

# 2017

CORPORATE SOCIAL  
RESPONSIBILITY REPORT



CHINA UNICOM (HONG KONG) LIMITED  
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## NEW ERA · NEW MISSION · NEW UNICOM CONNECT THE WORLD TO INNOVATE AND SHARE A GOOD SMART LIVING



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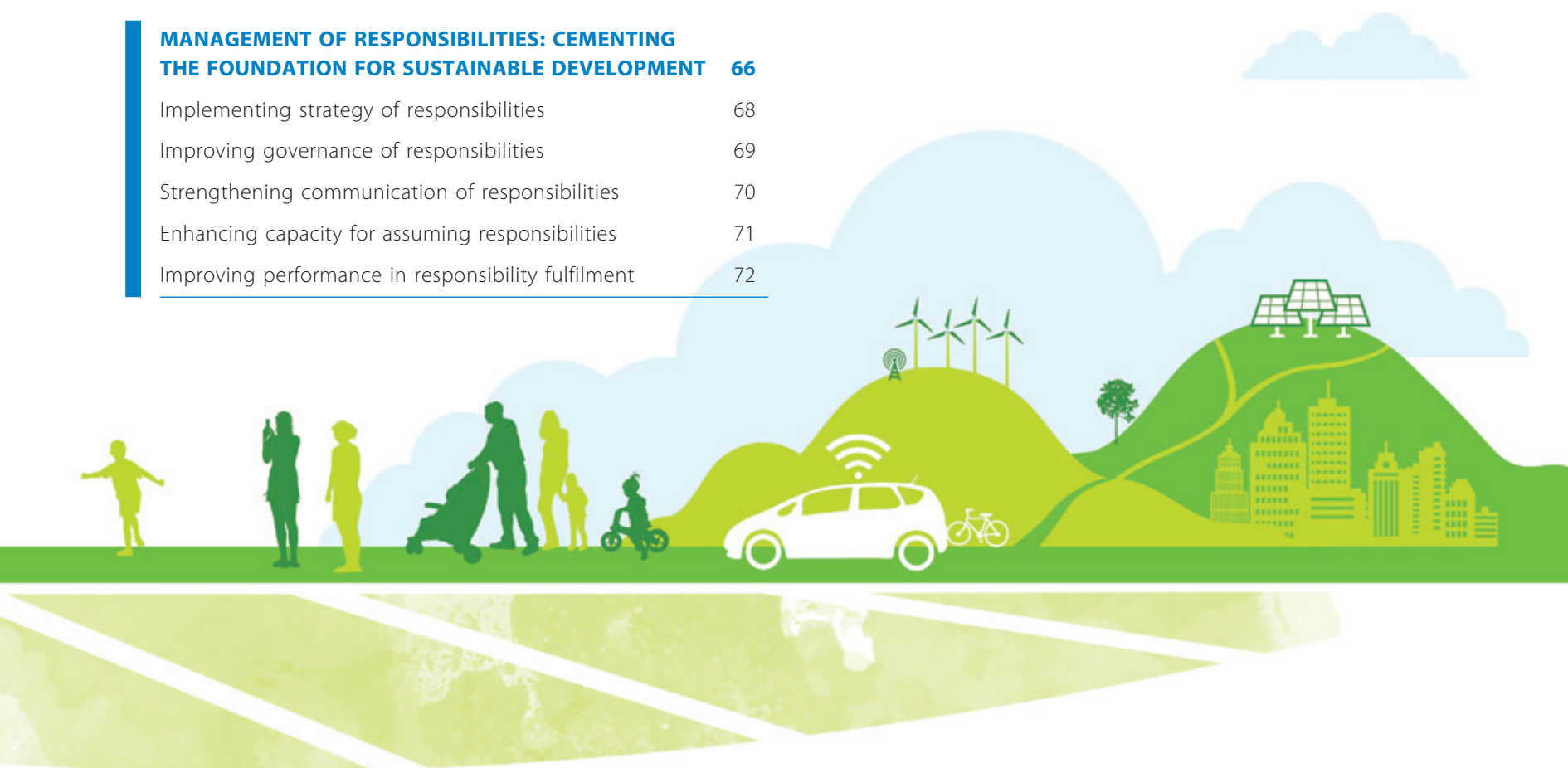
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**FORWARD-LOOKING STATEMENTS**

Certain statements contained in this report 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 and other filings with the U.S. Securities and Exchange Commission.



# Message from Chairman

“ A new era calls for renovated ethos, and a fresh beginning must be underpinned by new initiatives. Mindful of its initial mission and commitment and in accordance with the new development philosophy and requirements for high-quality development, China Unicom will continue to deeply implement the strategy of Focus, Innovation and Cooperation, nurture new strong Internet DNA, explore new robust corporate governance post mixed-ownership reform, step up new Internet-oriented operations, enhance new energy for innovative business development and vigorously develop an inter-connected new ecology, striving to start a new paradigm for China Unicom's development in the new era, better satisfy people's growing demand for congenial information and communications living, and make more significant contributions to the successful development of economic affluence across the nation and the achievement of great victory for Socialism with Chinese Characteristics for a New Era. ”

Year 2017 was a significant milestone in the history of China Unicom with extraordinary implications. In meticulous and united efforts, sometimes against adverse conditions, we seized opportunities emerging in the era of digital economy to intensify our supply-side structural reforms, implement the Focus Strategy on all fronts, promoting growth, controlling costs, reforming mechanism”, make further inroads in mixed-ownership reform, commence transformation to Internet-oriented operations, secure partnership in the Beijing Winter Olympics and support the construction of Xiong An New District, in persistent adherence to the philosophy of “innovation, coordination, eco-friendliness, openness and sharing”. As a result, the Company has taken a solid step forward onto the path of transformative development, making important contributions to deepened implementation of SOE reform, satisfaction of the growing public demand for information-based living and leadership in the development of good smart living, while providing an exemplary model in the fulfilment of political, economic, environmental and social responsibilities.

**Guided by Party leadership and strengthened by corporate culture building.** We persisted in the principles of pursuing sustainable development and the maximisation of overall value. By normalising and institutionalising “Two Learning Types, One Action”, we continued to drive in-depth integration of Party establishment with our production and operations, make ongoing efforts to strengthen Party leadership, business integrity and anti-corruption, enhance disciplinary supervision against prominent issues that restrained the healthy development of the enterprise, and rectify “four improper practices” by focusing on our corporate characteristics, in an effort to establish virtues of integrity and probity for the sustainable and healthy development of our Company. We also persisted in promoting our corporate culture as a means to foster “soft strengths” for our Company, stressing the importance of “personal virtues and corporate values” as we promulgated our corporate culture and philosophy regime to call for “good employee practices”, such that our corporate philosophy is turned into convictions in our minds, reflected in our actions, reinforced through our institutions and deeply embedded in our corporate roots, forming a spiritual backbone for China Unicom. We conduct ourselves in strict compliance with the 10 Principles under the Global Compact, as we consistently include social responsibility as part of our corporate strategy and day-to-day production operations in genuine fulfilment of our important duty and mission in the course of national economic and social development.

**Smart and quality development with meticulous craftsmanship.** In a diligent effort to implement the national planning for China's development into a network superpower, advance the development of the Digital China initiative and build premium networks, we ensured ongoing improvements in our network servicing capability. We stayed atop of our peers in 4G network speed and stepped up with the building of all-fibre networks, while upgrading broadband services with automatic service provisioning to enable a smart network experience with faster speed, broader coverage, and better customer experience. Taking advantage of digital advancements in the age of mobile Internet, we actively engaged in the construction of next-generation network architectures and accelerated research and development in 5G, while expanding with strong efforts in areas such as smart living and smart industry on the back of our strengths in emerging technologies such as Cloud Computing, Internet of Things (“IoT”), Big Data and artificial intelligence (“AI”) to provide a diverse range of “Smart+” applications, enabling more convenient and smarter living for the public. We deeply involved in offering universal telecom services and targeted poverty relief, underpinned by intensive implementation of network speed upgrade and tariff reduction and continuous introduction of new concessionary measures aimed at narrowing digital divide between regions. We had undertaken broadband construction in 16,000 administrative villages, so that people living in remote areas could also benefit from modern information-based living of high quality. We successfully safeguarded emergency communications during natural disasters such as floods and earthquakes and other major events. As the sole and official telecommunication services partner for Beijing 2022 Winter Olympics and Paralympics, we will provide robust efforts for the successful hosting of the Winter Olympics and the further manifestation of China's strengths and powers. Meanwhile, we also launched specific initiatives against communication and information fraud to foster a safe and clean cyberspace in a solid attempt to safeguard national security and social stability. In active support of the national strategic initiative for the millennium planning of Xiong An New District, we provided full service support to the construction of the new district in line with broader national development plans.

**Cost reductions and efficiency enhancement through green operations.** We advanced supply-side structural reform in networks, platforms, terminals and services in an intensive manner and enhanced coordination between energy conservation and cost reduction and efficiency enhancement in vigorous implementation of the philosophy of “Thinking Green is



Thinking Gold and Silver". The quality of corporate development was improved as a result while further progress was made in realising harmonic and symbiotic development between corporate and environment. Notable improvements were reported in our financial performance indicators following our effort to drive cost control in the "six networks" namely, mobile, broadband, IT, sales and marketing, innovation and human resources. Meanwhile, we also made strong efforts to promote energy conservation through technology, accelerate the downsizing of 2/3G networks and consolidate our fixed-line network business and retirement of obsolete equipment, while continuing to ensure good energy consumption control at data centres, increase network efficiency and reduce resource consumption. In adherence to the principle of "low carbon emission and green office", we transformed traditional communications service stores into experience-focused retail outlets through the digitisation of business outlets, creating eco-friendly smart business outlets with digitalised and paperless operations. We also made a strong effort to develop green and transparent procurement, promoting environmental responsibilities along the supply chain through the introduction of environmental quality certification. We adopted the reverse logistics management method to increase the recycling rate of waste materials. The value of recycled materials amounted to RMB84.31 million. We persisted in thrift construction practices underpinned by the sharing of resources in the areas, such as, telecom towers, base stations, pipelines, pole lines and indoor distribution systems, resulting in investment savings of over RMB640 million and fewer duplicated construction works to minimise impact on the ecological environment.

**Revitalisation through mixed-ownership reforms.** In 2017, China Unicom successfully implemented its mixed-ownership reform as the first central state-owned enterprise (SOE) to adopt entire group-based mixed-ownership reforms and the first central SOE in telecommunication sector to introduce private capital, providing a solid example in SOE reform. Based on the idea of "mixed ownership", we introduced 14 strategic investors to form a diversified shareholder base, carried out intensive business cooperation in key areas, and jointly developed an industry ecology characterised by "innovation, vigour, joint actions and mutual success". Focused on "reform", we achieved notable success in organisational streamlining and initial appointment of officers, resulting in a 33.3% decrease in the number of departments at the headquarters, 20.5% decrease in the number of institutions in provincial branches, 26.7% decrease in the number of institutions in local/municipal entities, and mid-level management withdrawal rate of 14.3%. The employment of managers is now subject to market-oriented and contract-based administration. In the meantime, we have advanced the sub-division performing units reform for all production scenarios with the aim of enhancing staff motivation at front-line

levels. An internal "innovation and venture" program was introduced, effectively taking China Unicom back to its roots as a venture operation, unleashing the benefits derived from the reform. We also advanced market-oriented reforms in relation to human resources management, optimised our mechanism for employee compensation and resource allocation mechanism, organised various types of staff training, improving the dual promotion paths for talents, and involved staff in our business management. We also implemented a comprehensive incentive regime to enhance the sense of rewards on the part of employees.

**A renovated China Unicom with five new elements setting sail to go further.** Year 2018 marks the first year of the implementation of Xi Jinping's Thought on Socialism with Chinese Characteristics for a New Era and the spirit of the 19th CPC Congress, the 40th anniversary of China's reform and opening, and a new starting point for China Unicom post mixed-ownership reform. A new era calls for renovated ethos, and a fresh beginning must be underpinned by new initiatives. Mindful of its initial mission and commitment and in accordance with the new development philosophy and requirements for high-quality development, China Unicom will continue to deeply implement the strategy of Focus, Innovation and Cooperation, nurture new strong Internet DNA, explore new robust corporate governance post mixed-ownership reform, step up new Internet-oriented operations, enhance new energy for innovative business development and vigorously develop an inter-connected new ecology, striving to start a new paradigm for China Unicom's development in the new era, better satisfy people's growing demand for congenial information and communications living, and make more significant contributions to the successful development of economic affluence across the nation and the achievement of great victory for Socialism with Chinese Characteristics for a New Era.

**Chairman  
China Unicom (Hong Kong) Limited**

## Welcome to China Unicom

China Unicom (Hong Kong) Limited (“China Unicom”) is the red-chip company of China United Network Communications Group Company Limited (“China Unicom Group”) listed in Hong Kong. The major shareholders of China Unicom include China Unicom Group Corporation (BVI) Limited (“China Unicom Group BVI”) and China Unicom (BVI) Limited (“China Unicom BVI”), which together hold 79.9% of the total number of shares in issue, while the remaining 20.1% are held by the public. China Unicom Group BVI is a wholly-owned subsidiary of China Unicom Group, while the 100% equity interests in China Unicom BVI is jointly held by China Unicom Group and China United Network Communications Limited (“A Share Company”), a subsidiary in which China Unicom Group holds controlling interests.

China Unicom is engaged in the provision of comprehensive telecommunication services, including mobile broadband (WCDMA, LTE FDD and TD-LTE), fixed-line broadband, GSM, fixed-line local access, ICT services, data communication services and other related value-added services. As at the end of 2017, China Unicom had 59.997 million local access users, 76.539 million fixed-line broadband users and 284 million mobile billing subscribers.

## FEATURE STORY I: SPEARHEADING CENTRAL STATE-OWNED ENTERPRISES MIXED-OWNERSHIP REFORM

As the first pilot unit to adopt entire group-based mixed-ownership reform and the first central state-owned enterprise in the telecommunication industry to introduce private capital, China Unicom was resolved to implement the significant plan of 19th CPC Congress to “intensify SOE reforms, develop mixed-ownership economy and foster world-class enterprises with global competitive strengths” and sees as its mission to start a new journey in SOE reform in the new era. In accordance with the directives for mixed-ownership reform given by General Secretary Xi Jinping, namely to “improve governance, enhance incentive, highlight principal businesses and increase efficiency”, we will direct mixed-ownership reforms with the guidance of Party establishment in an unequivocal manner while adhering to market-oriented principles, as we actively advance the progress of various work to build ourselves into a model enterprise for mixed-ownership reform.

### Embarking on a new journey with mixed-ownership reform

China Unicom has introduced 14 strategic investors who are closely associated with the Company’s principal business, formidable in strengths, highly complementary with the Company, capable of generating synergies and driving growth, and conducive to the enhancement of the Company’s innovative ability. We have pioneered in a capital and business innovation model of “Telecom Operator + Internet” in the global telecommunication sector, striving to forge with the strategic investors a partnership of “complementary benefits and strengths with mutual growth”, with a special emphasis on solving imbalances and inadequacies in the development of information communications and providing more quality information communications services, in order to satisfy the people’s growing demand for congenial living and render strong support for the development of China into network superpower, digital China and smart society.

#### Large Internet Companies



#### Leading Companies in Industry Verticals



#### Financial Institutions and Industry Groups

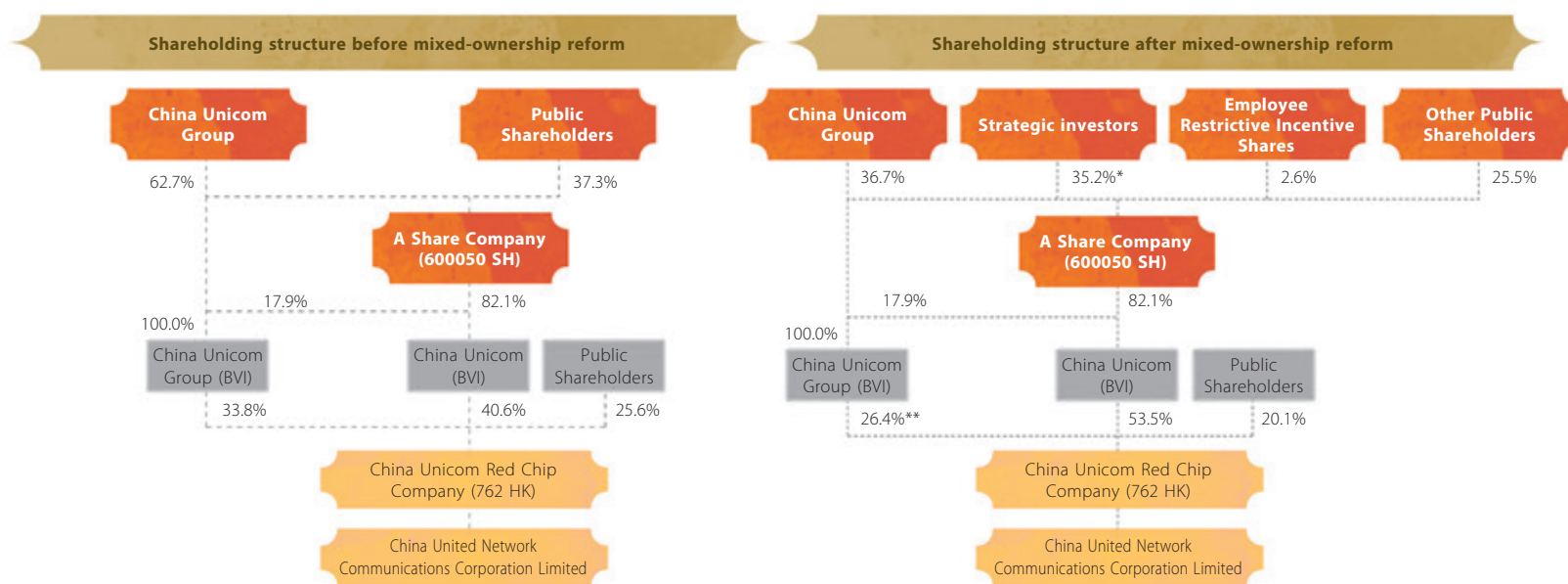


#### Specialised Funds



Strategic investors introduced by China Unicom in the mixed-ownership reform

China Unicom has pioneered in the new model for mixed-ownership reform by "diversifying state-owned equity interests and non-state-owned equity interests at the same time". In persistent adherence to the principle of maintaining a natural balance between equity diversification and retaining control, we have completed the simultaneous introduction of state-owned capital and non-state-owned capital. Upon the completion of the mixed-ownership reform, Unicom Group's shareholdings in the A Share Company has reduced from 62.7% to 36.7%, and its absolute control has been changed to relative control to end the status of having a single controlling shareholder. State-owned capital in aggregate holds 53% of the A Share Company to ensure telecommunications networks and information security. A restrictive share incentive scheme was established to facilitate the sharing of risks as well as return with employees, subject to unlocking conditions closely associated with business performance and differentiated share allocation based on contributions to business results.



Changes in Shareholding Structure of China Unicom Before and After the Mixed-ownership Reform (As at 10 April 2018)

\* The shares of China United Network Communications Limited held by strategic investors represented the shares acquired by the strategic investors introduced by the mixed ownership reform from non public share issuance and transfer of existing shares.

\*\* Excluded the interest in 225,722,791 shares of the Company held by China Unicom Group Corporation (BVI) Limited as trustee on behalf of a PRC shareholder.

## Collaborating to open new paradigm

China Unicom achieved positive progress in its business cooperation with strategic investors following the establishment of an initial mechanism for cooperation through the consolidation of resources and the application of innovative models. In accordance with the aims of strategic cooperation and leveraging the respective advantageous resources of the parties, the Company deepened cooperation in key areas such as channel touchpoints, retail system, video contents, home Internet, Cloud Computing, Big Data, IoT and basic telecommunications, in a bid to improve corporate efficiency as well as innovative capability. Currently, revenue contributions derived from joint cooperation in areas such as channel touchpoints and basic telecommunications exceeded the RMB10 billion mark.

## Streamlining corporate structure to enhance efficiency

In 2017, China Unicom made vigorous efforts in the development of a streamlined and effective organisation structure to address issues such as excessive and inefficient administrative institutions at various levels, in diligent implementation of the SASAC requirement for central state-owned enterprises to trim their organisation. The Company also introduced fixed-term employment and contract-based management for newly appointed management personnel, with the aim of advancing a market-oriented staff management system requiring merit-based appointments at all levels. Managerial staff were encouraged to move to the front-line, resulting in a new normal where officers could be demoted as well promoted and sacked as well as appointed. It worked towards the formation of a staff appointment mechanism characterised by promotion for the capable, demotion for the mediocre and dismissal for the underperformers to reinvigorate the enterprise through trimming and downsizing.

- The number of departments at the headquarters was reduced from 27 to 18. The number of entities at provincial branches was reduced by 205. The number of entities at municipal branches was reduced by 2013. The number of entities at subsidiaries was reduced by approximately 4%.
- Number of managers at provincial branches nationwide slashed by 9.82%.
- A mechanism was established for headquarters staff to take on positions at subordinate units. 49 department/office managers and key staff members took the initiative to move to local/municipal front-line positions in 3 batches.

Departments at the headquarters reduced by	Entities at provincial branches reduced by	Entities at municipal branches reduced by	Entities at subsidiaries reduced by approximately
<b>33.3</b> %	<b>20.5</b> %	<b>26.7</b> %	<b>4</b> %

### Stimulating vibrancy through sub-division performance unit reform

To drive the implementation of the mixed-ownership reform and facilitate the Company's sustainable development, China Unicom comprehensively rolled out sub-division performance unit reforms in production scenarios. By internally dividing the enterprise into various units and establishing micro-organisations, the Company revitalised the incentive and allocation mechanism to facilitate stronger motivation on the part of staff and officers. In 2017, China Unicom devised a blueprint for reform through the collaborated effort of various specialised business lines, with input from colleagues at all levels from the headquarters, provincial branches to the front-line. Horizontally, sub-divided units with commensurate duties, powers and rights were established on the back of a rectified accountability system with clarified responsibility division and designated officers-in-charge. Vertically, management and supporting departments at various levels were turned into resource providers and service supporters, forming a top-down service support regime that responds to demands of the sub-divided units in a swift and effective manner, so that the front-line units can focus on customer servicing. China Unicom completed reform-related propagation and training and selected trial reforms at the local/municipal companies. The reform effort won wide approval and achieved positive results with profound hope for future development by colleagues at all levels.

Based on the service areas of installation and maintenance agents, China Unicom Chizhou carries out integrated installation, maintenance and marketing services contracting, reduced the area served by city district agency outlets, enhanced professional quality of after-sale broadband services and shortened turnover time for installation and maintenance, so that subscribers can enjoy quality, convenient services provided from the nearest source.

### Introduction of competition for installation appointment orders in broadband service

China Unicom introduced a model of competition for installation service appointment orders in relation to broadband services of the sub-division units, with a view to rewarding efforts and enhancing staff motivation. A system for making installation appointment was implemented in business outlets in 27 provinces, while competition for service orders was introduced in 22 provinces, resulting in significantly enhanced customer experience. In the meantime, China Unicom launched "Smart Services-to-Home", a high-end service package including home network design, Wi-Fi coverage and signal quality optimisation, equipment installation and testing, and daily maintenance, etc., aiming to extend services to all broadband subscribers of China Unicom. Since its launch, "Smart Services-to-Home" had been signed up by over 10,000 home subscribers in pilot provinces and municipalities such as Beijing, Liaoning and Shandong, who can enjoy faster and more stable Internet connection.

Following the introduction of competition for pre-appointed installation service orders with a pledge for "fast connection speed, sound service and compensation for slow speed", China Unicom Liaoning reported improvements in the contract performance rate by 6%, decrease in complaint cases for fixed-line communication by 89%, and decrease in complaints against visiting service personnel by 93%. China Unicom Liaoning started promoting "Smart Services-to-Home" extended service in May 2017 and, as at December 2017, more than 10,000 "Smart Services-to-Home" orders had been completed with the provision of more than 15,000 service items. Cases of breakdown of subscribers' owned equipment as a percentage of total broadband breakdown cases decreased by more than 50%, while the subscriber complaint ratio decreased by 70%.

### Building internal platforms for innovation and venture

China Unicom continued to implement the "WO Innovation" program for its employees. Under the programme, staff may submit innovative incubation project proposals on a solo or team basis. Approved projects will receive funding, resource support and incubation services to help transform staff creativity into products. Under the first round of "WO Innovation", 35 incubation projects were launched and 30 of them completed. As at the end of 2017, 5 projects secured third-party Series A funds amounting to RMB21.55 million, while 11 projects were converted into companies established with their private funding, reporting a return of 157%. Currently, the second round of "WO Innovation" received 249 proposals and accepted 22 projects for incubation.

China Unicom's mixed-ownership reforms showed initial results: cooperation with strategic investors and innovation in business models powerfully drove a "Double V" turnaround in the Company's revenue and profit. Through deleveraging and debt reduction, the Company's gearing ratio reduced to a safe level, while officers and staff showed greater confidence and stronger motivation.



## FEATURE STORY II: PARTNERSHIP WITH OLYMPIC WINTER GAMES BEIJING 2022

On 26 December 2017, China Unicom signed an agreement with the Beijing Organising Committee for the 2022 Olympic and Paralympic Winter Games (“BOCWO”) to become the sole partner in official communication services for the Beijing 2022 Winter Olympics and Paralympics as one of the highest-ranking sponsoring enterprises in the market development plan of the BOCWO. The safeguarding of communication services during the Olympics will help to connect Olympic athletes with the passionate spectators, the hospitable China with the wider world, and the great dream of China’s revival with the modern Olympic spirit. China Unicom will incorporate the Olympic philosophy of “eco-friendliness, openness, sharing and integrity” into the Olympic communication service regime under the theme of “Smart Winter Olympics Connecting the Future”, in a bid to highlight the speed and passion unique to the ice sports of the Winter Olympics, providing fresh and robust impetus for the successful hosting of the Winter Olympics and the further manifestation of China’s strengths and powers.



Signing ceremony as the official telecommunication services partner of Winter Olympics and Paralympics Games Beijing 2022

Zhang Jiandong, Deputy Mayor of Beijing and Executive Vice Chairman of the BOCWO, said at the signing ceremony:

China Unicom is a leader in China’s telecommunications industry with massive resources in communication services and extensive experience in safeguarding services for major events. The BOCWO will work with China Unicom to enhance the connection of the Beijing Winter Olympics with domestic and international parties, in a bid to foster a smart and hi-tech Winter Olympics. In the meantime, we will also strive to build a platform for promotion and provide sound services, such that China Unicom will secure extensive benefits generated by the Olympics brand, helping its development.



### Define a comprehensive organisational and administrative regime

To implement the commitments of China Unicom as the partner in communication services for the Winter Olympics, we have set up the China Unicom Winter Olympics Steering Group and the Winter Olympics Office to assume full responsibilities for organisation and administration in relation to the safeguarding of communication services at the Beijing 2022 Winter Olympics.

### Formation of the Winter Olympics Steering Group

The Winter Olympics Steering Group is headed by the General Manager of the Group Company, while the Deputy General Managers in charge of Network Development and Market Operations serve as the deputy group leaders. Members of the group include heads of the corporate development department/legal department, finance department, relevant market line departments, relevant network line departments, Beijing Branch and Hebei Provincial Branch. The Steering Group is responsible for the consideration and determination of significant matters related to services for the Olympics, examination and approval of relevant planning, project plans and agreements, as well as high-level liaison and coordination with the BOCWO.

### Formation of the Winter Olympics Office

The Winter Olympics Office is the institution in charge of communication-related matters at the Beijing 2022 Winter Olympics and Olympics marketing. A Winter Olympics advisory group comprising veteran experts at China Unicom has also been formed to provide consultation and guidance for important matters in the process of application and game event services during the Winter Olympics, offering significant support in projects, technology, marketing and legal issues to ensure the security, stability and reliability of communication services at the Winter Olympics.



Organisational Structure of the China Unicom Winter Olympics Office

## The Pledge to Smart Winter Olympics



Mr. Wang Xiaochu, Chairman of China Unicom, addressed at the signing ceremony

China Unicom has made a solemn pledges in three areas under the central theme of “Smart Winter Olympics Connecting the Future”:

**Safeguarding the Olympics with smart networks and ultra-fast network speed.** We will step up with the building of 4G networks, full-fibre networks, IoT networks and 5G networks in meticulous craftsmanship to ensure the provision of “ultra-fast”, “intelligent” and “reliable” network capabilities and communication solutions at the Winter Olympics, making contributions to the BOCWO’s endeavour to host the most spectacular, extraordinary, outstanding and smart-driven Olympic Games.

**Safeguarding the Olympics with smart applications and a diverse range of products.** With an innovative and open mind-set, we will step up innovative transformation in fundamental business segments such as mobile communication and broadband communication, and accelerate deployment in IoT, Cloud Computing, Big Data and AI to ensure the provision of a diverse range of spectacular products in information and communication services for the Winter Olympics.

**Safeguarding the Olympics with smart technologies and professional manpower.** Over the years, we have undertaken and successfully completed a host of communication assurance tasks for important conferences and other significant events in China and elsewhere. With our extensive experience, sophisticated technical solutions and our dedicated and proven professional teams, we are well-positioned to scale even higher standards in our service assurance task for the Olympics.



In December 2017, the Winter Olympics Special Train commenced operation officially in Beijing and Hangzhou metro stations with a strong appeal to commuters. To achieve the general aim of “Smart Winter Olympics Connecting the Future”, China Unicom will make great effort to promote and safeguard the Winter Olympics and optimise spectator experience, enabling users to understand, participate in and enjoy the Winter Olympics.



China Unicom launched one million mobile numbers nationwide as it adopted 166 as a new mobile number pre-fix in an ongoing endeavour to support China’s telecommunication services and China’s hosting of the Olympic Games with premium networks, products and services.

## FEATURE STORY III: CONTRIBUTING TO THE MILLENNIUM PLANNING OF XIONG AN NEW DISTRICT

The establishment of the Xiong An New District is a major strategic decision with historical significance made by the CPC Central Committee under the leadership of Mr. Xi Jinping. It is a massive plan for a millennium and a priority task of the nation with huge realistic significance as well as profound historical implications. As a large-scale central state-owned enterprise, China Unicom will fulfil its responsibility as the dominant communication carrier in Northern China with solid actions, providing service support and assurance with full efforts on the back of its inherent strengths to serve for broader national development plans and fully support the planning and construction of Xiong An New District.

### High-level organisational safeguarding

Regarding service support and assurance at Xiong An New District, Hebei Province a significant political task at the Group Company level, China Unicom has instantly set up the Hebei Xiong An New District Service Assurance Steering Group headed by the General Manager of the Group Company, who is supported by division managers serving as deputy group leaders, to coordinate and facilitate the relevant operations. On 22 September 2017, the Xiong An New District, Hebei Province branch of China Unicom became the first telecommunications carrier to complete industrial and commercial registration and the third enterprise incorporated in Xiong An New District. Currently, organisational structure setup of the branch has basically been completed and all personnel have started to work in various positions.

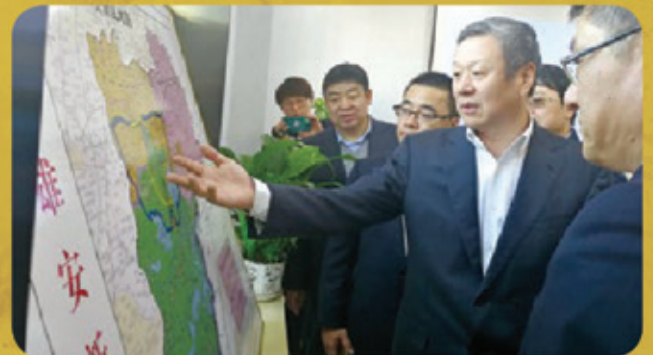
### High-standard planning and construction

We have adhered to high standards for network communication infrastructure construction and information application planning in Xiong An New District, deploying resources within the Group and relevant provincial branches to ensure quality. We have compiled the "Xiong An New District Information Infrastructure Preliminary Planning Report" and "Xiong An New District Citizen Service Centre Smart Construction Plan" and are currently working on the "Plan for Digital Xiong An", planning and designing information and communication services of Xiong An New District using the most advanced ideas and technologies to build a benchmark for smart city projects and industry standards.

### High-efficiency connection services

We have brought together the strengths of the Group and the provincial branches through active coordination to provide connection services for local CPC, government and military authorities. Telecommunication connection for Xiong An New District Preparation Committee has been brought forward with the provision of 90 fixed-line telephones, 25 broadband lines, 4 leased lines and premium 4G network coverage at its offices to ensure round-the-clock telecommunication for the committee. On 9 June 2017, we introduced a pre-5G network experience zone in Xiong An New District where users gained first-hand experience of ultra-fast Internet connection through a pre-5G network. In addition, we have commenced a number of NB-IoT based smart applications, such as smart car-parking and smart lamp posts, and have also advanced with vigorous efforts experimental operations relating to the Beijing-Xiong An quantum communication trunk line.

Chairman Wang Xiaochu proposed the following working requirements by stages following his inspection of the China Unicom Xiong An New District Branch Company in November 2017: 1) To firmly establish "Awareness in Four Areas", further elevating the political positioning and to provide services and support for the construction of Xiong An New District with full effort. 2) To set sight on long-term development, and well coordinate China Unicom's planning and deployment in Xiong An New District to perfectly match with the planning requirements of the new smart city. To plan infrastructure network facilities ahead of current needs, vigorously drive smart city construction, and innovate on IT applications in order to align with the development positioning of the new district. 3) To safeguard the informatisation requirements of Xiong An New District with a highly-efficient operating mechanism, further establish a robust authorisation system and allow for special measures for special needs outside conventional rule and procedures to meet the requirements of the rapid development of Xiong An New District.



General Manager Lu Yimin pledged China Unicom's full support to serve and safeguard the construction of Xiong An New District into a green and smart city construction during his inspection of operations in Hebei in May 2017: 1) the overall planning for communication facilities will be in sync with the planning of the new district and improvements will be made to the organisational institutions to bring teams, organisations, systems and resources closely together in full support of the planning and construction of the new district; 2) full support will be rendered to the development of hi-tech industries in the new district. Xiong An New District will serve as a key communication node of China Unicom where IoT and 5G networks will be actively deployed. Future network technologies such as SDN/NFV will be applied in Xiong An New District ahead of other locations; 3) China Unicom will facilitate the development of Industrial Internet in close cooperation with the healthcare sector and others of the new district. The Company will leverage its eight key strengths in Industrial Internet to actively develop Cloud Computing and Big Data in support of the construction of the new smart city; 4) To closely match with Xiong An New District in organisational structure and working mechanism in order to enhance coordination and communication, and to develop a mechanism for cooperation, sparing no effort to assist in the construction of Xiong An New District for faster and more efficient development.



General Manager Lu Yimin in meeting with the Xiong An New District Administrative Committee.

# CORPORATE CULTURE

In 2017, China Unicom engaged in a corporate culture development exercise, underpinned by intensive effort to drive corporate culture as a means to strengthen the enterprise and the announcement of a corporate culture system, comprising 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 Regime



Chairman Wang Xiaochu speaking on the topic of "Promoting Corporate Culture to Prosper the Enterprise and Achieving Healthy Development" at the CPC learning session



General Manager Lu Yimin announcing the corporate culture system of China Unicom



Sharing of stories by outstanding China Unicom staff members



Corporate culture knowledge quiz

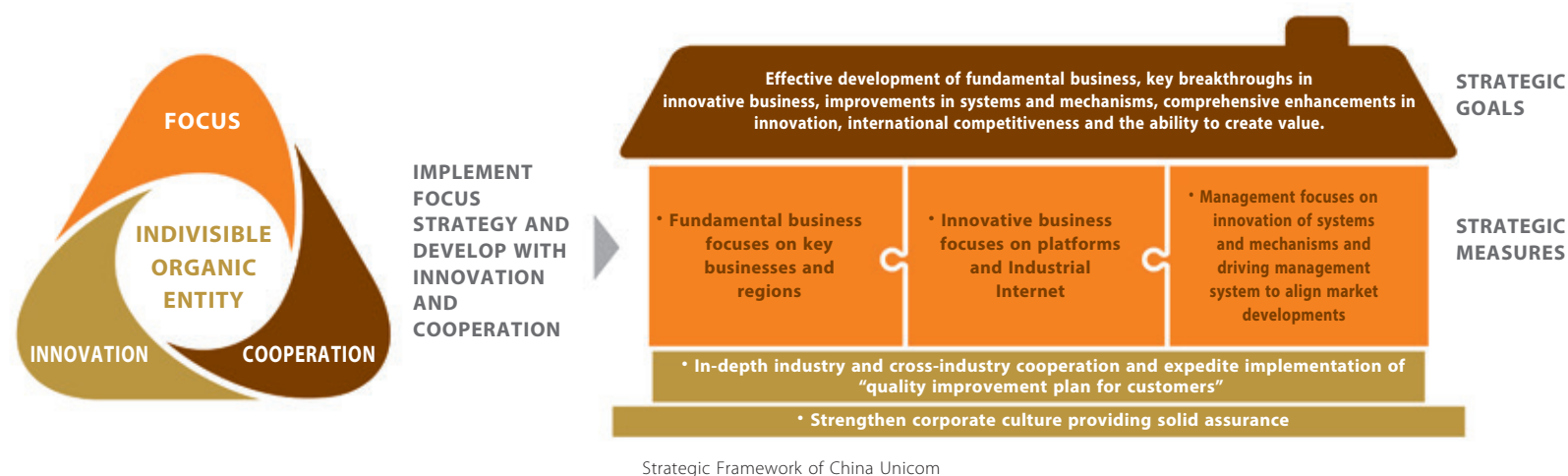


Promotion of corporate culture through company song

## DEVELOPMENT STRATEGY

In meticulous implementation of the development philosophy of “innovation, coordination, eco-friendliness, openness and sharing”, China Unicom, leveraging its edges and resources, has formulated and implemented the Focus Strategy centred on focus, cooperation and innovation to guide the future development of the Company, in order to cope with the complex and profound changes taking place inside and outside the Company. The core essence of the Focus Strategy is to stay focused, uphold the driving force of innovation and persist in deepening cooperation. In the fundamental business segments we are focused on the key businesses and regions, while in the innovative business we are focused on platforms and Industrial Internet. In management, we are focused on the innovation of systems and mechanisms and adapting our management regime to market developments. We have embarked on in-depth cooperation with industry peers as well as members of other sectors and strengthened corporate culture development. Following our efforts in the past 3 to 5 years, we have achieved significant progress in our strategic transformation, resulting in effective development of our fundamental businesses, key breakthroughs in our innovative business, as well as improvements in our systems and mechanisms. China Unicom has been generally enhanced in terms of innovation, international competitiveness and the ability to deliver value.

Year 2017 has been a crucial year for the deepened implementation of China Unicom’s Focus Strategy, during which the business development of our Company took a historic turn. Our business transformation has taken solid steps forward. Profound changes in systems and mechanisms have taken place. We successfully set a benchmark for the mixed-ownership reform of central state-owned enterprises. In the future, the Company will continue to reinforce our corporate culture to strengthen enterprise, foster solidarity among staff and intensify reforms in order to promote the revamped image of China Unicom with five new elements.



Strategic Framework of China Unicom

## CORPORATE GOVERNANCE

China Unicom adopted the Companies Ordinance (Chapter 622 of the Laws of Hong Kong), the Securities and Futures Ordinance and other related laws and regulations as the basic guidelines for corporate governance. The articles of association of the Company are 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. We have continued to improve our basic corporate governance regime and information disclosure and regulate operations of the Company in a diligent effort to fulfill our responsibilities towards the capital markets and the investors as part of our drive for the long-term success and sustainable development of the Company’s business.

### Responsibilities towards the capital markets

In order to further enhance the Company’s internal control of information disclosure, 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. The Information Disclosure Review Committee has established 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. In particular, the Company has requested the upward undertakings by the individual responsible officers at the levels of subsidiaries, branches and major departments. The Company established a comprehensive regime for its Board of Directors, Members of the Board consist of outstanding individuals from different professions in Mainland China, Hong Kong and overseas, which contributes to the enhanced management standard and more regulated operation of corporate governance of the Company.

## Responsibilities towards the investors

A comprehensive regime has been established for annual general meetings, which are held annually. Extraordinary general meetings may also be convened as and when appropriate upon the formal request of shareholders in full protection of the lawful interests of shareholders. The Company has also established regimes for analyst briefings, press conferences, and global conference calls with investors, while the management responds to stakeholders' concerns in relation to announcements of the Company's interim or annual results or major transactions. The Company's investor relations department is responsible for providing information and services requested by investors, maintaining timely communications with investors and fund managers. The Company also arranges from time to time road shows and actively attends investor conferences arranged by investment banks, through which the Company's management meets and communicates with investors so that they could have an accurate understanding of the Company's latest developments and performance.

## 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, reviewing and approving the announcements periodically published by the Company regarding its business results and operating activities. The Company has established the Audit Committee, the Remuneration Committee and the Nomination Committee under the Board of directors.



**Wang Xiaochu**

Chairman  
Chief Executive Officer



**Lu Yimin**

Executive Director  
President



**Li Fushen**

Executive Director  
Chief Financial Officer



**Shao Guanglu**

Executive Director  
Senior Vice President



**Cesareo Alierta Izuel**

Non-executive Director



**Cheung Wing Lam Linus**

Independent Non-executive  
Director



**Wong Wai Ming**

Independent Non-executive  
Director

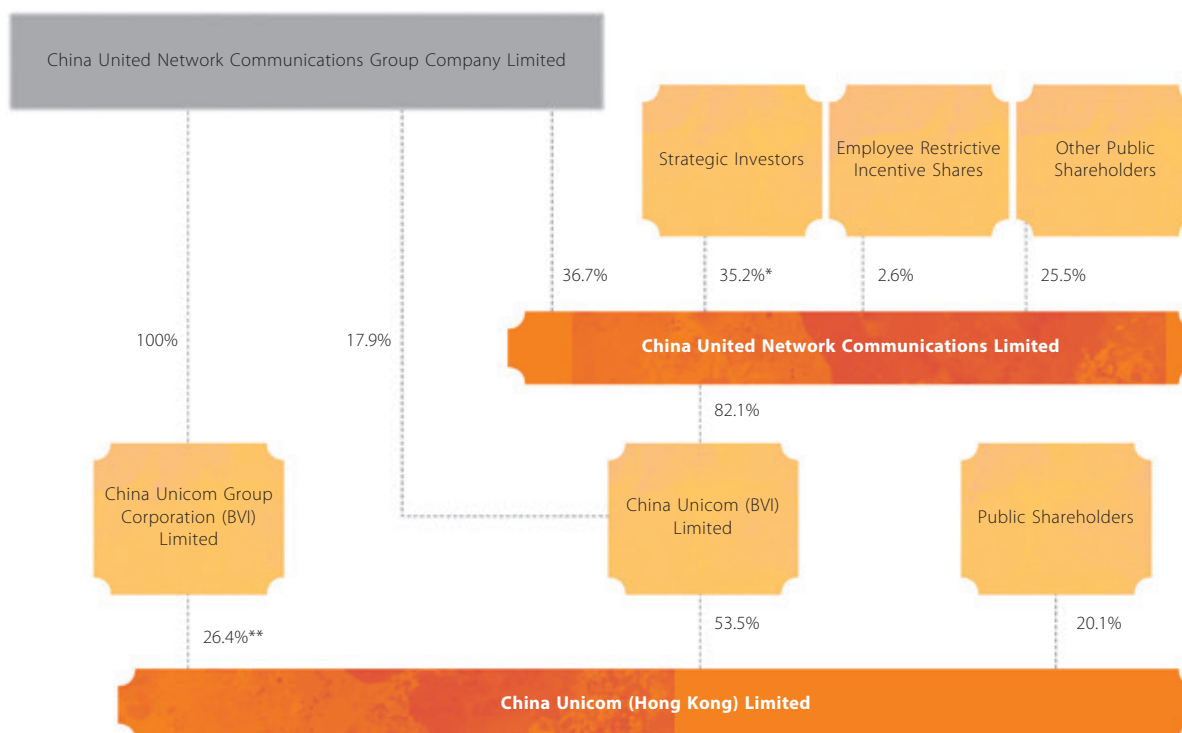
**Chung Shui Ming Timpson**Independent Non-executive  
Director**Law Fan Chiu Fun Fanny**Independent Non-executive  
Director**Mai Yanzhou**

Senior Vice President

**Liang Baojun**

Senior Vice President

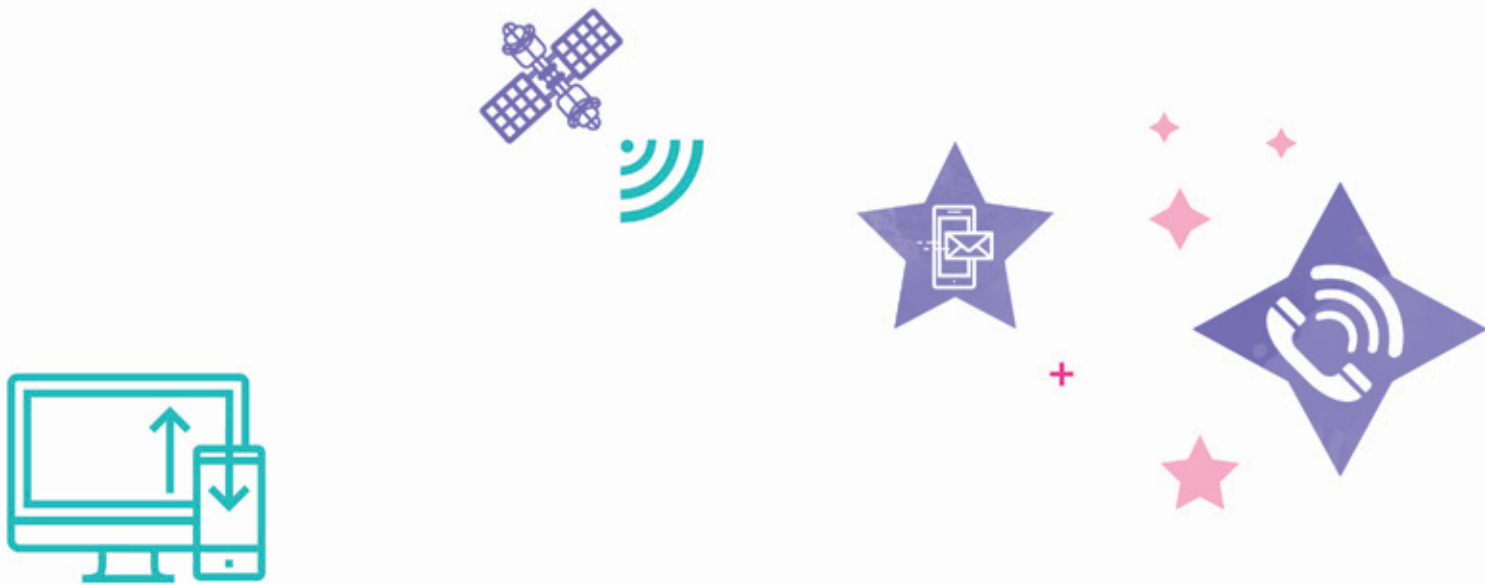
## Shareholding structure



\* The shares of China United Network Communications Limited held by strategic investors represented the shares acquired by the strategic investors introduced by the mixed ownership reform from non public share issuance and transfer of existing shares.

\*\* Excluded the interest in 225,722,791 shares of the Company held by China Unicom Group Corporation (BVI) Limited as trustee on behalf of a PRC shareholder.

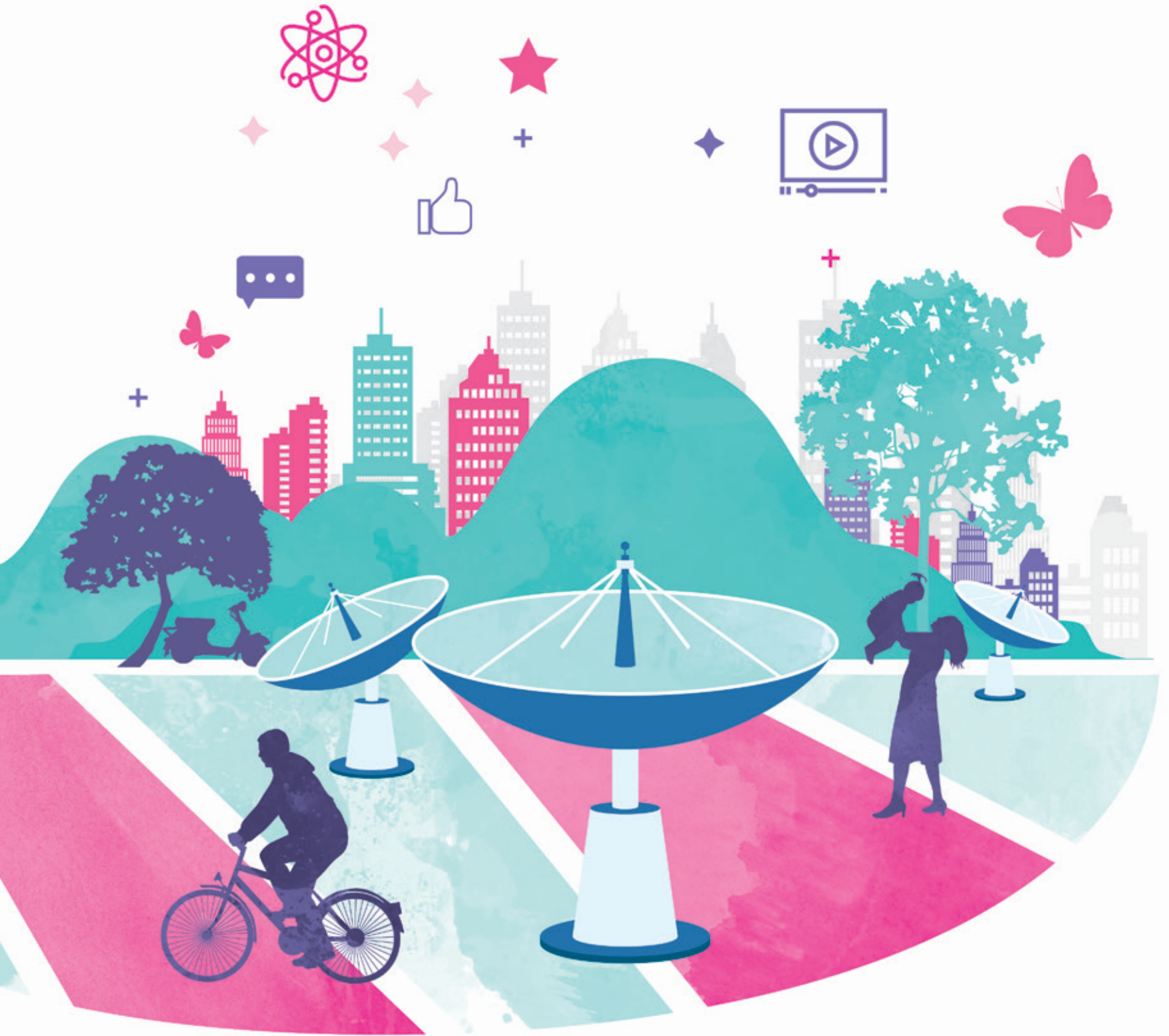
(As at 10 April 2018)



# COMPLIANT OPERATION: CORNERSTONE TO SOLID DEVELOPMENT

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## COMPLIANT OPERATION: CORNERSTONE TO SOLID DEVELOPMENT

**Legal compliance is a prerequisite for the sustainable development of an enterprise, as well as a fundamental principle observed by all top-notch companies in the world. China Unicom enhances legal compliance and corporate governance on an ongoing manner in consistent adherence to business ethics. China Unicom continues to push forward anti-corruption practice with a strong focus on improving staff legal compliance awareness and strengthening its risk control abilities. The Company is in a diligent effort to protect the common interests of itself and its stakeholders and contributes to the development of business integrity and rule of law in the nation.**

### Measures adopted in 2017

- Stringent implementation of "Single Position, Double Duties" to realise the normalisation and institutionalisation of "Two Learning Types, One Action" learning.
- Strengthened anti-corruption and integrity advocacy practice with orderly inspection and examination.
- Fully push forward the development of rule of law in central SOE, strengthened protection of intellectual property rights, normalised management on systems and regulations and enhanced contract management.
- Enhanced performance of auditing duties in key areas and enhanced development of risk management systems to facilitate improvements in fundamental corporate management.

### Actions in 2018

- Intensive learning and implementation of Xi Jinping's Thought on Socialism with Chinese Characteristics and the spirit of 19th CPC Congress for a New Era to advance on all fronts developments in politics, ideology, organisation, work practice, discipline and regulations construction and further push forward anti-corruption practice.
- Lawful operations underpinned by stringent self-discipline and proactive promotion of sound order of market competition; active launch of specific programs against unruly competition and curb irregularities in the market.
- Drive ongoing audit innovation and transformation and deepen, comprehensive risk management to assure healthy and effective development of the Company.

As a company incorporated in Hong Kong and dual-listed in Hong Kong and the United States, the Company adopts the Companies Ordinance of Hong Kong, the Securities and Futures Ordinance of Hong Kong, Rules Governing the Listing of Securities on The Stock Exchange of Hong Kong Limited, the regulatory requirements for non-US companies listed in the United States, the Company's Articles of Association and other related laws and regulations as the basic guidelines for the Company's corporate governance.

This report is prepared pursuant to the Environmental, Social and Governance Reporting Guideline (the "Guideline") in Appendix 27 to the Rules Governing the Listing of Securities on The Stock Exchange of Hong Kong Limited. This report has complied with all the "comply or explain" provisions as set out in the Guideline.

The principal activities of Company's subsidiaries are the provision of cellular and fixed-line voice and related value-added services, broadband and other Internet-related services, information communications technology services, and business and data communications services in the PRC. The Company is required to comply with the Telecommunications Regulations of the People's Republic of China, Administrative Regulations on Telecommunications Companies with Foreign Investments, Cybersecurity Law of the People's Republic of China and other related laws and regulations. At the same time, overseas subsidiaries of the Company are also required to comply with the related laws and regulations where their business operations are located.

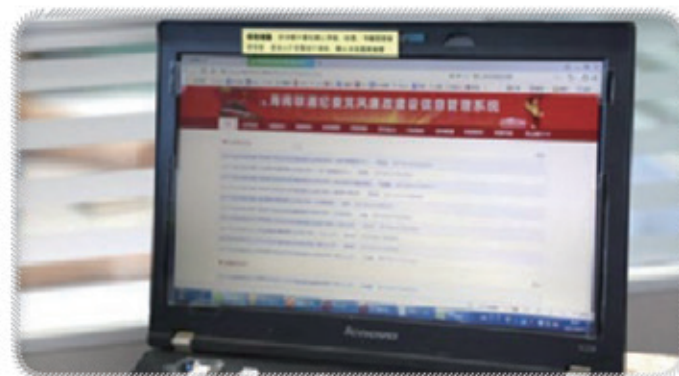
## ANTI-CORRUPTION AND INTEGRITY ADVOCACY

In diligent implementation of the CPC Central Committee's strategic planning for stringent CPC discipline on all front, China Unicom has made significant progress in the rectification of both outward malpractices and fundamental issues and emphatic efforts to foster a corruption-free environment with a rigorous anti-corruption stance in close tandem with the actual conditions of the Company, providing strong political protection and driving force for its healthy development.

- Persisting in the rigorous anti-corruption stance to enhance the deterrent effect. Pay attention to letter complains and accusations and verify the evidence. The “key minorities” and important segments have been closely monitored to ensure that every single corruptive practice is countered and every case is investigated. Specific inspections relating to optical network fibre upgrade have been conducted to rectify malpractices and uphold discipline through general investigation as well as individual case investigations. Significant losses have been avoided and evident improvements in the corporate ethos have been noted as a result. Inspection efforts have been intensified as the first-round inspection of second-tier units has been completed, while the inspection of municipal and county branches is progressing in a full coverage leaving no blind spots.
- Driving the rectification of both outward malpractices and fundamental issues to build an “incorruptible” mechanism. Notable results have been achieved in our solid efforts to drive corruption risk control throughout the entire system with the breakdown of control measures to every unit and job position. A blacklist of doubtful suppliers has been drawn up to create an anti-corruption external environment. Promote the reform station mechanism of disciplinary inspection agencies in city level companies to resolve the problem of weakened supervision level of the organisation.
- Countering corruption through education with a “hammering” spirit to foster an atmosphere of “reluctance against corruption”. Deputy officers or above in county branches required to furnish annual reports on their personal compliance with six Disciplinary Rules. The rule of general interview has been persistently implemented, whereby management officers at all levels have been interviewed once every year. Resolute efforts have been made to rectify the “formalism, bureaucracy, hedonism and extravagance”, as the corporate ethos continues to improve.



China Unicom's anti-corruption risk control (Nanpian District) training held in Fujian.



China Unicom Hainan's ethical Party discipline and anti-corruption information management system officially going online.

## OPERATION IN COMPLIANCE WITH LAWS AND REGULATIONS

China Unicom is committed to fully push forward the construction of a legally compliant central enterprise with ongoing enhancements in legal compliance and corporate governance. The Company is in further promotion of lawful operations, business integrity and corporate governance by rules and regulations, with a view to fostering a marketplace for fair and orderly competition. In 2017, the Company was not subject to any litigation or lawsuit relating to anti-competition or anti-trust practices.

- Enhancing staff legal compliance awareness through the announcement of the “China Unicom Implementation Measures for the Performance of Duties by the Chief Officer of the Enterprise as the Primary Responsible Officer for Promoting Legal Governance”, the “7th Five Year Plan” planning for general legal education, seminars on general legal education and newsletters on legal governance.
- Promoting healthy and orderly development of the telecommunications market by fostering a marketplace conducive to fair competition and actively preventing and curbing unruly competitive behaviors in compliance with relevant laws and regulations promulgated by national regulatory authorities.
- Strengthening management of intellectual property rights with a strong emphasis on patents, trademarks, copyrights and the protection of confidential commercial information through effective incentive mechanisms. Stringent review procedures and campaigns promotion are implemented to enhance staff awareness of intellectual property protection.
- Forming a contract management regime featuring “one horizontal aspect and four vertical aspects” and an integrated contract management model featuring “five complete aspects and one checklist” to build an electronic contract management system; optimising the administrative mechanism for the normalisation of rules and regulations to build an integrated management information platform. 111 rules and regulations are newly set or amended, and 111 compliance review was completed with the review rate of 100%.
- Implementating the normalisation of the delegation checklist, launching an integrated management information system for the delegation checklist and optimising a number of approval and reporting items.
- Strictly comply with the Advertising Law and regulations promulgated by MIIT and other competent authorities, the advertising materials and graphics have been sourced through official channels and legally utilised without any infringement of rights; information relating to products, costs, service contents, valid period, marketing etc. has been clearly indicated on all advertisements and promotional materials.

Number of compliance training session:

1,576

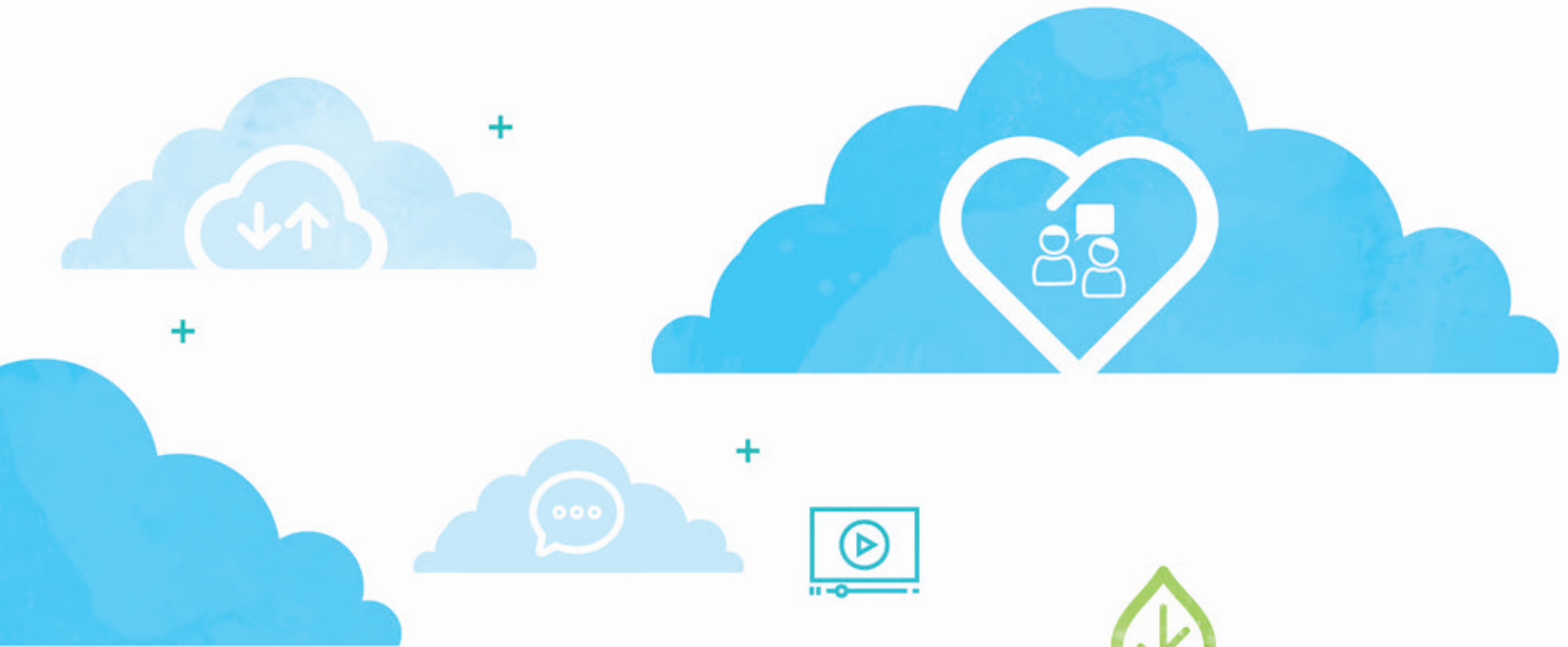
Number of participant attending the compliance training:

253,530

## RISK PREVENTION

China Unicom has further enhanced its total risk management regime with the establishment of an internal control and risk management system consisting of the Board of Directors, the Internal Control and Risk Management Committee, the Integrated Management Department and each relevant professional functional departments. It formulate the internal control and risk management measures, and develops of internal control regulatory regime at company-control level and process-control level. 2017 amendments included around 120 amendments on the internal risk control process of the market line to further regulate marketing activities.

Focused on the identification of problems and risks, we have rigorously reinforced the implementation of 19 disciplinary rules in connection with dealings with internal and external parties of China Unicom and enhanced the audit accountability for key areas to strengthen the effective execution of internal control. The three-tier protection line for internal control has been consolidated to improve the effectiveness of rectification initiatives. Innovation has been introduced in the auditing mechanism under the guidance of “Internet+” in steady development and application of a networked audit system, while the move to institutionalise and standardise Big Data analysis in the auditing process has been expedited. In 2017, China Unicom was awarded the honorary title of “National Advanced Organisation in Internal Auditing” for 2014-2016.



# INNOVATION-DRIVEN: HEADING TOWARDS GOOD SMART LIVING



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## INNOVATION-DRIVEN: HEADING TOWARDS GOOD SMART LIVING

**Innovation is an indispensable driving force for maintaining corporate vibrancy. It is the primary power for development and provides strategic support for building a modernised economy. China Unicom persists in bringing quality smart living to its customers through innovation. In 2017, the Company actively advanced the construction of intelligent networks, as it stepped up with deployment in areas such as cloud computing, Big Data and Internet of Things while making proactive explorations in AI. The Company rolled out a diverse range of “Smart+” applications to foster a smart brand and facilitate smart living and smart industry development, in a bid to enhance customer services generally via multiple channels and realise innovation-driven development.**

### Measures adopted in 2017

- Carried out futuristic network technology research, introduced SDN/NFV to gradually build smarter networks, and completed scale 5G pre-commercial tests and validation.
- Sped up deployment in cloud computing, Internet of Things, Big Data and AI, etc. and initiated innovation in business and services.
- Rolled out a diverse range of “Smart+” applications using new technologies; built our brand system to forge comprehensive information service solutions for family, and completed a number of “Internet+” projects concentrated in key industries.
- Used new technologies and channels to improve our customer service. Our Internet channels served 60 million users and completed 201 million service items.

### Actions in 2018

- To carry on with the R&D and application of SDN/NFV technologies, and accelerate 5G technologies R&D and trial deployment.
- To further enhance our capabilities in new Internet-related technologies such as cloud computing, Internet of Things and Big Data, and develop more diverse informatisation application services.
- To continue with our NPS surveys and make further improvements on our service delivery and channels in order to enhance customer perception and the word-of-mouth.

## BUILDING SMART NETWORKS

High-speed smart networks are the basis for the network superpower strategy. China Unicom is committed to providing quality network service through continuous network optimisation and evolution as well as network speed upgrade. We strive to build smart networks to provide more intelligent services for our clients.

### Intelligent evolution of network

China Unicom comprehensively explores the future overall network topology and evolution strategies to forge a network structure for the next generation. We will improve our network’s core competitiveness and our business innovation capabilities based on SDN/NFV, cloud technology and mega-broadband technology which help make our network more flexible and intelligent. Users will be offered an agile, customised and personalised network experience, which will support rapid rollout and development of our different innovative businesses.

- Advance network evolution and upgrades based on user and business demand, promote the transformation towards an Internet-oriented operation model, and centralise the planning for the construction of DC-oriented cloud-based communications facilities.
- Develop an integrated Industrial Internet business to gradually enable end-to-end automatic service provisioning and achieve cloud-network collaboration and synchronisation.
- To complete the construction of SDN-OTN (software-defined network — optic-transmitted network)-based premium transmission network.
- Begin virtualisation of mobile network in anticipation for transitioning to 5G.
- Make further progress in virtualisation and restructuring of Metropolitan Area Networks in tandem with the gradual maturity of virtualisation technologies.

For the development of the backbone network China169, we actively introduced SDN technology for international outbound traffic, optimised and adjusted international traffic using SDN controllers, and maximised the use of international gateway resources. Routing was optimised with respect to latency and other factors to enhance network quality for cross-border Internet access. As at the end of 2017, domestic backbone network capacity amounted to 200T, and international outbound bandwidth amounted to 2460G.

For Industrial Internet development, based on our original IP carrier A Network, we combined iterative proprietary R&D and synthesised innovation to deploy SDN technology. CloudBond, our proprietary integrated cloud-network product, already had cross-DC (data centre) private line networking capabilities in key cities covering 21 provinces where it offered cloud service providers with online application, automatic service provisioning and self-services. The Industrial Internet is the first large DC network ready for scale commercial deployment among operators across the country.

For digitisation of communication networks, China Unicom actively engaged in CORD, an important international open-source project in the field of SDN. We led in the E-CORD architecture (Enterprise-Central Office Re-architected as a Datacentre) and took part in the works of M-CORD (Mobile Network-Central Office Re-architected as a Datacentre). We established China Unicom CORD Industry Alliance to lobby for the introduction of open-source CORD projects in the country which would enhance the international influence of China Unicom in the SDN/NFV open-source field.

On 30 August 2017, China Unicom's Hengqin Research Centre of the "National Engineering Laboratory for the Business Use Cases of the Next-Generation Internet Broadband" was founded in Hengqin New District, Zhuhai. The National Engineering Laboratory Hengqin Research Centre covers such research areas as next-generation networks (5G, SDN/NFV, and IPv6), broadband videos, household Internet, Industrial Internet, Big Data, Internet of Things, Internet of vehicles, network and information security and AI. It has become the supporting hub for China Unicom's network upgrades and business innovation as well as the entity for external technical collaboration.



## Accelerating 5G research and development

Through key technology researches, standardisation, development of prototype devices, and trials and testing, China Unicom keep driving the advancement of 5G end-to-end technology.

- China Unicom develops a unified business capability platform which provides support and control to different business lines. We open up our network capabilities to improve operational efficiency.
- China Unicom explores new collaboration models such as technological research collaboration, product development collaboration, business innovation collaboration and capital operation collaboration.
- China Unicom completes its planning for seamless 4G/5G business integration as well as related technology evolution paths. Our 5G network requirements are based on 3GPP standards, and we promote the formulation of industry and enterprise standards.
- China Unicom conducts research into 5G system solutions and network deployment planning. We have completed phase one of the technological requirements of our 5G base station prototype, 5G field test planning and trial proposal, as well as trial and validation of scale 5G pre-commercial use.

## DEVELOPING SMART TECHNOLOGIES

China Unicom persists in its innovation-driven development, steps up its efforts in new technologies and promotes the integration of new technologies and mobile communications, while driving business development and service innovation.

### Enhancing cloud service capabilities

In 2017, China Unicom's cloud computing business was focused on the enhancement of platform and key capabilities. Greater emphasis was placed on WO Cloud's advantages in self-controllability and cloud-network integration. We targeted at the public administration market and made intense efforts in developing vertically industries such as education, medical care, environmental protection and tourism to provide customers with professional operation support services.

China Unicom has altogether deployed 41 public resource pools and 44 dedicated private resource pools across the country, with 237,000 cores of computational power, 22.7PB of storage and 1050G of network bandwidth in operation. WO Cloud is now capable of servicing 16 products with 258 function spots. Compared to the international practice of adopting mainstream open-source technologies, China Unicom WO Cloud insists on proprietary research and development to ensure safety, controllability and upgradability. It offers advantages such as the high cost-to-performance ratio of cloud-network integration, support by local operation and maintenance teams, as well as professional and reliable services.



China Unicom and Alibaba Cloud launched hybrid cloud products

WO Cloud Platform serves over

**2,000** clients

Registered users of WO+ Cloud Disk exceed

**70** million

China Unicom launched a hybrid cloud solution in cooperation with Alibaba Cloud to mutually share cloud resources. We entered into intensive collaboration with Alibaba and Tencent with respect to public cloud, hybrid cloud, and industry cloud. We also engaged in in-depth cooperation with New H3C and Tsinghua Uniudc with respect to exchange and sharing of public service data. We set up a joint innovation laboratory in conjunction with Intel and launched 5 new products, enhancing the differentiated competitiveness and service quality of WO Cloud products.

In 2017, China Unicom Cloud Data Company was awarded Cloud Sail Award of Cloud China 2017 by MIIT, Best Manager of IT Risks by CAICT and "SDN Best Industry Solutions" by Posts & Telecom Press, among others. It was also elected as a Gold Member of OpenStack Foundation.

**China Unicom's Hebei Langfang branch capitalised on its geographical advantage to construct cloud platforms for SMEs in Langfang to help them migrate to the cloud. Such efforts effectively enhanced resources utilisation rate and reduced the IT costs for SMEs. Currently Langfang Enterprise Cloud Platform serves 1,765 enterprises and has provided services for a total of 2,593 times. Companies in manufacturing, service, legal consultation, financial service and other industries actively joined the Enterprise Cloud Platform which turns into a business exchange platform for enterprise resources. It made a positive impact on the development of enterprises and the local economy.**

## Building Big Data paradigm

China Unicom established China Unicom Big Data Company in adherence to the national Big Data strategy. The company concentrated the massive data resources of China Unicom, enabling three product offering capabilities with respect to basic use, standard application and platform-scale industry solutions, and offering eight products ranging from labelling system, open capability platform, WO indices, risk management platform, digital marketing, Smart Steps, public service Big Data and tourism Big Data. China Unicom regards the Big Data Company as the major operating entity for external commercial Big Data applications and the single gateway for the Big Data across the whole network, as well as a platform for pooling in capital and collaboration projects for expansion in the Big Data industry. The company utilises Big Data to make continuous upgrades to its own network and services, and promotes the use of Big Data for modern city administration, industry upgrades, rollout of commercial intelligence and improvements in civil services, etc. It strives to establish a full value chain Big Data ecosystem and to provide comprehensive Big Data services for the whole society.

- **Integration of data assets:** Based on the key areas and demands for “data” and “smart” technology from different industry, through data collection, mining, analysis and application, we optimised and improved our Big Data product service system for corporate and individual clients. Based on open platforms, we increasingly opened up our Big Data service capabilities and deepened cooperative operation to commoditise, standardise and scale up our external businesses in order to continuously enhance our data asset value.
- **Monetisation of data:** Opening up products and applications to provide diverse Big Data application services for the public. We have developed over 200 clients and partners in 8 industries including finance, insurance, tourism, government and the Internet.
- **Operational capabilities of data platform:** we have established the largest cloud-based Big Data platform second to BAT with a storage capacity of 85PB and Hadoop computing power of nearly 4,500 nodes. The platform amassed a tremendous amount of data across the country and can easily identify 200,000 Internet products, approximately 4,200 cell phone brands and 105,000 models of terminals. It has a daily online data processing capacity of 710 billion entries, and daily phone bill data processing capacity of 33 billion entries.

**11** Big Data open application capabilities

More than **200** clients and partners developed

Over **70** million IoT connections

Serving over **12,000** corporate clients

## Fostering Internet of things (IoT) ecology

With an IoT foundation platform as its core, China Unicom IoT services make use of services such as connections, components, applications and integrated solutions as its key elements to construct an ecosystem covering the whole IoT value chain including cloud, pipelines, terminals and chipsets. It can effectively help enterprises collaborate and innovate and effect the transformation from one-off product sales to continuous improvement of service. As at the end of 2017, China Unicom had over 70 million IoT connections, including 57 million connections on the IoT foundation platforms. We serve over 12,000 corporate clients from key industries including industry, agriculture, transportation and logistics, healthcare, retail and commerce, Internet of Vehicles, consumer electronics, energy and public sector, and public security.

China Unicom continues its “dual-engine” IoT strategy driven by capability development and ecology formation. During the International Partnership Conference, it published a “Global IoT Connection” collaboration proposal with a goal to speed up global IoT deployment and collectively forge the new values of the “Everything Connects” era. It garnered positive responses from a dozen international operator groups and leading regional operators. In August 2017, China Unicom convened the IoT Ecology Conference and published the “Platform+” strategy, established the China Unicom IoT Industry Alliance with over 30 well-known companies or organisations joining as its co-founders.



Inaugural Conference of China Unicom IoT Industry Alliance

### Network Capability:

China Unicom built a diversified and customised IoT network adaptable to complex situations. It pushed forward nationwide NB-IoT commercial use and eMTC pre-commercial use. Dozens of cities have already launched NB-IoT for pre-commercial use. Over 300 cities are ready to quickly enable NB-IoT network functionality. In a number of places including Beijing and Guangdong, the eMTC trial networks are ready for pre-commercial use.

### Platform Capability:

China Unicom launched a new version of its IoT connectivity management platform which features better data analysis and automation capabilities, more reliable safety protection measures, more flexible operations for business partnership, and seamless support for massive low power wide area networks. The platform aggregates powerful secondary operation capabilities and provides comprehensive open capabilities and resource support for application developers, helping SMEs customise and develop innovative products and creating a new business model.



As one of the first pilot cities, China Unicom's Tianjin branch fully completed its NB-IoT deployment in 2017. Collaborating with IoT industry partners including Huawei, ZTE and 360, it established Tianjin NB-IoT Association to facilitate faster, better development of the IoT industry in Tianjin, providing a more intelligent working and living environment for businesses and citizens.

China Unicom's Zhengzhou branch established, together with other upstream and downstream companies in the IoT industry, the Zhongyuan IoT Experience Centre Platform, which incorporates exhibitions and displays, experiential interactions, education and training, and advertising and promotion, providing the soil for future innovation. It worked with cooperative partners to foster a positive industry ecology. Combining the power of different parties, it is on full swing to promote the development of IoT industry.

## Embracing Artificial Intelligence (AI)

China Unicom kept close track of the latest development of artificial intelligence technologies at home or abroad. Leveraging on our great prowess of information and communication technologies, we constantly expanded our deployment in artificial intelligence businesses. We actively pursued collaboration within the industry, and explored the application and development of artificial intelligence.

On 13 October 2017, the Artificial Intelligence Industry Development Alliance of China held its inaugural conference in Beijing, at which China Unicom was elected as the deputy directing unit of the Alliance. As the sole representative from telecommunication industry, China Unicom organised the Artificial Intelligence Industry Development Alliance of China Tournament. We rode on the tournament to explore the combined application of artificial intelligence and telecommunication networks, drive the intelligent transformation of our network and reform our operation management with the use of AI, in search of the future pathway for China Unicom's intelligent operation. We will also actively identify competent partners in the AI industry chain.

## Expediting technology research

China Unicom is one of the first innovative enterprises as recognised by MOST, SASAC and ACFTU. Technological innovation is always our top priority, and we have established a strong base for technological innovation as well as a comprehensive technological innovation system. The headquarter department of technology is the designated department for technological innovation. Our research and development institutions include four main R&D bases, namely China Unicom Research Institute, Network Technology Research Institute, Software Research Institute, and IoT Research Institute, as well as various professional subsidiaries and provincial branches. In 2017, we made a rich portfolio of research achievements:

- "Standardisation and deployment plan for six-mode all-network-access handset series", "Study on SDN/NFV network evolution and applications", "cBSS1.0 — cloudification innovation of tariff billing applications", and "Proprietary cloud-based and centralised phone card resources management system", etc. were awarded first prizes for technological advancement.
- 5 out of 51 national research projects assigned to us have been qualified for acceptance, including the "Next-generation wireless broadband mobile communication network project 03" commissioned by MIIT, and MOST's national key research projects and NDRC's "TD-LTE" project, among others.
- Led and participated in the formulation of 209 sets of industry standards. 5 employees worked as telecommunication chairpersons or vice chairpersons and 24 employees worked as unit leaders or vice leaders in China Communications Standards Association (CCSA), possessing important influential power.
- Participated in the tracking studies of 11 international standard associations and 5 international open-source communities. Submitted 649 essays written on international standards. Took up leading position for the drafting of 29 new standards (among which 16 were related to ITU-T). Led the release of 21 standards (among which 13 were related to ITU-T). Assumed numerous positions in important international associations such as ITU-T, GSMA, ONF (ONOS), etc.
- Annual investment in technological innovation amounted to RMB5.81 billion. 648 patent applications were made and 346 patents were granted.



Inaugural ceremony for AI tournament and AI Park shortlisting

**649** essays written on international standards submitted

**228** industry standards published

**648** patent applications made

**346** patents granted

## ENRICHING SMART APPLICATIONS

As the development of innovative modern industry system in China sped up in 2017, newly emergent industries flourished, with new technologies, industries and business norms such as digital economy and sharing economy growing fast. China Unicom leverages on its basic telecommunication network and makes good use of edges in cloud computation, IoT, Big Data, artificial intelligence, and other new technologies, making strenuous efforts in expanding into smart living and smart industry. Rich and diverse "Smart+" applications were rolled out so that the public can enjoy more convenient and smarter living.

## Building smart brand

In 2017, China Unicom conducted intense analysis on industry trends and the demands of government and commercial clients as well as those of individual consumers with a view to optimise its brand system and win admission into the national branding programme.



Brand system of China Unicom

China Unicom forged a comprehensive strategic partnership with the national table tennis team, and launched "Xialü", a promotional campaign for table tennis culture. "WO's Table Tennis", a public table tennis tournament, was organised to perfectly bring together table tennis culture, sport event culture, corporate culture and mass sports, setting a great standard for corporate support for public fitness sports.



5th China Unicom Table Tennis Tournament National Final



A player competing with national athlete Fan Zhendong

## Enjoying smart living

### Care for Customer Experience

In 2017, China Unicom strengthened regulatory management on operational practices. We established a system to evaluate and survey user experience with a view to continue improving our products and services as well as to gain better insights into customer needs.

- Formulated "China Unicom's evaluation standards and management regulations for end-to-end customer experience". Starting from the very beginning of product design, customer experience indicators were already optimised. We take user experience into consideration in major production phases such as product design, development, testing and launch, etc. in order to keep track of customer experience and to ensure customer satisfaction in a systemic approach.
- Established a targeted customer marketing model based on Big Data. We precisely conducted our marketing activities based on customers' consumption and behavioral patterns. We offered more appropriate packages, more convenient services and better experience according to customer preferences. Our scenario-based marketing capability is available in 30 provinces and the model covers 255 different scenarios.
- Established direct communication with the marketing front-line. Through Weixin groups, phone calls and video conferences, user feedback can be directly fed to product management departments to make timely evaluation and optimisation. This ensures constant improvement of product experience.

### Innovative 4G products

In 2017, China Unicom made full efforts to build an Internet-oriented product system and establish a data-based product system. It was the first in the industry to offer unlimited data packages called "Ice-cream packages" to gradually optimise customer mix and increase both the proportion of mid- to high-end customers and customer value. We entered into collaboration with 35 Internet companies including Tencent, Alibaba, Baidu and Didi to engage in 2I2C projects. We departed from the marketing model of traditional operators by offering experiential customised products with low entry barrier and large data allowance. We carried out deep product integration leveraging the resources of both parties to build a comprehensive and flexible 2I2C applications and privileges system so as to provide users with products of greater value and service of better quality.

- Simplified 4G package offerings to encourage users to switch from contract-based packages to data-based packages.
- Launched 95 212C products including Tencent King Card, Didi King Card, and Baidu Super Card, to satisfy customers' diversified needs.
- Launched "Videostorm", Smooth Watching Plan and WO Videos under an innovative mobile video product system and marketing model.
- Developed a first-tier privilege operation system. A proprietary privilege centre went online in our mobile app with privileges offered by 31 partners. 45 privilege activities exclusive to China Unicom were available. The privilege centre covers 19.30 million users, representing a penetration rate of close to 7%.

China Unicom's Beijing branch continued to enrich its basic TV and VOD services. Meanwhile, it also created specialised products and channels targeting different family user groups to satisfy their diverse and personalised viewing needs. The IPTV products have integrated different industry applications including education, healthcare, games, HD video communication and convenience services, etc. Users can enjoy a variety of convenient daily-life services through a single service sign-up.

### Rich integrated services

In 2017, China Unicom advocated the business strategy of "Great Bandwidth, Great Data Traffic, Great Integration, Great Videos". We constantly enriched the integrated products of Smart WO Family service. Focusing on high-speed broadband, high data traffic, sharing among all services and rich video contents, we offered comprehensive family information service solutions to facilitate the commercialisation of smart family services.

China Unicom actively plans on and tracks the development of family Internet. We provides services such as home Internet gateways, WO Family Housekeeper and Intelligent Speed-up, and keeps track of the latest market and technology development. Using our home Internet gateways, we can offer home network design solutions. Leveraging our mixed-ownership reform, we worked with Internet companies to explore integration of communications and Internet products as well as sales channels sharing, trying out new operating models.

We centralised nationwide value-added TV services operation and offered innovative value-added TV applications including 4K UHD, videos, gaming, education, music, shopping, healthcare, and video chats. Currently, we extensively cooperates with over 200 content and application partners in our value-added TV businesses offering over 1,000 TV applications to fully satisfy the living and entertainment needs of different family members.

Over **200** value-added TV  
business partners

Over **1000** TV applications  
available

In September 2017, China Unicom's Guangdong branch established the innovative alliance "Internet Home" with its industry chain partners to jointly create as an industry standard "Internet Home — Family Cloud Platform" which serves as a one-stop, online and intelligent family smart living portal. It offers family users with 4K UHD contents, smart family control services, smart healthy lifestyle service and smart community services, providing comprehensive family informatisation service solutions and leading the upgrade from "Family Internet" to "Internet Home".



China Unicom's Guangdong branch announcing "Internet Home"



Internet Home — Family Cloud Platform

### Supporting smart industries

China Unicom has promoted smart city upgrade and supported the "Internet+" industrial transformation focusing on public administration, education, medical care, tourism, manufacturing, environmental protection, agriculture and finance, etc. by leveraging its leading advantages in cloud computing, Big Data, Internet of Things and artificial intelligence, with an aim to provide the general public with convenient living enabled by "Internet+". China Unicom has continued to build an innovative businesses system focused on enhancing innovation capability, strengthened the top-down design for industrial Internet innovative businesses and the coordination and allocation of resources and capabilities across the whole network, consolidated the support and service capabilities for innovative businesses and built separate system and mechanism for innovative businesses distinct from fundamental businesses, in order to facilitate rapid development of innovative businesses.

## Smart Public Administration

China Unicom cooperates with over 20 provincial governments in relation to the provision of an electronic platform for public administration services in promotion of "Internet + Public Administration". It enables highly effective operation of administrative bodies, interoperability of data and better livelihood of the general public, facilitating the transformation of traditional administration management to smart management.

On 31 March 2017, China Unicom officially launched its electronic public administration product system and public administration cloud whitepaper. The product system covers informatisation infrastructure resources services, electronic public administration cloud, Big Data for public administration, intelligent applications for public administration and support services for informatisation operation, etc. It provides our government clients with end-to-end and integrated informatisation products and services across the entire life cycle.

China Unicom's Henan branch has migrated the administration system of the provincial industry & commerce bureau to its dedicated public administration cloud platform, connecting it with the police, taxation and finance authorities, etc. and achieve mutual data sharing. The platform breaks down the information barrier, built a paradigm of joint regulation, system integration, Big Data-driven governance, convenient services for the general public and a robust support platform. Company registration in the whole province has been fully digitised, enabling service targets such as enterprises, industrial and commercial proprietorships, farmers' professional cooperatives and other market participants may complete company registration online without any hassle.

## Smart Education

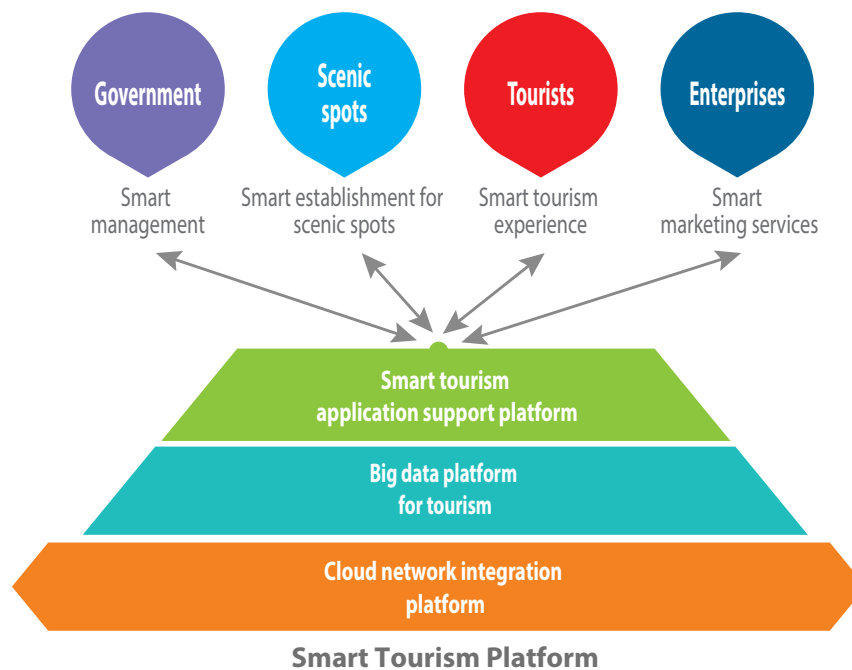
China Unicom has launched "All Class Access" and "3ikids" and other products for nursery, primary and secondary education by leveraging its integrated technological advantages in cloud computing, Internet of Things, Big Data and mobile Internet. With the nationwide "Three Accesses and Two Platforms" project, 68,000 primary and middle schools were connected with broadband, nearly 500,000 classes signed up for All Class Access and 120,600 kindergartens participated in the collaboration. In 2017, China Unicom focused on developing interactive learning cards in its expansion of "Internet + Smart School" business. We vigorously acquired mobile subscribers with "everyone-access" cards. K12 students and teachers using "everyone-access" cards reached nearly 5 million. We made significant contribution to the promotion of education fairness, facilitation of education reform, and the development of a society with education accessible to anyone, anywhere and anytime.

China Unicom's Hunan branch has provided assistance to Hunan Education Department with education informatisation. Under the brand of "WO Education Access", it provided services to 703 schools in the province, among which 78.1% was those schools in rural or impoverished mountain region. It offered the schools multi-dimensional informatisation services and products for free, covering education, teaching, management, joint education and elite nurturing, so as to narrow the differences between urban and rural areas in the teaching quality and schooling environment of primary and secondary schools.

## Smart Tourism

To practically fulfil the national requirements in relation to the development of smart tourism, China Unicom fully leverages the conducive effect of smart tourism informatisation platform development to the transformation and upgrade of tourism, and comprehensively enhances the development level of modern tourism services primarily through informatisation. The tourism Big Data platform of China Unicom has connected to the platform for industry monitoring and emergency command of China National Tourism Administration to provide key support for visitor traffic flow warning, traffic diversion and emergency command. At present, China Unicom has teamed up with more than 20 provincial tourism administrations or tourist destinations in connection with informatisation and Big Data, striving to contribute to total tourism development with the application of information technology.

China Unicom's Heilongjiang Yichun branch has launched a composite index for tourism Big Data to provide government authorities with a basis for tourism management and tourists with reference for choosing their destinations.



## Smart medical care

With wider application of new-generation information technology and the Internet, facing the new development of medical care and health industry, China Unicom has consolidated its resources to provide cloud technology and Big Data services. The medical cloud products of China Unicom are built on its solid cloud capabilities. They leverage two major medical bases and are focused on the two key segments of hospital informatisation and regional medical informatisation. The products aim to drive the "Internet + medical care" sharing model with cloud technology and enable highly effective operation of medical organisations, interoperability of data, ancillary support to medical research, service for individual health, facilitating the transformation to smart medical care from traditional medical care.

China Unicom's Henan branch has launched a remote medical service project called "Wanjia eMedical Video". With WO TV as the carrier, it provides an online and interactive medical exchange platform via video calls, complementing medical resources. At Xuchang city, the first trial region of the "Wanjia eMedical Video" project, 1074 primary medical organisations, including health clinics in towns, community health service centres and some standardised village clinics, have joined the project since its launch in July 2017. More than 600 village doctors have conducted over 1000 remote diagnoses via "Wanjia eMedical".

## Smart manufacturing

To respond positively to the call of the State for transformation and upgrade of industrial manufacturing, China Unicom has launched the "Internet + Manufacturing" service model with its technological expertise and network resources, targeting a number of pain points of the manufacturing sector in the nation, so as to develop vigorously smart manufacturing.

Capturing smart mining opportunities, China Unicom's Anhui Ma'anshan branch has initiated the "Internet + Mining" service management model to develop "smart mining" systems for its customers. It features, among others, attendance taking, underground positioning as well as above-ground and underground communications, facilitating the transformation and upgrade of traditional mining companies and enabling safe, efficient and clean smart mining.

## Smart environmental protection

China Unicom has built the "Smart River Chief" platform based on the characteristics of different regions and in accordance with the requirements of "the Opinion on Comprehensively Promoting the River Chief System". The platform serves as an integrated informatisation solution of the river chief system, providing technical support for the formulation of water resources management measures, prevention and remedial planning for water pollution, early warnings about water environment and health assessment of aquatic ecology. It realises the centralization of all data, the coordination of the whole society and intelligent businesses. "Smart River Chief" platform has been in operation in, among others, Zhejiang, Fujian, Anhui and Guangdong.

China Unicom's Guangdong branch used a foundation platform and system comprised of video monitoring system, transmission system and video monitoring application system to enhance the informatisation capabilities of river monitoring and inspection, etc. with an aim to pave the way for subsequent development of the national river chief system.

## Smart agriculture

China Unicom has actively engaged in agriculture-related informatisation applications, such as the "Smart Party Establishment" in rural villages, ULAND agriculture IoT platform, agricultural drones, NB-IoT for agriculture, and "Unicom Work" innovative business platform, etc. It significantly improved agricultural production, rural livelihood and farmers' living standards, effectively enhanced agricultural productivity, raised the level of modern agricultural management, allowing rural villages and the agriculture sector to enjoy the fruitful results yielded by the development of informatisation, thus speeding up the growth in modern agriculture with "Internet +".

China Unicom's Shuangyashan, Heilongjiang branch has established a preliminary integrated agriculture platform with the technologies of Internet of Things and network bridges, for monitoring, regional weather sampling, soil content analysis, spore trap analysis, online consultation on agricultural knowledge and disasters, etc. The platform is able to monitor the crop growth on farmland and substantially increase crop production and quality, hence generating higher income for farmers. Since the launch of high-standard monitoring on the demonstration farmland in Raohe county in 2017, 119 cases have been detected and pre-warned, 2 pest disasters have been effectively discovered in advance and 189 sessions of online consultation services have been provided by agricultural experts. It has been highly recognised by Raohe County Agriculture Commission and the local farmers.

## Smart finance

China Unicom has actively sought external financial collaborations through Unicompany Company Limited to expand "Internet + Finance" services. In 2017, Unicompany Company Limited entered into strategic cooperation agreement with Suning Finance/Suning Bank, Star48 Culture & Media, Taiping E-commerce and Lakala, and completed the connection with the three major clearing and transfer organisations, i.e. China UnionPay, China Nets Union Clearing Corporation and Rural Credit Banks Funds Clearing Centre. The number of directly connected partner banks increased to 19, strengthening the capability of financing channels in a rapid manner. In addition, Unicompany Company Limited has cooperated with Unicom Finance and China Life Pension Company on supply chain finance, with ZhongAn Online Insurance on insurance business. Unicompany Company Limited has also launched a number of financial businesses/products to provide convenient financial services to its customers, such as interoperability of accounts, aggregated payments, WO Easy Financing, WO Easy Loan, WO Insurance, platform for Communist Party membership fee, credit card bill payment and cash reload for public transport.

Merchants Union Consumer Finance Co., Ltd. continues to facilitate innovation of financial technology. It has established a "WO Credit Score" model, and selected and granted credit in advance to close to 100 million whitelist customers. Meanwhile, the "WO Credit Score" has successfully been applied to post-paid services, such as cash instalment, handset purchase instalment and mobile tariff reload, providing consumers with more convenient financial services. In 2017, Merchants Union Consumer Finance Co., Ltd. ranked the first among licensed consumer finance institutions in terms of the number of customers and growth in balance of loans, and its major business indicators ranked top in the industry. The development of the company is highly recognised by regulatory bodies, local governments and mass media.

## UPGRADING SMART SERVICES

China Unicom adheres to the principle of "Putting customers first". We serve our customers through our nationwide physical store network, customer service hotline "10010", online store, short message service, mobile app, self-service terminals, official Weibo and Weixin customer service. Meanwhile, we keep enhancing the standard of customer service by improving service system and its operation as well as service delivery.

### Upgrading customers services

In 2017, China Unicom continued to upgrade level of customer services and enhance the efficiency of its self-owned stores.

- Initiated the "dual enhancement" of in-store service perception and sales performance. We optimised store operation workflow leveraging the pilot stores in Beijing and Hebei. The new operation workflow has been implemented at over 1,000 stores.
- Upgraded the perception of customer hotline service. 15-second manual call-through rate of the service hotline stood at 87%.
- Transformed stores into merchandise outlets and chain stores, and sought cooperation with mainstream terminal manufacturers to offer comprehensive information consumption merchandise retailing and experience to enhance service variety and quality.
- Starting with optimisation of store operation, established an operation system suitable for retail chain stores, with an aim to enhance store service efficiency.

Smart Living Experience Stores jointly built by China Unicom, JD.com and Alibaba opened in Guangzhou and Shanghai respectively. The consumer-oriented smart living experience stores redesign merchandise offerings and consumption scenarios by applying new technologies, such as Big Data, cloud computing and artificial intelligence. It improves the operation capability of China Unicom's stores and community cooperative stores, better meets the increasing aspiration of China Unicom's customers for a wonderful information life and further enhances consumers' O2O consumption experience.



China Unicom Smart Living Experience Stores



Interior of China Unicom Smart Living Experience Stores

## Expanding online services

China Unicom has actively developed and enhanced Internet-based customer service and encouraged users to shift to online self-service from conventional channels. Internet service channel user penetration rate increased by 2.8 pp. In 2017, Over 60 million customers used Internet channel services with 201 million counts of service provision.

- Building new service model based on human-machine integration and precise profiling by using artificial intelligence. Trial operation of artificial intelligence voice assistant has reduced the total manned service hours by 12.4 pp.
- Adding online payment function to provide customers with a one-stop payment platform, enhancing the online processing capability.
- Launching various marketing and promotion tools, such as barcode shopping, 52Shangou and online shopping, with an aim to expand service channels for users and provide innovative services to users.

Over **60** million customers served by the Internet channel with **201** million counts of service provision

Customer service call centre of China Unicom Tianjin Branch has launched an innovative service model of human-machine integration by applying Baidu's artificial intelligence. It used an "AI robot" to provide users with convenient and efficient services with 93% recognition accuracy. The intelligent customer services can handle enquiry, consultation, application and problem reporting in relation to five major issues, namely "bill enquiry, data traffic, network problems, credit points and international service". It reduces the waiting time for human response, increases business efficiency, lowers the burden of call centres' operators significantly while enhancing customer satisfaction.

## Strengthening management of complaints

In 2017, China Unicom set up a matrix management system on complaints with an aim to reinforce complaint management. As at December 2017, China Unicom received in aggregate 13,500 complaints with a complaint rate of 32.4 times/million users, in which 327 were complaints on unclear charges with the complaint rate of unclear charges of 0.78 times/million users. No complaints on deliberate overcharging have been reported. Complaints management has achieved remarkable results. In 2017, China Unicom had the lowest complaint rate of unclear charges among the peers.

## Committed to transparent service

China Unicom strictly conforms to the laws and regulations regarding consumer rights and interests such as *Law of the People's Republic of China on Protection of Consumer Rights and Interests*, strictly regulates tariff billing, protects its customers' right to information and educates consumers on information about products and services.

- Optimising and enhancing functions of billing system. The total number of calls and data bills decreased by 34% and the number of bills processed within 15 minutes accounted for over 96%.
- Reinforcing management of intelligent terminal application software. Testing and reviews on over 10,000 fee-charging APPs in aggregate have been completed and 692 non-compliant APPs were suspended and reported to regulatory authorities.
- Enhancing billing management of value-added services. Value-added Service Management Measures have been amended to tighten punishments on non-compliant behaviours.
- Providing relevant information and description to users in self-owned stores and social channels pursuant to the requirements of the Company. In-store promotion of products and services to users are conducted through various formats, such as tent cards, posters and leaflets. Sales personnel's answers to customer enquiries are also regulated.

## Improving customer perception

China Unicom is committed to enhancing customers' perception and customers' word-of-mouth reputation. It undertakes Net Promoter Score (NPS) evaluation to comprehensively monitor each specialised business and each level of units of the Company so as to allow the Company to understand and respond to its customers' needs and make improvement in each specialised business.

- Taking customer satisfaction as the benchmark of the service quality of the Company, customers' comments were broken down to each branch and specialised business unit of the Company through the evaluation indicators of the system, in order to drive customer-centric internal operation.
- Continued to conduct NPS customer satisfaction evaluation. As at the fourth quarter of 2017, the NPSs of the mobile and broadband networks of China Unicom reached record high.
- Optimised promotion mechanism and simplify package tariffs, focusing on customers' perception and market orientation and taking uniformity and flexibility into consideration.
- Initiated "targeted measures for customers' perception". On a problem-oriented basis, we drove improvement and optimisation of internal procedures with a flagging and de-flagging system for key service issues to address key problems at their root.



# BALANCED AND COORDINATED DEVELOPMENT: DELIVER UNIVERSAL AND TARGETED SERVICES



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## BALANCED AND COORDINATED DEVELOPMENT: DELIVER UNIVERSAL AND TARGETED SERVICES

Balanced and robust social development represents the key theme of a new era. China Unicom is committed to meeting the ever-changing users' demand for information life and facilitating the development of the society as a whole. In 2017, the Company continued to improve its 4G network, accelerated all-fibre network construction and actively advanced "Speed Upgrade and Tariff Reduction". It coordinated network construction and deployment in an effort to narrow the digital divide. It actively assumed obligations in universal service by offering concessionary tariffs and promoting universal availability of information. It served the "Belt and Road" initiative and drove balanced and coordinated development in both local and overseas markets.

### Measures adopted in 2017

- Actively promoted "Speed Upgrade and Tariff Reduction" through measures such as construction of 4G premium network, acceleration of the deployment of "all-fibre networks", research on innovative applications, upgrade on business products and reduction of tariffs.
- Expanded fibre broadband and 4G network coverage in distant rural areas. In 2017, the Company constructed 16,000 4G base stations in administrative villages. The Company undertook the mission of building broadband networks in 6,662 villages and upgrading broadband networks in 9,472 villages in the past two years.
- Jointly developed "Belt and Road" fiber information highway and engaged in the innovative development of overseas business. As at the end of 2017, the Company had established long-term partnerships with over 300 international operators and provided cross-border data business solutions to over 1,000 corporate clients, having over 400,000 mobile users overseas.

### Actions in 2018

- To maintain our commitment to constructing premium network, the Company will further enhance users' experience starting from the supply-side of telecommunications products. The Company will provide innovative products and benefit consumers while actively performing social responsibilities and pushing forward "Speed Upgrade and Tariff Reduction".
- To extend network coverage in distant rural areas and Western regions and use various innovative means such as e-commerce platform to build Beautiful Villages, aiming to ease poverty through information technology.
- To enhance joint development and cooperation along the "Belt and Road" Initiative regions with the aim to provide global corporate clients with global end-to-end integrated information services, promoting coordinated growth of domestic and overseas operations.

## UNIVERSAL INFORMATION ACCESS

### Upgrading network quality

#### Enhancing 4G network

China Unicom maintains the vision in establishing premium network. Through dedicated construction and optimisation, we provide users with high-quality network with good coverage and high speed, fully enhancing users' experience. In 2017, China Unicom made its 4G network even faster by multiplying its network speed. We also broadened our network coverage with a total of 852,000 4G base stations covering 83% of the population. According to the statistics issued by Broadband Development Alliance in January 2018, China Unicom was leading in network speed perception with a download speed of 19.11Mbps for the fourth quarter of 2017, followed by China Mobile at 17.29Mbps and China Telecom at 17.79Mbps. The peak rate in key venues and hotspots increased from 300Mbps to 375Mbps.

A total number of  
**852,000** 4G base stations in operation

Covering  
**83** % of population

China Unicom Shandong Branch introduced the world's most advanced end-to-end network optimisation method, therefore the 4G network coverage for key venues reached 100%. It established a business support system for key venues and key businesses. Network failure can be tackled in a minimum of 5 minutes, providing an excellent business experience for users.

In 2017, China Unicom Xinjiang Branch completed the optimisation and upgrade of 36 hotspot areas, including the central business district, airports, troops and high schools. The wireless carrying capacity of mobile network multiplied after the upgrade and the data traffic for some of the hotspot areas increased by over 4 times.

#### Construction of Broadband Network

China Unicom fully optimised its foundation network, improved quality of service, created innovative applications and products and enhanced the quality of its broadband network. In 2017, we enhanced our fixed-line broadband by multiplying its bandwidth.

- The mainstream broadband speed increased to above 20M generally and above 50M in major cities. Speed upgrade was offered to all qualified users for free.

- We continued to advance PON+LAN and other local area network upgrades following the completion of optical-fibre upgrade of our broadband network. Fibre-to-the-home port ratio stood at 79% on average and 85% for Northern China where we dominate.
- The speed of our main broadband products was substantially increased to over 50M generally and over 100M in major cities.

Total number of broadband ports reached

**202** million



Inaugural ceremony for China Unicom's gigabit wireless network and high-speed railway cinema

In August 2017, China Unicom entered into a cross-industry cooperation with a popular movie and launched the nation's first gigabit wireless network and high-speed railway cinema, in its drive to constantly enhance its network and enrich people's cultural lives. It successfully deployed the world's first LTE multicast platform in a high-speed railway setting, allowing a high-speed, no-lag viewing experience for HD videos and VR services via mobile phones on high-speed railways.

China Unicom Tianjin Branch activated gigabit broadband networks in 18 districts in the city. Network tests showed that downloading a Blu-ray movie of 8GB only took 1 min and 22 seconds, compared to 10 minutes or above via the conventional 100M broadband network. It enriched people's lives and contributed to the construction of a smart city.

### Construction of inflight Internet service

China Unicom developed inflight Internet software products for airline companies like China Eastern Airlines and China Southern Airlines with the aid of Unicom AirNet. Currently, it has deployed and implemented on more than 80 planes with Internet connectivity, providing affordable inflight Internet services for travellers. From 18 January to 2 February 2018, China Unicom held the Aviation Mobile Internet Experiential Exhibition to show the latest development in the aviation Internet sector to the general public, allowing them to try surfing the Internet with mobile phones on planes. Visitors could experience the brand new experience of in-cabin entertainment brought by high-speed Internet for the first time.



### Narrowing the digital divide

#### Implementation of "connected" villages projects

China Unicom engaged in optical fibre broadband and 4G network coverage enhancement in remote rural areas and western China, allowing more farmers to use the Internet and helping to alleviate poverty through the use of Internet.

- Since 2016, China Unicom has undertaken universal telecommunication service pilot projects in 78 cities of 18 provinces to provide broadband access to 16,134 administrative villages, of which 6,662 are broadband coverage enhancement projects and 9,472 are broadband upgrade projects.
- We increased efforts in network construction in remote rural areas and impoverished areas of Western China. We kept on improving 4G network coverage according to the priority of administrative villages. In 2017, China Unicom built 16,000 4G base stations in the administrative villages.
- We improved the network coverage in rural and remote impoverished areas. In 2017, 4G network covered 83% of the population, representing an increase of 6% compared to that of 2016. 4G network covered 100% of the population in localities of village/town-level or above. 4G coverage of administrative villages increased by 5% compared to that of 2016 to 55%. Optical fibre coverage in administrative villages in the 10 northern provinces reached 90%.

Undertaken broadband access projects in

**6,662** administrative villages and **9,472** broadband upgrade projects in **9,472** villages in the past two years

Since 2016, China Unicom Hainan Branch has invested RMB1 million in the construction of telecommunication base stations and free Wi-Fi network in villages included in poverty alleviation plan and created the Wenxin Unicom Plaza. In 2018, we will further invest RMB900,000 in the construction of poverty-alleviation base stations at Wenchang Village, which is planned to complete in June 2018 and will help promote "poverty alleviation with information technology" and "poverty alleviation with industrial development".

In Ceheng County, Guizhou Province, a place of national priority for poverty alleviation, China Unicom Guizhou Branch is committed to promoting effective poverty alleviation and it has invested RMB13,401,500 for the implementation of 24 poverty alleviation projects and targeted assistance to 1,319 individuals. Further, we actively engaged in poverty alleviation in relation to telecommunications via various means, such as cooperation with rural e-commerce, construction of smart towns, installation of free Wi-Fi and deployment of officials for on-site poverty alleviation.

China Unicom Tibet Branch undertook the construction works of universal broadband services in Karub District, Qamdo, Tibet Autonomous Region in 2016 and was responsible for the broadband network construction of 44 administrative villages in Karub District, Qamdo, with an actual investment of RMB32.58 million for the project. With everybody's concerted efforts, the broadband network of all 44 administrative villages came into operation ahead of schedule on 9 October 2017.

## Expansion of service channels

In 2017, China Unicom actively expanded convenient service channels to meet the telecommunication demand of the local citizens. Our staff went to the frontline and worked on-site at the villages and towns in rural areas. We further expanded rural agents to undertake marketing, maintenance and service duties as a means to vigorously promote the construction of self-owned stores and social channels in rural areas and distant impoverished regions.

# TARIFF REDUCTION INITIATIVES

## General reduction of tariff

China Unicom is dedicated to strict implementation of the State's network speed upgrade and tariff reduction initiatives. It continued to reduce tariff to let users benefit more, help economic development and promote the transformation and upgrade of the national economy.

- **Cancelling domestic long-distance and roaming charges.** From 1 September 2017 onwards, we cancelled the domestic long-distance and roaming charges for mobile users, which benefited 117 million users.
- **Developing innovative products and services which benefit customers.** Targeting specific clienteles, such as teenagers, students, netizens and low-income families, we launched customised products which brought substantial benefits to the customers. For example, the "ice-cream service package" provided unlimited data, unlimited voice minutes and unlimited access to videos. In 2017, 7.43 million users benefited from this service. Another example is the "Tencent King Card", which provides free dedicated data, with more than 50 million users benefited from this service.
- **Considerable reduction in fixed-line broadband tariffs.** The average unit price of fixed-line broadband for 2017 decreased by 64% versus the end of the previous year.
- **Lowering the rates of Internet dedicated leased line and assisting the development of innovation and entrepreneurship.** Prices for Internet dedicated leased lines were further slashed in 2017 following the 35% reduction in 2016 for the benefits of many small and medium-sized enterprises ("SME") and innovative entrepreneurs. An SME broadband speed upgrade initiative was conducted with the launch of "Fast Line for SME Innovation and Entrepreneurship Cloud" with 2.90 million users benefitting from the product. Meanwhile, we intensified our efforts to construct and optimise Internet backbone, further enhancing our ability to provide Internet dedicated leased line for SME and assisting the development of innovative entrepreneurs.
- **Reducing the charges for international long-distance direct calls and roaming services in response to the "Belt and Road" initiative.** Following adjustments to international roaming charges, voice roaming and data roaming fees have been reduced by an average of 65.92% and 84.57%, respectively.



Average unit price of fixed-line broadband decreased by

**64** % YoY      International data roaming tariff decreased by **84.57** % on average

In order to ensure the implementation of the network speed upgrade and tariff reduction initiatives, China Unicom Guizhou Branch launched the unlimited data package of "Data King 100", the promotional campaign of "Cultivation Plan", RMB1/day unlimited data package in rural areas, free provincial data with signup of broadband service and other concessionary policies in 2017. Overall tariff decreased significantly with the unit price for mobile data decreased by 78% and the tariff for fixed-line broadband decreased by 56.7%. Its fixed-line broadband tariff is generally about 30% lower than other operators in the province.

## Roll-out of concessionary services

In order to cater to the telecommunication needs of farmers, workers who leave homes for work and travel back homes for visits at times as well as persons with disabilities, China Unicom formulated differentiated concessionary tariff policies. Our branches across the nation launched Home Return Card, New Year Card and Love Card, allowing different groups of customers to enjoy 4G high-speed network telecommunication services with lower telecommunication expenses, bringing the convenience and benefits of technological advancement to various special groups in the society.

- With regard to farmers and workmen, we launched the Family Card for Farmers and Workmen. With a monthly fee of RMB20, users enjoy 150 minutes of voice calls within the nation, 300 minutes for calls to family members. For corporate customers, they can enjoy 1,000 minutes of voice calls, 100MB of national data, 1.5GB of provincial data and 6GB of dedicated data for the viewing of videos on specific channels such as Tencent and Youku.
- With regard to the children staying in rural areas, children living in cities and children from poor families, we started the "Love and Care Plan", offering the "Love and Care Card" and "Love WO Card". For "Love and Care Card", with a monthly fee of RMB10, users enjoy 150 minutes of voice calls, 100MB of provincial data, free incoming calls and free caller ID service. For "Love WO Card", with a monthly fee of RMB5, users enjoy 50 minutes of voice calls in the nation, 30MB of provincial data, free incoming calls and free caller ID service.
- With regard to persons with disabilities, we launched the "Love Card" package to offer discounts on voice calls and messages and waive the charges for recovering the card costs. We provided door-to-door pooled registration services. We waived one-off fees, provided free gifts, introduced yearly broadband promotional packages and offered broadband specialist service.

China Unicom Hubei Branch launched the “Grace and Care Card” targeting the impoverished people, to strengthen the promotion on poverty alleviation policies and the works and services of the Yulu Programme, assisting in the application of and the effective use of Yulu Baishitong software by poverty alleviation departments and impoverished people respectively. Depending on the availability of poverty alleviation staff, it planned to organise 1,000 publicising events on poverty alleviation, targeting to help 100,000 impoverished people.

China Unicom Shanxi Branch launched 8 mobile service plans specifically targeted on the rural areas across the province with an emphasis on the “Beautiful Villages” APP. The minimum charge was just RMB8. The plans provided abundant voice calls and mobile data, as well as 10GB of dedicated data for the use of “Beautiful Villages” APP. The plans have essentially fulfilled the telecommunications needs of all farmers and ensured that farmers could afford telecommunication services.

## SERVING “BELT AND ROAD” INITIATIVE

### Offering quality international communication services

China Unicom provides international communication services for users through China Unicom Global Limited. It has established 30 branches across the globe (including Russia Branch, Switzerland Branch and Brazil Branch that were newly-established in 2017) with a total staff headcount of over 700, providing efficient and comprehensive information services for the national “Belt and Road” initiative. The services include global connectivity services, integrated information services, international voice calls and mobile services, etc.

As at the end of 2017, China Unicom Global Limited has established long-term partnerships with over 300 international operators, providing cross-border data business solutions to more than 1,000 corporate clients. It had over 400,000 overseas mobile users. It was awarded the gold prize of “The Best International Network Operators”.

China Unicom focuses on the deployment of international network resources at major economic corridors and information ports. It is committed to developing communication service capabilities for the “Belt and Road” and has garnered extensive international land and submarine cables and site resources across the globe.

- We have over 20 land cable systems. The total capacity of cross-border land cables amounted to over 10.6T, which connect 13 neighbouring countries and regions. Its self-built China-Myanmar international cross-border land cable system provides rich resources on submarine cables returning passage for Eurasian and African countries.
- We have over 26 submarine cable systems, connecting over 50 countries. We had 7 submarine cable landing stations within and outside the country. The international submarine cable capacity amounted to 16.2T. We engaged in the joint construction of Asia-Africa-Europe-1 (AAE-1) submarine cable and Southeast Asia-Middle East-West Europe 5 (SMWS) with countries and regions along the way with reference to the major seaborne development directions, establishing the first dual submarine cable coverage for the Maritime Silk Road.
- We continued to strengthen the Internet content delivery capability for our international business. We had 112 POPs worldwide, connecting 70 countries and regions.
- International Internet outbound bandwidth (interconnected abroad) reached 2460G, the number of overseas nodes for international backbone networks amounted to 15.



Cross-border submarine cable system of China Unicom

### Joint development of “Belt and Road” fibre information highway

At the International Partnership Conference held by China Unicom at Shanghai in June 2017, we put forward the proposal of the joint development of the “Belt and Road” fibre information highway, calling for the active participation of our partners in the deployment of international network resources at major economic corridors and information ports along the “Belt and Road” in order to build a high-speed and safe transmission network across the globe and provide first-class international telecommunication services with high quality and efficiency.

- Strengthening the interconnection between Asia-Europe-Africa continents and neighbouring oceans, building international submarine and land cables jointly with countries along the way.
- Constructing an international dedicated finance network, providing financial clients with private international network of low latency and high reliability.
- Actively exploring the future intelligent network, promoting the digital economy under the “Belt and Road” initiative.
- Actively promoting the cooperation among industries and value chains, with the aim of developing a cooperative ecology under the “Belt and Road” initiative.
- Launching the six “Silk Road” industry applications, providing integrated solutions for six key industries, namely finance, transportation/logistic, Internet, energy/resources, media and manufacturing/retail.



# OPEN COOPERATION: BUILDING A MUTUALLY BENEFICIAL INDUSTRY ECOLOGY



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## OPEN COOPERATION: BUILDING A MUTUALLY BENEFICIAL INDUSTRY ECOLOGY

Open cooperation is an important driving force that stimulates corporate creativity and propels industry development. In line with the principles of “cooperation, openness and mutual success”, China Unicom engages in concerted development with its business partners. In 2017, China Unicom facilitated healthy industry development by deepening cooperation with fellow operators and sharing resources. It cooperated with various partners in the supply chain to innovate and build a prosperous and mutually beneficial industry ecology. It will also work with the next Winter Olympics to jointly deliver a smart future.

### Measures adopted in 2017

- Carried out in-depth cooperation with China Telecom in such respects as resources and terminals, contributing to significant savings in fixed-asset investments and operating costs.
- Promoted synergetic development with enterprises along the value chain including equipment vendors, terminal suppliers, open channels, MVNOs and private capital partner enterprises and performed social responsibilities.
- Advanced cooperation with Internet companies with the launch of more than 40 2I2C projects with 95 products, as well as the creation of privilege centres.

### Actions in 2018

- To continue to drive the implementation of resources, terminals and business cooperation with China Telecom and jointly foster the healthy development of the industry.
- To strengthen cooperation in the value chain and capitalise on more extensive Internet cooperative touchpoints to provide users with better value-for-money communication products and better network services.
- To continue the intensive cooperation with Internet companies and step up efforts to launch dedicated Internet products featuring high data allowance and low tariff for youths and students.

## DEEPENING COOPERATION WITH FELLOW OPERATORS

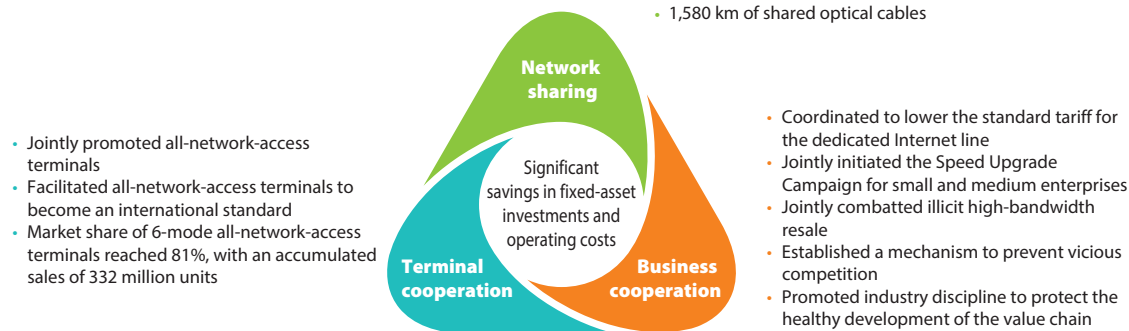
In 2017, China Unicom continued to deepen its cooperation with China Telecom to solidly establish and implement new development principles, further promote supply-side structural reform and constantly improve the sharing of telecommunication infrastructures. Following the principle of “win-win cooperation and co-development”, China Unicom sought to achieve synergetic development by actively promoting strength complementation and in-depth cooperation in terms of resources, innovation and others among sister companies in the industry. Meanwhile, it expanded the cooperation in areas including technology, business, resources and capital in the industry chain with an open mind to build a positive industry landscape.

#### Achievement in the past two years cooperation:

- Sharing 39,000 outdoor base stations
- Indoor cooperation in 38,000 buildings

#### Transmission network cooperation in 2017

- 4,474 km of shared pole lines
- 451 km of shared pipelines
- 7,495 km of shared optical fibre
- 1,580 km of shared optical cables



On 31 March 2017, China Unicom, together with China Telecom, held the “Press Conference for Campaign of the Implementation of Speed Upgrade and Tariff Reduction and Promoting 6-mode All-network-access Terminals” in Beijing to jointly announce the five measures taken to promote 6-mode all-network-access terminals. Both parties put forward proposals and took measures in such aspects as terminal standard coordination, terminal products launch, all-channel cooperative promotion and industrial consensus promotion.

## DEVELOPING INDUSTRY ECOLOGY

### Cooperation with equipment vendors

China Unicom strives to perform social responsibilities with its partners in the industry chain through the implementation of “sunshine procurements” and “green procurements”. China Unicom E-Mall has a total of 19,000 suppliers and approximately 250,000 products, with a transaction amount of RMB26.5 billion. It ranked second in the benchmarking activity of material procurement management for central state-owned enterprises organised by SASAC.



- Established a centrally operated e-commerce platform which enables full life cycle management for procurements as well as “sunshine procurements” and “green procurements” that are entirely open and transparent and fully electronic, so as to ensure regularity, low cost and transparency.
- Connected the platform with the supply chain system, implemented a rating system for orders in the e-mall, carried out after-sales evaluation management, and strengthened on-time settlement management and risk alerts.
- Launched “Internet + procurement” and promoted the use of electronic tendering and order transaction system to enhance procurement efficiency.
- Implemented centralised procurement which involved 371 types of products and accounted for 81% of the total procurement to reduce procurement costs.

### Cooperation with terminal suppliers

In 2017, China Unicom implemented a multi-end supplier cooperation model at both the group level and provincial level, so as to provide suppliers with more opportunities to get engaged. There were over a hundred cooperative suppliers which were sourced through open recruitment and joint selection process, offering over 700 models of customised smart terminals and over 500 models of new non-mobile smart products and selling almost 10 million units during the year. Meanwhile, China Unicom imposed more rigorous requirements in relation to social responsibilities on terminal suppliers in a bid to provide users with an enriched variety of terminal products, more favourable product prices and enhanced terminal services.

- Organised two nationwide crowd-funding events to facilitate direct transactions between upstream and downstream industry players and launched the “handset replacement programme” and the “star programme” to meet the demand for 4G handset replacement of all our customers.
- Offered affordable mobiles of 10 brands with almost 20 models for 2G mobile users which cost RMB200-999 via crowd-funding. Resources are traded off for exclusive partnership in order to drive the industry chain to follow suit.
- Launched such services as trade-in service, instalment service and mobile phone insurance to ease mobile phone replacement of users, with a view to promoting green and healthy development of the industry.
- Built up an innovative model featuring the use of terminals as carriers, OS and APP as touchpoints and data (business) operation as kernel, so as to create a cooperation ecosystem.

In 2017, China Unicom organised the “2017 Intelligent Terminal Industry Chain Industry-wide Strategic Cooperation Summit” in Chongqing, in which the “Industry Chain Cooperation Plan” was officially announced. This summit attracted an aggregate of 1,500 participating units exhibiting 500 models of products, with a transaction volume of 61 million 4G terminals.

### Cooperation with open channels

In 2017, China Unicom carried out cooperation with 170,000 social channel operators, with a focus on strategic channels including Gome, Suning, D-phone and FunTalk. An operation management workflow covering “entry, grading, evaluation and exit” as well as an operation management system of “rating and grading” were established for the strategic channels. The cooperation with terminal sales channels such as Huawei, Gionee, OPPO and VIVO was fully upgraded while further efforts were made in the operation of membership system. In order to better protect the lawful rights of social channel operators, China Unicom continued to develop the centralised management system of channels so that the efficiency of payment of channel commission to agents could be further improved.

China Unicom Shanghai Branch entered into comprehensive cooperation with FamilyMart, which has over 1,200 stores in Shanghai. The cooperation included initiatives such as exchangeable member reward points, joint membership, retail store cooperation, broadband Wi-Fi and joint marketing based on Big Data, covering the aspects of data, living and entertainment, which forms a role model in the industry.

### Cooperation with mobile virtual network operators (MVNO)

China Unicom attaches great importance to the MVNO pilot programme and actively supports the development of MVNO enterprises. In 2017, China Unicom engaged in MVNO business cooperation with 31 enterprises and commenced pilot programmes in 196 prefectural-level cities. As at the end of 2017, China Unicom had 44.92 million MVNO users, with a market share of 73%, demonstrating the wide recognition from regulatory authorities and the general public.

### Cooperation with private capital in network deployment

By actively promoting social cooperation for broadband construction, China Unicom joined hands with private capital to facilitate the development of the industry. As at the end of 2017, over 28 million ports have been built under social cooperation, representing 14% of the total number of broadband ports. As for areas lacking in mobile network resources, we explored social cooperation for mobile network construction and at the same time reformed the operation mechanism, pilot programmes of which have been launched in Yunnan, Jiangxi and Sichuan.

China Unicom Yunnan Branch launched social cooperation projects for mobile services in seven prefecture-level cities, namely Baoshan, Nuijiang, Honghe, Zhaotong, Qujing, Chuxiong and Pu'er. It intended to invest approximately RMB1.2 billion in construction. Assuming an annual revenue growth of 20%, it expected to turn around losses in the business cooperation regions within five years.

## COOPERATION WITH INTERNET COMPANIES

In 2017, China Unicom collaborated with 35 Internet companies such as Tencent, Alibaba, Baidu, DiDi and NetEase to launch over 40 2i2C projects, including the Tencent King Card, DiDi King Card and Baidu Grand Card, offering a total of 95 products. Our mobile APP has over 50 million monthly active users.

China Unicom and Tencent jointly launched the Tencent King Card to satisfy the data demand of specific customer segments and benefit consumers. The Tencent King Card is very popular as it allows users to enjoy an average monthly data traffic of 12GB for less than the price of a cup of coffee (RMB19).

In May 2017, China Unicom and DingTalk of Alibaba jointly launched a smart mobile office solution comprising “Dingtalk + Smart Office Phone + Ding Card” to assist small and medium enterprises to join the cloud and mobile era. As at the end of November 2017, we had over 1 million Ding Card users.

China Unicom launched an online privilege centre and introduced 24 partner companies including Tencent Video, JD.com, Ctrip, DiDi, ofo and Zhifu to meet the needs of users in the aspects of video, living, finance, travel and others.



# SHARING BENEFITS: TO ENHANCE SENSE OF REWARD FOR SOCIETY



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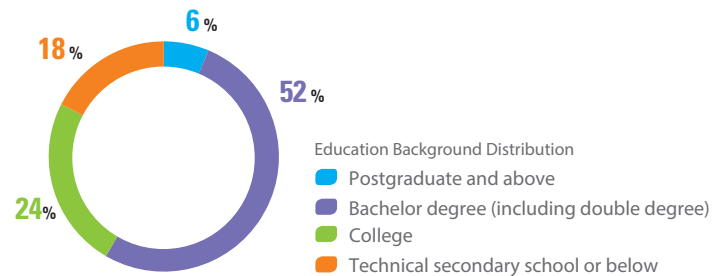
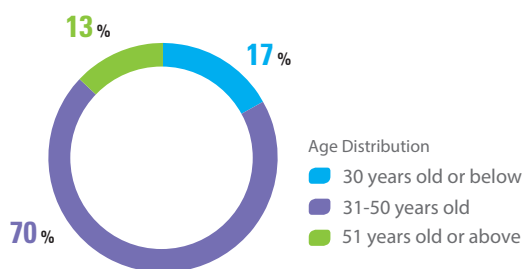
# SHARING BENEFITS: TO ENHANCE SENSE OF REWARD FOR SOCIETY

As a responsible corporate citizen, China Unicom insists on people-oriented development and regards public welfare and comprehensive social development as the operating development keys of its business. In 2017, the Company solidified the teamwork spirit, adhered to continuous growth among the staff and the enterprise, and pragmatically safeguarded the lawful interests of its employees, fostering friendly and harmonious labour relations with the employees. It persisted to the belief that business development is for the society and the outcomes of development should be shared with the society. It proactively gave back to the society, emphasised obligation performance in overseas markets, and continued to enhance the sense of reward for the whole society, heading towards a future of sustainable development.

Measures adopted in 2017	Actions in 2018
<ul style="list-style-type: none"> <li>Implemented the comprehensive incentive system, with staff promotion rate of 11%, salary-ranking promotion rate of 23%, and the rate of signing group insurance contracts for material illnesses of 92%.</li> </ul>	<ul style="list-style-type: none"> <li>To focus on the enhancement of staff efficiency of four teams, namely physical business outlet, call centre, installation and maintenance, and direct marketing, and to further strengthen and regulate employment management.</li> </ul>
<ul style="list-style-type: none"> <li>Built strategic talent teams, and cultivated 195 professional talents, 1,492 backbone talents and 2,758 young and sharp talents.</li> </ul>	<ul style="list-style-type: none"> <li>To build up a sound and unified assessment system for training management quality, and procure the implementation of training plan for key groups and strategic talents.</li> </ul>
<ul style="list-style-type: none"> <li>Established talent community and talent management platform, and set up talent incubation fund.</li> </ul>	<ul style="list-style-type: none"> <li>To coordinate resources for the implementation of comprehensive incentive scheme, aiming to enhance staff's sense of reward.</li> </ul>
<ul style="list-style-type: none"> <li>Provided 11 sessions of leadership seminar, 58 sessions of advanced technology training, 176 professional skills enhancement trainings and developed 84 online/offline courses.</li> </ul>	<ul style="list-style-type: none"> <li>To tilt resources toward "sub-divided business units", strategic talents, as well as well-performing talents to realise "Pay-for-Performance"; show care for low income staff and fairness.</li> </ul>
<ul style="list-style-type: none"> <li>Improved the closed-loop acceptance mechanism for contacting staff members and deeply initiated the activity "Online Meeting with General Manager".</li> </ul>	<ul style="list-style-type: none"> <li>To optimise the three-tier employee representative committee system, facilitate online communication with general managers of all levels, and establish the corporate affairs open release system.</li> </ul>
<ul style="list-style-type: none"> <li>Carried out Tibet assistance and targeted poverty alleviation work, initiated 52 Tibet assistance projects with RMB60 million financial support in a determined attempt to narrow the gap of regional development. Specialised services were provided to the disabled, elderly group and minors.</li> </ul>	<ul style="list-style-type: none"> <li>To explore the set-up of share-based incentive scheme featuring the sharing of benefits and risks.</li> </ul>
<ul style="list-style-type: none"> <li>Enhanced responsibility fulfilment overseas, emphasised compliant operations overseas, implemented local recruitment and procurement, carried out responsible investments, and earnestly participated in overseas volunteering activities.</li> </ul>	<ul style="list-style-type: none"> <li>To stress the enhancement of "blood-making" ability in poverty alleviation of the targeted areas and care for the telecommunication service needs of the special groups.</li> </ul>
	<ul style="list-style-type: none"> <li>To procure the fulfilment of social responsibility of overseas branches and promote global sustainable development.</li> </ul>

## CARE FOR STAFF DEVELOPMENT

Employee is the motivation for innovative development of an enterprise. Capitalising on the opportunities arising from mixed-ownership reform with the core value to be more market-oriented, the Company accelerates to build a more market-oriented human resources system and mechanism, firmly safeguards the basic rights of employees, strives to create a safe, extensive and caring environment for employees to thrive, and continues to create opportunities in enhancing the sense of identity and recognition for the employees, so as to facilitate the construction of a happy and harmonious enterprise.



Employees (person)	Employees newly recruited (person)	Gender Distribution (Male/Female)	Proportion of managerial personnel (%)	Proportion of ethnic minority employees (%)	Turnover rate (%)
267,590	10,689	1.48:1	8.44	6.89	1.94

Current Status of China Unicom Employees

## Basic employees' rights protection

### Employment in strict compliance with laws

- To sign labour contracts with 100% of the employees, to provide them with pension, medical care, compensation for work-related injury, and maternity and unemployment insurance and to set up enterprise annuity fund for employees on a voluntary basis, while implementing for employee full coverage of annual physical examination, paid leave system, 100% job retention after maternity leave/paternity leave.
- To pay attention to safeguard human rights, respect personal privacy, prohibit any discrimination of age, ethnicity and gender toward employees during recruitment and promotion. Child labour and forced labour are strictly forbidden. Employee rights protection mechanism, as well as smooth communication and complaint channels are established for employees.
- The Company strictly complies with the "Labour Law of the People's Republic of China", "Labour Contract Law", "Interim Provisions on Labour Dispatch" and all laws and regulations in relation to the use of labour and the protection of staff. The Company continuously promotes labour optimisation and standard management, reduces proportion of labour dispatch of the Group to below 10% as required by the State, and basically realises equal pay for equal work. The employee satisfaction keeps improving.

### Rights and interests protection system

- To build up the filing management system for collective contracts and labour dispute conciliation work, while regulating management of the signing and performance of collective contracts, disputing mediation mechanism, setting up of mediation team, acceptance of employee complaints, handling of labour dispute and receiving letters and visitors of companies at all levels.
- To establish the joint working mechanism of the labour union and the human resources department, to announce and implement new comprehensive incentive policies, to consider the effect of various incentive measures and to protect the public interests of the basic rights of employees. Great importance is attached to various policies which involve the vital interests of employees directly, including remuneration, leave, labour safety and hygiene, welfare and insurance, employee training and labour discipline.

## Occupational Health and Safety Protection

Taking serious account on safe production and rigorously implementing the "Production Safety Law of the People's Republic of China" and related laws and regulations, China Unicom reinforces the mechanism of responsibility for production safety. The Company promotes pre-cautious and emergency-responsive management plans integrated with the production operation, and increases emergency drills to improve the emergency response capability as a preventive measure. Total system production safety check is carried out to arouse the safety awareness of all employees. A campaign named "Snapshot on Hidden Danger in the Surroundings" is organised to check on risks of hidden danger and conduct remedial measures on potential safety hazard, so as to create healthy environment for the safe production of the enterprise. The Company has no employee diagnosed as having occupational disease caused by hazardous factors as listed in the Occupational Disease Classification and Catalog of the State. In order to reduce diseases caused by natural environment, branches in plateau or special regions formulated precaution and labour protection measures to offer favourable policy and special allowance other than compensation to employees suffered from plateau-related diseases in such arduous areas.

**37** training sessions were held on production safety      **100** % coverage rate of safe production training

## Focus on Staff Training and Development

### Enhancing promotion and incentive system

China Unicom continuously betters its human capital deployment mechanisms and tilting greater importance to innovative business areas. An incentive scheme is fully implemented to improve employees' sense of achievement.

- The Company continued to make progress in the routine operation of the promotion and incentive schemes. In 2017, 11% of the employees in the entire Group received a promotion and 23% received a salary raise;
- The Company conducted in-depth strategic deployment of talent and team building and selected 195 key-specialties talents, 1,492 backbone talents, and 2,758 young and competitive talents;
- The Company continued to strengthen the staff utilisation rate and built the "talent community" and talent management platform. A specialised talent incubation fund was set up. Total users of the "talent community" reached 62,000 with the total points awarded amounting to 2,136,000. 34 crowdsourced projects were carried out online.

Staff promotion rate **11** %, salary-ranking promotion rate **23** %

**195** professional talents, **1,492** backbone talents, **2,758** young and sharp talents

## Ongoing effort in education and training

China Unicom aims to ingrain the necessity of ever-learning in employees' mentality by formulating employees' core capability criteria with an aim to enhance professionalism and innovating capacity.

**Constructed a comprehensive and multi-dimensional training and management system.** A training system under unified management with explicit specialisation was constructed in accordance to the work ability requirements of different fields. A specialised programme was designed for each of six key groups, namely the headquarter administration, management-level (with decision-making capacities), professional positions, innovative positions, integrated network positions (the "little CEOs") and new employees.

**Conducted diversified training activities of different levels and categories.** To enhance leadership capabilities, the Company organised the 11th session of leadership seminar for province-level deputy general managers, municipality-level subsidiary general managers, county-level subsidiary general managers and heads of major profession lines, as well as supporting managing talents with an aggregate enrolment of more than 700 attendees. More than 43 attendees took part in training for senior management officers and professional backbone employees utilising the "One School, Five Institutes" premium external training resources. For key staff members in the professional business lines, 176 professional skill enhancement training programmes were rolled out in an orderly manner for the heads and technical backbone employees of each of the business lines, with a total enrolment of 21,000 attendees. The 58th session of high-end technical training were offered for skilled operating or maintenance technical staff, namely the IT strategic talents and core network staff, customer service personnel and network security staff.



At the first session of the 2017 senior management seminar, Chairman Wang Xiaochu called for attendees to remain true to the original principles, seek progress against all odds and endeavour to be a loyal, impeccable and responsible cadre.

China Unicom Shandong Branch designed a one-year progressive training programme for its new recruits, namely the "Four lessons for new staff". Through detailed, scientific and interconnected training, new employees may make rapid progress and broaden their pathways of career development.

**Promoted innovation in education content and the form of training.** Along with the six innovative businesses inclusive of Internet of Things, Big Data, cloud computing, industrial applications, usage backward monetisation and API exposure, the Company developed on our own on 62 online courses and 47 supplementary question papers, and recorded 4.55 million counts of access in such learning. The newly developed 17 "little CEO" integrated management courses formulated guiding opinions for the smart family engineer training certification system, while some of the province-level branches implemented cycle-based training. 26 leadership e-courses were developed and introduced, and 84 online/offline professionalised courses were developed, with 36 course promotional campaigns organised. The online learning system was enhanced, with 2,279 online classes and 3,753 mobile "Wo-School" mini-classes, attracting over 15 million attendees and an accumulated learning hours of 13 million hours.

China Unicom Beijing Branch created the "UV WeChat Supporting Learning Platform" offering "mini-classes" for online learning, tests for learning achievements, recruitment evaluation, employee surveys and team building. With three display themes including the "U Perspective", "V Classes" and "Fabulous+", the platform allows employees to control the way they participate in the diversified learning modes and cultivates the building of a knowledge-based talent pool.

China Unicom Chongqing Branch Customer Service Call Centre launched a new WeChat-based learning mode and offered online training through WeChat groups as a solution to shift-based employees who experiencing difficulties to attend training. By effectively integrating the different schedules of the employees, the programme received a participation rate of over 90% and achieved great results.

**Conduct Employee Competitions.** In 2017, China Unicom organised competitions including a Salesperson Marketing Skills Competition, a Smart Family Engineering Skills Competition, a Tender Evaluation Expert Competition, and others. With 131,200 employees participating in the try-out, the competitions powerfully shaped a professional team with technical expertise, consulting service capacities and marketing competence.



China Unicom Salesperson Marketing Skills Competition



China Unicom Smart Family Engineering Skills Competition

China Unicom Fujian Branch organised the “Wo Craftsmanship Trophy” competition which spanned for half a year with over 4,000 participants, breaking records including having the most participants, involving the most comprehensive craftsmanship, and being the largest scale in years. The competitions placed emphasis on on-the-job training, practical tactics, and strategising competitions as a means of training and learning. It greatly enhanced frontline workers’ abilities to tackle both routine and unexpected events.

## Staff Participation in Management

Employees are parts of the essential element towards corporate development, China Unicom has high regard to the participation of its employees in corporate management activities. The Company fully safeguards workers’ rights to possess to information, participation and supervision. It aims to reinforce the sense of identification and belonging of the employees towards the Company.

**Sound democratic management system.** China Unicom sought to institutionalise the “General Meeting of Staff Representatives”, “Online Meeting with General Manager” and “Corporate Affair Open Public Forum” as the tripartite democratic corporate management system. The implementation measures of “China Unicom General Meeting of Staff Representatives” and “China Unicom Open and Democratic Management of Factory Affairs” were reformulated. The “Working Scheme for China Unicom Group Co. Ltd. Specialised Committees General Meeting of Staff Representatives” was also formulated as part of a closed-loop mechanism to handle employee-initiated proposals and reasonable requests, as well as complaints from employees.



Workers’ Union of the Group Discussing Draft Proposals and Suggested List of Candidates in the Meeting.

China Unicom Kaifeng Branch in Henan launched the “New Ideas for Employee Empowerment”, a themed activity for employees to propose constructive ideas. The leading group of “Constructive Opinions and Proposing Policies” gathered a total of 283 submissions on topics including on platform, management and professional areas.

**Established Online Proposal Submission Platform.** China Unicom developed an “Employee Proposal Submission Platform” suited for subsidiaries and companies of different levels and different business lines. The “Online Meeting with General Manager” activities were organised 19 times on province- and municipal levels, receiving 2,065 inquiries from employees and responded to 1,136 of which.

The Group Company held the “Online Meeting with General Manager” activity with approximately 3,000 employees participated online (with 3,933 employees were online at peak). A total of 639 inquiries and messages were received from employees. Lu Yimin, the Group general manager, directly replied to 55 popular topics. As a major part of the Company’s democratic management system, the activity opened up a channel for employees to voice their opinions and proposals while also helped consolidate the collective wisdom and strengthen of the employees, creating a sense of solidarity and promoting the healthy development of China Unicom.



Mr. Lu Yimin, Group General Manager, engaged in interactive dialogues with employees

## Care for the well-being of Staff

The sustainable healthy development of the Company relies on the selfless dedication and diligent contribution of its employees. China Unicom cares for the employees’ personal well-being and seeks to be attentive to their needs and concerns. Multiple measures were adopted to help employees ease their personal problems.

## Comprehensive Employee Services System

China Unicom established a list of employee services by understanding employees’ needs and designing service offerings accordingly to provide suitable services beneficial for them. Specific areas of caring services include birthday celebration, children’s education advancement, employees’ and their families’ illness, as well as summer classes, day care groups, nursery rooms, parking spot for pregnant workers and etc. Different forms of employee cares are offered to serve them comprehensively.

China Unicom Jilin Branch abides by the philosophy of “serving and caring for the employees”, and offered day care services for its summer workers’ children. Besides assisting children to finish their summer assignments, the programme also provided a range of exciting educational, cultural, and sports activities, as well as specialised professional consulting. Great lunch was offered for the children as well. The summer program received great acclaim by the employees and about 70 children of the summer workers attended the day care program.

China Unicom Jiangyin Branch in Jiangsu created a nursery room equipped with couches, a refrigerator, a microwave oven and air purifier for employees who need to breastfeeding to enjoy a private, clean, comfortable and secure environment during their break. The needs of female employees in the “four phases” were being addressed. As a solution to some of the most practical and direct problems faced by female workers, the policy was greatly appreciated by all the staff.

**Rich cultural and recreation activities**

China Unicom actively launched different forms of cultural and sports activities including artistic creation, performances, talent shows, calligraphy, photography, recitation, single-sport race and integrated sports games. Interest groups of different types were organised as a platform to build a rich diversity of activities in order to satisfy the growing spiritual and cultural needs of the employees.



China Unicom held the 2017 Employee Badminton Game and formed a representative team to take part in the National Telecommunication Employee Badminton Game co-organised by China Communications Association. China Unicom team recorded its best results in history, fully illustrated the employees’ dedicated teamwork and the eagerness to overcome difficulties.

Highlights of China Unicom Employee Badminton Game in 2017 (Northern China)



▲ China Unicom Changsha Branch Held Chinese Valentine’s Event

▼ China Unicom Jiangxi Branch Held Employee Table Tennis Competition



◀ China Unicom Tibet Branch Held Fun Board Games in the Winter

▼ China Unicom Beijing Branch Held Dancing Event



▲ China Unicom Heilongjiang Branch Held Soft Volleyball Tournament



▲ China Unicom Zhejiang Branch Held its First Employees Sports Meet



▲ China Unicom Guangzhou Branch Held its First Employees Sports Meet



▲ China Unicom Fuxin Branch Staff Cultural Fair



◀ China Unicom Yunnan Branch Sang to Tribute to the 19th National Congress of the CPC



## Meticulous Mental Support

China Unicom cares about the mental well-being of its employees. By strengthening efforts to build a team of EAP specialists and psychological consultants, as well as conducting EAP promotional campaigns, the Company seeks to relieve employees' mental stress so that they can live and work in a more pro-active, relaxed state of mind, thus continuously enhancing their sense of happiness.

- An on-site psychological consulting experience programme was launched. A total of 12 online consulting mini-sessions were organised. EAP specialist and psychological consultant training, as well as EAP corporate service trainings, were held.
- The system for the self-assisted EAP online platform was reinforced by functions including mental health-concern promotions, online consulting, online tests, online interaction, and e-learning. A total of 216 mental health messages were provided for employees.
- Mental health evaluation for employees was conducted to understand employees psychological well-being and the needs for psychological services.

China Unicom Hunan Branch in Changsha held a psychological consultant training seminar which attracted 25 employees to participate, further enhanced the deepen development of EAP employee psychological support. Unicom Changsha was listed as the first pilot unit for the "Employee Care Initiative" by the city of Changsha.

China Unicom Fuxin Branch in Liaoning held the "Free the Mind, Embrace Happiness — Be your own best counsellor" lecture to help employees tackle with mental stress so as to face work with a positive mind-set and build up a healthy attitude towards work. Positive thinking is encouraged among employees through the lecture. Over 70 employees took part in the stress relief activity.

## Sincere initiative to "give warmth"

China Unicom carried out its care initiatives in an in-depth manner and established an emergency support mechanism mainly focused on grave illness relief, based on mutual medical aid between employees and grave illness insurance. It was met with great acclaim by the employees, as the insured rate for grave illness reached 92%. In 2017, a total of RMB28.38 million was distributed as poverty aid and RMB970,000 was contributed as consolation money.

Contributed RMB **9.37** million to support employees with difficulties

Contributed RMB **28.38** million in condolence fund

## ANSWERING PUBLIC EXPECTATION

As a socially responsible large-scale state-owned enterprise, China Unicom places great emphasis on civil concerns about popular livelihood. It makes active use of its own expertise and technical advantages for the public good, and puts strenuous efforts on focused poverty relief, charitable donation, emergency aids and voluntary service to help improve livelihood, showing our care and willingness to facilitate harmonious development with the society.

### Targeted poverty alleviation initiatives

China Unicom strictly adhered to the Central Committee's strategic deployment of poverty relief and made solid progress in poverty alleviation initiatives at Tibet. The Company perfected the organisation structure, fine-tuned the poverty alleviation policies and day-to-day management, as well as the implementation in the execution of the three-tier management system. The Group Company established its targeted poverty aid leading team and targeted poverty relief office. The related province subsidiaries also established province-level targeted poverty aid office with incumbent cadres designated to visit their targeted poverty-stricken provinces to oversee the implementation of poverty support and make progress in poverty relief. China Unicom's targeted poverty relief was fully acknowledged by the local province committee and local governments and was awarded twice by the Hebei Provincial Committee and Provincial Government as the "Advanced Unit in Targeted Poverty Relief Work Directly Subordinate to the Central Government".



Chairman Wang Xiaochu conducted research on the targeted poverty relief efforts in Guyuan and Kangbao of Hebei



Group General Manager Lu Yimin conducted research on the targeted poverty relief efforts in Ceheng County of Guizhou



In December 2017, Miao Wei, Minister of the Ministry of Industry and Information Technology, led a team to conduct research on the poverty alleviation

work in Luoning County in Henan. After getting a debrief from the general manager of Unicom Luoyang, Miao paid a visit to the poverty-stricken household of Zhao Gaicun and tried understanding Zhao's needs in the usage of telecommunications. Zhao proudly told Minister Miao that he used the optical-fibre broadband services of China Unicom and watched IPTV, while his entire family has been using the Tencent Big King cards offered by China Unicom. He was grateful to the CPC, the government, and China Unicom for benefiting the quality of his life.

China Unicom Hainan Branch established a three-tier management mechanism and explored the new precision poverty alleviation model. Through activities such as "industrial poverty aid" and "beautiful countryside", it helped to develop the tourism industry in the whole area and signalled its solid determination to eliminate poverty. A total of 400 beneficiaries were being supported and 107 people were lifted out of poverty in the year.

China Unicom Guangxi Branch and Guangdong Branch jointly created the nation's first village-stationed "No. 1 Secretary", the first wealth-generating e-commerce operation platform in Nanning. It helped over 6,000 of such "No. 1 Secretary" to tackle with difficulties in selling agricultural by-products and assisted in promoting the precise poverty aid in Guangxi, creating a sustainable "Internet+"-based precision poverty-aid eco-system.

China Unicom Xinjiang Branch adhered to the main goal of social stability and sustained peace, and earnestly developed the "visiting, benefiting, gathering" work while implementing with high standard on the "1+2+5" missions. By focusing on key actions such as strengthening grassroots organisation and doing well on work in relation to the masses, 74 "visiting, benefiting, gathering" work teams were organised and 818 cadre support projects were dispatched with a total input of RMB100 million invested. It was highly esteemed by the Party Committee of the autonomous region.

## Participative in external donations

The Company follows the donation principle of "acting within our competence, well-defined power and responsibility with integrity and commitment" and continuously returns to the society.

### External donation of RMB

**12,651,000** Public-welfare donation of RMB

**8,084,900**

Donation Item	Amount (RMB, Thousand)
Donation to targeted poverty alleviation areas (poverty alleviation)	8,546.7
Donation to cultural and sports initiatives	1,963.6
Donation to educational initiatives (education support)	570.5
Donation to other community and public welfare activities	300.7
Donation to disaster-hit areas	201.7
Donation to construction of public facilities	176.5
Other targeted assistance areas	118
Donation to medical and healthcare causes	78.9
Donation to services for the disabled (disabled support)	29.5
Tibet assistance and support (Tibet assistance)	26.6
Donation to environmental protection initiatives	2
Donation to corporate charity foundation	2
Other donation	634.3
Total	12,651

Statistical Table of External Donation by China Unicom in 2017

China Unicom Ningxia Branch engaged in the "Caring for sanitation workers to construct a beautiful Ningxia together" event. By gathering "small wishes" and lending helping hands, the company sought to express its care for sanitation workers. The company donated a total of approximately RMB600,000 and gave free voice equivalent to the value of nearly RMB400,000 to 3,327 sanitation workers as a gift. The Company's charitable action was highly regarded and praised by multiple governmental departments of the Ningxia Autonomous Region.

## Charitable aid for the underprivileged

As a caring enterprise, China Unicom gives generous attention to the disabled, the elderly, minors and other underprivileged groups through special care services, smart applications and staff donation. Special-feature products and services were launched to enable convenience to these people, allowing them to use our telecommunication services with ease.

### Care for the disabled

To facilitate career development for the disabled, the Company engaged in “tailor-made services” for the disabled and promoted the modernisation and IT implementation for disabled-related affairs. China Unicom Sichuan used its “smart usage service” as the platform to launch its “Internet+” IT technology implementation which helped the scientific innovative development of disabled-related services. As at the end of 2017, users of the “smart usage service” reached near 50,000 in the province.

China Unicom Ningxia Branch launched its disabled people targeted community services, which offered psychological consultation, Internet knowledge workshops, and tips on data usage management for the disabled users. A solid scheme of voluntary services for the disabled was established, fostering China Unicom as a caring and helpful member of the community.

### Care for the elderly

For senior citizens’ emerging needs to master the use of smartphones, China Unicom Shandong launched the “one-to-one” premium service, which set up mobile servicing units, reserved seats for the elderly and convenience service boxes. A set of premium phones with large display screen, large memory storage, large data usage and long standby time were launched. Premium salespersons would be designated to help the elderly users to transfer their contacts and download applications, as well as to instruct them on how to watch news online, and practical skills such as using WeChat functions, fitness monitoring, entertaining videos and voice messaging.



China Unicom Jiangsu in Suzhou helped the senior citizens to learn and enjoy the benefits of smart living by co-organising with Suzhou Elderly Academy to conduct Smart Living Workshops while offering live smart living classes over the phone. Unicom Suzhou offered 4 training classes in the Elderly Academy and held 40 sessions of “Suzhou Smart Living” through WeChat charity workshops, lecturing/assisting over 2,000 senior citizens.

### Care for children

Linfen Red Ribbon School is the only full-time school in the country specialised in admitting children afflicted with AIDS. On the Children’s Festival of 1 June, Unicompay Company launched a donation campaign entitled “Sharing with Love, Caring with ‘Wo’” together with the “China Red Ribbon Foundation”. The goal of the campaign was to give heart-warming presents for the children in Linfen Red Ribbon School for the Children’s Festival. A total of 305 gift items were collected in the campaign as a token of the warmth of society for these children.



China Unicom Zhejiang Branch is committed to voluntary service for stay-behind children. A routinised support mechanism was established under the title “Connect you and me with Wo, let love stay in our heart” for the voluntary campaign and a series of charity events for stay-behind children was launched. Over 100 stay-behind children benefited from the campaign, which was recognized for the Silver award from the 2017 Zhejiang Voluntary Work Program Competition.

## Active involvement in volunteering activities

China Unicom actively encourages each of its departments and subsidiaries to bring their skills and specialties in play expertise and to participate in volunteering activities in multiple ways. In 2017, the number of registered volunteers reached 23,998. An accumulated total of 39,966 persons participated in voluntary activities, conveying "Unicom Positive Energy" in the development of public welfare.

Number of registered  
volunteers reached **23,998**

**39,966** persons participated in  
voluntary activities



Volunteers from China Unicom Fujian Branch actively participated in "Youth Walk, Warm Way Home", a campaign held by the Chinese youths to give warmth to passengers when they return to their hometown during the Lunar New Year period. They offered travellers ginger tea, boiled water, travel tips, and ticketing services, using the most practical actions to make the winter warmer.



China Unicom Xinjiang Branch continued to engage in the large-scale "Drips of Care for a Wo future" charitable campaign, encouraging Unicom users to donate their points to show their care and help middle and elementary schools in remote areas to build libraries. As at 2017, a total of 256,465 Unicom users in Xinjiang participated in the point donation and a total of 161 million points were donated, helping to build 157 libraries with over 170,000 books in different ethnic languages for Uyghur, Han and Kazakh people. Over 85,000 students in Xinjiang of different ethnicities were benefited.



On World Blood Donation Day on June 14, China Unicom Guangzhou Branch organised a blood donation campaign to which employees actively responded. A total of 97 donors giving 35,000 mL of blood as a testimony of the care China Unicom Guangzhou Branch has for the society.

China Unicom Beijing Branch continued its winter clothes giveaway campaign which collected 100 pieces of winter clothing. The clothes were given to the people in need by the university student volunteers who used their spare time when returning to their hometown, representing warmth given by the China Unicom Beijing Branch.

China Unicom Handan Branch actively took part in the volunteering work for promoting civility in cities across the nation. Employees were organised to perform volunteers' work in traffic post in Songtai District to maintain traffic order with smile and love, keeping the roads safe, orderly, smooth and used with civility and assuring citizens' safety, contributing to civility in cities.

## RESPONSIBLE OVERSEAS OPERATIONS

### Driving operational compliance for overseas businesses

China Unicom Global Limited has complied a "Handbook Guide on Major Risks", as well as operational compliance handbooks for branches in Hong Kong, Myanmar, Japan, Singapore, Russia, South Africa and Brazil, and key business compliance guides for operations in America and Europe. A globally integrated internal control system has been formed as a long-term mechanism against corruption risks. Stringent compliance with local laws and regulations is compiled with so as to help safeguard orderly markets. The government policy of real-name registration for mobile phone users is resolutely implemented, as required by the "1 permit, 5 numbers" regulation, in a move to help safeguarding cross-border communications.

### Blending in local communities overseas

#### Staff localisation

China Unicom Global Limited adopts a localisation strategy with a strong emphasis to develop localised workforce throughout its 30 global branches. The recruitment and management of all employees strictly abides by laws and regulations of the local countries. Currently, the Group employs more than 700 local people around the world, creating job opportunities for various local communities.

#### Procurement localisation

The majority of the Company's procurements in network products, IT equipment and general services are sourced from local suppliers appointed through a stringent screening process. In compliance with local laws and regulations, we adopt a dynamic management approach based on respect for the contract, integrity and operational transparency, demanding the provision of eco-friendly products from suppliers as China Unicom Global continues to drive localised procurements to make ongoing improvements, while in a mature and standardised manner.

#### Local public welfare activities

Amidst its overseas business development, China Unicom has always been committed to caring for the community, taking up responsibilities, rewarding the society, and sharing charity and compassion. In 2017, the Company enhanced collaboration with Heep Hong Society to raise public awareness for children in need, while entering into cooperation with The Society for the Prevention of Cruelty to Animals to contribute efforts to the protection of animals, drawing stronger public attention for these charity campaigns as a way to attract more people to be encouraged to join the charity work to sharing love and hope.

In efforts to show respect to local customs and business practices, China Unicom Australia has actively participated, through various channels, in activities organised by local governments, commercial chambers, and industry associations. The Company also serves as a committee member of the China Chamber of Commerce in Australia and a member of the secretariat of the Association of Female Executives, actively facilitating communication and cooperation between the China Chamber of Commerce and the local corporations, as well as charity organisations.

### Overseas Investments with Responsibilities

In active implementation of the "Belt and Road" initiative, China Unicom has increased the deployment of its international network resources in major world economic corridors and information hubs. In 2017, the Company participated construction of the "Asia — Africa — Europe 1" (AAE-1) submarine cable network connecting the three continents of Asia, Africa and Europe, went into operation, while the domestically developed "China — Myanmar International Terrestrial Optical Fibre Cable" launched trial operation. Meanwhile, the Company also entered into an agreement with Camtel and Huawei Marine for the construction of the "South Atlantic International Submarine Optical Fibre Cable", signifying the official commencement of the construction of a Hong Kong — United States submarine cable. The construction process is underpinned by a strong emphasis on the protection of local ecological environments, as all routers have been approved by local environmental authorities.





# GREEN AND ECO-FRIENDLY: HELPS PRESERVE THE GREEN ENVIRONMENT OF CHINA

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## GREEN & ECO-FRIENDLY: HELPS PRESERVE THE GREEN ENVIRONMENT OF CHINA

**Ecological well-being matters to the sustainable development of the Chinese people for many era. China Unicom actively advocates and practises the philosophy of “Thinking Green is Thinking Gold and Silver”. Committed to the national policies on resource conservation and environmental protection, and in strict compliance with the Environmental Protection Law of the People's Republic of China, the Energy Conservation Law of the People's Republic of China and other laws and regulations related to environmental protection, the Company continued to strengthen initiatives such as green networks, green operations, green supply and green actions. It actively implemented the national supply-side reform and earnestly practised energy conservation and waste reduction, contributing to the harmonious co-existence between people and the nature while helping to build a “beautiful China”.**

### Measures adopted in 2017

- Committed RMB100 million in a special fund for energy conservation and emission reduction, with focus on energy conservation upgrades and technical application.
- Reinforced green procurement, implemented co-building and co-sharing, attached importance electromagnetic radiation management, while speeding up to streamline 2/3G networks, as well as carrying out the retirement of equipment and consolidation of switch rooms, all resulting in saving 550 million kwh/year in electricity consumption.
- Introduced paperless operations and made more efficient use of materials, resulting in an added value of RMB 84,305,500 via enhancing materials utilisation.
- Significant effort to drive green action and fulfill the green citizenship.

### Actions in 2018

- Further advancement of network streamlining, ongoing development of technologies for energy conservation, and deepening co-building and co-sharing in telecommunication infrastructure.
- Stronger efforts in the disposal of retired materials to increase the efficiency of such disposal and reducing environmental pollution caused by such retired materials.
- Ongoing development of green actions and implementation of the green development to contribute to the building of the Beautiful China.

In 2017, the Company deeply implemented the overall work plan to “control costs and reform mechanism” and continued to develop initiatives for cost reduction and efficiency enhancement, in efforts to improve network competitiveness, further strengthened management in energy conservation, promoted energy-saving technologies and carried out energy conservation campaigns, all contributing to drive the Company to foster symbiotic harmonious growth with the environment.

## PROMOTING GREEN MANAGEMENT

With the rapid development of new technologies such as mobile Internet, Cloud Computing and Internet of Things (IoT), in particular along with the fast-paced construction of 4G networks and all fibre networks, China Unicom experienced relative fast growth in energy consumption. To address such issue, China Unicom has actively facilitated the structural adjustment of its networks. Starting with network planning and design, and through network structural designs, equipment selection, applications of new power supply technology, demand-driven adjustments to network capacity and applying energy conservation and discharge reduction technologies, as well as measures to reduce the consumption of power and energy, the Company strives to lower discharge of greenhouse gases and regulates disposals of pollutants and wastes, in the effort to enhance the standard of meticulous management.

- Formulated the “Planning for Energy Conservation and Discharge Reduction 2017-2020” with the aim to enhance management over the consumption of resources and energy primarily through the control of total energy spending growth complemented by stronger efforts in energy conservation management. Capital committed exclusively to energy conservation and discharge reduction purposes amounted to RMB100 million in 2017, with a strong focus on energy conservation upgrades and application of energy conservation technologies.
- Strengthened the management of the responsibilities with authorities in energy consumption, and enhanced assessment by functions and process control for energy consumption.
- Established a working group for network streamlining and spectrum refarming, so as to reinforce the streamlining efforts of the 2/3G networks.
- Stipulated the network power supply structure and technology standards, while introducing “Wo” cloud storage module standards, as well as mapping out various enterprise-level standards such as the high-voltage direct-current power supply standards and high magnification discharge battery standards.
- Built energy consumption management system to carry out full inspection of daily energy consumption at switch rooms and complete audit and authentication on a regular basis to provide solid support for the implementation of energy consumption planning.

On 1 November 2017, the “Information and Communication Industry Alliance for Innovation in Energy Conservation” advocated by China Unicom was officially established, aiming to drive energy conservation and discharge reduction of information and communication equipment, platforms, power supply systems, refrigeration systems, maintenance systems and construction as an integrated unit with the aid of new-generation information and communication technologies and infrastructure integration. The initiative promoted the research in and application of energy conservation and related technological innovation, creating an innovative platform to drive technological innovations, standardisation and industry chain development in relation to energy conservation. Furthermore, it facilitated the value chain reform to achieve the infrastructure frameworks, thus driving energy conservation and discharge reduction in the information and communication industry.



Delegates raised hands to vote in favor of the establishment of the alliance

Note 1: As the Company mainly engages in the provision of telecommunication services, packaging material used for the finished products is not applicable to the Company's business practice.

Note 2: As China Unicom is a massive entity and its business covers a wide geographical region, currently the Company is not able yet to produce full statistics regarding its waste production. The Company will establish related data collection system as soon as possible.



## DEPLOYING GREEN NETWORK

### Implementing Green Procurement

China Unicom promoted centralised procurement of efficient and energy-saving equipment by increasing testing on UPS and air-conditioning technologies, as well as proposing to have TCO cost estimation to provide product-related energy conservation guidance to manufacturers. The Company also implemented quality accreditation for environmental management to clearly specify eco-friendly requirements, which, suppliers must obtain accreditations such as SA8000 and ISO14000. Meanwhile, e-tenders and electronic transactions had been introduced not only to lower the environmental costs in transactions, but also enhance suppliers' awareness and competency in environmental protection. To strictly comply with the national standard in environmental protection, the Company closely monitored the power consumption issues of terminal products and continued to make improvements with suppliers, so as to ensure the Company's customised terminals to be energy-saving, eco-friendly and safe.

### Eliminating Obsolete Capacity

China Unicom reported electricity consumption savings of 250 million kwh following the shutdown of over 50,000 sets of equipment as part of its vigorous effort in service integration and retirement of equipment for traditional switch networks to accelerate the streamlining of 2/3G network capacity in a more intensive implementation of the national supply-side structural reforms. Meanwhile, the integration of 7,280 switch rooms at all of our 1,680 exchange bureaus was completed, vacating a gross floor area of 480,000 square metres of switch rooms and saving 300 million kwh per annum in electricity consumption.

China Unicom in Yantai, Shandong has enhanced its economic and environmental efficiency, with annual savings of RMB4.06 million in electricity charges after disconnecting power supply at 567 base stations, phasing out 4,817 2G base stations and 1,745 3G base stations in its day-to-day organisation and implementation of network streamlining and frequency refarming.

### Networks Co-building and Co-Sharing

In adherence to the principle of "achieving win-win through cooperation and co-development", China Unicom continued to deepen cooperation with other companies in communication infrastructure facilities such as transmission pole lines, pipelines, underground cables and indoor distribution systems with an open-minded approach, in a bid to reduce duplicated construction and foster complementary advantages to enhance co-building and co-sharing levels in the deploying telecommunication infrastructure facilities.

- Co-built of 5,200 route-km of transmission pole lines, 6,300 route-km of pipelines and 7,860 indoor distribution systems.
- Co-shared usage of 12,100 route-km of transmission pole lines, 1,300 route-km of pipelines and 1,410 indoor distribution systems with partner operators.
- Opened up 24,000 route-km of transmission pole lines, 7,400 route-km of pipelines and 2,520 indoor distribution systems for co-sharing by partner operators.

Savings in project investments  
of more than RMB

**640** million

Responsibility performance indicators	2015	2016	2017
Co-building rate for indoor distribution system (%)	69.07	73	71
Co-sharing rate for indoor distribution system (%)	94.66	63	93
Pole line co-building rate (%)	67.76	85	88
Pole line co-sharing rate (%)	94.16	92	95
Pipeline co-building rate (%)	82.17	85	92
Pipeline co-sharing rate (%)	92.23	86	98

### Managing Electromagnetic Radiation

China Unicom strengthened the management over electromagnetic radiation in the construction of mobile communication base stations in strict compliance with the provisions set out by the Ministry of Ecology and Environment and local environmental authorities to ensure compliance with national standards of our electromagnetic radiation levels. In accordance with the changes in the management of electromagnetic radiation stipulated by the Ministry of Ecology and Environment, the Company's network technology research institute conducted tests and researches on electromagnetic radiation at the mobile communication base stations on a number of branch offices. Meanwhile, "China Unicom Administrative Regulations for Environmental Protection in relation to Electromagnetic Radiation at Communication Base Stations (Trial)" was formulated, taking into the requirements of Ministry of Ecology and Environment and MIIT to provide for regulation in relation to base station registration and filing, electromagnetic radiation tests, information disclosure, and handling of complaints and rectification for non-compliant stations.

In order to enhance public knowledge in the scientific understanding of electromagnetism so that the public can enjoy using telecommunications services, China Unicom Fujian launched an electromagnetic radiation safety promotion campaign and employed the nation's first "Touring Bus for the Promotion of Scientific Knowledge relating to Electromagnetic Radiation" to perform comparative radiation tests with a high level of precision on home appliances such as electromagnetic boilers, TVs, computers and handsets to educate local residents on legal and scientific knowledge relating to electromagnetic radiation at base stations to eliminate misunderstandings.

## DEEPENING GREEN OPERATION

### Building Green Business Outlets

In tandem with the principle of “reducing carbon emission and creating a green office environment” and leveraging the construction of digitalised operating stores, China Unicom was driving the conversion of traditional communication service stores to experiential retail stores to create eco-friendly and smart business outlets characterised by “regulated management, standardised layout, modernised equipment, digitalised operation and paperless processing”. A total of 65,276,600 business transactions were completed through the centralised paperless system, resulting in cost savings of RMB250 million. The Company also advocated to conduct meetings over video conferencing, and most major work conferences in 2017 were held through live webcast, which reduced carbon emission. Moreover, the Company ensured zero discharge of waste water and pollutants by directing waste water and pollutants at all business locations to the waste water pipeline network system to process. The Company strived to increase the efficiency in the usage in water, actively pushed forward the recycling use of water resources. In response to the increasing awareness to preserve the use of water, the Company would conduct maintenance checks in each part of the water supply system and eliminated scenarios including water resources wasting and leaking. The Company mainly consumed tap water coming from the buildings or the properties. During the reported period, there is no issues regarding the use of water.

A total of **65,276,600** business transactions completed through the paperless system

Total cost savings amounted to approximately RMB **250** million

China Unicom Sichuan branch implemented paperless office in tandem with the green development principle. The OA system was improved with the construction of a green office platform. All paper meeting documents were eliminated, as notices for meetings had been facilitated through “E-Notice”, while PAD was introduced to disseminate speeches at major meetings. In 2017, 2,713 corporate documents were handled through the office system, saving more than 270,000 piece of paper. Paper consumption for major meetings was reduced by 60,000 piece and saved RMB22,365,000.

### Promoting Energy-saving Green Technology

In 2017, China Unicom proposed the compartmentalisation, modularization and customisation of switch room energy conservation as a standardised model for the construction of eco-friendly switch rooms, complemented by the launch of Cloud Module (雲艙) 1.0 products to solve problems such as excessive power consumption and muddled airflow in existing networks. At the same time, planning for IT and CT integration were providing viable infrastructure solutions for the evolution towards cloudification.

Efforts were made to promote the application of 336V high-voltage direct-current system, high magnification discharge battery, and aluminum alloy cable. Currently, the 336V high-voltage direct-current system and high magnification discharge battery are under open testing, while preparations are being made for the launch of aluminum alloy cables, with a view to providing branch offices with viable options.

An efficient energy-saving solution was adopted with the application of new on/off power switches using high-efficiency modules which increased efficiency by 3%. The adoption of smart dual-circulatory air-conditioning in Northern and Central regions resulted in more than 15% energy saving. Annual savings in electricity charges amounted to more than 26 million kwh as compared to traditional construction plans.

The Company also involved in the promotion of the use of eSIM technology to replace the physical SIM card, in order to gradually reduce the massive costs incurred by telecom operators and users in the manufacturing, transportation, storage and physical replacements of SIM cards, while reducing consumption of raw materials to minimise pollution of the environment.

The “warehouse micro-module switch Room” of China Unicom (Gui An) Cloud Data Centre received a 4A global accreditation of green grading for data centres. Built in accordance with the internationally most advanced T3+ to T4 data centre standards, Gui An Cloud Data Centre features flexible customisation, adaptability and green energy conservation facilitated through micro-module technologies, electric technologies, refrigeration technologies and a unique distributed UPS system, with an overall PUE managed below 1.3.



Energy Conservation and Emission Reduction Conference of the Communications Industry in 2017

China Unicom Yunnan Branch reported savings of approximately RMB3 million in electricity charges, thanks to the employment of market-oriented transactions in major industry power market for core switch rooms, power disconnection for low-efficiency OLT, and the LET base station smart shutdown technology. The outcome of such energy conservation technology has received positive recognition from the Communication Network Operation Committee of China Association of Communication Enterprises, which awarded China Unicom Yunnan Branch with the title “Innovative Unit in Energy Conservation Management in the Communications Industry in 2016–2017”.

### Commitment to Cost Reduction and Efficiency Enhancement

In 2017, China Unicom discontinued 49 inefficient systems, integrated 83 homogeneous systems, optimised capabilities for 8 systems and relocated 91 systems to cloud platforms. It made a major boost to the overall supporting functions of the systems by actively encouraging and instructing units at all levels to embark on technological innovations.

- Initiatives adopted by the headquarters included mainly quality and efficiency enhancement measures such as the “shutdown, suspension, integration and transfer” of equipment and application systems, clearance of data generation processes and statements, consolidation and vacating of stacks, electric circuit clearance and recycling of Internet address resources, which contributed to operating cost savings of approximately RMB12.23 million and savings in energy consumption of approximately RMB2.15 million.
- Initiatives adopted by provincial branches included mainly the “shutdown, suspension, integration and transfer” of equipment and application systems, exploration and breakthroughs in proprietary research & development and internally-supported maintenance, as well as technical and management innovations, resulting in improved IT support and response ability, along with improved quality and enhanced efficiency. Operating cost savings amounted to approximately RMB60.80 million, including savings in energy consumption of approximately RMB17 million.

## Addressing Material Utilisation and Recycling

In 2017, China Unicom continued to adopt the reverse logistics management approach, as waste materials were passed on to professional third-party recycling companies for general disposal and recycling, in order to facilitate more effective recycled use of waste materials. Recycled materials amounted approximately RMB57,086,500, while the disposal of wires and cables, retired rechargeable batteries and general items amounted to RMB1.1 billion, RMB55,537,300 and RMB83,427,800, respectively. The added value of efficient re-utilisation of materials amounted to RMB84,305,500.

The Company vigorously built a smart platform for asset transactions by registering with Alibaba's auction platform. A total of 131 obsolete asset items were auctioned, resulting in an approximately 50% improvement in the yield rate for the disposal of terminals and an approximately 10% improvement in the yield rate for wires and cables. A range of measures, such as "matching terminal cards", have been adopted to enhance utilisation of inventory card products and reduce the volume of wasted resources. In 2017, 5.50 million inventory card products were put to effective consumption, reducing over RMB7 million in wasted resources.

Recycled materials valued  
at approximately RMB

**57,086,500**

Disposal of general items  
amounted to RMB

**83,427,800**

Added value of efficient utilisation of  
materials amounted to RMB

**84,305,500**

Rizhao Branch of China Unicom Shandong rolled out a campaign to encourage recycling and reusing access materials, deploying locations and scenarios for reusing the materials, as well as the standard for reuse after the dismantle, as to increase the recycling rate. A total of 201,000 metres of 5 types of old cables have been removed for recycling in the city.

## DRIVING GREEN ACTIONS

China Unicom actively advocates in environmental-friendly principles and has been making in-depth efforts to carry out green actions, thus contributing to building the beautiful China.

China Unicom Beijing actively responded to the requirement of "clean coal and nitrogen reduction" and zeroed-out all 119 coal-powered boilers and 22 gas-powered boilers. Dozens of transformations were completed within 2 months. By utilising the left-over room heat to achieve autonomous heating, carbon dioxide emissions reduced 620.61 tons. This action contributed to the Beautiful Blue Sky initiative in Beijing, as well as fulfilling the social responsibility for energy saving and emission reduction.



China Unicom Shaanxi organised a plantation activity to contribute to a "Greener Eastern Shaanxi and a Beautiful Homeland".



China Unicom Inner Mongolia organised a voluntary activity of garbage clearance, calling for green actions to protect Wuhai Lake from pollution.

China Unicom Lanzhou launched a green charity initiative, calling for "doing charity and be a dedicated contributor".



Voluntary plantation activity organised by Unicompany Company.



China Unicom Shanxi organised an eco-friendly cycling activity entitled "Healthy Cycling with 'Wo'".



China Unicom Changsha organised a voluntary eco-protection campaign, together with a plantation activity in Lushan.





## SECURE AND CONTROLLABLE NETWORK: CREATING A CLEAN CYBERSPACE



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## SECURE AND CONTROLLABLE NETWORK: CREATES A CLEAN CYBERSPACE

It is essential for the information network to be secure and controllable, which serves as the solid foundation for healthy and sustainable growth of the information and communications industry. In 2017, the Company upheld proper cybersecurity ethics and continued to enhance communication security and safeguarding measures. It acted proactively in guarding emergency communication, protecting user information security and privacy, and curbing malicious contents, thereby fostering a secure and clean cyberspace and providing strong support for national security and social stability.

### Measures adopted in 2017

- Established a steering working group to formulate specific protection plans and organised more than 1,500 emergency drilling sessions.
- Carried out emergency repair of communication facilities during typhoons, floods, earthquakes and other natural disasters, as well as safeguarding communication for important events including the "19th National Congress of the CPC", "Belt and Road" Forum, and the BRICS Summit.
- Improved the operating mechanism for information security, vigorously implemented real-name registration system, intensively executed special initiatives against information fraud, and completed dispatch of 1.27 billion various SMS reminders on information security.
- Developed network products and services positive to the healthy growth of minors and prevented the use of Internet to engage activities endangering the physical and mental health of minors.

### Actions in 2018

- To continue perfecting the mechanism for safeguarding information and communication during emergencies and actively undertake communication assurance missions in relation to natural disasters and significant events in diligent fulfillment of the social responsibility as central state-owned enterprise.
- To enhance information security management and further build systems, as well as intensifying execution against communication and information fraud.
- To actively implement the requirements set in "19th National Congress of the CPC" to create a clean cyberspace, developing a secure and healthy environment for minors on the Internet.

## ASSURING EMERGENCY COMMUNICATION

### Improving the system for the protection of emergency communication

Offering relief and help in times of crisis and danger is the social responsibility of large-scale state-owned enterprise. For telecommunications enterprises, assuring the security of communication during emergencies is an even more important mission. In 2017, China Unicom further amended its emergency planning for safeguarding communication to effectively ensure emergency modulation during the flood season. A working steering group was established to formulate specific protection plans to ensure fully smooth communication during important events. To enhance the capability of the emergency communication unit in handling emergency situations and offering general protection ability, more than 1,500 emergency drilling sessions were organised at various levels of China Unicom.



On-site Campaign in Shanghai

The Shanghai leg of China Unicom's emergency communication drilling and presentation initiative entitled "Quality Network Nationwide Tour" ("匠心网络万里行")

was successfully completed, demonstrating the ability of the China Unicom's professional communication protection team to "be ready to serve whenever called upon, combat problems in service, and overcome hurdles in combat".



Technical Staff Learning About Equipment Functions in the Emergency Communication Vehicle

China Unicom Heilongjiang has formulated a detailed mobile communication protection training program to provide comprehensive training

to all personnel involved in emergency communication, conducting external and internal trainings in different sessions designed for staff in various levels, in order to further improve the servicing ability of our technical staff.

## Responding to Severe Natural Disasters

In 2017, certain regions in China suffered from serious floods, battered by hill torrents, mudslides, slippery slopes and other natural disasters. Typhoons "Nesat", "Haitang", "Hato" and "Pakhar" landed in China successively, while Jiuzhaigou of Sichuan and Milin of Tibet struck by earthquakes. In response to the disasters, all officers and cadre staff of China Unicom were committed to safeguarding communication for important clients, such as the CPC, government and military organisations, as well as flood and drought management authorities. With a strong sense of responsibility, careful preparations and a dauntless spirit to overcome difficulties, China Unicom ensured communication security during the flood season. Throughout the year, China Unicom has committed RMB159,670,000 in relief funds, 172,776 man-shifts of disaster-relief workers, 61,678 per-unit outings of emergency vehicles, 7,597 per-unit applications of emergency equipment and 78,713 per-unit applications of emergency oil machines.



▲ China Unicom Fujian fully geared up to counter the onslaught of the double typhoons.



◀ China Unicom Guizhou committed full efforts to safeguard the "lifeline" for communication.



▲ China Unicom Guangxi strived to assure smooth communication is maintained.



▲ China Unicom Tibet battled the Linzhi earthquake.



▲ China Unicom Sichuan in relief action in the aftermath of the Jiuzhaigou earthquake.



◀ China Unicom Hunan safeguarded communication while taking relief actions against the floods.

## Safeguarding Communication Requirement of Important Events

### Safeguarding communication at the "19th National Congress of the CPC"

In October 2017, "19th National Congress of the CPC" was convened in Beijing. To ensure smooth communication and the safety and controllability of Internet information during the Congress, China Unicom provided 268,000 man-shifts of maintenance staff and 67,000 outings of emergency vehicles. China Unicom Beijing, in particular, fielded 1,330 man-shifts of technical staff with 417 workers carrying out non-intermittent inspection of wire lines with a total distance approximately to 60,000 km over 10 consecutive days, thanks to meticulous planning devised over a period of 5 months. As a result, China Unicom achieved "best assurance" in 5 areas: fastest Internet connection, broadest wireless coverage, best communication quality, best response in technical support and best customer experience. The Company was widely recognised for the successful completion of the mission, with the provision of a full range of high-quality services for the efficient proceedings and extensive broadcast of the Congress.



### Safeguarding communication at the "Belt and Road" Forum

In May 2017, the "Belt and Road" Forum for International Cooperation was held in Beijing, with the highest specifications since the proposition of the "Belt and Road" initiative more than three years ago. China Unicom was involved in communication assurance throughout the entire period of the forum, deploying more than 7,950 maintenance staff and 2,690 emergency vehicles while connecting 76 Internet access lines and 7 10G Internet leased lines for 2 news centres and 37 hosting hotels, in addition to setting up 1,290 wireline information outlets and 123 telephones, as well as providing full WiFi coverage for 2 news centres. The Company accounted for nearly 60% of international roaming services utilised, and offered first-time ever "Gigabit to desktop" ultra-high speed Internet access to international journalists, enabling them to timely dispatch diverse reporting to all parts of the world. The great convenience afforded to the media earned China Unicom unanimous commendation.

### Safeguarding communication at the BRICS Summit

In September 2017, the 9th BRICS Summit was successfully held in Xiamen, Fujian. China Unicom Fujian established an “all-rounded range, coverage and time” protection regime on the solid basis of “4 principles”. 15 special working groups were formed, RMB690 million were invested, along with the deployment of 1,533 maintenance staff, 127 vehicles and 35 emergency communication vehicles, all together succeeded in fulfilling the mission in information communication and network security protection on the back of seamless high-speed network and meticulous communication services. The outstanding contributions of China Unicom Fujian in safeguarding communication for the summit have been highly recommended by the MIT, the Provincial CPC Committee and Provincial Government and various departments of major customers, as testified by 34 letters of appreciation received from government authorities at various levels and major customers.

## PROTECTING INFORMATION SECURITY

In 2017, China Unicom conscientiously implemented the important guidance of General Secretary Xi Jinping that “Without cybersecurity, there is no national security”. Along with support to resolute execution of relevant important national plans, the Company continued to enhance the development of its information security protection mechanism, improve its ability to introduce innovative support to information security, commence special initiatives for the prevention and curbing of communication and information fraud, and consistently drive educating activities on information security, with a view to building an impenetrable stronghold for the protection of network information security and user privacy.

### Improving information security working systems

China Unicom has worked vigorously to build a network and information security assurance system underpinned by “active prevention, timely identification, fast response and assiduous recovery” and conducted itself in stringent implementation of the “Cybersecurity Law of the People’s Republic of China” and “Provisions on Protecting the Personal Information of Telecommunications and Internet Users”. The Company has also promulgated the “China Unicom Network and Information Security Management Measures” and increased promotional and training efforts to enhance staff awareness on the importance of legal compliance.

- Enhancing administration of disclosure and confidentiality of user information through stringent implementation of regulations governing the administration of customer information, unequivocal execution of the “7 prohibitions”, as well as more rigorous administration over employee numbers in the system of production and operation, along with an augmented mechanism for secondary SMS verification, in addition to label hiding in relation to user names and personal information to strengthen protection of users’ privacy.
- Building a comprehensive regime for the protection of user information security, perfecting the system for the administration of user information security, adding encryption for the protection of sensitive information, monitoring daily logs of data visits via jump server, developing a security audit mechanism for internal and external use of data, improving the protocol for the protection of information system security, and enhancing entry threshold and risk assessment in relation to information system security.
- Earnestly implementing real-name registration with consistent good records on new user registration, perfecting the process for handling disputed phone numbers in different regions under the requirement of “5 cards nationwide for 1 ID number”, increasing the accuracy of registration information of old users, launching case-by-case clearance of users holding multiple numbers with one ID number, improving the accountability system for violations at channels, rectifying the filing and investigation mechanism for non-compliance and punishment, strengthening supervision and appraisal, and active launching application of facial recognition technologies at physical channels on a trial basis.

Focused monitoring of **1,247** sensitive information sheets

Monitor **1.50** million data visits daily

Over **8,000** sensitive data visits audited

### Severe Measures Against Information Fraud

#### Special initiatives against communication fraud

China Unicom has intensively commenced special initiatives against communication and information fraud and ensured the effectiveness of such initiatives with three major operations: “Operation Charge” enabled 100% real-name registration of phone users; “Operation Source Clearance” realized 100% real-name registration for 400 and leased voice lines and 100% caller authentication; and “Operation Stronghold” has executed precise blocks against scam calls.

### Strengthening network system security management

China Unicom’s ability in safety monitoring, early warning and emergency response in relation to network system information security has been further enhanced, as system loopholes and cyber-attacks were being countered in swift actions. The Company continued to pursue innovative information security solutions, such as rolling out the exclusive anti-fraud public service, which has received 3 major awards from the People’s Daily, the Internet Society of China, and Security Notification Centre for State-owned Enterprises and has been widely recommended by users.

### Procuring regulated operations of MVNOs

The Company has helped MVNOs to regulate their operations in various ways to safeguard network information security. Stronger efforts have been made in the network to block junk SMS and shorten the transmission time for call records. The implementation of real-name registration and user quality have been linked to the policy of phone number allocation to guide the enterprises towards healthy development. Meetings have been held to call for stronger emphasis on service quality and junk SMS reporting on the part of MVNOs, and requests for rectification have been made to questionable enterprises.





At the 2017 China “Internet +” & Digital Economy Summit held in Hangzhou on 20 April, China Unicom’s anti-fraud public service was named one of the 2016 China Internet + Top 10 Outstanding Exemplary cases.

The Big Data-based anti-fraud public service has developed a set of effective governance measures. Since coming into operation, the service has helped users to avoid potential economic losses amounting to more than RMB870 million.

- Extensive coverage
- Precise positioning
- Prompt reminder
- Rapid linkage with public security organisation

China Unicom Beijing has built a governance regime against communication fraud under a model covering different dimensions in various segments such as internal and external corporate governance, types of telecommunication services susceptible to scams and the end-to-end process of user applications based on the core concept of the “co-governance model”, aiming at all-rounded joint governance by multiple parties.

- Intercepted more than 18 million illegal or violated SMS messages and close to 100,000 outgoing phone numbers, while dealt with nearly 40,000 various scam/harassment calls and censored close to 15,000 illegal websites throughout the year.
- Cooperated with public security authorities in a number of on-site arrests at pseudo base stations with the suspension of suspect phone numbers for the collection of evidence.

The anti-harassment reminder and communication guard public services have been launched as part of a communication security regime covering the mobile voice and data network. The communication guard service already covers more than 10 million users. As at 2017, a total of 16,679.24 million blocks was made, while up to 2,845,700 users had subscribed for the anti-harassment service, making an average of approximately 300,000 pop-up reminders daily and developed a database containing 1,269,200 harassment phone numbers.

## Public Education on Cybersecurity

China Unicom has launched an extensive program to promote user security awareness, dispatching 1.27 billion various SMS reminders related to information security.

At the 4th “China Cybersecurity Week” held at the National Exhibition and Convention Centre in Shanghai, China Unicom promoted to the public protective measures to deal with scam calls, to block junk SMS and malicious programs, and to protect privacy.

To enhance mass user security awareness, China Unicom Qinghai organised a promotional campaign on the World Telecommunication and Information Society Day (May 17th) to educate the public on ways to prevent communication and information fraud and maintain mobile phone security, through media such as display boards and colour pamphlets and activities such as joint military-civil protection of lines, in a bid to increase public knowledge on the importance of communication facilities.

To foster a safe environment for voice communication and Internet surfing while assuring the safety of people’s information and properties, China Unicom Liaoning organized the “Cybersecurity in the Community” program in September 2017 to show common examples of phone and Internet scams to the residents and educate them on basic knowledge in communication security.

## DECONTAMINATING THE CYBERSPACE

In active implementation of the “Cybersecurity Law of the People’s Republic of China”, along with the requirements as laid in the “19th National Congress of the CPC” to enhance the development of Internet contents, to build a general network governance regime, and to create a clean cyberspace, China Unicom has engaged in the research and development of Internet products and services conducive to the healthy growth of minors and in the prevention of any use of the Internet activities which could harm the physical and mental health of minors, in order to provide a safe and healthy environment for minors on the Internet.

In order to better facilitate the scientific development of the mobile game industry, Wostore Technology Company Limited (a subsidiary of China Unicom) established the “Big Data United Laboratory” in collaboration with Shanghai Jiao Tong University in active response to the Nation’s administrative requirements for world-leading online gaming for the joint development of a system to prevent mobile phone addiction with the application of efficient and precise monitoring system based on comprehensive data collection and analysis. By checking game hours and consumption amounts of a user, the identity of such user is authenticated and the gaming status of a minor is accurately identified, whereby excessive gaming will be restrained to help users to develop healthier and more eco-friendly mobile gaming habits.

To address the issue of teenager addiction to the Internet, China Unicom Liaoning launched the “Sunshine Protection” program to help parents to effective control their children’s Internet surfing behavior on mobile phones. The program is targeted to various characteristics of teenagers’ mobile online behavior and set up online management, location guard and behavioral analysis accordingly, so as to provide assistance to parents who seek to guide their young children towards healthier surfing on the Internet.



# MANAGEMENT OF RESPONSIBILITIES: CEMENTING THE FOUNDATION FOR SUSTAINABLE DEVELOPMENT



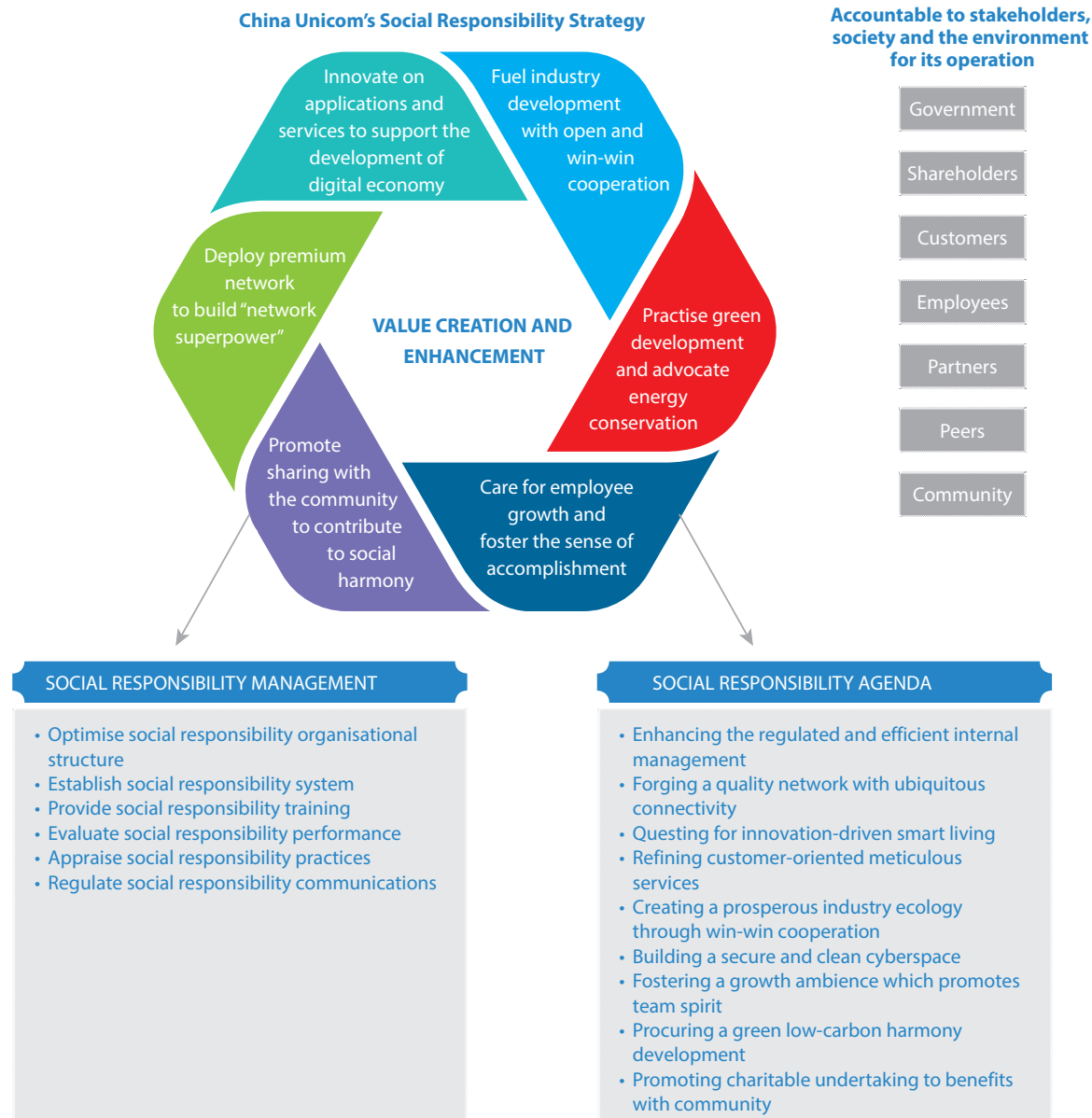
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# MANAGEMENT OF RESPONSIBILITIES: CEMENTING THE FOUNDATION FOR SUSTAINABLE DEVELOPMENT

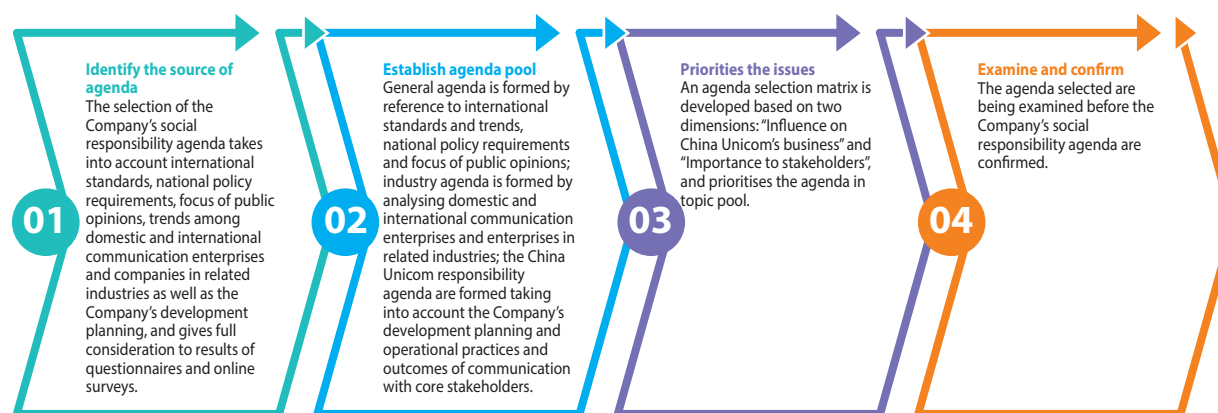
## IMPLEMENTING STRATEGY OF RESPONSIBILITIES

Led by the modern development philosophies of “innovation, coordination, greenness, openness, and sharing”, the Company took practical steps to contribute to the “network superpower” strategy, “One Belt, One Road” initiative, supply-side structural reform and other national strategic deployments, fulfilling its obligations through responsible operations. It continuously enhanced 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.

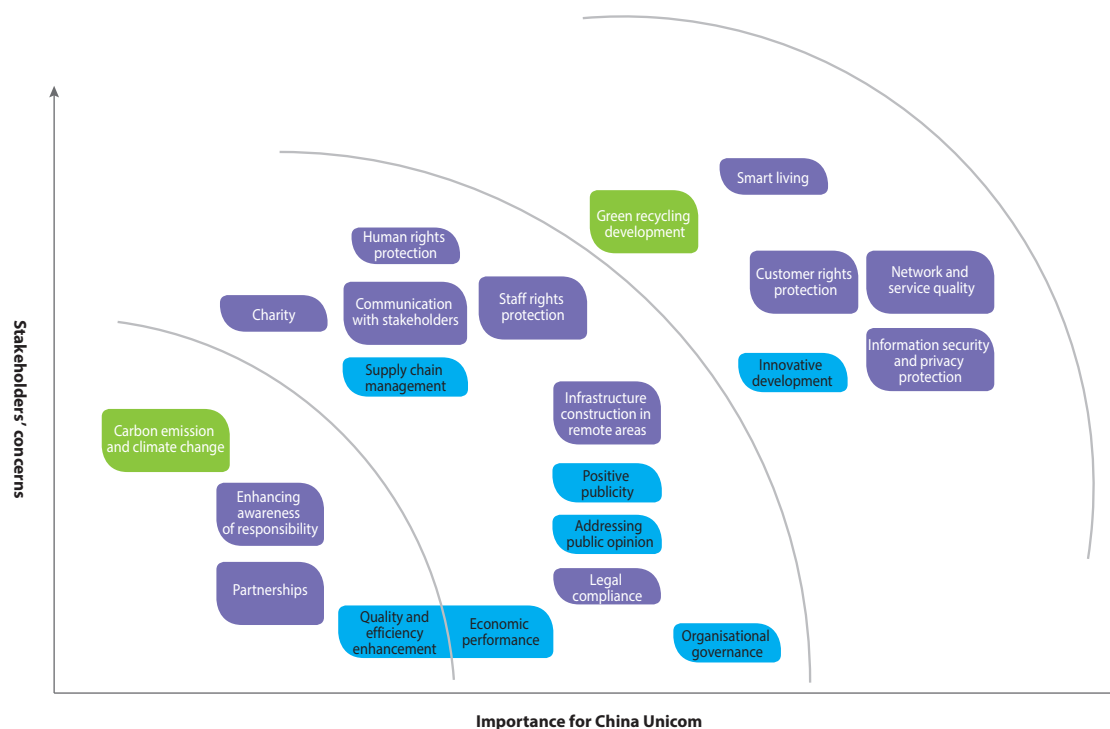


The Board of China Unicom attaches great importance to social responsibility of China Unicom. Through social responsibility management and social responsibility implementation, the Company has sought to improve the substance of its responsibility and risk management on a continuous basis and evaluates the potential risk of the social responsibility work. To pursue responsibility implementation with the Company’s characteristics in connection with the agenda to ensure the execution of our strategy in social responsibility. The Company, focusing on social responsibility management and practices, ceaselessly perfects the connotation of responsibility management, and extensively carries out responsibility practices with company characteristics and centered on the responsibility issues to support the implementation of responsibility strategy.

China Unicom establishes social responsibility agenda selection procedures under the principle of “closely following standards, regularly updating and sustainably improving”, and studies social responsibility agenda every three years. Such agenda are constantly updated to follow international developments and domestic trends and to match the standards of advanced enterprises, such that the responsibility implementation is guided by scientifically selected agenda to ensure that the effectiveness, high standard and positive influence of our social responsibility implementation. Meanwhile, Social Responsibility Committee takes various standard and guideline of relating to social responsibility reporting into account while preparing the social responsibility report. In accordance with the principles for selection of social responsibility agenda and the below process to recognise the agenda of social responsibility of China Unicom and evaluate its importance and relevancy.



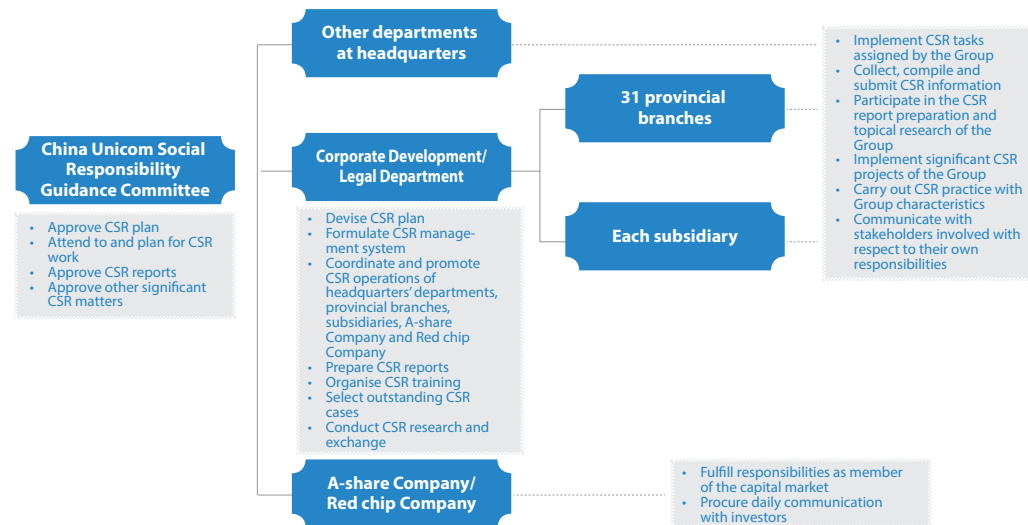
China Unicom's procedure for the selection of social responsibility agenda



China Unicom's agenda selection matrix

## IMPROVING GOVERNANCE OF RESPONSIBILITIES

China Unicom established social responsibility organisational system covering the entire Group. Under the leadership of Social Responsibility Guidance Committee, the Corporate Development Department/Legal Department serves as office to take charge of daily work, and each provincial branch, subsidiary, A-share Company and Red Chip Company instituted dedicated department and staff coordinator to perform social responsibility work according to their respective responsibilities. The Social Responsibility Guidance Committee shall review and make decisions on significant matters of enterprise social responsibilities, and coordinate and lead the work regarding enterprise social responsibility. The Corporate Development Department/Legal Department takes charge of daily work of Social Responsibility Guidance Committee, and systematically coordinates the implementation of social responsibility work of all subsidiaries of the Company. Each department at the Company's head office, each provincial branch, subsidiary, A-share Company and Red Chip Company shall organise and implement significant projects of the Group regarding social responsibilities, and organise and carry out social responsibility practices with enterprise characteristics, and be responsible for collecting, consolidating and submitting their own information and data with regard to social responsibilities. China Unicom Social Responsibility Guidance Committee submitted this report for Audit Committee and the Board of Directors for approval. This report have been reviewed and approved by Audit Committee and the Board of Directors of the Company. Please refer to our 2017 Annual Report for the details of corporate governance, risk management, internal control etc.



China Unicom's social responsibility working organisation and major duties

## STRENGTHENING COMMUNICATION OF RESPONSIBILITIES

China Unicom sets up social responsibility communication mechanism to continuously carry out targeted communication according to the expectation of stakeholders and based on the substantial topics of social responsibilities. Such continued communication and conversation enabled China Unicom to understand more of the view and expectation of the stakeholders. It helped to provide more information to China Unicom for decision making, as well as effectively evaluate and manage its potential influence.

Practical issue	Stakeholder	Form of communication	expectation on China Unicom
Enhancing stable and regulated internal management	Shareholders	<ul style="list-style-type: none"> <li>• General meeting of shareholders</li> <li>• Investor meeting</li> </ul>	<ul style="list-style-type: none"> <li>• Timely and transparent information access</li> <li>• Long-term stable investment gains</li> <li>• Corporate governance and risk control</li> <li>• Legal compliance and clean operations</li> </ul>
	Government	<ul style="list-style-type: none"> <li>• Face to face communication</li> <li>• Meetings</li> </ul>	<ul style="list-style-type: none"> <li>• Fair competitive market order</li> <li>• Efficiency enhancement and cost reduction</li> </ul>
	Public and media	<ul style="list-style-type: none"> <li>• Phone communication and forums</li> <li>• Internet-based communication</li> </ul>	<ul style="list-style-type: none"> <li>• Timely knowledge of Company information</li> <li>• Interactive communication with the Company</li> </ul>
Forging premium networks with ubiquitous connection	Customers	<ul style="list-style-type: none"> <li>• Service hotline</li> <li>• Weibo/WeChat</li> <li>• NPS (Net Promoter Score) survey</li> </ul>	<ul style="list-style-type: none"> <li>• High-speed and smooth networks</li> <li>• Innovative smart network services</li> <li>• High-quality networks in remote areas</li> </ul>
Pursuit of innovation-driven smart living	All stakeholders	<ul style="list-style-type: none"> <li>• Meetings</li> <li>• Visits</li> <li>• Weibo/WeChat</li> </ul>	<ul style="list-style-type: none"> <li>• Smart products that enhance the quality of living</li> <li>• Innovative and progressive communication technologies</li> <li>• Internet-oriented management systems</li> </ul>
Refining customer-centric premium services	Customers	<ul style="list-style-type: none"> <li>• NPS survey</li> <li>• In-depth visits and meetings</li> <li>• Customer activities</li> </ul>	<ul style="list-style-type: none"> <li>• Favorable and transparent tariff policy</li> <li>• Convenient and efficient service channels</li> <li>• Effective after-sales service assurance</li> </ul>
Creating a prosperity and win-win cooperation ecology	Partners	<ul style="list-style-type: none"> <li>• Value-chain conference</li> <li>• meetings, visits</li> <li>• Self-service portals of partners</li> </ul>	<ul style="list-style-type: none"> <li>• Wide scope of cooperation</li> <li>• Fair and open opportunities for cooperation</li> <li>• Extensive and convenient support services</li> </ul>
	Peers	<ul style="list-style-type: none"> <li>• Interviews</li> <li>• Meetings</li> </ul>	<ul style="list-style-type: none"> <li>• Stronger ability for complementary use of resources</li> <li>• Cost savings and higher efficiency</li> </ul>
	Customers	<ul style="list-style-type: none"> <li>• Visits, hotlines</li> </ul>	<ul style="list-style-type: none"> <li>• Driving partners to honour obligations</li> </ul>

Practical issue	Stakeholder	Form of communication	expectation on China Unicom
Developing a secure and clean cyberspace	Customers and government	<ul style="list-style-type: none"> <li>Service hotlines</li> <li>Weibo/WeChat</li> <li>Meetings and forums</li> </ul>	<ul style="list-style-type: none"> <li>Smooth network connection anytime, anywhere</li> <li>Secure and healthy cyberspace</li> <li>Network information security and confidentiality</li> </ul>
Fostering an ambience for growth by team effort	Employees	<ul style="list-style-type: none"> <li>Staff forums</li> <li>Staff representative assemblies</li> <li>Democratic informal meetings</li> <li>Online communication with the General Manager</li> </ul>	<ul style="list-style-type: none"> <li>Protection of lawful rights and interests</li> <li>Training and career development opportunities</li> <li>Opportunities for participation in democratic management</li> <li>Support in adversity</li> <li>Safe and comfortable work environment</li> </ul>
Promoting harmonious development with green and low-carbon emission	Ecological environment	—	<ul style="list-style-type: none"> <li>Green and eco-friendly operations</li> <li>Reduction of pollution through recycling</li> </ul>
Advancing charitable undertakings to share benefits with the public	Community	<ul style="list-style-type: none"> <li>Meetings</li> <li>Forums</li> <li>Villages support station</li> </ul>	<ul style="list-style-type: none"> <li>Sustainable and effective donations</li> <li>Enhancing efforts in poverty aid and relief</li> <li>Charitable volunteering programmes</li> </ul>

In 2017, the Company was engaged in extensive publicity initiatives and interaction with the media, enhanced communication with the public and the press and vigorously developed a new ecosphere of corporate communication with internal as well as external parties, presenting China Unicom's open approach to communication.

- We persisted in the transition to Internet-based publicity with the development a complete mechanism covering the monitoring and reporting of public opinions and the provision of feedback and response.
- We held 25 key publicity events in connection with, among others, the announcement of network speed upgrade and tariff reduction, launch of terminals compatible with 6 modes, ITU Telecom World, Winter Olympic Games and Winter Paralympic Games. We also published 133 news releases and arranged 30 press coverage occasions.
- We have more than 120 million followers on new media such as Weibo and WeChat with an annual viewership in excess of 1 billion views, making us the most influential new media account among PRC enterprises and central enterprises for 4 years in a row.

## ENHANCING CAPACITY FOR ASSUMING RESPONSIBILITIES

In 2017, China Unicom was actively involved in various exchanges and seminars organised by social responsibility groups to inform itself on trends in social responsibility, learn from outstanding enterprises and contribute its own ideas and views for the ongoing in-depth development of social responsibility.

Organiser	Event
State-owned Assets Supervision and Administration Commission of the State Council	Topical research on "Blue Paper on Social Responsibility of Central Enterprises (2017)" and "Research on Overseas Social Responsibility by Central Enterprises"
	Submission of opinion on "Proposal for Legislation on Corporate Social Responsibility (Draft for Comments)"
Committee for Corporate Social Responsibility of China Association of Information Communications Enterprises	Participation in the formulation and serving as a member of the drafting group of the social responsibility performance indicators evaluation system for the information communication industry
	Sharing on the topic of "Focus on industry innovation and cooperation with performance of responsibilities" at 2017 annual conference for social responsibility of the information communications industry
	Research on sustainable development needs (2017-2018) conducted by the Committee of Corporate Social Responsibility of, China Association of Communications Enterprises
UN Global Compact	UN Global Compact Annual Implementation Survey — 2017
The Listed Companies Association of Shanghai	The 3rd Social Responsibility Summit of PRC (Shanghai) Listed Companies and presentation of "Blue Paper on Social Responsibility of Shanghai Listed Enterprises (2017)"
Research Center for Corporate Social Responsibility, Chinese Academy of Social Sciences	Forum on social responsibilities of central enterprises and presentation of "Blue Paper on Social Responsibility of Central Enterprises (2017)"
Ernst & Young	Forum on climate change and sustainable development and exchange on ESG reporting and disclosure

## IMPROVING PERFORMANCE IN RESPONSIBILITY FULFILMENT

### Optimising performance indicators

In accordance with international and domestic standards for social responsibility, China Unicom further optimises “China Unicom’s Social Responsibility Performance Indicator System” focusing on 9 substantial agenda of the Company, and drives social responsibility to be effectively integrated into enterprise production and operation on that basis.



China Unicom’s Social Responsibility Performance Indicator System

### Honors and recognitions

In 2017, China Unicom sturdily performed social responsibilities, disclosed responsibility performance situations promptly, and gained positive progress in social responsibility performance.

- “Best Corporate Social Responsibility in China — 1st” award in the “Asia’s Best Managed Companies Poll 2017” hosted by FinanceAsia;
- “Platinum Award for Excellence in Environmental, Social, and Corporate Governance” in “The Asset Corporate Awards 2017”;
- China Unicom’s online Corporate Social Responsibility Report (csr2016.chinaunicom.com.hk) won the Gold Award in the “Nova Awards 2017”.



# APPENDICES

## KEY PERFORMANCE

Type	Indicator	Unit	2015	2016	2017
Operations and development	Total assets	RMB billion	610.35	614.15	571.98
	Operating income	RMB billion	227.05	274.20	274.829
	Service revenue	RMB billion	232.975	238.033	249.015
	Profit before income tax	RMB billion	14.04	0.784	2.593
	Mobile billing subscribers	Million	252.317	263.822	284.163
	of which: 4G subscribers	Million	44.156	104.551	174.876
	Fixed-line local access subscribers	Million	73.858	66.649	59.997
	Fixed-line broadband subscribers	Million	72.33	75.236	76.539
	E-Commerce turnover	RMB billion	92.16	84.77	111.21
	Productivity	RMB Thousand/ Person • Year	863.4	883.5	923.9
Network capability	Number of 4G base stations	Thousand	399	740	852
	Number of fixed network broadband access ports	Thousand	164,890	189,060	201,950
	Broadband coverage rate in administrative villages in ten northern provinces	%	93	95	95
	Urban 20M or above broadband network coverage rate	%	80	89	93
	Rural 4M or above broadband network coverage rate	%	95	99	100
	Coverage rate of mobile network in township	%	100	100	100
	Coverage rate of mobile network in administrative villages	%	87	87	89
	International interconnection bandwidth	G	1,415	1,711	2,072
	4G network access rate	%	—	99.69	99.72
	4G network call drop rate	%	—	0.1	0.1
Reinsurance input	Number of channels in rural and remote poverty-stricken area	Thousand	280	260	200
	Total times of emergency communication guarantee	Time	387	393	361
	Emergency communication vehicles called out	Thousand vehicle-times	129	124	137
	Emergency communication equipment inputted	Thousand set-times	124	115	109
Independent innovation	Personnel used	Thousand person-times	397	413	471
	Technological innovation input	RMB billion	3.63	4.82	5.81
	Number of personnel in technical activities	Persons	2759	4508	4195
	International standards documents	Articles	647	614	649
	Industrial standards	Items	247	226	228
	Number of patents applied	Items	582	621	648
Customer service	Number of patents granted	Items	242	232	346
	Monthly average complaint rate in the year	Person-times/million users	3.67	3.61	2.73
	Overall satisfaction rate	Points	76.5	77.5	77.99
	Including: Fixed line user satisfaction rate	Points	79.9	80.4	82.45
	Mobile phone user satisfaction rate	Points	77.4	78.8	79.13
	Fixed broadband user satisfaction rate	Points	70.8	72.5	74.62
People-oriented	Mobile Internet user satisfaction rate	Points	75	75.9	75.05
	Gender proportion of employees	Male:female	1.48:1	1.49:1	1.48:1
	Proportion of minority employees	%	6.69	6.81	6.89
	Proportion of female in senior management	%	11.7	11.7	10.6
	Input in employee training	RMB million	262.43	302.64	321.57
	Per capita training time	Hours	56	60	62
	Network college online learning person-time	Thousand person times	3,107	4,585	15,333
	Network college total online learning hours	Thousand credit hours	1,300	3,750	13,096
	Number of safety production training	Times	32	32	37
	Coverage rate of safety production training	%	100	100	100
Proportion of contracted employees in labor union	%	100	100	100	
Input to help and support employees suffered from difficulties	RMB million	13.23	9.67	9.37	
Input in condolence fund	RMB million	12.98	35.71	28.38	
Employee turnover rate	%	2.64	1.77	1.94	

Type	Indicator	Unit	2015	2016	2017
Low-carbon development	Special investment in energy conservation and emission reduction	RMB million	320	200	100
	Unit information flow energy consumption	kg ce/TB	12.4	6.47	7.5
	Petrol consumption	Thousand tons	57.6	45.6	29.1
	Diesel consumption	Thousand tons	20.3	12.8	24.5
	Natural gas consumption	Thousand m <sup>3</sup>	10,309.6	10,995.6	7,081
	Electricity consumption	Billion KWH	14,575	13,893	13,986
	Water resource consumption	Million tons	23,771	22,892.5	22,210.6
	Water resource consumption/per unit operating income	Tons/RMB million	85.80	83.49	80.82
	Coal consumption	Thousand tons	—	110.6	72.7
	Energy conservation	Thousand tce	587.4	156.5	169.2
	Greenhouse gas emission	Thousand tons	5468.1	5098.9	5188
	Greenhouse gas emission/per unit operating income	Tons/RMB million	19.74	18.60	18.88
	Sulphur dioxide emission	Thousand tons	—	6.6	8.9
	Chemical oxygen demand (COD)	Thousand tons	—	18.3	25.4
	Compliance management	Recycling upon scrappage and disposal	RMB million	1,487	2,711
Number of compliance training		Times	1,596	1,591	1,576
Community responsibility	Number of participant attending the compliance training	Persons	231,549	254,628	253,530
	Number of registered volunteers	Persons	14,118	17,042	23,998
	Participants in volunteer activities	Person-times	20,026	25,386	39,966
	Credit rating <sup>(1)</sup>	Grade	AAA	AAA	AAA
	Total tax paid	RMB billion	11.779	11.261	8.126
	Employment creation	Persons	15,622	29,817	10,458
	Total donation	RMB million	6,417	9,347	12,651

- 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 preping the disclosure. The 2017 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 (G4 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.

## COMPANY HONOURS

- China Unicom swept a number of top awards in the poll by "FinanceAsia", namely "Asia's Best Management Team", "Best CEO in China — 1st", "Best CFO in China — 1st", "Best Corporate Social Responsibility in China — 1st", "Best Investor Relations in China — 1st", "Best Managed Company in China — 2nd" and "Most Committed to Corporate Governance in China — 2nd".
- China Unicom was voted by institutional investors in the survey organised by "Institutional Investor" and ranked the top in the following categories: "Asia's No.1 Most Honored Telecom Company", "Asia's Best CEO (Telecom) — 1st", "Asia's Best CFO (Telecom) — 1st", "Asia's Best Investor Relations Company (Telecoms) — 1st" and "Asia's Best Website (Telecoms) 1st".
- China Unicom was accredited with "Platinum Award for Excellence in Environmental, Social, and Corporate Governance" in "The Asset Corporate Awards 2017". Meanwhile, Mr. Wang Xiaochu, Chairman and CEO of the company was named as "Best Chief Executive Officer Award".
- China Unicom's website (www.chinaunicom.com.hk) was honored with the "Grand Award — Investor Relations Website" in "iNova Awards 2017"; while China Unicom's social responsibility report (online edition) (csr2016.chinaunicom.com.hk) won the Gold Award.
- China Unicom received the honors of "Operator of Collaborated Contributions", "Enterprise of Customer Satisfaction" and "1st Class I Achievement for Innovation in the Modernisation of Corporate Management in the Communication Industry (14th Edition)" awarded by China Association of Communication Enterprises.
- China Unicom was named for the "5-star Service Quality Award" by China Association for Quality Promotion at the 3rd China Forum on Branding Quality and Integrity.
- China Unicom won the "Best Customer Experience Award" of Baidu.
- Unicom Cloud Data Company Limited received the "Yun Fan Award", "Most Influential Cloud Computation Award" and "Outstanding Cloud Computation Solution Award" and the title of "Top 10 Brands in Cloud Computation" from MIIT. At the Credible Cloud Conference, it received the honors of "First Pioneer Exemplary Units in IT Insurance Innovation", "5-star Accreditation for Credible Cloud Hosting Service" and "Hybrid Cloud Solution Accreditation".
- China Unicom's eSIM IOT solution won the "Best Mobile Technology Breakthrough — Asia" award of GSMA.
- China Unicom System Integration Limited Corporation won the "China Construction Lu Ban Award", "National Premium Engineering Work Award" and "PRC Electronic Information Industry Pan Gu Award".
- Unicompay Company Limited received the "Leading Business Model Award 2017", "Leading Financial Technology Brand 2017", "Most Influential PRC Financial Technology Brand" and "Best Service Platform for Inclusive Finance Award" at the 9th Annual Conference for Decision Makers in Financial Technology and Payment Innovation.

## INSTITUTIONS AND ORGANISATIONS

### Major organisations newly joined by China Unicom in 2017

Name of Organisation	Post
Innovative Energy Conservation Alliance of Information Communication Industry of China Association of Communication Enterprises	Initiator
Zhongguancun Anxin Network Identity Authentication Industry Alliance	Vice president
National Big Data Alliance of New Energy Vehicle	Vice president
Beijing Payment & Clearing Association	Member
China Big Data Technology and Application Alliance	Vice president
OpenStack Cloud computing open source community	Gold member
ONAP Network orchestration open source community	Silver member

## DESCRIPTION TO THE REPORT

Reporting period:	From January 1, 2017 to December 31, 2017, 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. 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;
References:	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 (G4 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 2017 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.
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 in electronic copy. Website: <a href="http://www.chinaunicom.com.hk">http://www.chinaunicom.com.hk</a> Address: China Unicom Corporate Development Department/Legal Department, No. 21 Jinrong Street, Xicheng District, Beijing
Contact information:	Zip Code: 100033 Fax: 86-10-66258674 Email: yangwei3@chinaunicom.cn

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Note 1: As the Company mainly engages in the provision of telecommunication services, packaging material used for the finished products is not applicable to the Company's business practice.

Note 2: As China Unicom is a massive entity and its business covers a wide geographical region, currently the Company is not able yet to produce full statistics regarding its waste production. The Company will establish related data collection system as soon as possible.

## FEEDBACK

Dear reader,

Thank you for reading the 2017 Corporate Social Responsibility Report of China Unicom (Hong Kong) Limited, which is the second standalone 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 standards of performing social responsibility, we would like to have your precious opinions and suggestions regarding this report.

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- Your identity:
 

A. Customer	B. Shareholder	C. Government	D. Community	E. Business partner	F. Media	G. Social organisation	H. Others ( Please specify ) _____
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- Evaluation of China Unicom's Social Responsibility Report in general:
 

A. Excellent	B. Good	C. Fair	D. Not Satisfactory	E. Poor
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- Evaluation of the effectiveness of China Unicom's Social Responsibility Report in general:
 

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 to the concerns of stakeholders?
 

A. Excellent	B. Good	C. Fair	D. Not Satisfactory	E. Poor
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- Evaluation of China Unicom's Social Responsibility Report in terms of distinctness, accuracy and completeness:
 

Distinctness	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
- Other opinions and suggestions:

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Thank you for your feedback and your time.



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