, battery, terminals and comprehensive supplies. The Company will establish related data collection system in the future.
- As the Company mainly engages in the provision of telecommunication services, packaging material used for the finished products as prescribed in A2.5 is not applicable to the Company's business practice.

FEEDBACK

Dear Reader,

Thank you for reading 2019 Corporate Social Responsibility Report of China Unicom (Hong Kong) Limited, which is the fourth standalone corporate social responsibility report of China Unicom (Hong Kong) Limited. In order to provide valuable information to you and other stakeholders, in addition to facilitating the supervision of social responsibility works and enhancing the capability and standard of performing social responsibility, we would like to have your precious opinion and suggestion regarding this report.

Email: yangwei3@chinaunicom.cn

Fax: 86-10-66258674

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

● Your capacity:

A. Customer B. Shareholder C. Government D. Community E. Business partner F. Media G. Social organisation H. Others (Please specify) _____

● Overall evaluation of China Unicom's Corporate Social Responsibility Report:

A. Excellent B. Good C. Fair D. Not Satisfactory E. Poor

● Overall evaluation of China Unicom's performance in economic, social and environmental responsibilities:

Economic responsibility A. Excellent B. Good C. Fair D. Not Satisfactory E. Poor

Social responsibility A. Excellent B. Good C. Fair D. Not Satisfactory E. Poor

Environmental responsibility A. Excellent B. Good C. Fair D. Not Satisfactory E. Poor

● Response and disclosure in this report in connection with the concerns of stakeholders?

A. Excellent B. Good C. Fair D. Not Satisfactory E. Poor

● Overall evaluation of China Unicom's Corporate Social Responsibility Report in terms of the clarity, accuracy and integrity of the disclosure of information, data and index:

Clarity A. Excellent B. Good C. Fair D. Not Satisfactory E. Poor

Accuracy A. Excellent B. Good C. Fair D. Not Satisfactory E. Poor

Completeness A. Excellent B. Good C. Fair D. Not Satisfactory E. Poor

● Readability of this report in terms of content arrangement and layout design?

Content arrangement A. Excellent B. Fair C. Poor

Layout design A. Excellent B. Fair C. Poor

● Any other opinion/suggestion for our work and report of corporate social responsibility?

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Thank you for your feedback and precious time.



CHINA UNICOM (HONG KONG) LIMITED

75th Floor, The Center, 99 Queen's Road Central, Hong Kong

www.chinaunicom.com.hk

