

SOCIAL RESPONSIBILITY REPORT OF **2017**



New Era New Mission New Unicom
Creating Wonderful Smart Life



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The year 2017 is a milestone and extremely extraordinary year in the history of China Unicom. We united our efforts with one mind and strived to break through the difficulties by adhering to the development concept of “innovation, coordination, green, openness, and sharing”, seizing opportunities in the era of digital economy, deepening supply-side structural reform, and comprehensively furthering the implementation of the focus strategy. We carried out the task of “grasping the Party building, promoting development, controlling costs, and shifting mechanisms”, deepened the mixed ownership reform, started the transformation of the connected operation, cooperated with the Beijing Organising Committee for the 2022 Olympic and Paralympic Winter Games, and supported the development of Xiong'an New Area. The company took a firm step forward in the road of transformation and development, and made significant contributions to further deepening the reform of state-owned enterprises, satisfying the increasing information needs of the people, and leading the development of a beautiful and smart life, setting a good example in fulfilling political responsibility, economic responsibility, environmental responsibility and social responsibility.

Party building leads and culture prospers the company. We take sustainable development and the quest for maximization of comprehensive values as the core, the Party building as the lead, and the normalization and institutionalization of “Two Studies, One Action” as the starting point to promote the deep integration of Party building and production management, and continue to strengthen the building of the Party's work style and a clean government as well as the anti-corruption work. We have strengthened the supervision and discipline of noticeable issues that restrict the healthy development of the company, highlighted the characteristics of the company and corrected the undesirable workstyles (such as formalism, bureaucracy, hedonism and extravagance), which have provided a clear and upright atmosphere for the sustained and healthy development of the company. We continue to build our “soft power” with culture to prosper the company and advocate that “people cannot stand without spirits, and enterprises cannot succeed without spirits” by releasing a corporate cultural concept system, and promoting the practice of “good employees” spirit, to help the employees to bear the cultural concepts in their minds, practise them in action and write them into a system so as to consolidate the company's root and enable China Unicom to straighten its spiritual backbone. We strictly abide by the ten principles of the Global Compact, insist on integrating social responsibility into our corporate strategy and our daily production

operations, and earnestly shoulder important responsibilities and missions in the development of national economy and society.

Smart development and ingenious quality. We conscientiously implement the deployment of cyber power strategy, promote the development of digital China, and build quality networks. As a result, our network service capabilities have been improved continuously; our 4G networks lead the industry in speed; the construction of all-optical networks have been sped up; and our broadband services have had the automatic provisioning capability, enabling people to enjoy smart network experience, which is faster in speed, wider in coverage and better in awareness. We firmly grasp the digital dividend in the era of mobile Internet to actively build a new generation of network architecture, accelerate 5G research and development, and expand businesses in the fields of smart life and smart industries by taking advantage of emerging technologies such as cloud computing, the Internet of Things (IoT), big data, and artificial intelligence (AI), and providing a variety of “smart +” applications for the public to enjoy a more convenient and smart life. We have been deeply involved in telecommunication inclusive services, carried out targeted poverty alleviation, implemented faster and more affordable Internet connection, and continuously launched new initiatives to benefit the people, narrow down the regional digital divide. We assumed the broadband construction tasks for a total of 16,000 administrative villages, allowing people in remote areas to enjoy high-quality modern information life. We successfully completed the emergency telecommunication support tasks for flood prevention, earthquake relief and major events, and become the only official communications service partner for the Beijing 2022 Olympic and Paralympic Winter Games. We will inject new strong energies to support the successful organization of the Winter Olympics and once again demonstrate the strength of China. We have taken special actions in depth to prevent and fight against fraud via communications information, to create safe and clear cyberspace, and effectively safeguard national security and social stability. We have actively responded to the strategic plan of the country for Xiong'an New Area, make every effort to provide support for the construction of the New Area, and obey and serve the overall development of the country.

Reduce costs and increase efficiency with green operation. We actively implement the concept of “lucid waters and lush mountains are invaluable assets” and further promote supply-side structural reforms in terms of networks, platforms, terminals, and businesses, to strengthen collaboration between energy saving and emission reduction and cost reduction and

Message from the Chairman

“ A new era shows a new atmosphere and a new start should have new actions. China Unicom will remain true to its original aspiration, keep its mission firmly in mind, continue to stick to new development concepts, implement and focus on innovation and cooperation strategies in depth based on the requirements of high-quality development, develop strong new Internet genes, explore and better new governance methods for the mixed-ownership reform, speed up the Internet-based new operation, enhance new driving forces for innovative development, as well as build a new ecology of internal and external connection, to break new ground for China Unicom's development in a new era, better satisfy people's increasing needs of a beautiful information and communications life, and make more contributions to the securing a decisive victory in building a moderately prosperous society in all respects and striving for the great success of socialism with Chinese characteristics for a new era. ”

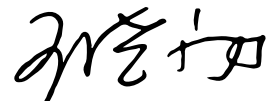
efficiency increase. Consequently, we have improved the company's development quality and promoted the harmonious coexistence between the enterprise and the environment. We focused on the cost control work for "six networks" - mobile network, broadband network, IT network, marketing network, innovation network, and human resources network, and the major financial indicators have improved significantly. We strived to promote energy-saving technologies, accelerate the simplification of 2G/3G networks, integrate the fixed-line services, remove old equipment, and continue to do a good job in data center energy management and control, so as to improve network performance and reduce resource consumption. We followed the concept of "low-carbon emission reduction and green office" and took the building of digital business outlets as a starting point to promote the transformation of traditional communications service function halls to experiential retail stores, creating green and intelligent business outlets with digital operation and paperless business handling. We vigorously carried out green procurement and sunshine procurement, implemented environmental quality certification, promoted supply chain companies to practice green responsibilities, adopted reverse logistics management methods, and improved the recycling rate of waste and used materials, which was worth 84.41 million yuan. We persisted in conservation-minded construction and carried out joint construction and sharing in fields including towers, base stations, pipelines, poles, and indoor distribution systems. We saved over 640 million yuan in investment, reduced redundant construction, and minimized the impact on the ecological environment.

Start mixed-ownership reform to stimulate vitality. In 2017, China Unicom, as the first communications central enterprise to implement group-wide overall mixed-ownership reform and open to private capital, successfully rolled out its mixed ownership reform and played the strongest voice in the reform of state-owned enterprises (SOEs). Based on "mixed-ownership", we have introduced 14 strategic investors to achieve equity diversification, deepened business cooperation in key areas, and worked together to build an "innovative, dynamic, interacted and win-win" industrial ecosystem; focusing on "reform", we streamlined the organization, adopted cadres employment method, and have achieved significant results. The headquarters departments are reduced by 33.3%, provincial branches are reduced by 20.5%, city and prefectural agencies are 26.7% less, and the dropout rate of the management is 14.3%. We also implement market-oriented and contract-based management of the management.

We have promoted the reform of dividing the entire production scene into small sectors with the purpose of stimulating the vitality of the grass-roots employees; and implemented the initiative of innovation and entrepreneurship within the company to drive China Unicom to return from a large company to a start-up and release the reform dividend. We have pushed forward the marketization-based human resources reform, improved the resource allocation mechanism of labor costs, carried out multi-faceted staff training, enhanced the dual-channel talent promotion mechanism, enabled employees to participate in enterprise management, and implemented a comprehensive incentive system to improve staff's sense of gain.

The "Five New" (new genes, new governance, new operation, new driving forces, and new ecology) Unicom has set sail. The year 2018 is the beginning of the implementation of General Secretary Xi Jinping's thought on socialism with Chinese characteristics for a new era and the 19th CPC National Congress spirits. It is the 40th anniversary of the reform and opening up, and also a new starting point for China Unicom after its mixed-ownership reform. A new era shows a new atmosphere and a new start should have new actions. China Unicom will remain true to its original aspiration, keep its mission firmly in mind, continue to stick to new development concepts, implement and focus on innovation and cooperation strategies in depth based on the requirements of high-quality development, develop strong new Internet genes, explore and better new governance methods for the mixed-ownership reform, speed up the Internet-based new operation, enhance new driving forces for innovative development, as well as build a new ecology of internal and external connection, to break new ground for China Unicom's development in a new era, better satisfy people's increasing needs of a beautiful information and communications life, and make more contributions to the securing a decisive victory in building a moderately prosperous society in all respects and striving for the great success of socialism with Chinese characteristics for a new era.

Chairman of China United Network Communications Group Co., Ltd.



March 2018

About Us

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

China Unicom mainly operates fixed and mobile communications services, domestic and international communications facilities, satellite IPLC service, data communications service, network access service, value-added telecom services and system integration service related to information and communications services. In 2009, China Unicom rolled out an all-service brand "WO", which represents brand-new service ideas and innovation spirits and provides comprehensive services to the public and group clients. China Unicom owns a modern communications network covering entire China and linking the world, actively pushes forward broadband-based fixed and mobile networks, expands international network coverage, and perfects marketing outlet layout so as to provide comprehensive and high-quality information and communications services to its wide users. By the end of 2017, China Unicom had 852,000 4G base stations and about 202 million fixed network broadband access ports. The international roaming service covered 607 operators in 252 countries and regions.

In 2017, by earnestly practising the new development concepts, comprehensively deepening the implementation of the focus strategy, and adopting multiple measures simultaneously, the company achieved fundamental improvement in operation results. Throughout the year, China Unicom realized main business income of 249 billion yuan, had 280 million mobile charged subscribers, 170 million 4G subscribers and 76.539 million fixed network broadband users. In the future, standing on a new beginning after the mixed-ownership reform and on the journey towards building a world-class enterprise in a new era, China Unicom will implement the focus, innovation and cooperation strategy in depth, comprehensively drive Internet-based operation transformation, strive to build a "Five New" China Unicom (new genes, new governance, new operation, new driving forces, and new ecology), explore and practise a new reform and development road for SOEs, and create new core competitiveness of the enterprise.

Feature One: Fire the First Shot for Mixed-Ownership Reform of Central Enterprises

As the first pilot unit of the group-wide overall mixed-ownership reform and the first communications central enterprise open to private capital, China Unicom, with the mission of starting a new journey of SOE reform in a new era, resolutely implements the deployment of the 19th CPC National Congress on "further reforming of state-owned enterprises, developing mixed-ownership economic entities, and turning Chinese enterprises into world-class, globally competitive firms", and firmly takes Party building to lead the mixed-ownership reform, adheres to the principle of marketization, and actively promotes various work of the reform based on the guideline of "improving governance, strengthening incentives, highlighting main businesses, and increasing efficiency" proposed by General Secretary Xi Jinping, striving to build a benchmark enterprise for SOE mixed-ownership reform.

Start a new journey of mixed-ownership reform

China Unicom has introduced 14 strategic investors that are highly related to the company's main businesses, strong in strength and complementarity, capable of generating synergy effects and facilitation functions, as well as helpful to improve the company's innovation capability. We have created a "telecom operator + Internet" capital business innovation model in the global telecommunications industry, striving to address the unbalanced and insufficient development of the information and communications industry by complementing each other with strategic investors in elements and advantages, and growing together, aiming to offer more quality information and communications services to meet the people's growing needs for a better life, and provide strong support for the building of a cyber power, digital China, and a smart society.

Large Internet Companies



Vertical Industry Companies



Finance Field, Industrial Groups



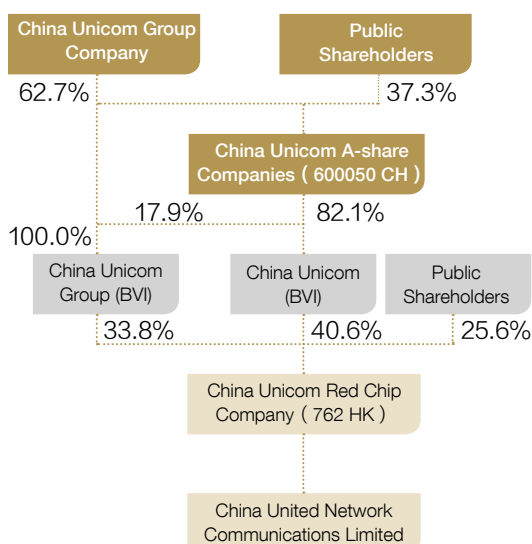
Industrial Funds



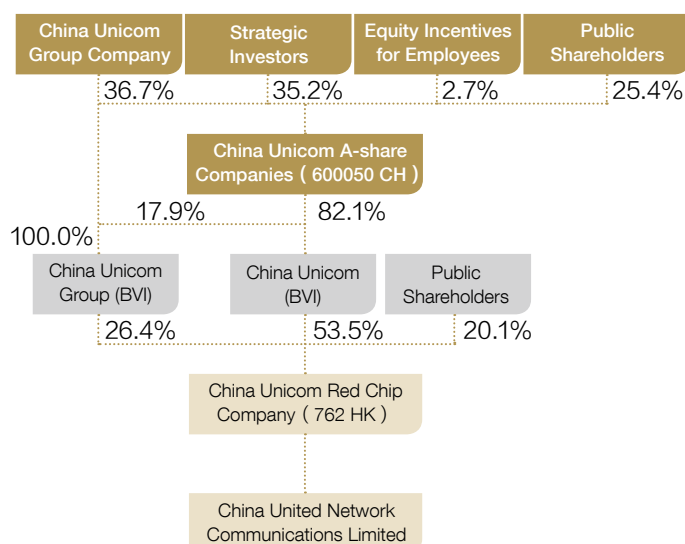
Strategic investors introduced during CU's mixed-ownership reform

China Unicom has created a new mixed-ownership reform model of "simultaneous realization of diversification of both state-owned equity and diversification of non-state-owned equity". We insist on the combination of equity diversification and maintenance of control, and introduced state-owned capital and non-state-owned capital simultaneously. After the completion of the reform, China Unicom Group's holding of shares in the A-share company has been reduced from 62.7% to 36.7%, shifting from majority shareholding to relative shareholding, and the situation of "sole majority shareholder" has been changed. The state-owned capital holds 53% of A-share company shares in total to ensure telecommunication network and information security. We also established a restrictive stock incentive plan, which closely relates unlocking conditions with performance indicators, and achieves differentiated stock allocation according to performance contributions, allowing employees to share benefits and risks with the company.

Equity Structure before Mixed-Ownership Reform



Equity Structure after Mixed-Ownership Reform



China Unicom's equity structure before and after the mixed-ownership reform

🚀 Break new ground through cooperation

Through the integration of resources and innovative models, China Unicom and strategic investors have initially established a cooperation mechanism and business cooperation has made positive progress. According to the strategic cooperation direction of the company and the resource endowments of both parties, we have deepened cooperation in key areas such as channel contacts, retail systems, video contents, home Internet, cloud computing, big data, IoT, and basic communications to achieve improvement in corporate benefits and innovation capabilities. At present, the revenue contribution from cooperation in channel contacts, basic communications and other fields exceeds 10 billion yuan.

🚀 Management streamlining

In 2017, China Unicom conscientiously implemented the SASAC's deployment requirements for streamlining central enterprises to actively build a streamlined and efficient organizational structure in terms of the large number of management organizations and low efficiency at all levels. At the same time, we performed a selection and recruitment mechanism for management personnel for the first time, and implemented tenure and contractual management, to promote the marketization of cadre management, select and optimize the leadership team at all levels, and encourage and guide management personnel to the front line, thereby normalizing the up and down, in and out system for cadres, promoting the formation of an employment mechanism and direction of "those who are able should be promoted, those who are mediocre should be removed from senior positions, and those who are bad in performance should be eliminated", so that enterprises are lightly loaded and energetic.

- The Group's headquarters departments have been reduced from 27 to 18; the institutions in provincial branches have been decreased by 205; the city-level branch offices have been decreased by 2013; and the subsidiary offices have been reduced by approximately 4%.
- The management personnel of the provincial branches nationwide have been reduced by 9.82%.
- Established a normal communication mechanism for the headquarters staff to be transferred to the grass-roots units. There have been 3 batches of 49 office managers and backbone staff enthusiastically stepping into the local front lines.

Group HQ departments reduced by **33.3%**

Provincial branch departments reduced by **20.5%**

City-level branch offices reduced by **26.7%**

Subsidiary offices reduced by about **4%**

🚀 Stimulate vitality through subdivision

In order to promote the implementation of mixed-ownership reform and achieve sustainable development of the company, China Unicom has fully conducted a reform of dividing the entire production scenario into small sectors. Through the internal division of the company into a number of units, the establishment of micro-organizations, invigorating the incentive distribution mechanism, the enthusiasm of the cadres and staff have been stimulated. In 2017, by gathering together group, provincial, and front-line wisdom and the joint work of all professional lines, China Unicom has drawn up a blueprint for reform. Horizontally, through the identification of responsible fields, selection of responsible persons, and improvement of the responsibility system, a number of small units with unified responsibility and power have been established. Vertically, the management and support departments at all levels are transformed into resource providers and service supporters, responding to the needs of the small units quickly and effectively through an inverted triangle-shape service support system, so that the front line has more energy to serve customers. China Unicom has completed the training for reform promotion and implementation as well as some pilot reforms oriented to prefectural and municipal companies, which have gained wide recognition and achieved positive results. The company is full of hope for the future development.

China Unicom Chizhou Branch carries out integrated contracting of installation, maintenance and operation based on the service area of the maintenance staff, reducing the service radius of the city's agent sites, improving the professionalism of broadband after-sales services, and shortening the time duration of equipment installation, so that users can enjoy fast and high-quality services nearby.

🚀 Introduce an order-grabbing mechanism for broadband services

China Unicom has introduced a broadband service subscription order grabbing model in the small units to achieve more pay for more work, fully stimulating employees' enthusiasm. 27 provincial business offices across the country have introduced the installation appointment method, and 22 provinces have introduced the order-grabbing model, which have greatly improved customers' awareness. At the same time, China Unicom has launched "Smart Home" high-end services, including home networking design, WiFi coverage and quality optimization, equipment installation and commissioning, routine maintenance, etc., to provide extended services to China Unicom broadband users across the network. Since the launch of the "Smart Home" service, tens of thousands of families in pilot cities and provinces such as Beijing, Liaoning, and Shandong have selected the networking service to experience faster and more stable online surfing.

China Unicom Liaoning Branch has implemented the order-grabbing service and made a commitment of "fast speed, good service, and compensation for slowness". The fulfillment rate increased by 6%, fixed network communications complaints decreased by 89%, and the proportion of household service complaints dropped by 93%. In May 2017, CU Liaoning Branch promoted the "Smart Home" extension service. As of December, it completed more than 10,000 "Smart Home" orders and provided more than 15,000 service projects. The proportion of user-owned equipment failures in broadband failures reduced by more than 50%, and user complaints decreased by 70%.

🚀 Build an internal platform for innovation and entrepreneurship

China Unicom continues to carry out the "Wo Maker" project for its internal employees. If the employees have innovation ideas, they can submit innovation incubation project applications in the name of individuals or teams. Once passed the assessment, they will obtain funds, resource support and incubation services to help them transform their creativity to products. In the first batch of "Wo Maker", 35 projects were incubated and 30 successfully graduated. By the end of 2017, 5 projects had received an external A round financing of 21.55 million yuan, and 11 projects established companies funded by themselves. The project return rate reached 157%. At present, the second batch of "Wo Maker" has received 249 project applications and 22 projects are in incubation.

The preliminary results of China Unicom's mixed-ownership reform have begun to show: the cooperation with strategic investors and business model innovation have effectively promoted the "double-V" reversal of the company's revenue and profits; by deleveraging and reducing liabilities, the company's asset-liability ratio has decreased to within the safety line; and the confidence and spirit of the cadres and staff have been significantly enhanced.

Feature Two: Join Hands with Beijing 2022 Winter Games

On December 26, 2017, China Unicom signed an agreement with the Beijing Organising Committee for the 2022 Olympic and Paralympic Winter Games, becoming the only official communications service partner of the Beijing 2022 Olympic and Paralympic Winter Games, ranking among the highest level sponsors in the market development plan of the Beijing Winter Olympics Organising Committee. The communications support to the Olympic Games connects the Olympic athletes and the enthusiastic audiences, links the hospitable China and the vast world, and bridges the great Chinese rejuvenation dream and the modern Olympic spirits. China Unicom will focus on the theme of “Smart Winter Olympics, Connecting the Future”, and integrate the “green, inclusive, open and clean” Olympic concept into the Olympic communications service system in an effort to release the unique speed and passion of the Winter Olympic Games, and inject new strong energies to the successful organization of the Winter Olympic Games and the once again demonstration of the strength of China.



Signing Ceremony of Beijing 2022 Olympic and Paralympic Winter Games Official Communications Service Partner

At the signing ceremony, Mr. Zhang Jiandong, Vice Mayor of Beijing and Executive Vice President of the Beijing 2022 Organising Committee said that:

China Unicom is a leading enterprise in China's telecommunications industry. It has huge communications service resources and rich experience in providing service support for major events. The Beijing 2022 Organising Committee will join hands with China Unicom to strengthen the connection between Beijing Winter Olympics and all circles at home and abroad, and strive to build a smart and technical Winter Olympics; at the same time, we will also try to build a promotion platform to provide good services, so that China Unicom can fully gain a wide range of benefits from the Olympic brand and help the company develop better.



Improve the organization and management system

In order to fully fulfill China Unicom's commitments as a communications service partner for the Winter Olympics, we established a China Unicom Winter Olympics Leading Group and a Winter Olympics Office to take full responsibility for the organization and management of the communication service guarantee for the Beijing 2022 Winter Olympics.

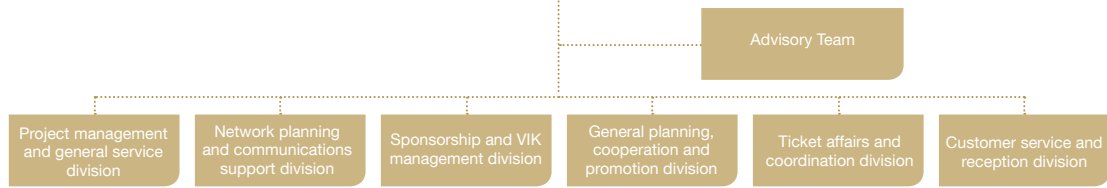
Established a Beijing 2022 Winter Olympics Leading Group

The head of the Leading Group is assumed by the President of the Group Company, the deputy head is taken by the Vice President in charge of network construction and market operations, and the group members consist of the responsible people from the company's development department/legal department, finance department, relevant departments of the market line and network line, Beijing Branch and Hebei Branch. The Leading Group is responsible for deliberation and decision-making on major issues related to the Olympic Games, responsible for reviewing and approving relevant programs, project plans and various agreements, and responsible for the communication and coordination with the senior management of the Beijing 2022 Organising Committee.

Established a Beijing 2022 Winter Olympics Office

The Winter Olympics Office is the institution responsible for the communications related affairs and the marketing of the Beijing 2022 Olympic Winter Games. A Winter Olympics Advisory Team has been set up, which is composed of senior experts from China Unicom and responsible for offering advice and guidance on important issues in the whole process of the Winter Olympics recruitment and competition services, and providing support in terms of projects, technology, market, and laws to ensure that the Winter Olympics communications services are safe, stable, and reliable.

Beijing 2022 Winter Olympics Office



Organizational Structure of China Unicom Winter Olympics Office

Smart Winter Olympics Commitments



China Unicom Chairman Mr. Wang Xiaochu addressed the signing ceremony

Revolving around the theme of “Smart Winter Olympics, Connecting the Future”, China Unicom seriously made three commitments:

Support the Winter Olympics with smart networks and fast speed. We will accelerate the construction of 4G network, all-optical network, IoT and 5G network in the spirit of craftsmen to ensure that this Winter Olympics will be provided with “ultra-fast”, “smart” and “reliable” network capabilities and communications solutions to help the Organising Committee to organize a wonderful, extraordinary, remarkable, and wisdom Olympic event.

Support the Winter Olympics with smart applications and rich products. We will always uphold the spirit of innovation and open mind, accelerate innovation and transformation in the basic business areas such as mobile communications and broadband communications, and speed up the planning in fields such as the IoT, cloud computing, big data, and AI to provide this Olympic Winter Games a variety of information and communications service products.

Support the Winter Olympics with smart technology and a professional team. Over the years, we have undertaken and outstandingly completed communications support tasks to major conferences and important events at home and abroad one after another, accumulated a wealth of work experience and mature technical solutions, and refined a dedicated, hard-working professional team. We will continue to make persistent efforts to steadily advance the Olympic Games service support to a new level.

In December 2017, Winter Olympics-themed special trains were formally put into operation in Beijing and Hangzhou subway stations. The emergence of the theme trains stimulated the passengers' sense organs, making the atmosphere of the Winter Olympics extremely strong. In order to achieve the overall goal of “Smart Winter Olympics, Connecting the Future”, China Unicom will make full efforts to publicize the Olympic Winter Games, provide communications support to the Olympic Winter Games, and optimize the watching experience of the Games, enabling users to understand, participate in and enjoy the Winter Olympics.



China Unicom launched a new number section beginning with 166 and put into market millions of the number section in the country. The company will continue to support China's communications industry and the Chinese Olympic cause with high-quality networks, products and services.

Feature Three: Assist the Millennium Plan of Xiong'an New Area

The establishment of the Xiong'an New Area is a major historical strategic choice made by the Party Central Committee with Comrade Xi Jinping as the core. It is a grand plan for the millennium and a major national event, having great practical and profound historical significances. As a large-scale central enterprise, China Unicom has effectively fulfilled its responsibilities as a leading telecommunications operator in the north, resolutely upheld and fully supported the planning and construction of Xiong'an New Area, exerted its own advantages, made every effort to provide service support, and obeyed and served the country's development.

High-profile organizational support

We have listed the service support to the Xiong'an New Area of Hebei as a major political task at the Group Company level, and set up a working leading group to guarantee service support to the New Area in the first time. The President of the Group Company serves as the head and the senior management in charge of this affair serves as the deputy head responsible for the coordination and promotion of related work. On September 22, China Unicom Hebei Xiong'an New Area Company completed its industrial and commercial registration, which is the first in the industry, and became the third company established in Xiong'an New Area. At present, the basic configuration of the company's organizational structure has completed, and relevant personnel are already in place and working.

High-standard planning and construction

We have adhered to a high starting point in the construction of network and communications infrastructure and information applications in Xiong'an New Area, and coordinated and mobilized all resources of the Group and related provincial branches to ensure the quality. We prepared and completed the "Preliminary Planning Report for Information Infrastructure in Xiong'an New Area" and "Smartness-Oriented Development Plan for the Citizens Service Center of Xiong'an New Area" and actively carried out the production of the "Digital Xiong'an Planning", aiming to design the information and communications services in the New Area with the most advanced concepts and technologies, striving to build a benchmark project for smart cities, and creating a model for the industry.

Highly-efficient supporting service

We have actively coordinated the strength of the Group and provincial branches and tried our best to provide support to the local Party, government, and military forces. We communicated with the Preparatory Working Committee for the Xiong'an New Area in advance, and put 90 fixed-line telephones, 25 broadband channels, and 4 private lines into operation for its station, where the place is covered with quality 4G network to ensure that the Preparatory Committee has smooth communications services for 7*24. On June 9, we took the lead in opening up a quasi-5G network experience zone in Xiong'an New Area, and users experienced the speedy Internet brought by the quasi-5G network in the first time. In addition, a number of smart applications such as smart parking and smart light poles based on NB-IoT have been launched, and the Beijing-Xiong'an quantum communications trunk-line test has been actively promoted.

In November 2017, Chairman Wang Xiaochu went to China Unicom Xiong'an New Area company for investigation and put forward requirements for the next phase: first, firmly establish the "four consciousnesses", further improve the political consciousness, and make every effort to provide services and support the construction of Xiong'an New Area. Second, focus on long-term development and make overall arrangements for China Unicom's planning and layout in Xiong'an New Area. It is necessary to highly meet the planning needs for the construction of a smart new city, plan the basic network infrastructure in advance, actively promote the construction of smart cities, and innovate the application of information technology to reflect the development orientation of the new district. Third, satisfy the informationization needs of Xiong'an New Area through a highly efficient operation mechanism. It is necessary to further establish and improve the authorization mechanism, break the conventional systems and processes, handle special cases in special ways, and meet the rapid development needs of Xiong'an New Area.



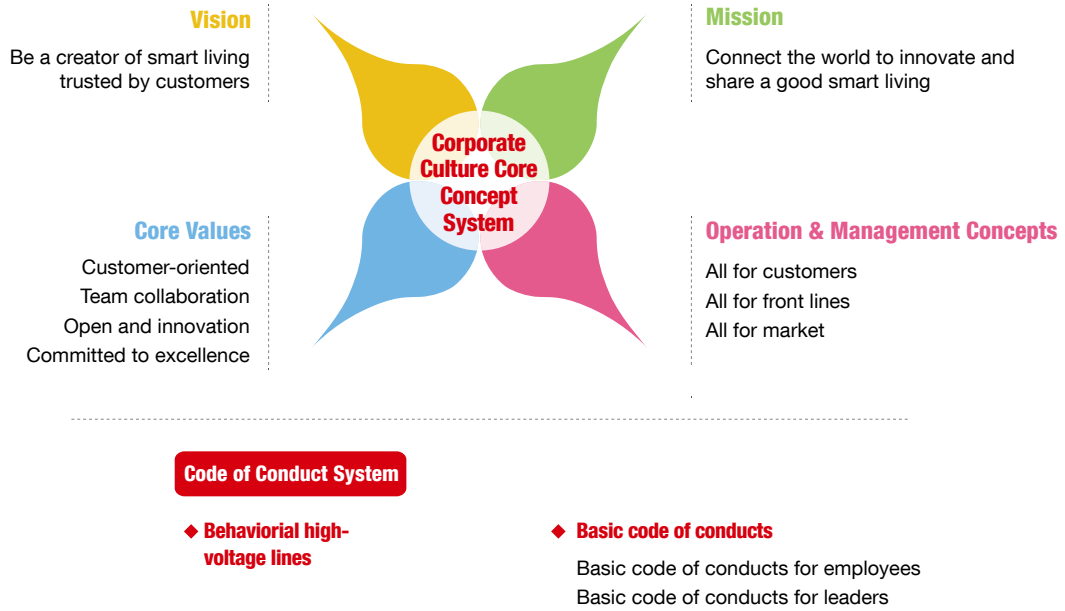
In May 2017, President Lu Yimin went to Hebei to investigate and proposed that China Unicom would fully support the construction of a new green smart city in Xiong'an New Area: first, the overall planning of communications facilities will be synchronized with the planning of the New Area, the institutional setup will be improved, and the teams, institutions, systems, resources and other aspects will be in close cooperation to fully support the planning and construction of the New Area. Second, fully support the high-tech industry in the New Area, and take the Area as a backbone communications node of China Unicom to actively deploy IoT and 5G network, and apply the future network technologies such as SDN/NFV to Xiong'an New Area first. Third, help the development of industrial Internet, closely integrate with the health care industry in the New Area, and give play to the advantages of the eight industrial Internet, to actively deploy cloud computing and big data, and help build a smart new city. Fourth, make closely link with Xiong'an New Area in terms of organizational structure and working mechanisms, strengthen coordination and communication, and establish a cooperation mechanism, to help Xiong'an New Area to achieve better and faster development.



President Lu Yimin met the Administrative Committee of Xiong'an New Area

Corporate Culture

In 2017, China Unicom took Party building as the lead, carried out corporate culture building, further promoted the initiative of culture prospering enterprises, and released a corporate culture system, which consists of a core concept system with vision, mission, core values, and operation and management concepts as its main contents, and a code of conduct system including behavioral high-voltage lines and basic code of conducts.



Corporate Culture Core Concept System



Chairman Wang Xiaochu gave a Party lecture on "Promoting the Initiative of Culture Prospering the Enterprise to Achieve Healthy Development"



President Lu Yimin published the corporate culture concept system of China Unicom



Corporate Culture Quiz



Deeds Report of China Unicom's Good Employees

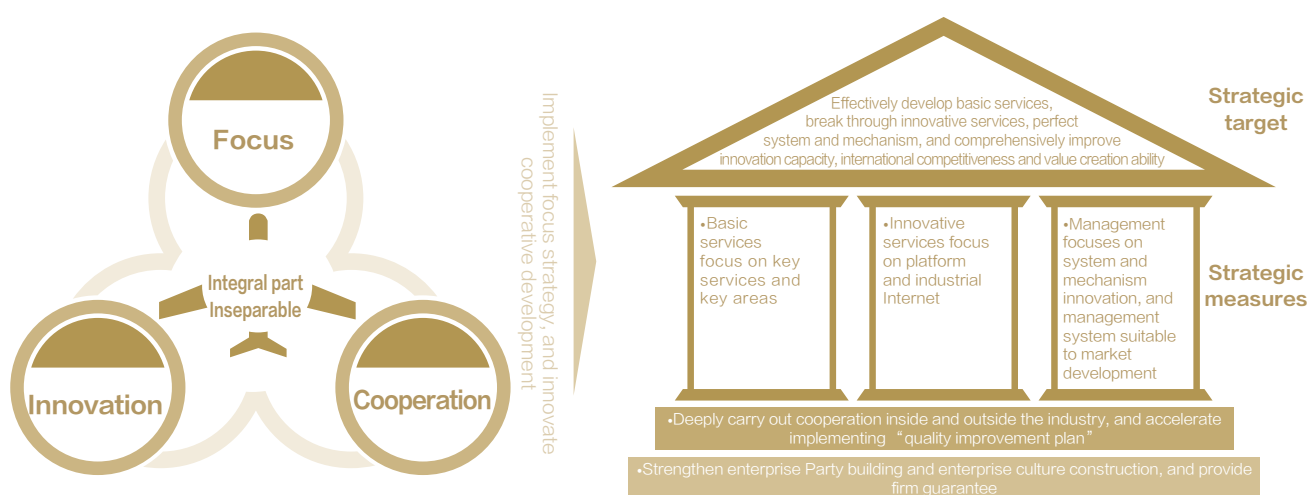


Corporate song sang the corporate culture loudly

Development Strategy

China Unicom carefully implements the development concepts of “innovation, coordination, green, openness and sharing”, and has formulated and implemented a focus strategy themed at focus, cooperation and innovation in response to the complex and deep changes in the internal and external of the company and around its resource endowment, to lead future development of the company. The essence of the focus strategy is to insist on key focus, innovation driving, in-depth cooperation and the leadership of the Party; basic services focus on key services and key areas, innovative services focus on platform and industrial Internet and management focuses on mechanism and system innovation and management systems suitable to market development, to deeply carry out cooperation inside and outside the industry, and strengthen Party building and corporate culture development. With three to five years’ endeavors, we aim to make great progress in strategic transformation, realize effective development of basic services, make breakthroughs in innovative services, improve systems and mechanisms, and comprehensively improve the innovative capacity, international competitiveness and value creation ability of China Unicom.

The year 2017 is a crucial year for China Unicom to comprehensively deepen its implementation of the focus strategy. The company’s business development has shown a historic inflection point, the business transformation has taken firm steps, and profound changes have taken place in systems and mechanisms, setting a benchmark for mixed-ownership reform of central enterprises. In the future, the company will continue to adhere to the leadership of Party building and the initiative of culture prospering the enterprise, and gather efforts to deepen reforms and make unremitting efforts to build a new image of “Five New” China Unicom.



Strategy Framework of China Unicom

Organization and Management

Corporate management



Wang Xiaochu

Chairman
Secretary of Party
Leadership Group



Lu Yimin

President
Vice Chairman
Deputy Secretary of Party
Leadership Group

**Li Fushen**

Director
Vice President
Chief Accountant
Deputy Secretary of Party
Leadership Group

**Shao Guanglu**

Vice President
Party Leadership Group
Member

**Zhang Lianru**

Head of Discipline Inspection Team
Party Leadership Group Member

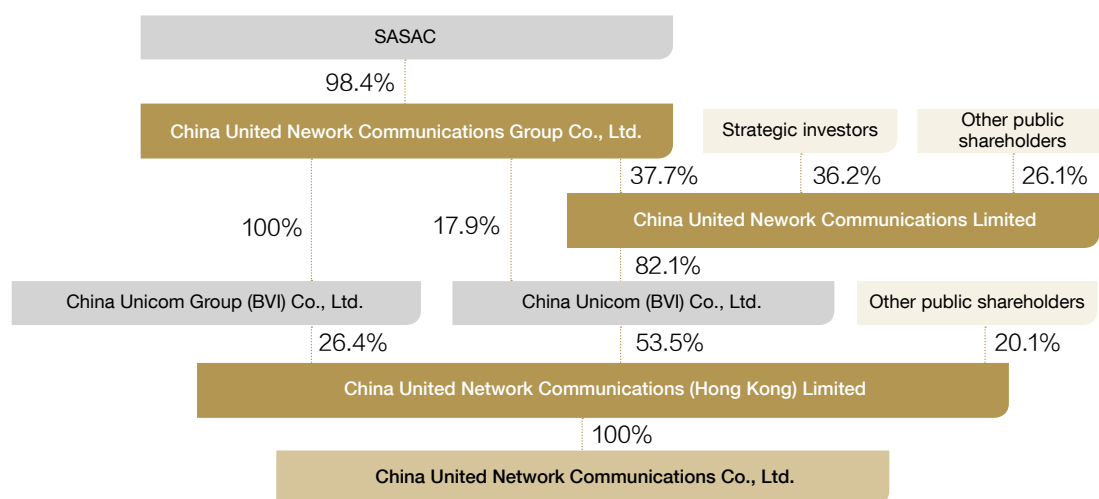
**Mai Yanzhou**

Vice President
Party Leadership Group Member

**Liang Baojun**

Vice President
Party Leadership Group Member

Equity structure

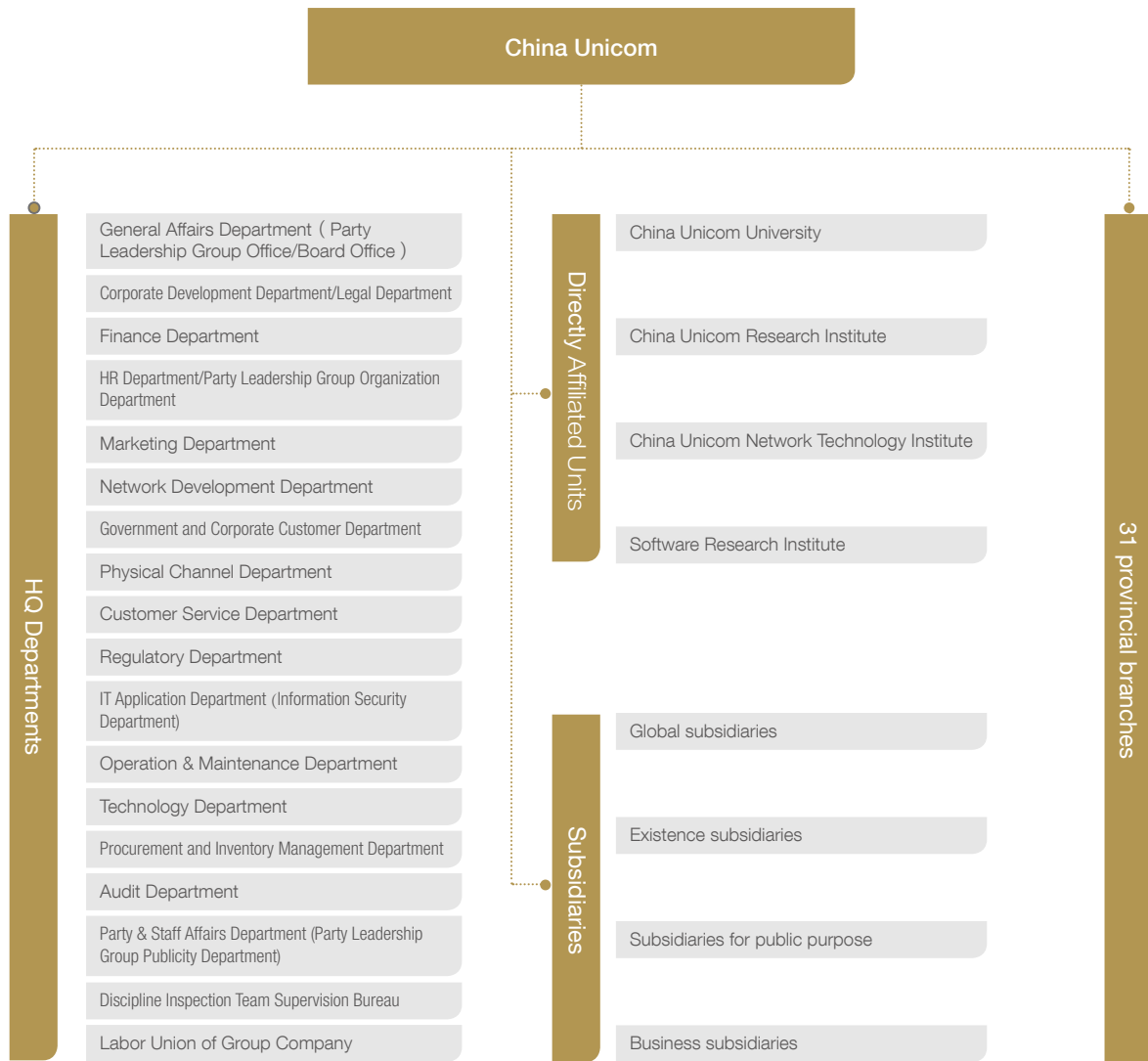


Equity Structure Chart of China Unicom (as of Dec. 31, 2017)

Note: the shares of China United Network Communications Limited held by strategic investors represent those obtained by the strategic investors introduced during the mixed-ownership reform from non-public share issuance and old share transfer.

Organizations

In 2017, China Unicom steadily promoted the reform of its organizational structure by streamlining its body, changing its overstaffed situation, improving its management efficiency, building an organizational structure of “small management, large operations, and strong coordination”, and establishing a customer and market-oriented inverted triangle service support system to serve the front line.



China Unicom Organizational Structure Chart





Compliance Operation to Build the Foundation for Steady Development

- 18 Enhance Party Building
- 18 Anti-Corruption
- 19 Law-Abiding Operation
- 19 Risk Prevention



Compliance Operation to Build the Foundation for Steady Development

Compliance with laws and regulations is a necessary prerequisite for enterprises to achieve sustainable development, and it is also a basic principle that should be followed to build a world-class enterprise. China Unicom has always adhered to business ethics, continuously improved the governance of compliance with laws and regulations, taken Party building as its lead, kept promoting anti-corruption work, paid attention to enhancing employees' legal awareness, enhanced risk management and control capabilities, and effectively safeguarded the common interests of the company itself and its stakeholders to make contributions to the building of an honest society with rule of law.

Measures Taken in 2017

- Strictly implemented "one post with two duties" to achieve the normalization and institutionalization of "Two Studies, One Action" education.
- Strengthened the building of the Party's work style and integrity, carried out anti-corruption in depth, and conducted patrol and inspections in an orderly manner.
- Comprehensively promoted the development of SOEs under the rule of law, strengthened the protection of intellectual property rights, normalized the management of rules and regulations, and enhanced contract management.
- Strengthened the fulfillment of auditing responsibilities in key areas, strengthened the organizational system building for risk management, and promoted the improvement of basic management of the company.

Actions to be Taken in 2018

- To in depth study and implement General Secretary Xi Jinping's thought on socialism with Chinese characteristics in a new era and the spirit of the 19th CPC National Congress, comprehensively promote the building in politics, thought, organization, style, discipline and systems, and further drive forward the fight against corruption.
- To operate by abiding the laws, make strict self-discipline, and consciously maintain a good market competition order; actively carry out special work against irregular competition to curb market behaviors violating regulations.
- To continuously promote the innovation and transformation of audit work, deepen comprehensive risk management, and protect the company's healthy and effective development.

Enhance Party Building

China Unicom has actively implemented the spirit of the National Party Building Work Meeting for State-Owned Enterprises, and gradually established a normal working mechanism for Party building, enabling the Party building work to be deeply integrated into the business work and giving full play to its role in leading, integrating into, and promoting the overall situation.

Strictly implemented "one post with two duties", and effectively put into practice the corporate responsibility in Party building. The company organized 71 Party leadership group meetings throughout the year to implement the decisions and deployment of the Party and the state; issued the "Implementation Measures for China Unicom's Party Building Work Responsibility System"; established a Party-building responsibility system and a normalized supervision mechanism; and adhered to the principle of Party's management on cadres and the standards and procedures for personnel selection and appointment, to promote the market-oriented reform of management personnel, and increase the credibility of personnel selection and appointment.

Achieved the normalization and institutionalization of the "Two Studies and One Action" education. The company deployed the discussion on "China Unicom Implementation Plan for Promoting the Normalization and Institutionalization of 'Two Studies and One Action' Education" to establish a normalized supervision mechanism for Party building, and established 10 supervision teams to supervise the whole group's 70 units in a normal way with full coverage.



The Group Company organized a study meeting for the central team of the Party Leadership Group (expanded) and invited members of the Central Publicity and Lecturing Mission to interpret the spirit of the 19th CPC National Congress



CU Chongqing Branch held a meeting for leaders to study the spirit of the 19th CPC National Congress

Anti-Corruption

China Unicom has conscientiously implemented the Party Central Committee's strategic deployment for comprehensive and strict administration of the Party, closely followed the actual conditions of the company, maintained a high-handed posture of fighting against corruption, further treated both the symptoms and the root causes, and strives to create a positive environment, and provides strong political support and momentum for the healthy development of the company.

- Adhered to the high-handed posture towards anti-corruption and strengthened the awe measures to make cadres “not dare to corrupt”. Checked the petitions, report cases and problem clues seriously. Kept a close eye on the “key few” and important areas. The corruption and cases reported and identified must be checked and fought. Carried out special inspections of optical fibre reforms, and combined the work at selected spots with that in entire areas, to correct the work style, intensify disciplines and recover huge losses. As a result, the corporate ethos has been clearly changed and improved. We also deepened the patrol and inspection, completed the first round of inspections of the second-tier units, and solidly promoted the inspections of city and county-level companies in accordance with the requirement of full coverage and no blind spots.
- Promoted the treatment of both the symptoms and the root causes, and established an “unable to corrupt” mechanism. In the whole system, the further prevention and control of corruption risks, and the implementation of the prevention and control measures in each unit and specific position, have achieved remarkable results. We established a supplier blacklist system to create an external environment conducive to anti-corruption and corruption prevention. We also launched a reform of the dispatching system of disciplinary inspection teams to the prefecture-level companies to solve the problem of organizational supervision attenuation from up to down.
- Used the nails driving spirit to emphasize education on prevention and create an “unwilling to corrupt” atmosphere. An annual reporting system of observing the six Party disciplines has been comprehensively implemented among Party leaders at or above the deputy level in the county-level companies. We have kept practising the universal interview system and interviewed all leading cadres at all levels for one round every year. We resolutely corrected the “four workstyles” issue and promoted the continuous improvement of the corporate ethos.



China Unicom Corruption Risks Prevention and Control Work (southern regions) Training was held in Fujian



China Unicom Hainan Branch Information Management System for Clean Governance officially put into service

Law-Abiding Operation

China Unicom has comprehensively promoted the administration of the central enterprise by law, continued to improve the company's compliance management, as well as further deepened law-based business operation in good faith and regulations-based company governance, to create a fair and orderly market competition environment. In 2017, the company had no legal proceedings or cases on anti-competition conducts, antitrust or monopoly practices.

- Formulated “Implementation Measures for China Unicom’s Major People in Charge to Fulfill the Responsibility of Promoting Rule of Law as the First Responsible Person”, put into practice law popularization plans during the “7th Five-Year Plan”, held lectures to popularize laws, and produced special issues of the rule of law to raise legal awareness of the staff.
- Implemented relevant laws and regulations of the national regulatory authorities and strived to create a fair competition market for the telecommunications industry. Actively prevented and curbed unregulated market competition behaviors to promote healthy and orderly development of the telecommunications market.

- Strengthened intellectual property management, attached importance to the protection of patents, trademarks, copyrights and business secrets, developed effective incentive mechanisms, set up strict review procedures, carried out activities on intellectual property rights, and raised employees’ awareness of intellectual property protection.
- Formed a “one horizontal and four vertical” contract management system, established an integrated contract management model, and built an electronic contract management system; improved the normal management mechanism of rules and regulations, built an integrated information platform for management, newly developed and revised 111 items of rules and regulations, and reviewed 111 items for compliance, with a review rate reaching 100%.
- Implemented normalized management of the power list and rolled out an integrated information system for power list management to optimize a number of items for review, approval and report.
- Strictly abided by the “Advertising Law” and regulations of the Ministry of Industry and Information Technology (MIIT) and other relevant authorities. The materials and images of advertisements are purchased through formal channels, and used lawfully and no infringements are involved. All advertising and promotional materials are marked with product names, tariffs, service contents, expiration dates, promotions, and so on.

Law-abiding and compliance training **1,576** times

Law-abiding and compliance training **253,530** trainees

Risk Prevention

China Unicom further improved its comprehensive risk management system and established an internal control and risk management organizational system consisting of the board of directors, the internal control and risk management committee, the general management department, and related professional functional management departments, which is responsible for developing the company's internal control management methods and risk management methods, and building a standard internal control system including both the company-level control and the process level control. In 2017, nearly 120 internal risk control processes of the market line were revised or changed to further regulate market operations.

Taking problem identification and risk reveal as the main line, China Unicom intensified 19 disciplines for internal and external communication, strengthened the fulfillment of auditing responsibilities in key areas, and enhanced the effective implementation of internal control. We strengthened the building of the three lines of internal control to improve the effectiveness of the rectification work. We used the “Internet +” idea to lead the innovation of the auditing work mechanism, steadily promoted the construction and application of the online connected auditing system, and accelerated the institutionalization and standardization of the big data analysis work model in the auditing work. In 2017, China Unicom was awarded an honor of “National Advanced Group for Internal Audit” for 2014 – 2016.





Innovation



Innovation to Lead a Beautiful Smart Life

- 22 Build Smart Networks
- 23 Develop Smart Technologies
- 25 Diversify Smart Apps
- 30 Improve Smart Services



Innovation to Lead a Beautiful Smart Life

Innovation is an important engine for maintaining the vitality of enterprises, a primary driving force for development, and a strategic support for the building of a modern economic system. China Unicom insists on creating a beautiful and smart life for our customers through innovation. In 2017, we actively promoted the construction of smart networks, accelerated the deployment of cloud computing, big data and IoT, explored artificial intelligence and carried out rich and diverse “smart +” applications in an effort to build smart brands, promote the development of smart life and smart industries, comprehensively improve customer services through multiple channels, and achieve innovation-driven development.

Measures Taken in 2017

- Carried out forward-looking network technology researches, introduced SDN/NFV to gradually build intelligent networks, and completed scale test verification for 5G commercial use trial.
- Accelerated the deployment of cloud computing, IoT, big data, and AI, and made business and service innovation.
- Utilized new technologies to develop a variety of “smart +” apps, built a brand system, produced integrated family information service solutions, focused on hot industries, and completed a batch of “Internet +” projects.
- Used new technologies and channels to improve customer service, and the number of Internet channel service users reached 60 million, and the service volume was 201 million pieces.

Actions to be Taken in 2018

- To continue to promote SDN/NFV technology R&D and application, and accelerate 5G technology development and trial deployment.
- To further enhance the capabilities on new Internet technologies such as cloud computing, IoT and big data, and provide more diversified information services.
- To continue to carry out NPS tests and assessment, better the service tools and service channels, and improve customer perception and public praise.



Build Smart Networks

Smart, high-speed networks are the foundation for implementing the strategy of building a network power. China Unicom is committed to the continuous network optimization and evolution, upgrading and speed increase, and building high-quality network services and smart networks, to provide users with more intelligent services.



Evolution of intelligent networks

China Unicom has been comprehensively exploring the future overall network architecture and evolution strategies to build a new generation of network architecture, and will gradually build elastic and intelligent networks based on SDN/NFV, cloud and ultra-broadband technologies to enhance the core competitiveness and service innovation capabilities of the networks, provide users with agile, optional and personalized network experience, and support rapid deployment and development of various innovative services.

- Promote user- and service demand-oriented network evolution and upgrading, drive the transformation of the Internet operation model, and plan and build DC-based communications cloud infrastructure.
- Build an integrated industrial Internet to gradually realize the automatic opening of end-to-end services, and achieve cloud-network collaboration and network operation with the cloud.
- Construct an SDN-OTN (Software-Defined Network-Optical Transport Network) based quality transmission network.
- Start the full virtualization of mobile networks and support evolution to 5G.
- With the gradual maturity of virtualization technology, promote the virtualization of the metropolitan area network and reconstruct it.

In terms of China169 backbone network construction, we actively introduced the SDN technology for international outlets, used SDN controllers to optimize international traffic and maximize the use of international outlet resources, as well as optimized the routing with time delay and other factors to improve the network quality in scenarios of mutual visits between domestic and international networks. At the end of 2017, the domestic backbone network capacity reached 200T and the international outlet bandwidth reached 2,460G.

In terms of industrial Internet construction, based on the original IP bearer A network, we adopted a model combining the iterative independent R&D with integrated innovation, deployed SDN technology, and rolled out our own CloudBond cloud-network collaboration products. We are able to provide the cloud service providers in the major cities of 21 provinces cross-DC (data center) private line networking services with Internet-based online acceptance & handling, automatic provisioning, and autonomous service. The industrial Internet has become the first domestic large-scale operator DC internetwork with conditions for scale commercial use.

In terms of IT application in communications networks, China Unicom has actively participated in the international SDN open source project – CORD by leading the E-CORD (enterprise service-oriented data center restructuring) architecture work and taking part in the M-CORD (mobile network-oriented data center restructuring), established China Unicom CORD Industry Alliance, promoted the implementation of CORD open source projects in China, and expanded China Unicom's international influence in the SDN/NFV open source field.

On August 30, 2017, China Unicom's "National Engineering Laboratory for Next-Generation Internet Broadband Business Application" Hengqin Research Institute was established in the Hengqin New Area of Zhuhai City. The research and development fields of the "National Engineering Laboratory Hengqin Research Institute" cover next-generation networks (5G, SDN/NFV, IPv6), broadband video, home Internet, industrial Internet, big data, IoT, IoV, network and information security, AI, etc. It has become the technical support center and foreign technical cooperation platform for China Unicom in network transformation and service innovation.



Accelerate 5G R&D

China Unicom continues to promote the maturity of 5G end-to-end technologies through key technology research, standardization, prototype development, and testing.

- Built a unified business-enabling platform to support and control different businesses, open up network capabilities, and improve operational efficiency.
- Explored new cooperation models, such as technical research cooperation, product development cooperation, business innovation cooperation, and capital operation cooperation.
- Completed 4G/5G tight coupling-based service and technology evolution planning. Promoted the 3GPP standardization of China Unicom's 5G network demands, and the formulation of industry standards and enterprise standards.
- Carried out researches on 5G system solutions and network deployment planning. Completed the first-stage technical specification for China Unicom's 5G base station prototype, 5G field test planning as well as verification of the testing plans and the test for 5G scale trial commercial use.

Develop Smart Technologies

China Unicom adheres to innovation-driven development, accelerates its deployment in new technology fields, promotes the integration of new technologies and mobile communications, and makes innovation in both businesses and services.

Improve cloud service capabilities

In 2017, China Unicom cloud computing paid attention to platform and key capability upgrading, highlighted the advantages of Wo Cloud in independent and controllable services and cloud-network integration, focused on the market of government affairs, and further developed vertical fields such as education, medical care, environmental protection and tourism, providing customers with professional operations support services.

China Unicom has deployed 41 public resource pools and 44 exclusive private cloud resource pools nationwide, investing a computing capacity of 237,000 cores, a storage capacity of 22.7PB, and a network capacity of 1,050G. The Wo Cloud platform has developed 16 product capabilities and 258 function points. China Unicom's Wo Cloud follows the international practices and uses mainstream open source technologies. It is secure, controllable and iterative with independent research and development, cost-effective with cloud-network integration, and offers reliable and professional services by relying on the local operation and maintenance system.



China Unicom and Aliyun published their mixed cloud product

China Unicom joined hands with Aliyun and launched a mixed cloud solution to share cloud resources; made in-depth open cooperation with Alibaba and Tencent in the three major areas of public cloud, mixed cloud and industrial cloud; jointly promoted in-depth cooperation in the fields of e-government data exchange and sharing with H3C and Tsinghua UNIUDC; and established a joint innovation lab with Intel and released five new products to improve the differentiated competitiveness and service quality of Wo Cloud products.

In 2017, China Unicom Cloud Data Service Company won the MIIT Cloud China 2017 award, CAICT "Good IT Risk Manager", and the "SDN Best Industrial Solutions Award" issued by the Posts and Telecom Press. At the same time, the Company was selected as a Gold Member of the OpenStack Foundation.

Wo Cloud platform carried **2,000** + industrial customers

Registered users of Wo Cloud disk surpassed **70** million

China Unicom Hebei Langfang Branch took advantage of its location to build a cloud platform for SMEs in Langfang City, guide companies to use the cloud services, effectively increase resource utilization, and reduce SME expenditure on informatization. At present, there are 1,765 companies having enjoyed such cloud platform services in Langfang for 2,593 times in total. More companies from the manufacturing, service industry, legal consulting, and financial services have accessed the enterprise cloud platform, and an enterprise resource production and trading platform has been formed to help the development of both businesses and local economy.

Shape a big-data pattern

China Unicom has thoroughly implemented the national big data strategy, and established China Unicom Big Data Company, which has gathered China Unicom's massive data resources, formed three-tier product capabilities of basic, standard application, and platform-level industry solutions, as well as eight data products - labeling system, open capability platform, Wo index, risk control platform, digital marketing, smart footprint, e-governance big data and tourism big data. From using big data to continuously upgrade its own networks and services, to promote the application of big data in fields such as modern city operation, industrial upgrading, smart business and optimization of services related to people's livelihood, China Unicom regards Big Data company as a centralized operation entity for external commercial application of big data, a unified outlet of big data across the entire network, and a platform of joint venture and cooperation for big data industry expansion, striving to build a big data ecosystem covering the whole industrial chain and to provide a full range of big data services for the whole society.

• **Data asset integration capability:** Focus on the key areas and scenarios having demands for "data" and "smartness" in various industries. Improve and optimize big data product service systems oriented to enterprises and individual customers through large-scale data collection, mining, analysis, and application. Based on open platforms, further open big data service capabilities and carry out cooperative operations to achieve productization and standardization of external services in large scale, and continue to protect the value of data assets.

• **Data cashability:** Open products and applications to provide a wide range of big data applications and services for all sectors of society. More than 200 customers and partners in 8 industries including finance, insurance, tourism, government, and Internet have been developed.

• **Data platform operation capability:** Develop the largest cloud-architecture big data platform besides BAT in China, which has a storage capacity of 85PB and a computing capacity of nearly 4,500 nodes for the Hadoop cluster. The platform has gathered massive business data across the country, can easily identify 200,000 Internet products, about 4,200 mobile phone brands and 105,000 terminal models, and process 710 billion pieces of Internet surfing data and 33 billion pieces of billing data per day.

Opened **11** big data applications

Developed over **200** customers and partners

Build an IoT ecosystem

China Unicom's IoT service centers on the basic platform of the IoT, takes the services of connection, components, applications, and program integration as the elements, and has built an ecosystem that covers the "cloud, administration, end and core" of the IoT industry chain, which can effectively help companies to make collaboration and innovation, and achieve a shift from a one-off sale of products to the provision of sustainably improved services. As of the end of 2017, China Unicom's IoT connections had exceeded 70 million, of which, 57 million were connected via the IoT basic platform that carried over 12,000 corporate customers, covering industry, agriculture, transportation and logistics, health, retail and business, vehicle networking, consumer electronics, energy and public utilities, public safety and other key industries.

IoT connections broke **70** million

Carried more than **12,000** corporate customers

China Unicom is driven by two wheels in the field of IoT - capacity building and ecosystem. At the International Partners Meeting, it launched an IoT "Global Connection" collaboration initiative, which aims to accelerate IoT deployment around the global and jointly create new values for the "Internet of Everything" era. The initiative received positive responses from more than ten international operator groups and regional leading operators. In August 2017, at the IoT Ecosystem Conference, China Unicom released an IoT "platform +" strategy, and set up China Alliance for Internet of Things Industry, which has more than 30 well-known enterprises or organizations as its initiators.



China Alliance for Internet of Things Industry Inaugural Meeting

• **Network capability:** To build an IoT network that satisfies the needs of diversified, personalized and complex scenarios, and promote the commercial use of NB-IoT national network and the trial commercial use of eMTC. Dozens of cities across the country have completed trial commercial launch of NB-IoT, more than 300 cities have the ability to quickly access the NB-IoT network, and Beijing, Guangdong and other regional eMTC trial networks have met the conditions for trial commercial use.

• **Platform capability:** Release a new generation of connectivity management platform for IoT, with more powerful data analysis and automation capabilities, more reliable security protection means, more flexible operation capabilities of partner businesses, and seamless support to large-scale low-power-consumption wide area networks. The platform aggregates powerful secondary operation capabilities and provides application developers with all-round capability openness and development resource support, helping SMEs to customize and develop innovative products and create new business models.

China Unicom Tianjin Branch, as one of the pilot cities in the first batch, fully completed the NB-IoT deployment in 2017 and joined hands with Huawei, ZTE, 360 and other IoT industry partners to prepare for the establishment of the Tianjin NB-IoT Association to promote faster and better development of the IoT industry in Tianjin, and to enable enterprises, public institutions and the general public to enjoy a more intelligent production and living environment.

China Unicom Zhengzhou Branch and the upstream and downstream companies in the industry chain of IoT jointly built a Central China Internet of Things experience center platform that integrates presentation, demonstration, experiential interaction, education and training, and promotion, to cultivate innovation, build a benign industrial ecosystem with partners, gather forces from all walks of life, and fully facilitate the development of the IoT industry.

Embrace AI

China Unicom closely tracks the evolution of AI technology at home and abroad, continuously expands its business scope in this field by relying on its strong strengths in information and communications technologies, actively develops intra-industry cooperation, and explores the application and development of artificial intelligence.

On October 13, 2017, the inaugural meeting of China Artificial Intelligence Industry Alliance (AIIA) was held in Beijing. China Unicom was elected as its Vice President unit. As the only representative of the telecommunications industry, China Unicom undertook the AIIA Tour Contest and took opportunity of this event to explore the integrated application of AI and communication networks, promote the intelligent transformation of networks, transform operators' management with AI, explore an intelligent operation road for China Unicom, and actively look for excellent partners in the AI industry chain.



Launch Ceremony of AI Tour Contest and AI Park Appraisal and Election

Speed up technological researches

China Unicom is one of the first batch of innovative companies awarded by the Ministry of Science and Technology (MOST), the SASAC, and the All-China Federation of Trade Unions. It has always placed technological innovation in a prominent position of the company's development and built strong technological innovation bases and a complete technological innovation system. The headquarters technology department serves as the responsible department for scientific and technological innovation. The R&D institutions include the four major R&D bases - China Unicom Research Institute, Network Technology Institute, Software Research Institute, and IoT Research Institute, as well as professional subsidiaries and provincial branch companies. In 2017, the Company achieved fruitful achievements in scientific and technological researches.

- "Six-mode all-network-applicable series standards and application deployment", "SDN/NFV network evolution and application research", "Cloud-based cBSS1.0-billing application innovation project", "Independent research and development-based full cloud platform centralized management system of number & card resources" and other projects won the first prizes for scientific and technological progress.

- Organized and implemented 51 national research projects such as the "03 Special Project of New Generation Wireless Broadband Mobile Communications Network" of the MIIT, the National key R&D programs of the MOST, and the "TD-LTE Special Project" of the National Development and Reform Commission (NDRC). Five projects have passed the acceptance.

- Led and participated in the preparation of 209 industrial standards. Five people of the Company served as TC Chairmen/Vice-Chairmen in China Communications Standards Association (CCSA) and 24 as team leaders/deputy team leaders, having important influences.

- Participated in the follow-up researches of 11 international standards organizations and 5 international open source communities, submitted 520 proposals on international standards, took the lead in establishing 29 new standards (of which 16 for ITU-T) and publishing 21 standards (of which 13 for ITU-T), and assumed several positions in important international organizations such as ITU-T, GSMA, and ONF (ONOS).

- A total of 5.81 billion yuan of scientific and technological innovation funds were invested throughout the year, 648 patent applications were filed, and 346 patents were granted.

Submitted **649** proposals on international standards

Published **228** industrial standards

648 patent applications

346 patents granted

Diversify Smart Apps

In 2017, China accelerated the building of an innovative modern industrial system, driving the flourishing of emerging industries. New technologies, industries and patterns such as digital economy and sharing economy developed faster. Based on the basic communications network and taking advantage of emerging technologies such as cloud computing, IoT, big data and AI, China Unicom vigorously expanded its businesses in areas such as smart life and smart industries, and developed rich and diverse "smart +" applications, enabling the public to enjoy a more convenient and smart life.

Build a smart brand

In 2017, China Unicom made in-depth analysis of industry trends and the needs of its government and enterprise customers and mass consumers, and optimized the brand system, which has been included in the national brand plan.



China Unicom and Chinese table tennis team made comprehensive strategic cooperation, launched the "Xia Travel" ping-pong culture promotion & communication plan, and held a "Wo Ping Pong" national contest, perfectly combining ping pong culture, event culture, corporate culture and mass sports together and setting a good example for enterprises to support the national fitness campaign.



The National Final of the 5th China Unicom Ping Pong Challenge



A contestant competing with National Table Tennis Team player Fan Zhendong

Enjoy smart life

Pay attention to customer experience

In 2017, China Unicom further strengthened the regulation of business operations, and established an evaluation and survey system of user experience for continuous improvement of products and services, and a mechanism for in-depth understanding of customer needs.

- Developed "End-to-End Customer Experience Evaluation Criteria and Management Regulations for China Unicom Products", improving customer experience perception indicators at the beginning of product design, and embedding customer experience factors in major links such as product design, development, verification, and launch to maintain a strict standard of the products with customer experience and ensure the products meet the users' needs with the mechanism.
- Established a precise marketing model based on big data, and carried out targeted marketing activities in accordance with customers' consumption and behavior characteristics to provide users with more suitable packages, more convenient services, and better experience. China Unicom's scenario-based marketing capability has expanded to 30 provinces across the country and the model has covered 255 scenes.
- Established a direct contact with the frontline of the market, and directly provided feedback of the user experience to the product management unit through WeChat group, telephone, video conference, etc., so as to make timely evaluation and optimization, and continuously improve user experience.

4G products innovation

In 2017, China Unicom exerted efforts on building an Internet-based product system and established a traffic volume-based product system. By focusing on the industry's first unlimited volume product "ice cream" package, the Company gradually improved its user structure, and achieved a higher proportion of mid-to-high-end users and increase of user value. Besides, we intensified cooperation with 35 Internet companies including Tencent, Alibaba, Baidu and Didi to launch 2I2C projects, break through the traditional operator marketing model, create experiential customized products with low threshold and high volume, leverage the resources of both parties to make deep product integration, and build a complete and flexible 2I2C application and privilege system to provide users products and services with higher value and quality.

- Simplified the 4G package contract system to promote the transition of contract products to flow-based products.
- Rolled out 95 models of 212C products such as Tencent King Card, Didi King Card, and Baidu Holy Card to meet various needs of users.
- Innovated the mobile video product system and marketing model by launching new products such as "Video Storm", Free-traffic View Program, and Wo Video.
- Established a first-level operating system for privilege operation. The self-developed privilege center was launched in the mobile phone business hall; 31 partner privileges were introduced; and 45 exclusive rights and interests activities for China Unicom users were carried out, covering 19.3 million users with the user penetration rate close to 7%.

While keeping enriching basic TV and VOD services, China Unicom Beijing Branch has created a series of featured products and channels for different family user groups to meet users' all-round and personalized viewing needs. The IPTV product aggregates a variety of industry applications, such as education, health care, games, high-definition video communications, convenience services, and other specialty products, enabling users to obtain various convenient and close-to-life services through one-off handling.

Enrich integration services

In 2017, China Unicom put forward a business philosophy of high bandwidth, large traffic, wide integration and diversified videos, kept enriching the "Smart Wo Home" integrated products for home users, and created integrated family information service solutions based on high-speed broadband, large traffic volume, whole-service sharing and rich video contents, to accelerate the industrialization of smart homes.

Actively planned and followed up the development of home Internet by organizing businesses such as home gateways, Wo home manager and smart speedup, and following market and technology development. Relying on home gateways, we developed home networking solutions and took advantage of the mixed-ownership reform opportunity to explore the integration of communications and Internet products and marketing channels sharing with Internet companies, to constantly explore new operation models.

Conducted centralized operation of nationwide TV value-added services and launched innovative TV value-added applications such as 4K super-definition videos, films and television programs, games, education, music, shopping, health, and video calls. Currently, we are cooperating deeply with more than 200 content application partners in terms of TV value-added services, and have rolled out more than 1,000 types of TV applications, to fully meet the needs of different family members for life and entertainment.

More than **200** partners for TV value-added services

Rolled out over **1,000** TV apps

In September 2017, China Unicom Guangdong Branch and industrial chain partners established an innovation alliance named "Internet Home" to jointly develop a benchmark for the industry - "Internet Home - Family Cloud Platform", which is a one-stop, e-commerce-based smart home life portal, and can provide family users with 4K HD contents, smart home control services, smart healthy living services, and smart community services, as well as integrated solutions for home information services, leading the upgrade from "Home Internet" to "Internet Home".



Launch of CU Guangdong Branch's "Internet Home"



Internet Home - Family Cloud Platform

Assist smart industry

Relying on its leading advantages in cloud computing, big data, IoT, and AI, China Unicom focused attention on fields such as e-governance, education, health care, tourism, manufacturing, environment protection, agriculture and finance to promote the upgrade of smart cities, assist the transformation of "Internet +" industry, and enable the general public to easily enjoy the convenience brought by "Internet +". We continued to build an innovative business system that focused on enhancing innovation capabilities, strengthened the top-level design of industrial Internet innovation businesses, and allocation of resources and capacities of the whole network, integrated the support capability of innovative businesses, and developed innovative business mechanisms and systems separated from basic businesses, to promote the rapid development of innovative businesses.

Smart e-governance

China Unicom has cooperated with more than 20 provincial governments on e-governance service platforms to help the development of "Internet + governance", achieve efficient operation of and data interconnection among administrative agencies, serve the public for their benefits, and drive the transformation from traditional administrative management to smart management.

On March 31, 2017, China Unicom officially released its e-governance product system and a white paper on e-governance cloud. The product system covers information infrastructure resource service, e-governance cloud, e-governance big data, smart e-governance applications, and information-based operation support services, which can provide end-to-end, integrated information products and services covering the whole life cycle for government customers.

China Unicom Henan Branch moved the service system of the Provincial Administration for Industry and Commerce to the private cloud platform for e-governance, and achieved service integration and data integration with institutions such as the public security, taxation and finance, breaking down information barriers and shaping a pattern of co-regulation, system integration, big data-based smart administration, service for the benefit of the public, and platform-based support. Full electronic registration for enterprises has been realized throughout the province, covering all market players including enterprises, individual businesses, and farmers' professional cooperatives, which which the public can complete online registration without going out.

Smart education

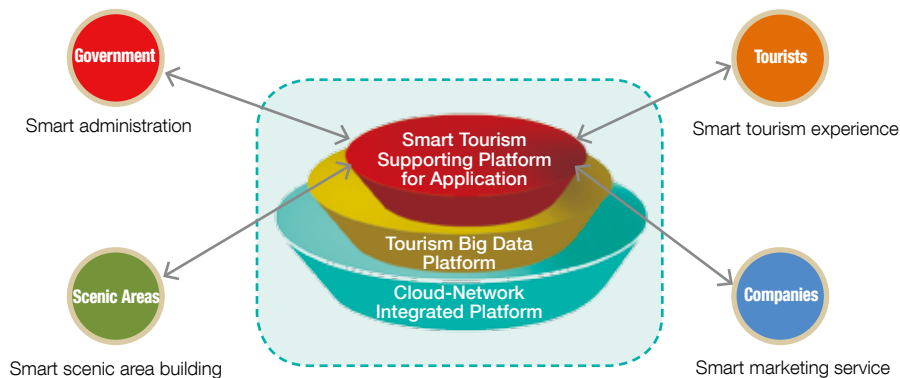
With its comprehensive technological advantages in cloud computing, IoT, big data, and mobile internet, China Unicom has developed some products such as "Ban Ban Tong" (class access to ICTs) and "3ikids" for pre-school education, primary and secondary education, and launched the "Three Accesses and Two Platforms" project across the country. There are 68,000 primary schools in the country having accessed the broadband of China Unicom, nearly 500,000 classes have signed for "Ban Ban Tong", and 120,600 kindergartens have cooperated with us. In 2017, China Unicom focused on the development of interactive learning cards, and launched the "Internet + smart campus" business to vigorously develop "Ren Ren Tong" (linking students, teachers and parents) mobile users. As a result, the number of K12 students and teachers using the application has approached 5 million. China Unicom made a contribution to promoting fair education, driving educational reforms and building a learning society where everyone is learning and can learn at anytime anywhere.

China Unicom Hunan Branch assisted Hunan Education Department in applying ICTs in the education field and provided services to 703 schools in the province through the "Wo Jiao Tong" brand (a Wo education brand), of which 78.1% were in rural and poor mountainous areas. It freely provided those schools with multi-dimensional information services and products such as education, teaching, administration, co-education, and talent-cultivation, with the aim to gradually narrow down the gap between the urban and rural primary and secondary education in both school software and hardware facilities.

Smart tourism

China Unicom has thoroughly implemented the state's requirements for smart tourism development, giving full play to the role of the smart tourism information platform in boosting the transformation and upgrading of the tourism industry, and taking information as the main channel to comprehensively improve the development of the modern tourism service industry. China Unicom's tourism big data platform has been connected with the National Tourism Administration's industry monitoring and emergency command platform, and plays an important supporting role in the early warning of tourist flow, overflow arrangement, and emergency command. At present, China Unicom has cooperated with tourism administration agencies and scenic spots in more than 20 provinces on information technology application and big data, assisting the development of tourism with information technologies.

The comprehensive index of tourism big data launched by China Unicom Heilongjiang Yichun Branch provides a basis for tourism management by government departments and offers a reference for tourists to choose their destinations.



Smart Tourism Platform

Smart health care

With the popularity of a new generation of information technologies and Internet applications, China Unicom has integrated resources to provide cloud technologies and big data services in response to new developments in the health care industry. China Unicom's medical cloud products rely on its strong cloud capabilities and two major medical bases, focus on the two major development directions of hospital informationization and regional medical informatization, and use cloud technology to promote the development of the "Internet + health care" sharing model to achieve efficient operation of medical institutions and data interconnection, assist medical researches, serve the health of individuals, and facilitate the transformation from traditional health care to smart health care.

China Unicom Henan Branch has built a remote medical service project, which takes Wo TV as a carrier and relies on the video call function to build an online medical communication and interaction platform to achieve medical resource complementarity. Xuchang City is the first pilot area of the project. Since the implementation in July 2017, 1,074 grass-roots medical institutions of the city have installed the platform, covering township health centers, community health service centers, and some standardized village clinics. There have been more than 600 rural doctors conducting remote consultations on the platform for over 1,000 times.

Smart manufacturing

In responding to the call for national industrial manufacturing transformation and upgrading, China Unicom proposed an "Internet + manufacturing" service model and developed smart manufacturing to address the pain points of the manufacturing industry in China by relying on its own technical expertise and network resources.

China Unicom Anhui Ma'anshan Branch took the opportunity of building a smart mine to innovate the "Internet + mining" service management model, and developed a "smart mine" system for its customers with a variety of functions such as ground attendance checking, downhole positioning, and downhole-ground communications, helping the transformation and upgrading of traditional mining enterprises, and building a safe, efficient and clean smart mine.

Smart environment protection

China Unicom fully implemented the "Opinions on the Full Implementation of the River Chief System" and combined local characteristics to develop a "Smart River Chief" platform, provide an integrated solution for the informatization of the river chief system, and offer platform-based technology support to the formulation of water resources management measures, prevention of water pollution, water environment early warning and forecasting, and water ecological health assessment, truly realizing data integration, social coordination, and intelligent businesses. The "Smart River Chief" platform has been put into use in Zhejiang, Fujian, Anhui, Guangdong and other provinces.

China Unicom Guangdong Branch uses the basic platform and system consisting of a video monitoring system, a transmission system, and a video monitoring application system to comprehensively support the information capabilities of river channel monitoring and inspection, paving a way for the subsequent development of the river chief system nationwide.

Smart agriculture

China Unicom actively developed some agriculture-related information applications such as "smart party building" for rural areas, ULAND agricultural IoT enabling platform, plant protection drones, agricultural narrow-band IoT, and "China Unicom WORK" innovation business platform, significantly improving agricultural production, enhancing modern management in rural areas, enabling agriculture and rural areas to enjoy the fruits of information development, and allowing farmers to get on the express train of "Internet +", assisting the development of modern agriculture.

China Unicom Shuangyashan Branch in Heilongjiang Province used the IoT and network bridge technologies to build a preliminary integrated agricultural platform for monitoring, local climate sampling, soil composition analysis, roe deer capture analysis, and online consultation of and answering to questions related with agricultural knowledge and agricultural disasters. It can monitor the growth process of farmland throughout the entire process, greatly improve the agricultural production quality, and increase production and farmers' income. Since the High Standard Demonstration Field Monitoring Platform for Raohe County was formally launched in 2017, it had discovered 119 cases with early warnings, detected 2 pest and disease disasters in advance, and answered to questions for 189 times with agricultural experts online, highly recognized by the Agricultural Committee of Raohe County and farmers.

Smart finance

Relying on its Unipay company, China Unicom has actively made cooperation with foreign companies on finance to expand "Internet + finance" services. In 2017, China Unicom Unipay company signed strategic cooperation agreements with Finance SN/Suning Bank, Star48 Media, Taiping Financial Services and Lakala, and completed the access to China UnionPay, NetsUnion Clearing, and Rural Credit Banks Funds Clearing Center, increasing the number of banks with direct cooperation to 19, and rapidly enhancing its financial channel capability. At the same time, the Company cooperated with China Unicom Finance and China Life Pension Company on supply chain finance and cooperated with Zhong An Insurance on insurance business. The Unipay company also launched financial services/products such as account interoperability, aggregate payment, Woerong (a financing app), Woedai (a loan app), Wo insurance, party member fee platform, credit card repayment, bus card recharging, etc. to provide customers with convenient financial services.

The MUCFC company continues to promote innovation in financial science and technology, and built a Wo credit scoring model, which selected and pre-authorized nearly 100 million white list customers from China Unicom's hundreds of millions of users. Meanwhile, the Wo credit score has been successfully applied to post-paid services such as cash installment, cell phone installment, and phone fee recharge, to provide more convenient financial services to customers. In 2017, the growth of customer scale and loan balance of MUCFC ranked the first among licensed consumer finance companies, and its main business indicators ranked among the top echelons in the industry. The development of the company has been highly recognized by regulatory authorities, local governments and the media.

Improve Smart Services

China Unicom upholds the concept of "customer first" and serves its customers through channels such as physical business outlets throughout the country, customer service hotline "10010", online business hall, SMS, mobile business hall, self-service terminals, official Weibo account, and Wechat customer service account while continuously improving service systems and operation, customer retention methods, and customer services.

Improve outlet services

In 2017, China Unicom continued to enhance the window channel service level and improve the efficiency of its own business outlets.

- Launched the "Dual Promotion" special work for service awareness and performance in the business outlets. Through the demonstration outlets in Beijing and Hebei, the operation procedures of the business outlet has been optimized, and more than 1,000 business outlets have implemented the new operating standards.
- Carried out work to improve the service awareness of the customer service hotline. As a result, the overall service level of the hotline that requires the operators to be successfully contacted in 15 seconds reached 87%.
- Continued to promote the development of the business outlets towards shops and chain stores, and strived to cooperate with mainstream terminal manufacturers, to provide retail and experience of all-category information consumption, and improve service categories and quality of the business outlets.
- Took the optimization of the operation of the business outlet as a sally port to build an operation system that is suitable for the operation characteristics of the retail chain store, and improve service efficiency of the business outlet.

The smart life experience stores built by China Unicom together with JD and Alibaba have opened in Guangzhou and Shanghai. The consumer-oriented smart life experience stores use new technologies such as big data, cloud computing, and AI to reconstruct goods and consumption scenarios, improve the operational capabilities of China Unicom's business outlets and community cooperative stores, further satisfy the growing yearning of China Unicom customers for a better information life, and enhance the omnichannel consumer experience both online and offline.



CU Smart Life Experience Store



Interior of CU Smart Life Experience Store

Expand Internet services

China Unicom has actively developed and enhanced Internet-based customer services, guiding users to migrate from traditional channels to online self-service, and the user penetration rate of Internet service channels has increased by 2.8 percentage points. In 2017, the Internet channel provided services to more than 60 million users, with a service volume of 2.01 million cases.

- Used artificial intelligence to create a new service model of human-machine integration and accurate portrait. The total staff customer service time dropped by 12.4 percentage points in the pilot provinces with artificial intelligent audio guide.
- Opened the online payment function to meet the needs of customers for one-stop processing and the online processing capability also improved.
- Introduced various marketing and promotion tools such as code purchase, lightning purchase, and online purchase, to keep broadening user service channels and innovating customer service methods.

Internet channel service users over **60** million
2.01 million service cases

The Customer Service Call Center of China Unicom Tianjin Branch developed an innovative service model of human-machine integration with Baidu AI technology. The "intelligent robot" provides users with convenient and efficient services, and the accuracy of intelligent interactive recognition reaches 93%. The intelligent customer service agent can provide inquiry, consultation, handling, and error reporting services for five types of service scenarios including call charge inquiry, traffic, obstacle, credit, and international businesses, which shortens the waiting time for users to dial an manual desk, improves the efficiency of business processing, greatly reduces the manual work pressure and improves user satisfaction.

Strengthen complaints management and control

In 2017, China Unicom continued to strengthen complaints management and control with a vertical-horizontal matrix complaint management and control system. As of December 2017, the cumulative complaint volume was 13,500 pieces; the cumulative complaint rate was 32.4 pieces/million users, of which 327 were related to unclear fee deduction, with a rate of 0.78 piece/million users; and no malicious deduction was reported. The complaint control achieved remarkable results. In 2017, the unclear deduction rate of China Unicom was the lowest in the industry.

Transparent services

China Unicom has rigorously regulated billing and charging practices, protected customers' rights to know about consumption services, and strengthened the dissemination of knowledge about products and services among consumers.

- Optimized the performance of the billing system. The total number of voice and traffic tickets decreased by 34%, and the bills processed within 15 minutes accounted for more than 96%.
- Strengthened the management of applications for intelligent terminals. Accumulatively completed the test review of more than 10,000 billing applications, and removed 692 apps with irregularities from the online stores and reported to the regulatory authorities.
- Intensified the management of value-added services charges. Revised the "Management Measures for Value-Added Services" and increased penalties for violations.
- The Company's own channels and social channels provided users with relevant information in accordance with the Company's unified requirements. In business outlets, desktop cards, posters and leaflets were used to promote products and services to users, and the business operators' answers have been standardized.

Better public praise

China Unicom is committed to comprehensively improving customer perception and customer praise. It has introduced a NPS evaluation system to conduct comprehensive monitoring of the Company's professional lines and units at all levels, to better the Company's understanding of customers, to adapt to their needs, and to improve each professional based on customers' opinions.

- Used customer praise as a wind vane, and analyzed and disassembled customer opinions through systematic index assessment to branch companies and professional lines at all levels, to promote customer-oriented internal production & operation.
- Continuously conducted NPS customer satisfaction evaluation. As of Q4 of 2017, China Unicom's mobile network and broadband NPS scores reached the highest level in history.
- While focusing on customer perception and market orientation, took into account uniformity and flexibility as well, to optimize the promotion system, and simplify package tariffs.
- Launched a special campaign on improving customer perception, which was problem-oriented and relied on a listing and delisting mechanism of major service issues, to improve and optimize the internal processes from bottom to up, and promoted the radical improvement of major issues.





Balanced and
Coordinated



Achieve Universal and Targeted Services through Balanced and Coordinated Development

- 34 Develop Information Inclusiveness
- 36 Implement Tariff Reduction Actions
- 37 Serve the “Belt and Road” Initiative



Achieve Universal and Targeted Services through Balanced and Coordinated Development

Promoting balanced and full social development is the main theme of the new era. China Unicom is committed to meeting the changing information needs of its users and promoting the harmonious development of the entire society. In 2017, we continued to improve the 4G network, accelerated the construction of an all-optical network, and proactively promoted speed up and fee reduction; coordinated network construction and deployment and strived to bridge the digital divide; actively assumed universal service responsibilities, provided loving tariffs, and developed inclusive information services; and served the "Belt and Road" initiative to promote balanced and coordinated development at home and abroad.

Measures Taken in 2017

- Actively promoted the work on faster and more affordable networks by building quality 4G network, accelerating the construction of an all-optical network, developing innovative applications, upgrading business products, and lowering tariffs.
- Broadened the coverage of fiber-optic broadband and 4G network in remote rural areas. In 2017, 16,000 4G base stations were built in administrative villages. In the past two years, we have undertaken broadband access tasks for 6,662 villages and broadband upgrade missions for 9,472 villages.
- Built an information optical channel for the "Belt and Road" with other parties, and developed overseas businesses innovatively. By the end of 2017, we have established long-term partnerships with more than 300 international operators, provided cross-border data service solutions for more than 1,000 corporate customers, and had more than 400,000 mobile users overseas.

Actions to be Taken in 2018

- To further upgrade the user experience by adhering to the idea of creating a quality network from the "supply side" of communications products. To provide innovative products to benefit consumers, fulfill social responsibilities, and drive forward the work on faster and more affordable networks.
- To broaden network coverage in remote rural and western regions, and use e-commerce platform and other innovative methods to build beautiful villages and assist IT-based poverty alleviation.
- To deepen the cooperation on "Belt and Road", and provide global corporate customers with an domestic and overseas integrated, global end-to-end package of comprehensive information services to promote coordinated development at home and abroad.

Develop Information Inclusiveness

Upgrade network qualities

Improve 4G networks

China Unicom has always adhered to the concept of building quality networks to provide users with good coverage and fast speed through meticulous construction and optimization, and to comprehensively upgrade the user experience. In 2017, China Unicom's 4G network was faster, doubling the network access speed and further expanding the network scale. It has cumulatively opened 852,000 4G base stations, covering 83% of the populations. According to the statistics of the Broadband Development Alliance in January 2018, in the Q4 of 2017, China Unicom's network download speed reached 19.11 Mbps, leading the industry (China Mobile 17.29 Mbps and China Telecom 17.79 Mbps). The peak rate in key scenes and hotspots increased from 300 Mbps to 375 Mbps.

Opened **852,000** 4G base stations

Covering **83%** of the populations

China Unicom Shandong Branch has introduced the world's most advanced end-to-end optimization method for network optimization and achieved 100% coverage of key scenes by 4G network. For key scenes and key businesses, it established a business guarantee system, which can eliminate network failures for a minimum of 5 minutes, providing users with an excellent business experience.

China Unicom Xinjiang Branch completed the optimization and reconstruction of 36 hotspots in the core business districts, airports, military units, and universities in 2017. After the transformation, the carrying capacity of the wireless side of the mobile network grew by several times, and the maximum traffic increase in the hotspot exceeded 4 times.

Build broadband networks

China Unicom has made every effort to optimize the basic network, improve service quality, innovate application products, and improve the quality of broadband. In 2017, the fixed-line broadband was "widened" with the bandwidth being doubled.

- The broadband access rate has been increased to above 20M in general, and that in major cities has been increased to above 50M, and all users with speed increase conditions were free to increase their speed.

Total broadband ports reached **202** million



Launch Ceremony of China Unicom Gigabit Wireless Network and High-Speed Rail Cinema

- After completing the special project of broadband network fiber-optic transformation, the Company continued to promote PON+LAN and other regional reconstruction work. The proportion of fiber-to-the-home (FTTH) ports accounted for 79%, of which 85% was in the dominant northern region.
- Significantly increased the speed of main broadband products to above 50M, and increased the speed in major cities to above 100M.

In August 2017, China Unicom made cross-border cooperation with hit films, and took the lead in launching gigabit wireless networks and high-speed rail cinemas in the country, to continuously improve networks and enrich people's cultural life. The Company successfully deployed the world's first LTE multicast platform under the high-speed rail scenario, where high-speed videos and VR services can be experienced with cell phones on the high-speed train smoothly.

China Unicom Tianjin Branch has enabled gigabit broadband network access in 18 communities in the city. It only takes 1 minute and 22 seconds to download an 8 GB Blu-ray movie, which with traditional 100M speed broadband should take more than 10 minutes, bringing more exciting experience to people's life, and contributing new forces to the co-building of a smart city.

Build airborne Internet

Relying on Unicom Airtel, China Unicom developed airborne Internet software products for airlines such as China Eastern Airlines and China Southern Airlines, which have been deployed and implemented on more than 80 planes with Internet access capabilities and will provide affordable airborne Internet services for passengers. From January 18th to February 2nd, 2018, China Unicom took the latest development achievements in the field of aviation Internet, and provided an aerospace mobile Internet experience exhibition for people from all walks of life, where visitors could have a brand-new experience of airline cabin entertainment - using mobile phones for Internet surfing in the air for the first time, which is brought by high-speed Internet.



Narrow down digital gap

Village network coverage project

China Unicom broadens the coverage of fiber-optic broadband and 4G network in rural, remote and western regions, enabling more farmers to use the Internet and boosting Internet-based poverty alleviation.

- Since 2016, we have undertaken the pilot telecommunications universal service projects in 78 prefectures and cities in 18 provinces; undertaken broadband building tasks for 16,134 administrative villages, including broadband coverage tasks for 6,662 administrative villages and broadband upgrade tasks for 9,472 administrative villages.
- Strengthened network construction in rural, remote and western poor areas. Broadened the coverage of 4G network based on the priority of administrative villages. In 2017, China Unicom built 16,000 4G base stations in administrative villages.
- Enhanced network coverage in rural and remote poverty areas. In 2017, the population covered by 4G network was 6% more than that in 2016, reaching 83%; 4G coverage at township and above levels reached 100%; 4G coverage of administrative villages increased by 5% compared to 2016, reaching 55%; and the fiber accessibility in administrative villages in the ten northern provinces reached 90%.

Undertook broadband accessibility tasks for **6,662** villages in the past two years

Broadband upgrade tasks for **9,472** villages

Since 2016, China Unicom Hainan Branch has invested 1 million yuan to construct communication base stations covering poor villages, provide them with free WiFi and build a Wenxin Unicom leisure square. In 2018, it will continue to invest another 900,000 yuan to build a base station in Wenchang Village for poverty alleviation, which is planned to complete in June 2018 to contribute to the "information-based assistance" and "industrial assistance" in an all-round way.

Ceheng County in Guizhou Province is a key county for national poverty alleviation and development work. China Unicom Guizhou Branch has invested efforts and funds of 13.4015 million yuan on promoting targeted poverty alleviation work in this county including 24 poverty alleviation projects, and provided targeted assistance to 1,319 people. In addition, it also actively carried out local communications-based poverty alleviation through various ways, such as cooperation with rural e-commerce, construction of smart towns, installation of free WiFi, and dispatching cadres to the village to help the poor.

In 2016, China Unicom Tibet Branch undertook the broadband universal service project for Karuo District, Changdu City, Tibet Autonomous Region. It was responsible for the construction of broadband networks in 44 administrative villages in Karuo District. The actual investment in the project was 32.58 million yuan. With the joint efforts of all parties, broadband networks in 44 administrative villages were all opened ahead of schedule on October 9, 2017.

● Broaden service channels

In 2017, China Unicom vigorously expanded its convenient service channels to meet local people's communication needs. The Company's staff went to the front line and provided onsite services in villages. It also further expanded the team of rural agency, responsible for the marketing, maintenance, and service of China Unicom businesses, promoting the building of self-owned business outlets and social channels in rural and remote poverty-stricken areas.

● Implement Tariff Reduction Actions

● Tariff reduction

China Unicom has been firmly implementing the national plan on faster and more affordable network by continuously reducing the tariffs, to allow users to obtain more benefits, help the real economy develop, and boost the transformation and upgrading of the national economy.

- Canceled domestic long-distance fees and roaming charges. With effect from September 1, 2017, domestic long-distance and roaming charges for mobile phones have been cancelled, benefiting 117 million users.
- Innovated products and services to benefit consumers. The Company launched a customized product business to benefit specific groups such as young people, students, netizens, and low-income people. For example, in 2017, the "Ice Cream Package" that provides unlimited services including unlimited traffic volume, free calls, videos free to watch, benefitted 7.43 million users. The "Tencent King Card" provides free directed traffic, benefiting more than 50 million users.
- The fixed broadband tariff has been substantially reduced. In 2017, the average unit price of fixed-line broadband decreased by 64% compared with that at the end of 2016.
- Lowered the tariff for Internet private lines to assist entrepreneurship and innovation. Oriented to SMEs, startups and innovative companies, the Internet private line tariffs were reduced by 35% in 2016, and in 2017, they were once again reduced significantly. The Company implemented broadband speed-up activities, and launched entrepreneurship and innovation-oriented cloud express line products for SMEs, benefitting over 2.9 million users. At the same time, more efforts were exerted on the construction and optimization of the backbone Internet, and the ability of providing private lines to SMEs was further enhanced, to fully support the development of entrepreneurship and innovation.
- Reduced international direct dialing and roaming charges in response to the "Belt and Road" initiative. After the adjustment of international roaming charges, the voice roaming charges dropped by 65.92% in average, and the data roaming tariff decreased by 84.57% in average.



Average unit price of fixed-line broadband down by **64%** year on year

International data roaming tariff down by **84.57%** in average

In order to ensure the implementation of speed up and fee reduction, China Unicom Guizhou Branch promoted some preferential policies in 2017, such as the "Traffic King 100" unlimited package, "deep ploughing plan" preferential activity, 1 yuan packet with unlimited daily traffic volume for townships, and broadband subscription with free intra-provincial traffic volume. As a result, the comprehensive tariffs dropped sharply. The unit price of mobile phone traffic dropped by 78%, the fixed-line broadband tariff dropped by 56.7%, and the fixed-line broadband tariffs were generally around 30% lower than other operators in the province.

● Preferential services

In order to meet the communication needs of farmers, migrant workers, family visitors and disabled people, China Unicom has developed a differentiated, preferential tariff policy. The homecoming card, Chinese New Year card, and love card introduced by local branches enable all kinds of consumer groups to enjoy high-speed 4G network communication services with lower expenditures, and the convenience and welfare brought about by technological advancement can benefit various special social groups.

- Family cards for farmers and migrant workers: the monthly fee is 20 yuan, including voice calling for 150 minutes in the country, family calling for 300 minutes, group customer calling for 1,000 minutes, national traffic 100M, intra-provincial traffic 1.5G, and 6G for specified videos of Tencent and Youku.
- Carried out a "Guardian of Love" action for rural left-behind children, urban migrant children, and children in poor families and provided them with "Love Guardian Card" and "Love Wo Card". Love Guardian Card: the monthly fee is 10 yuan, including the calling call for 150 minutes, the intra-provincial traffic 100MB, free incoming calls, and the caller ID service presented as a gift. Love Wo Card: the monthly fee is 5 yuan, including the domestic voice calling for 50 minutes, 30MB of intra-provincial traffic, free incoming calls, and the caller ID service as a gift.
- Launched "Love Card" packages for disabled people, offering discounts on voice, SMS and other services, free of the card production cost, and providing door-to-door service. Reduced or exempted one-time expenses, gave gifts, launched broadband annual subscription packages, and provided broadband expert services.

China Unicom Hubei Branch launched a "Rain & Dew Care Card" for poverty-stricken people, strengthened the publicity of the poverty alleviation-to-house policy and Rain & Dew program services, helped the poverty-relief departments and the assisted people to apply and effectively use the program software. It planned to organize 1,000 poverty alleviation publicity meetings based on the actual situation of the assisted people with an aim to help 100,000 poor people.

Based on the "Beautiful Village" app, China Unicom Shanxi Branch launched a mobile phone package with 8 levels specifically targeting the rural areas of the province. The minimum fee of the package is only 8 yuan, including rich voice and Internet traffic and 10G "Beautiful Village" directed traffic, basically meeting the communication needs of all farmers and ensuring that it is "affordable" to farmers.

Serve the "Belt and Road" Initiative

Provide services with international communications quality

China Unicom relies on China Unicom Global to provide users with international information services. It has established 30 institutions worldwide (including the newly established branches in Russia, Switzerland and Brazil in 2017) with over 700 employees, providing efficient and comprehensive information services for the national "Belt and Road" initiative, including global connectivity services, integrated information services, international voice and mobile services.

By the end of 2017, China Unicom Global has established long-term partnerships with more than 300 international operators, provided cross-border data service solutions for more than 1,000 corporate customers, and had more than 400,000 mobile subscribers overseas. The company was awarded the Gold Award of the "Best International Network Operators".

China Unicom focuses on the deployment of international network resources in major economic corridors and information ports, strives to build its communications service capabilities for the "Belt and Road", and has obtained a wealth of international land and submarine cable channels and bureau/site resources around the world.

- With more than 20 land cable systems, the total number of China Unicom's cross-border land cables exceeds 10.6T, connecting 13 neighboring countries and regions. The independently constructed China-Myanmar international transit land cable system provides a wealth of channels for the return of submarine cables from Europe, Asia and Africa.
- It has 26 submarine cable systems linking over 50 countries, and 7 submarine cable landing stations at home and abroad. The international submarine cable capacity is 16.2T. Along the main maritime directions, the Company worked together with countries and regions along the route in building the Asia-Africa-Europe-1 (AAE-1) submarine cable and the Southeast Asia-Middle East-Western Europe 5 (SMW5), taking the lead in forming the dual-cable coverage of the Maritime Silk Road.
- The Company has continuously enhanced the ability in international business processing, with 112 global POPs connecting 70 countries and regions.
- The international outlet bandwidth (overseas interconnection) reached 2,460G, and the international backbone network had 15 overseas nodes.



China Unicom Cross-Border Submarine Cable System

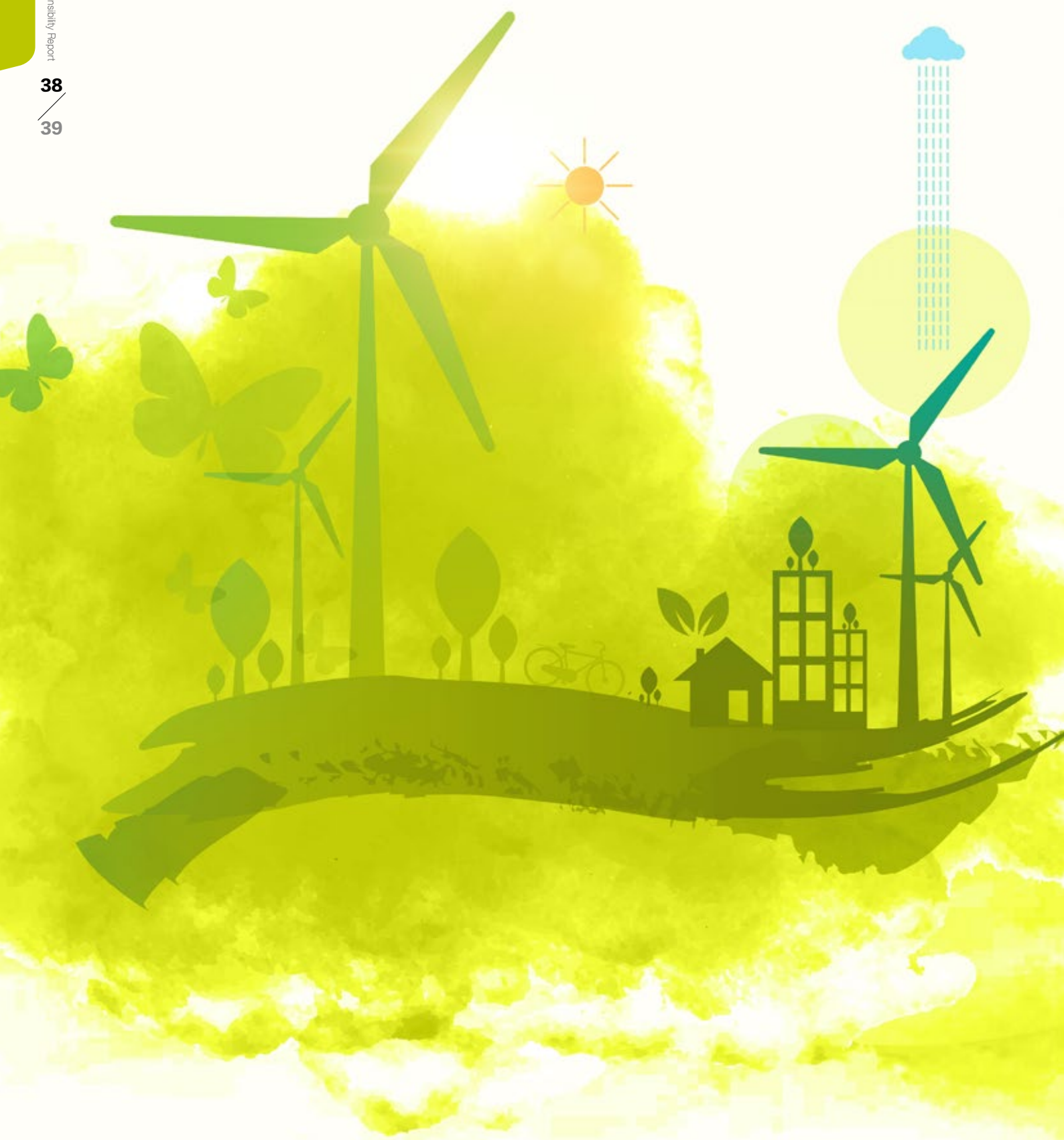
Co-build information optical channel for the "Belt and Road"

At the China Unicom International Partners Conference held in Shanghai in June 2017, China Unicom proposed to jointly build the "Belt and Road" optical information channel and called for cooperation parties to actively participate in the deployment of international network resources of the major "Belt and Road" economic corridors and information ports, to build a global high-speed and secure transmission network, and to develop high-quality, efficient and first-class international communications services.

- Enhanced the interconnection among the continents of Asia, Europe and Africa and nearby oceans, and built international land and submarine cables with countries along the route.
- Built a dedicated international financial network to provide financial customers an international dedicated network with low latency and high reliability.
- Actively explored future intelligent networks and promoted the

development of digital economy along the "Belt and Road".

- Actively promoted industry chain cooperation and built a "Belt and Road" cooperative ecosystem.
- Launched "Silk Road" applications for six industries, providing integrated solutions for six key industries including finance, transportation/logistics, Internet, energy/resources, media, and manufacturing/retail.





Build a Win-Win Industry Ecosystem with Openness and Cooperation

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Build a Win-Win Industry Ecosystem with Openness and Cooperation

Openness and cooperation are important forces for stimulating the innovation vitality of an enterprise and driving the development of an industry. China Unicom adheres to the concept of “openness and win-win cooperation” to collaborate with all parties in the industry. In 2017, China Unicom deepened the cooperation with peer companies, shared resources with them, and promoted sound development of the industry. It cooperated with all parties in the industry chain on innovation to build a prosperous, win-win industrial ecosystem, and joined hands with the Beijing 2022 Winter Olympics to jointly create a smart future.

Measures Taken in 2017

- Made deep cooperation with China Telecom in resources, terminals and other fields, which significantly saved the investment in fixed assets and operating costs.
- Promoted collaborative development with companies on the industry chain such as equipment suppliers, terminal suppliers, social channel providers, virtual operators, and social cooperative companies, and fulfilled their social responsibilities
- Intensified cooperation with Internet companies, launched more than 40 2I2C projects and 95 types of products, and built a privilege center.

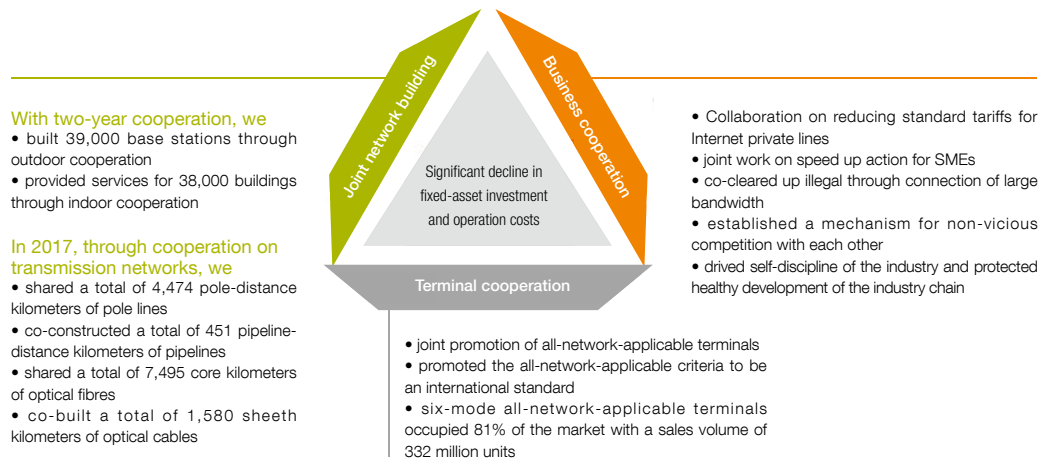
Measures to be Taken in 2018

- To continue to push forward the implementation of cooperation projects with China Telecom in resources, terminals, and business to jointly promote the healthy development of the industry.
- To further strengthen industrial chain cooperation and use more extensive Internet cooperation points to provide users with more favorable communications products and better network services.
- To keep cooperating with Internet companies in depth, and step up efforts to launch high-traffic, low-cost Internet-specific products targeting at young people and students.



Deepen Cooperation with Peer Companies

In 2017, China Unicom further promoted in-depth cooperation with China Telecom, firmly established and implemented new development concepts, drove the supply-side institutional reform, and continued to increase the level of co-construction and sharing of telecommunications infrastructure. In line with the principle of “win-win cooperation and common development”, we actively promoted complementary and in-depth cooperation in resources, innovation and other fields among peer firms in the industry, to form a synergetic effect of development. At the same time, with an open mind, we expanded cooperation in many areas such as technology, business, resources, and capital with companies along the industry chain, to build a benign industrial ecosystem.



On March 31, 2017, China Unicom and China Telecom held a launch event of “Implementing the Speed-up and Fee-reduction Action and Promoting Six-Mode All-network-applicable Terminals” in Beijing, at which they jointly issued five actions to promote the six-mode all-network-applicable terminals. The two sides proposed initiatives and actions in terminal standard coordination, terminal product launching, omni-channel cooperation on promotion, and industrial consensus publicity.



Build an Industrial Eco Circle



Cooperation with device suppliers

China Unicom is committed to fulfilling its social responsibilities with industry chain partners and implemented “Transparent Procurement” and “Green Procurement”. China Unicom has 19,000 suppliers in electronic malls, about 250,000 products, and a transaction volume of 26.5 billion yuan. It won the second place in the benchmarking activity on materials procurement work management for central enterprises organized by the SASAC.

- Built an e-commerce platform with unified operation to achieve whole-lifecycle management of procurement with open transparent links, and fully electronic “Sunshine Procurement” and “Green Procurement”, which is standard, low in price, and transparent.
- Connected the platform with the supply chain system, implemented an order evaluation system for the electronic mall, performed post-performance assessment and management, and strengthened timely

settlement management and risk warning.

- Implemented “Internet + Purchasing” and promoted the use of electronic bidding and order trading systems to improve purchasing efficiencies.
- Made centralized procurement to reduce procurement costs, involving 371 kinds of products that accounted for 81% of total purchases.

Cooperation with terminal suppliers

In 2017, China Unicom implemented a multi-terminal-supplier cooperation model at the Group and the provincial levels to provide more opportunities for suppliers to participate. Through open recruitment and joint selection, more than 100 cooperative suppliers were selected, more than 700 cooperative intelligent terminals were launched, including 500 non-mobile intelligent new products, with an annual sales of nearly 10 million units. At the same time, China Unicom strengthened the social responsibility requirements for terminal suppliers, aiming to bring more diversified and affordable products, and better terminal services to users.

- Organized two national crowdfunding activities to promote flat trading on the upstream and downstream of the industrial chain, and implemented an “old-for-new plan” and a “star-building plan” to meet the needs of users in upgrading and replacement of 4G-network-supported phones.
- Served 2G-network mobile phone users, rolled out 200-999 yuan low-price mobile phones through crowdfunding, focused on 10 brands and nearly 20 models, and drove the follow-up of the industry chain through resource adjustment and exclusive cooperation.
- Introduced old-for-new, financial instalment, mobile phone insurance and other services to reduce the threshold for phone replacement and promote the green and healthy development of the industry.
- Made innovation on models, with terminals as the carrier, OS and APP as the touch points, and traffic (business) operation as the core, to build a cooperative ecosystem.

Cooperation with social channel distributors

In 2017, China Unicom cooperated with 170,000 social channel distributors. It established an operational management process of “access, rating, evaluation, and exit” for strategic channels including Gome, Suning, D-Phone and FunTalk, and built a “star-grading” operation management system. The cooperation with terminal sales channels such as Huawei, Gionee, Oppo and Vivo were fully upgraded and membership-based operation was deepened. In order to better protect the legitimate rights and interests of social channel agents, China Unicom has iteratively developed a centralized channel management system to further increase the agent channel fee payment efficiency.

China Unicom Shanghai Branch cooperated with the Family Mart (with 1,200 stores in Shanghai) and integrated data, life, and entertainment into one with mutually-recognized credits, joint membership, store partnerships, broadband WiFi, and big data joint marketing, creating a model for the industry.

Cooperation with virtual operators

China Unicom attaches great importance to the pilot work of mobile resale and actively supports the development of resale enterprises. In 2017, it cooperated with 31 companies on resale business and carried out pilot projects in 196 cities. By the end of 2017, the resale users of China Unicom reached 44.92 million with a market share of 73%, and has been widely recognized by regulatory agencies and all sectors of society.

Cooperation with private capitals on network business

China Unicom has actively promoted broadband building through cooperation with private capitals to jointly promote the development of the industry. By the end of 2017, more than 28 million ports had been constructed with private capitals, accounting for 14% of all broadband ports. In view of areas short of mobile network resources, the Company explored cooperation with private capitals for mobile network construction and carried out operational mechanism reforms simultaneously. It has implemented the pilot work plans in Yunnan, Jiangxi and Sichuan.

China Unicom Yunnan Branch promoted cooperative projects with private capitals on mobile services in Baoshan, Nujiang, Honghe, Zhaotong, Qujing, Chuxiong, and Pu'er, and planned to introduce construction investment of approximately 1.2 billion yuan. If calculated on the basis of an annual increase of 20% in business income, the CU branches in those areas will make up the revenue deficits and get surpluses within five years.

Cooperation with Internet Companies

In 2017, China Unicom partnered with 35 Internet companies including Tencent, Alibaba, Baidu, Didi, and NetEase, launching more than 40 2I2C projects such as Tencent King Card, Didi King Card, and Baidu Saint Card, including 95 kinds of products. The monthly active users of the mobile business outlet APP exceeded 50 million.

China Unicom and Tencent have jointly launched Tencent King Card to meet the traffic demand of specific consumer groups. It is very popular among the users as they can consume 12GB per month per capita, but the cost is less than the price of a cup of coffee (19 yuan).

In May 2017, China Unicom and Alibaba launched a smart mobile office solution - “DingTalk + Smart Office Phone + Ding Card” to help SMEs enter the cloud and mobile era. By the end of November 2017, a total of more than one million Ding card users had been developed.

China Unicom launched an on-line privilege center by introducing 24 partners such as Tencent Video, JD.com, Ctrip, Didi, ofo and Zhihu to meet users' needs in video, life, finance and travel.





Improve the Society-Wide Sense of Gains through People Benefiting and Sharing

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Improve the Society-Wide Sense of Gains through People Benefiting and Sharing

As a responsible corporate citizen, China Unicom has always adhered to the human-oriented development concept, with the enhancement of well-being of the people and the overall development of society as the starting point and end-result of our business operations. In 2017, the company firmly established the cultural philosophy of common progress, adhered to the mutual growth between employees and enterprises, effectively safeguarded the legitimate rights and interests of employees, and built a warm and harmonious labor relationship. We always adhere to the concept that development is for the people and that it should be pursued by the people and its outcomes should be shared with the people; actively contribute to the society; attach importance to performing responsibility abroad; continue to enhance the society-wide sense of gains; and work together for a sustainable future.

Measures Taken in 2017

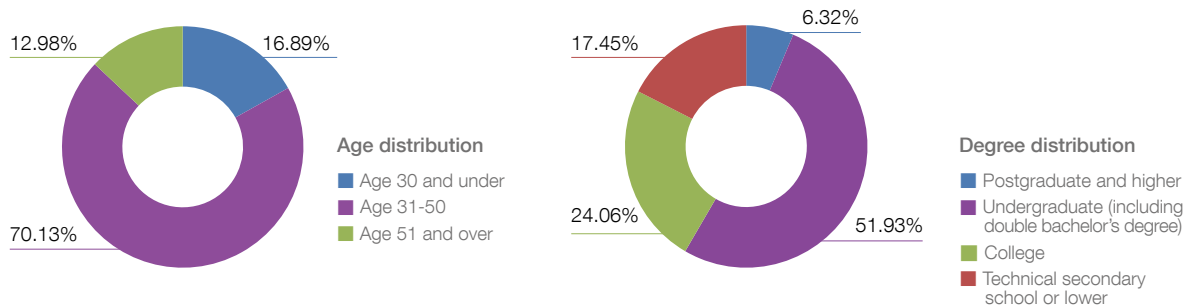
- Implemented a comprehensive incentive system effectively. The rank promotion rate of employees was 11%, the salaries promotion rate was 23%, and the signing rate of major disease group insurance reached 92%.
- Established a team of strategic talents, with 195 expert personnel, 1,492 key personnel, and 2,758 cutting-edge talents.
- Built a talent community and a talent management platform, and a talent incubation fund was established.
- Held 11 leadership seminars, and offered 58 high-end technical training courses, 176 professional skills training courses, and 84 online and offline courses.
- Improved the closed-loop handling mechanism for contacting the masses of employees and carried out the "General Manager Online" activities.
- Carried out assistance-to-Tibet and fixed-point poverty alleviation work, initiated 52 aid-Tibet projects, allocated funds of 60 million yuan, and worked hard to narrow the regional development gap; and provided special services for people with disabilities, the elderly, and minors.
- Strengthened overseas responsibility fulfillment, attached importance to overseas compliance operations, developed local employment and procurement, carried out responsible investment, and supported overseas public welfare.

Actions to be Taken in 2018

- To focus on improving the employment efficiency of the four teams of entity business, call center, installation & maintenance, and direct sales, and further strengthen the management of employment standards.
- To establish a sound and unified training management quality assessment system, and promote the implementation of training plans for key groups and strategic talents.
- To coordinate the incentive resources, implement comprehensive incentives, and focus on improving employees' sense of gains.
- To allocate more resources to the small units, small CEOs, strategic talents, and well-performed personnel to reflect more pay for more work; take into account equality and focus on low-income personnel.
- To improve the system of the three-level Staff Representative Conference, promote the online communication among general managers at all levels, and establish a system for public announcement of enterprise affairs.
- To explore the establishment of equity incentive mechanisms with benefits and risks sharing.
- To make efforts to improve the "creation" ability of targeted poverty alleviation areas and care for the needs of communication services of special groups.
- To promote overseas organizations to practice social responsibility and promote global sustainable development.

Care for the Growth of Employees

Employees are the source of strength for the company's innovation and development. With marketization as the core, the company has taken the opportunity of mixed-ownership reform to promote the establishment of market-based human resources systems, firmly safeguard the basic rights and interests of employees, and actively create safe, broad, and love growth space for employees, continue to create conditions to enhance employees' sense of identity and pride, and jointly promote the construction of happy and harmonious China Unicom.



Employees (person)	Jobs created (person)	Gender distribution (male/female)	Proportion of management personnel (%)	Proportion of minority employees (%)	Quit rate (%)
268,594	11,588	1.48 : 1	8.43	6.89	2.07

Current status of China Union Employees

Safeguard the basic rights and interests

Employ staff in strict accordance with the law

- Sign labor contracts with 100% of employees, offer endowment insurance, medical insurance, unemployment insurance, industrial injury insurance and maternity insurance to employees, established occupational pension assurance for employees on the basis of voluntary choices, achieve full coverage of employees' annual health examinations, and implement paid leave system for employees. The percentage of employees returning to work and retaining work after maternity leave/paternity leave is 100%.
- Pay attention to protecting human rights and respecting personal privacy. In the recruitment and promotion process, it is strictly prohibited to discriminate against employees in terms of age, ethnicity, and gender, to use child labor and forced labor. Establish an employee rights protection mechanism and open channels for employee complaints.
- The company strictly implements the "Labor Contract Law" and "Provisional Regulations on Labor Dispatch", and continues to promote optimization and standardization of the company's employment. The proportion of dispatched employees is reduced to less than 10% of the national requirement, with equal pay for equal work being achieved, and employee satisfaction continuing to increase.

Rights security system

- Establish a system for managing collective contracts and files of labor dispute mediation work, standardize the collective contract signing, performance, dispute mediation mechanism, mediation team formation, employee complaint handling, dispute settlement, and letter and visit reception of offices at all levels.
- Establish a joint working mechanism for labor unions and human resources departments, publicize and implement new policies for comprehensive incentives, taking into account the incentive role of various measures and the generalization of the basic rights of employees. Focus on policies that directly involve the vital interests of employees, including labor compensation, rest and vacation, labor safety and health, insurance benefits, employee training, and labor discipline.

Assure the health and safety of employees

China Unicom attaches great importance to safe production, strengthens the responsibility system for production safety, and promotes the integration of pre-planning and emergency management with production and operation, strengthens emergency drills, and improves ability to response to prevent crises. The company also carries out system-wide safety inspections and establishes safety awareness among all employees; carries out the activity titled "readily taking pictures of hidden dangers" to investigate hidden risks and carry out rectification of safety hazards so as to create a good environment for safe production. The company does involve occupational diseases caused by occupational disease hazards listed in the National Occupational Disease Classification and Catalogue. In order to reduce the related diseases caused by the natural environment, protection and labor protection measures have been formulated for branches in some plateau region, and employees who suffer from altitude sickness in areas where conditions are hard have been given policy care and special allowances other than remuneration.

37 safe production trainings
Safe production trainings cover **100**% employees

Pay attention to employee training and development

Perfect promotion-based incentive system

China Unicom continues to improve its labor cost allocation mechanism, tilt its innovative business areas, effectively implement a comprehensive incentive system, and improve employees' sense of gains.

- Continuously promote the normalized operation of the promotion-based incentive system. In 2017, the Group achieved a promotion rate of 11% for employees and a salary promotion rate of 23%;
- Establish strategic talent teams in a deep-going way by selecting 195 experts, 1,492 key personnel, and 2,758 cutting-edge talents;
- Continuously strengthen the employment efficiency of talents, build a "talent community" and talent management platform, and set up a special talent incubation fund. The total number of "talent community" users has reached 62,000, with scores up to 2.13 million, and 34 crowd sourcing projects being launched.

Group achieved a promotion rate of **11**% for employees and a salary promotion rate of **23**%
195 experts, **1,492** key personnel, and **2,758** cutting-edge talents have been selected

Continue to carry out education and training work

China Unicom develops employees' core competence standards based on corporate culture, nurtures employees' life-long learning spirit, and continuously improves professional qualities and innovation capabilities.

Establish a comprehensive training management system. Establish a training system with unified management system and a clear division of labor according to requirements for different groups, and offer exclusive training programs for six key groups based on the headquarters management department, management sequence (leadership), professional sequence, innovative talents, integrated grid (small CEO), new employees, etc.

Carry out diversified training activities. Focus on improving leadership, organize the 11 leadership seminars for general and vice-general managers of provincial-level branches, general managers (secretaries of party committees) of prefecture-level branches, general managers of county-level branches, responsible personnel of key professional lines, and reserve management personnel. More than 700 trainees participated in the training; more than 43 person-times of senior executives, experts and key personnel were sent for training by making advantage of high-quality external resources such as "one university, five colleges". Focus on the groups of the professional lines, offer 176 professional skills training for business executives and technical backbones of 176 professional lines in an orderly manner, accumulating more than 21,000 person-times of participation in training. 58 terms of high-end technical trainings were offered to O&M professional talents specialized in IT strategic talent and core networks, customer response and cyber security.



In the first seminar for senior executives in 2017, Chairman Wang Xiaochu proposed staying true to the mission and moving forward to be a good leader who is "loyal, clean, and responsible".

China Unicom Shandong Branch has designed a one-year progressive training plan for new employees – "four lessons for new employees". Upon receiving detailed, scientific, and interlocking training, new employees can quickly complete transformation and expand career development path.

Promote course development and innovation in training methods. 62 online courses and 47 sets of matching tests are developed independently for the six innovative business lines: Internet of Things, big data, cloud computing, industry applications, traffic backwards operation, capacity openness, are learned by 4.55 million people. A total of 17 comprehensive management courses for small CEO has been newly developed to formulate guidelines for the construction of a training and certification system for smart family engineers, and some provincial-level branches have launched training in rotation. 26 e-learning leadership courses are developed or introduced, 84 online and offline professional courses are developed, and 36 course promotion activities are held. We have improved the e-learning system by offering 2279 online courses and 3753 micro-courses through "Wo School" mobile app. with learners exceeding 15 million, and the total duration of study exceeding 13 million hours.

China Unicom Beijing Branch builds a "UV Wechat-Assisted Instruction Platform" with the functions of "Micro-curricula" online learning, learning effectiveness testing, trainee recruitment evaluation, employee questionnaire survey and team building, etc. It is displayed through three theme modes: U-perspective, V-curriculum, and wonderful +. It provides new ways for employees to independently participate in diverse learning, and accelerates the development of knowledge-based workforce.

Customer Service Call Center of China Unicom Chongqing Branch launched a new Wechat teaching model which uses WeChat group to offer online course training, resolve the difficulty in training employees on different shifts at the same time, effectively integrate employees' fragments of time, and 90% or more employees have participated in it and achieved good learning effect.

Continue to carry out employee skill competition. In 2017, China Unicom organized various contests such as salesperson marketing skill competition, smart family engineer skill competition, and bid evaluation expert contest, which attracted 131,200 employees took part in the selection and effectively exercised a professional team of "technical expert, service consultants, and marketing proficient".



China Unicom Salesperson Marketing Skill Competition



China Unicom Smart Family Engineer Skill Competition

China Unicom Fujian Branch has carried out the “Wo • Ingenuity Cup” skill competition which lasted half a year, and the number of participants has reached more than 4,000. It is the competition with most participants, involving most complete types of work and with largest scale in history. The competition project emphasizes on-the-job training and practical use, and has realized the purpose of promoting trainings with competition and promoting learning with competition, and effectively improving front-line personnel's ability to handle routine problems and unexpected incidents.

Promote employees to participate in management

China Unicom regards employees as the community with a common future for corporate development. It attaches great importance to the participation of employees in business management activities, and fully protects the rights of employees to be informed, participate and supervise, and constantly enhances employees' sense of identity and belonging to the company.

Perfect democratic management system. Explore and establish an operational model for China Unicom's corporate democratic management, which integrates “System of Workers and Staff Congress”, “General Manager Online Activity” and “Enterprise Affair Publicity Conference System”. Revise the “Measures for Implementing China Unicom Workers' Congress System” and “China Unicom's Administrative Measures for Openness and Democratic Management”. Formulate the “Work System of the Special Committee of the Workers' Congress of China Unicom” to form a closed-loop mechanism for handling employee representatives' proposals and reasonable requests.



Draft of Review Conference of Workers Union of China Unicom and List of Recommended Candidate

China Unicom Henan Kaifeng Branch organized the theme activity titled “I offer ideas to be the master” for employees to offer advice and suggestions, and set up a leading group for “offering advice and suggestions” activities, soliciting a total of 283 suggestions on platforms, management, and professionalism.

Establish an internet-based platform for offering advice and suggestions. China Unicom has developed a multi-tenant model of “employees' advice and advice platform” applicable to companies and professional lines at all levels. It has carried out 19 provincial-level and prefecture-level “managing general manager online” activities, collecting 2065 employee questions and 1136 direct replies.

China Unicom held the “General Manager Online” activity. There were about 3,000 online employees active at the same time with a peak of 3,933 people. A total of 639 employee questions and comments were received. The general manager Lu Yimin responded to 55 hot questions. As one of the main forms of democratic management of the company, this activity has unblocked the channel for employees to offer advice and suggestions, which helps to pool the wisdom and strength of employees, build a harmonious corporate family, and promote the continuous healthy development of China Unicom.



President Lu Yimin was responding to employees' questions

Care for employees' life

The continuous and healthy development of a company depends on the selfless dedication and hard work of its employees. China Unicom attaches great importance to the humanistic care for its employees, thinking what employees think, addressing employees' pressing needs to solve the worries of employees by taking multiple measures.

Perfect employee service system

China Unicom has established a list system for serving employees to effectively understands the needs of employees, carefully design products for serving employees, and provide accurate services. The company also carries out such activities as care for employees' birthday, care for children's enrollment, care for ill employees and relatives, and providing summer classes, kindergartens, nursing rooms, and special parking spaces for pregnant women. The company continues to carry out various forms of warming activities to provide full-service to employees.

China Unicom Jilin Branch adheres to the humanistic purpose of “serving and caring for employees” and carefully prepares summer classes for employees by assisting children in completing their vacation homework, offering a variety of teaching programs, cultural and sports activities, and specialized professional counseling. Every day, it also prepares delicious foods for children. It has won the welcome and praise of the majority of employees and children of more than 70 employees have attended the class.

China Unicom Jiangsu Jiangyin Branch has established "Love Mother and Baby Room" equipped with sofas, refrigerators, microwave ovens, air purifiers and other facilities to create a private, clean, comfortable and safe rest environment for breast-feeding female employees and to strengthen protection of female employees in "four phases", which has effectively solved the most concerned, most direct and most realistic issues faced by female workers and has won unanimous praise from the majority of employees.

Colorful cultural activities

China Unicom actively develops various forms of cultural and sport activities such as literary and artistic creations, exhibitions, performances, calligraphy, photography, recitations, individual sports events, and comprehensive sports events. Various interest groups are established to carry out various activities, to meet the growing spiritual and cultural life of employees.



China Unicom Staff Badminton Competition 2017 (North Division)

China Unicom organized the 2017 Staff Badminton Competition and organized a team to participate in the national badminton competition for national communications industry organized by China Association of Communication Sport Associations, and achieved the best results in the history of competition, demonstrating the spiritual outlook of Unicom employees forging ahead with unity and courage.



China Unicom Changsha Branch celebrated the Lantern Festival



China Unicom Jiangxi Branch Held Staff Table Tennis Competition



China Unicom Tibet Branch held winter fun sports meeting



Balloon volleyball final match held by China Unicom Heilongjiang Branch



First Staff Sports Meeting held by China Unicom Zhejiang Branch



China Unicom Beijing Branch held dance contest



China Unicom Fuxin Branch held staff cultural festival



China Unicom Yunnan Branch greeted the 19th CPC National Congress by holding sing contest



First Staff Sports Meeting held by China Unicom Guangzhou Branch

Thoughtful psychological concern

China Unicom cares for employees' mental health, strengthens the development of EAP specialists and psychological counselors, and carries out EAP publicity. It helps employees relieve psychological stress so that they can put themselves into life and work in a more active and peaceful state, and continuously enhances their sense of well-being.

- Carry out resident psychological counseling experience activities, organize 12 online micro-teaching sessions, held EAP commissioner and psychological counselor trainings, and EAP corporate service training.
- Strengthen the construction of EAP web self-service platform system performing the functions of mental health publicity, online consultation, online testing, online interaction, E-Learning teaching, etc., providing employees with 216 kinds of various mental health service information.
- Conduct psychological health assessments to understand employees' mental health levels and their needs for psychological services.

China Unicom Hunan Changsha Branch organized a training course for psychological counselors which attracted 25 employees to further promote the EAP employees' psychological support work. Changsha Branch was listed as the first pilot units of "Employee Care Action" in Changsha City.

China Unicom Liaoning Fuxin Branch held a lecture titled "Open your mind to embrace happiness—Be Your Own Best Psychologist" to help employees to treat emotional stress correctly, work happily, build a healthy working mentality, and help employees gain positive sunlight. More than 70 employees participated in psychological counseling activities.

Heart-warming activities

China Unicom has carried out "heart-warming" campaigns in depth and has established mutual assistance mechanisms such as employee mutual aid medical care and major disease insurance systems, which focuses on major illnesses. It has been generally welcomed by employees and the signing rate for critical illness insurance has reached 92%. In 2017, 28.38 million was allocated for sending warmth, and 970,000 Yuan was paid for labor model.

9.37 million yuan was allocated for assisting employees who have difficulties in life

Allocate condolence payments of **28.38** million yuan

Give Back to the Society

As a responsible large state-owned enterprise, China Unicom attaches great importance to issues on social and people's livelihood and actively uses its professional and technical strengths to engage in social public welfare. It vigorously carries out targeted poverty alleviation, charitable donation, helping the poor and voluntary services, and other activities to help improve people's livelihood, spread love, and promote the harmonious development of the company and the society.

Further advance poverty alleviation and aid

China Unicom conscientiously implements the decisions and deployment made by the Party Central Committee in aiding the poor, and solidly promotes poverty alleviation and assistance in Tibet:

- Improve the organizational structure and perfect the three-level management system for decision-making, daily management, and implementation of poverty alleviation. The company has set up the designated poverty alleviation work leading group and the designated poverty alleviation work office, and the relevant provincial branches have set up the fixed-point poverty alleviation work offices to select and send personnel to go to fixed-point poverty alleviation counties to implement the assistance work, and comprehensively promote the designated poverty alleviation work. China Unicom's designated poverty alleviation work has been fully affirmed by the local provincial party committees and the provincial governments, and therefore has been awarded twice by Hebei Provincial Party Committee and the provincial government the title of "Advanced Collective Directly under the Central Committee of the Communist Party of China for Fixed-Point Poverty Alleviation Work".
- Prepare "China's Unicom's 13th Five-Year Plan for Poverty Alleviation and Aid to Tibet". Implement targeted poverty alleviation through industries, tourism, medical assistance, and educational assistance as the circumstances may require; arrange 130 projects; invest RMB 235 million in poverty alleviation aid funds, and help registered poverty-stricken families to shake off poverty. In 2017, the company initiated 52 poverty alleviation and aid projects, and allocated a total of RMB 60 million in poverty-relief and assistance funds.



Chairman Wang Xiaochu investigates the fixed-point poverty alleviation work in Guyuan County and Kangbao County in Hebei Province



President Lu Yimin investigates the fixed-point poverty alleviation work in Ceheng County in Guizhou Province



In December 2017, Minister of Industry and Information Technology Miao Wei and his party went to Luoning County, Henan Province to investigate and assist in poverty reduction. After listening to the work report of China Unicom Luoyang Branch's general manager, they went deep into the poverty-stricken family Zhao Gaichun to express their condolences and to understand the communication usage of his family. Zhao Gaichun proudly told the Minister Miao Wei: "My family uses China Unicom's fiber-optic broadband, we use IPTV to watch TV, and each family member uses Unicom's Tencent card in cell phones, thanks to the party and the government and China Unicom for giving us such a good life!"

China Unicom Xinjiang Branch adheres to the overall goal of "social stability and long-term stability", earnestly carries out the "visiting, benefiting and gathering people" work and implements the eight tasks of "1+2+5" with high standards. It focuses on key tasks such as "building a strong grassroot organization" and "doing well the work for the masses," organizes 74 task teams for "visiting, benefiting and gathering people", sends 818 officials to offer special assistance, and spends nearly RMB 100 million. The company was highly awarded by the party committee of the autonomous region.

China Unicom Hainan Branch establishes a "three-level" management mechanism, explored a new model of targeted poverty alleviation, helps all-for-one tourism through the activities of "industry support" and "beautiful village", and starts the fight against poverty. In the year, more than 400 assistance activities were carried out to lead 107 people out of poverty.

China Unicom Guangxi Branch and Guangdong Branch jointly establishes the first village-resident "First Secretary" wealth creating e-commerce platform which was put into operation in Nanning, helping more than 6,000 first village-resident secretaries to solve the problems of sales of agricultural and sideline products, helping to promote the sustainable development of poverty alleviation in Guangxi, creating a sustainable "Internet + Accurate Poverty Alleviation" industrial ecosystem.

Actively carry out external donations

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

External donation of **72.9577** million yuan

Public welfare donation of **68.3285** million yuan

Donation item	Amount (Ten Thousand Yuan)
Donation to fixed-point poverty alleviation (poverty alleviation)	4,288.56
Assistance and support to Tibet (Tibet assistance)	1,252.66
Donation to culture and sports	196.36
Donation to education (education supporting)	57.05
Other public welfare relief and public donation	30.07
Donation to disaster area	20.17
Donation to construction of communal facilities	17.65
Other targeted assistance areas	11.8
Donation to medical and health services	7.89
Donation to disabled service (disabled supporting)	2.95
Donation to environmental protection	0.2
Donation to corporate charity foundation	0.2
Other donation	1,410.21
Total	7,295.77

List of External Donations of China Unicom in 2017

China Unicom Ningxia Branch launched the activity of "Care for Sanitation Workers and Co-construction of Beautiful Ningxia", and actively claimed "Micro Wish" to extend the hand of donation and care for the sanitation workers. The company donated nearly 600,000 yuan in total, and provided 3,740 sanitation workers with telephone charge of nearly 400,000 yuan. The company's kindness was highly praised by many government departments in Ningxia Autonomous Region.

Care for vulnerable groups

China Unicom, as a caring company, has given special attention to vulnerable groups such as the disabled, the aged, and minors through special love services, smart applications, employee donations and other forms. It has launched special products and services to make them convenient and affordable to enjoy communication services.

Care for the disabled

In order to promote the career development of the disabled, in-depth development of tailor-made service for disabled persons and promote modernization and information construction of the governance of affairs concerning the disabled, China Unicom Sichuan Branch promoted scientific and innovative career development of the disabled through the use of "Intelligent" systems as carrier and the use of "Internet+" information technology. As of the end of 2017, the number of users of the "Wisdom Service" project in the province reached nearly 50,000.

China Unicom Ningxia Branch carried out activities of caring for the disabled facing the disabled in the community. Through psychological counseling, network knowledge workshops, and tips on the use of traffic, China Unicom Ningxia Branch promoted China Unicom's care for disabled voluntary services and built a social atmosphere that is sincere and attentive for the people.

Care for the aged

China Unicom Shandong Branch launched the "one-to-one" service according to the early customers' new demand for smart phones, set up mobile service posts, seats for the aged, convenient service boxes, launched a number of "big screen, large capacity, large flow, standby long" boutique mobile phones, sent outstanding salespersons to assist the aged in importing the address book, downloading application software, and learning practical tips such as online news reading, WeChat, fitness monitoring, entertainment videos, and voice messaging.



China Unicom Jiangsu Suzhou Branch, in order to help the aged to enjoy smart life, cooperated with Suzhou University for the Elderly to launch a smart life lecture and offer live courses through smart mobile phone. Suzhou Branch set up 4 training courses in the University for the Elderly, hosted 40 "Smart Life in Suzhou" Wechat public welfare lecturing activities, and counseled more than 2,000 senior citizens.

Care for children

Linfen Red Ribbon School is the only full-time school in China that specializes in treating children with AIDS. On Children's Day, China Unicom Unipay Co., Ltd. joins hands with the "Chinese Red Ribbon Fund" to launch a "share for love, doing the good with WO" fundraising campaign as a Children's Day gift for the children of the Red Ribbon school in Linfen. The fundraising event received a total of 305 pieces of loving materials, so that the "red ribbon" children feel the warmth of the society.



China Unicom Zhejiang Branch is committed to voluntary services for left-behind children, establishing a normalized support mechanism and organizing charity activities for children left behind under the theme of "Using China Unicom to Connect You and Keeping Love Together" which has benefited over 100 left-behind children. It has also won the 2017 Silver Award for Volunteer Service Contest in Zhejiang Province.

Be enthusiastic in public welfare activities

China Unicom actively encourages all departments and affiliated enterprises to exert their respective strengths and advantages to conduct voluntary service activities on multiple levels. In 2017, the number of registered volunteers in the company reached 23,998, and a total of 39,966 volunteer service activities were conducted. This contributed "Unicom Positive Energy" to the development of social welfare.

The number of registered volunteers reached **23,998**

Totally **39,966** person-times participated in voluntary service activities

Volunteers from China Unicom Fujian Branch actively participated in the "Yong Volunteer Travel Warms Road Homeward" - Chinese Youth Volunteers Serve Spring Festival travel, the "Warm Winter Campaign", to provide ginger, tea, water, travel guides, and ticket sales services for the majority of travelers, sending warm heart service in winter in the most modest way.



China Unicom Xinjiang Branch has continued to carry out large-scale public welfare activities of "adding love and care to the future and jointly building WO future". It calls on China Unicom users to donate membership points and give love to build love book houses with free books donated to primary and secondary schools in remote and impoverished areas. As of 2017, 256,465 China Unicom users in Xinjiang participated in the donation of membership points, and accumulatively donated 161 million points, built 157 book houses, donated more than 170,000 Chinese and Ukrainian text books, which benefited over 85,000 primary and middle school students of all ethnic groups.



On World Blood Donation Day on June 14th, China Unicom Guangzhou Branch organized an unpaid blood donation activity facing its employees. The employees responded positively. A total of 97 people participated in the event. The total volume of donated blood was approximately 35,000 ml, demonstrating the love that Guangzhou Unicom had given to society.



China Unicom Beijing Branch continued to carry out "Warm Clothes Winter" activities and collected a total of 100 donated winter clothes. The donated clothing was transferred to the people in most need by university student volunteers who return home in their holidays and sent "The warmth of CU Beijing Branch".

China Unicom Handan Branch has actively participated in the voluntary service activities for creation of nationwide civilized cities and actively organized employees to offer voluntary service at the Northern Crossroad Post in Congtai District to maintain a safe, orderly, civilized and unimpeded road traffic environment with smile and love and guarantee safe travel of the citizens, thus contributing to the "creation of a civilized city".

Perform Overseas Responsibilities

Promote overseas compliance operation

China Unicom Global has prepared the “Major Risk Guidebook” and issued guidance manuals for compliance operations in Hong Kong, Myanmar, Japan, Singapore, Russia, South Africa, and Brazil, as well as compliance guidelines for key businesses in America and Europe. It establishes a globally integrated internal control system to form a long-term mechanism to guard against the risks of integrity; strictly abides by local laws and regulations and maintains a good market order. China Unicom Global will resolutely satisfy the requirements for real-name registrations on the Internet, strictly implement the provision of “One Certificate with Five Numbers”, and provide escort for cross-border communications.

Integrate into overseas local community

Carry out local employment

China Unicom Global actively implements its localization strategy. It has 30 branches worldwide and attaches great importance to the development of local employment. The recruitment and management of all employees strictly abide by local laws and regulations. At present, the total number of employees has reached more than 700, creating more job opportunities for locals.

Carry out local procurement

The vast majority of networks, IT products and equipment, and integrated service items purchased by the company come from strictly selected local suppliers. The company abides by local laws and regulations, advocates the spirit of contract, honesty and transparent management, implement dynamic management, requires suppliers to provide green products, and continues to promote the localization procurement of China Unicom Global to become perfect, mature and standardized.

Carry out local public welfare action

In overseas development, China Unicom has always been committed to caring for society, taking responsibilities, giving back to the community, and spreading love. In 2017, the company stepped up its cooperation with the Heep Hong Society to raise awareness of the children in need; to develop cooperation with the Society for the Prevention of Cruelty to Animals to protect the animals, and to make these charitable activities more widespread and attract more people to participate in charity, fly hope, and walk with love.

China Unicom Australia Branch understands the local culture and customs through various channels, respects local customs, culture and business models. It has participated in many activities organized by local governments, chambers of commerce, and industry associations; has become a member of the China General Chamber of Commerce in Australia and a member of secretariat of the Women's Executive Association; actively assists the Chamber of Commerce in organizing communication and cooperation with local businesses and charities.

Pay attention to overseas responsibility investment

China Unicom is striving to implement the national “Belt and Road” initiative and has enhanced the deployment of international network resources in the world's major economic corridors and information ports. In 2017, the “Asia-Africa-Europe No.1” submarine optical cable participating in the construction of the Asia, Africa and Europe continents was put into operation. The “China-Myanmar International Terrestrial Cable” independently built by the company was put into trial operation; the company signed the South Atlantic International Undersea Optical Cable Construction Agreement with Cameroon Telecom and Huawei Marine to officially launched the construction of the Hong Kong-US undersea cable. During the construction process, the protection of the local ecological environment was highly valued and all routes were approved by the local environmental management department.







Jointly Create Green Mountains and Rivers by Going Green and Environmental Protection

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Jointly Create Green Mountains and Rivers by Going Green and Environmental Protection

Ecological civilization is a millennium plan that concerns the sustainable development of the Chinese nation. China Unicom has actively established and practiced the concept of “Beautiful scenery is the gold and silver mines”, adhered to the basic national policy of resource conservation and environmental protection, continuously strengthened green networks, green operations, green supply, green actions, and actively implemented national supply-side reforms. The company carries out energy-saving and emission-reduction work in an in-depth manner to achieve harmonious coexistence between human and nature and help build beautiful China.

Measures Taken in 2017

- Invested 100 million yuan in special funds for energy saving and emission reduction, focusing on energy-saving transformation and application of energy-saving technologies.
- Strengthened green procurement, implemented co-construction and sharing, attached importance to electromagnetic radiation management, speeded up the streamlining of 2/3G networks, and carried out equipment retreat and computer room integration work, with a total saving of 550 million kWh/year.
- Carried out paperless operation to enhance the utilization of materials. The value of utilization of materials was 8,430.55 million yuan.
- Vigorously carried out green operations and implemented green public responsibility.

Actions to be Taken in 2018

- To further promote the streamlining of the network, continue to implement technological energy conservation, and deepen the co-construction and sharing of telecommunications infrastructure.
- To strengthen the disposal of waste materials, increase the efficiency of waste disposal, and reduce waste pollution to the environment.
- To continue to carry out green actions, practice the concept of green development, and help the construction of beautiful China.

In 2017, we thoroughly implemented the overall work plan of “controlling costs and transferring mechanisms”, continued to reduce costs and increase efficiency, enhance network competitiveness, further strengthen management of energy conservation, promote energy-saving technologies, carry out energy-saving propaganda, and promote the harmonious coexistence of enterprises and the environment.

Promote Green Management

With the rapid development of new technologies such as mobile Internet, cloud computing, and the Internet of Things, especially the rapid construction of 4G networks and the network-wide optic fiber networks, China Unicom's energy consumption has shown a trend of rapid growth. China Unicom actively promotes the structural adjustment of the network, starts with planning and network design to reduce energy consumption through various means such as network structure design, equipment selection, application of new power supply technology, adjustment of network capacity on demand, and application of energy saving and emission reduction technologies. Efforts are made to reduce greenhouse gas emissions, standardize the treatment of pollutants and wastes, and improve the level of refined management.

- Formulate “Special Plan for Energy Saving and Emission Reduction in 2017-2020”; constantly strengthen management of resource and energy consumption by controlling the increase in the total amount of energy consumption and combining with the ability to increase management capacity. In 2017, a special fund of RMB 100 million in energy saving and emission reduction was allocated, focusing on energy-saving and energy-saving technologies.
- Strengthen the management of energy-consuming accrual accounting, and strengthen the management and control of professional accounting and energy use.
- Establish a network reduction and frequency recultivation working group to strengthen the 2/3G network simplification work.
- Formulate technical standards for network power supply architecture, and publish a number of corporate standards such as Warburg warehouse, high-voltage DC power supply standards, and high-rate battery technical requirements.
- Establish an energy management system to comprehensively inspect the daily energy use of the equipment room, and regularly complete the audit and certification work to provide strong support for energy consumption planning and implementation.

On November 1st, 2017, China Unicom initiated the energy-saving and innovation alliance in the information and communication industry, with purpose to advance information communication equipment, platforms, power supply systems, refrigeration systems, operation and maintenance based on the development of a new generation of information and communication technologies and integration of infrastructure, thus promoting the research and application of energy conservation and technological innovation in the industry, creating innovative platforms, pushing forward industrial energy conservation technology innovation, standardization and the formation of industrial chains, realizing the transformation of the industrial chain of infrastructure architecture, and promoting energy-saving emission reduction in information and communication industry.



All delegates raised their hands to form a union

Note: At present, statistics on the amount of hazardous waste emissions, non-hazardous waste emissions, and the total amount of packaging materials used in manufactured products have not yet available. The above data statistics system will be established as soon as possible.

Build Green Networks

Promote green purchasing

China Unicom has promoted centralized procurement of high-efficiency energy-saving equipment, increased UPS and air-conditioning technology tests, and introduced TCO cost estimation to guide energy saving of manufacturers' products. The company implements environmental quality certification, defines green environmental protection requirements for equipment, and requests suppliers to pass SA8000, ISO14000 certification. It also promotes e-bidding, electronic order transactions, reduces environmental costs in transactions, improves suppliers' environmental awareness and capabilities, strictly implements national environmental protection standards, pay great attention to issues on power consumption of end-products, and constantly cooperates with suppliers to make improvements to ensure that the terminal products customized by the company meet the requirements of energy-saving, environmental protection and safety.

Close down backward production facilities

China Unicom deepens the structural reforms on the supply side of the country, accelerates the simplification of the 2/3G network, actively carries out business integration such as traditional switching networks and equipment withdrawing from the network, shuts down more than 50,000 sets of various types of equipment, saving 250 million kWh of electricity. It has completed the integration of 7280 computer rooms in all 1680 exchange sites, saving an area of 480,000 square meters and electricity of 300 million kWh/year.

China Unicom Shandong Yantai Branch, carried out daily organization and implementation of network simplification and frequency rectification, powered off 567 base stations, reduced frequency of 4,817 2G base stations, reduced frequency of 1,745 3G base stations, and annually saved electricity of 4.06 million yuan, which improved economic and environmental benefits.

Network co-construction and sharing

In line with the principle of "win-win cooperation and common development", China Unicom has continued to deepen inter-enterprise cooperation with an open mind in terms of communication infrastructure such as transmission poles, pipelines, direct-buried optical cables, and indoor distribution systems, in order to reduce repeated construction, form complementary advantages and continuously improve the level of telecommunications infrastructure sharing.

Saved over **640** million yuan in project investment

- Constructed 5,200 km of transmission poles, 6,300 km of pipelines, and 7,860 indoor distribution systems.
- Shared transmission line of 12,100 kilometers, pipeline of 1,300 kilometers, and 1,410 indoor distribution systems with brothers operating enterprises.
- Shared 24,000 km of transmission poles, 7,400 km of pipelines, and 2,520 indoor distribution systems with brother operating enterprises.

Responsible Performance Indicators	2015	2016	2017
Co-construction rate of indoor distribution systems (%)	69.07	73	71
Sharing rate of indoor distribution systems (%)	94.66	63	93
Pole line co-construction rate (%)	67.76	85	88
Pole line sharing rate (%)	94.16	92	95
Pipeline co-construction rate (%)	82.17	85	92
Pipeline sharing rate (%)	92.23	86	98

Manage electromagnetic radiation

China Unicom strengthens the management of electromagnetic radiation in the construction of mobile communication base stations in strict accordance with the provisions of the Ministry of Environmental Protection and local environmental protection departments, to ensure that the electromagnetic radiation levels meet national standards. According to changes in the management of electromagnetic radiation by the Ministry of Environmental Protection, the institute of network technology of the company organizes the testing and research on the electromagnetic radiation of mobile communication base stations of many branches. At the same time, the company formulated the "Management Regulations for Electromagnetic Environmental Protection of China Unicom's Communication Base Stations (Trial)" in line with the relevant requirements of the Ministry of Environmental Protection and the Ministry of Industry and Information Technology, which normalized the base station registration and filing, electromagnetic radiation testing, information disclosure, complaint handling, and rectification of stations not up to standards.

In order to make people more scientifically aware of electromagnetic security and enjoy communication life, China Unicom Fujian Branch launched a campaign to promote electromagnetic radiation safety by using China Unicom's first "Electromagnetic Radiation Science Popularization Vehicle" to conduct accurate monitoring and conduct comparative testability of the radiation value of various types of household appliances such as cookers, televisions, computers, and mobile phones, which helped local residents to gain knowledge of the laws, regulations, and scientific knowledge of electromagnetic radiation at the base station and eliminate misunderstandings.

Deepen Green Operation

Build green service outlets

China Unicom follows the concept of “low-carbon emission reduction and green office”, takes the establishment of a digital business hall as a starting point, and promotes the transformation of traditional communication service function halls to experiential retail stores in order to create green smart business outlets featured by “standardized management, standardized layout, modern equipment, digital operations, and paperless acceptance”. Relying on a unified paperless system, the company has handled 65.2766 million transactions and saved costs of 250 million yuan. To promote the use of video conference, internal online video live broadcasts were adopted to reduce carbon emissions in some of the company's

large-scale work conferences in 2017. In addition, the company ensures zero discharge of sewage and pollutants, and sewage and pollutants are fully discharged into the sewage pipe network system for disposal at all operating sites.

Handled a total of **65.2766** million transactions in a paperless way
Saved a total of cost of **250** million yuan

China Unicom Sichuan Branch practices the concept of green development, promotes paperless office, improves OA system, builds a green office platform; cancels the paper conference materials, gives meeting notices through E-communications, and uses the PAD as a vehicle for presentation in large conferences. In 2017, 2,713 corporate-level documents were processed through the office system, saving more than 270,000 sheets of paper; large-scale meetings saved 60,000 sheets and saved the cost of 2,236.50 yuan.

Promote green energy-saving technology

In 2017, China Unicom put forward the idea of partitioning, modularization, and personalized construction of the energy-saving mode of the engine room, developed a standardized green machine room construction model, and launched cloud-pod 1.0 products to solve the problem of chaos and high power consumption in the current high-power CT equipment. The company also deployed IT and CT integration to provide a feasible solution to the evolution of the cloud infrastructure.

Adopted energy-efficient solutions, build new switching power supply to increase efficiency by 3%; adopted smart double-cycle air conditioners in the northern and central regions, which saved energy by more than 15%; compared with the traditional construction plans, more than 26 million kWh of electricity was saved.

Launched application and promotion of 336V high-voltage direct current system, high-rate discharge battery, and aluminum alloy cable. At present, the 336V high-voltage direct current system and high-rate discharge battery are undergoing open tests. The aluminum alloy cable is ready for coming into market, providing a feasible path for branches' energy-saving applications.

Promoted application of eSIM technology to replace physical SIM cards, and gradually reduced the costs for operators and telecom users in manufacturing, transporting, storing, and replacing physical SIM cards, reducing raw material consumption and reducing environmental pollution.

China Unicom (Gui'an) Cloud Data Center's "warehouse-type micro-module room" passed the Green Grade 4A Global Certification for Data Center. The Gui'an Cloud Data Center is built according to the most advanced T3 + to T4 data center standards in the world. By applying flexible micro-module technology, electrical technology, refrigeration technology, and a unique distributed UPS system, the center has realized flexible customization, flexibility, green energy saving and overall PUE value is controlled below 1.3.



2017 Energy Conservation and Emission Reduction Conference in Communications Industry

China Unicom Yunnan Branch adopted such technologies as the market-oriented transaction of large-scale industrial power supply for core computer rooms, low-efficacy OLT power-off, and smart shutdown of LTE base stations, and has saved electricity expenses by approximately 3 million yuan. This technical energy-saving achievement was recognized by the Communication Network Operation & Maintenance Committee of the China Association of Communication Enterprises, and Yunnan Branch won the title of 2016-2017 Advanced Unit for Energy-saving Management Innovation in the Communications Industry.

Special actions for cost decreasing and benefit increasing

In 2017, China Unicom withdrew 49 inefficient systems from network, consolidated 83 sets of homogenous systems, optimized capacity of 8 sets of systems, and migrated 91 sets of cloudized products. The company actively encourages and guides units at all levels to carry out scientific and technological innovation activities and greatly improves overall system supporting efficacy.

- The headquarters have carried out the quality and efficiency improving work in terms of closing down or suspending operation of equipment and application systems, data production processes and report clearing, frame convergence and removal, circuit clearing, and recovery of Internet address resources and so on, which has reduced operating costs of about 12.23 million yuan and saved energy consumption of about 2.15 million yuan.
- The provincial branches enhance the responding ability of information-based support and realize quality and efficiency improvements mainly through closing down or suspending operation of equipment and application systems, independent research and development and independent maintenance, technological and management innovation and other initiatives, which has reduced operating cost by about 60.8 million yuan, of which 17 million was from energy-saving.

Pay great attention to asset vitalization and utilization

In 2017, China Unicom continued to adopt reverse logistics management to send the wastes to professional third parties for comprehensive disposal and recycling and therefore improve the recycling of waste materials. The value of reuse of materials reached approximately 57.068 million yuan, and the amount of 1.1 billion yuan was recovered from waste cable disposal; 55.5373 million yuan from waste batteries disposal; 83.4278 million yuan from general scrapped materials; the value of asset vitalization and utilization reached 84.3055 million yuan.

The company actively developed a smart asset trading platform, registered and settled in Alibaba's auction platform, and sold 131 scrapped assets. The profit rate of disposal of terminal assets increased by about 50%, and the yield rate of disposal of cable assets increased by about 10%. Various measures such as "matching the terminal cards" were adopted to revitalize the inventory cards to reduce waste of resources. In 2017, it effectively consumed 5.5 million cards in stock, reducing waste of resources by more than 7 million yuan.

Reused materials of about **57.0865** million yuan

Recovered **83.4278** million yuan from the disposal of general scrapped materials

Asset vitalization and utilization value reached **84.3055** million yuan

China Unicom Shandong Rizhao Branch vigorously carried out the activities of recycling used materials from customers, deployed the key points of removing and utilizing old materials, work scene for removal and the utilization standards after removal to improve the recycling efficiency. A total of 201,000 meters of five types of old pipes were recycled.

Take Green Actions

China Unicom actively promotes the concept of environmental protection, deeply implements green actions, and helps build beautiful China.

China Unicom Beijing Branch actively responded to the requirement of "clean coal and nitrogen reduction" and determined to remove all 119 coal-fired boilers and 22 gas-fired boilers, completed dozens of transformations within two months, and reduced CO2 emissions by 620.61 tons by using room heat to achieve autonomous heating, which contributed to the construction of a beautiful blue sky in the capital and fulfilled the responsibility for energy saving and emission reduction of enterprises.



China Unicom Shaanxi Branch carried out the tree planting activity of "covering East Shaanxi with trees and building beautiful home"



China Unicom Inner Mongolia Branch organized litter picking voluntary activity of "saying goodbye to pollution and protecting Wuhai Lake with green actions"



China Unicom Shanxi Branch carried out environmental riding activity of "riding with Wo for keeping healthy"



China Unicom Unipay organized compulsory tree planting activity



China Unicom Lanzhou Branch carried out green public benefit activity of "being charitable and being love sender"



China Unicom Changsha Branch carried out the voluntary action of caring for environment and activity of tree adoption on Lushan Mountain





Create a Safe, Controllable and Clear Cyberspace

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Create a Safe, Controllable and Clear Cyberspace

Being safe and controllable is the basic requirement of the information network, and is also the reliable foundation for the healthy and sustainable development of the information and communication industry. In 2017, we adhered to the correct view of cyber security and continuously strengthened our work on communications security. We took active actions in the aspects of emergency communication guarantees, user information security and privacy protection, and boycotting bad information to create a safe and clear cyberspace for people and provide a strong guarantee for safeguarding national security and social stability.

Measures Taken in 2017

- Established a working leadership group to formulate special protection program and organize emergency drills for more than 1,500 times.
- Conducted communications repairs during the natural disasters such as typhoons, floods, and earthquakes, and successfully completed communications support tasks for major events such as the Nineteenth Congress, the "Belt and Road" summit forum, and the BRICS meeting.
- Improved the information security work mechanism, actively implemented the real name system, conducted in-depth special actions to prevent and fight against communication information fraud, and sent 1.27 billion reminding messages of various types of information security precautions.
- Created network products and services that are conducive to the healthy growth of minors and prevent activities that use internet to harm the physical and mental health of minors.

Actions to be Taken in 2018

- To continue to improve the emergency response mechanism for information and communications, actively undertake natural disasters and communication protection for major events, and strive to practice the social responsibility of central enterprises.
- To strengthen the information security management, further increase the system construction, and continue to carry out in-depth special actions to prevent and fight against the communication information fraud.
- To actively implement the requirement of 19th CPC National Congress to create a clear cyberspace to create a safe and healthy Internet environment for minors.

Guarantee Emergency Communications

Perfect communication emergency protection mechanism

It is an important mission of telecommunications companies to ensure the safety of emergency communications, and it is the social responsibilities of state-owned large-scale enterprises to solve the critical problems. In 2017, China Unicom further revised its communications protection emergency plan to effectively ensure emergency dispatch in the flood season; established a leading group for major activities in communication security work, formulated special protection plans, and made every effort to ensure the smooth flow of communication in major events. In order to improve the ability of organization and command and comprehensive support capabilities of emergency communications, China Unicom's units at all levels have organized emergency drills for more than 1,500 times.

China Unicom's "Ingenuity Internet Long March" emergency communications security drills and demonstration at Shanghai station successfully completed, demonstrating the elegant appearance of China Unicom's specialized communication security team who "is ready to assemble at the first call and be capable of fighting and winning".



Scene of activity at Shanghai station

China Unicom Heilongjiang Branch has developed a detailed training plan for mobile communication security. It has adopted various forms such as internal training and external training to offer comprehensive training to all emergency communications personnel at different levels to further improve the technical staff's business level.



Technical staff is leaning the equipment performances in the emergency communications vehicle

Fight against major natural disasters

In 2017, severe floods occurred in parts of our country. Such disasters as mountain torrents, mudslides and landslides occurred in some areas. Typhoons Nasat, Haitang, Hato and Pakhar landed in mainland China successively. Earthquake disasters occurred in Jiuzhaigou in Sichuan Province and Milin in Tibet. In the face of the disaster, all employees of China Unicom, with a high sense of responsibility, carefully prepared to overcome difficulties, resisted hardships and dangers, fully safeguarded the communications of the Party, government, military, flood control and drought relief command departments and other important customers, and ensured the communication security during the flood season. In the whole year, China Unicom has invested a total of 159.67 million yuan in disaster relief funds, relief 172,776 person-times, 61,678 emergency vehicle-times, 7,597 set-times of emergency equipment, and 78,713 set-times of emergency oil machines.



China Unicom Fujian Branch spared no effort to defend against attacks of two typhoons



China Unicom Guizhou Branch spared no effort to guarantee the lifeline for communications



China Unicom Guangxi Branch spared no effort to ensure smooth communications



China Unicom Hunan Branch fought against the flood and provided relief and guaranteed communications



China Unicom Sichuan Branch combated the earthquake and did relief work in Jiuzhaigou



China Unicom Tibet Branch fought against Linzhi Earthquake

Guarantee the communication needs of major events

Guarantee Communications during the 19th CPC National Congress

In October 2017, the 19th National Congress of the Communist Party of China was held in Beijing. China Unicom deployed 268,000 maintenance personnel and 67,000 emergency vehicles to ensure the smooth communication of the conference and the controllability and security of network information. China Unicom Beijing Branch, after five months of meticulous preparation, fought day and night for 10 consecutive days with 13,30 technical staff holding their posts, 417 employees continuously inspecting pipelines nearly 60,000 kilometers, to achieve the five "guarantees": the fastest Internet speed, the most widest wireless coverage, the best communication quality, the best support response, and the best customer experience. The company provided full-service and high-quality service guarantees for the efficient operation and widespread dissemination of the conference, successfully fulfilled our mission, and gained recognition and praise from all parties.

Communication Guarantee for the "Belt and Road" Summit Forum

In May 2017, the "Belt and Road" international cooperation summit was held in Beijing. This was the highest-profile forum activity since the "Belt and Road" initiative was proposed more than three years ago. China Unicom took part in the communications security work, mobilized more than 7,950 maintenance personnel and more than 2,690 emergency vehicles, opened 76 Internet access circuits and 7 10G Internet special lines, constructed 1,290 wired information points, 123 telephones for 2 news centers and 37 resident hotels and realized full WiFi coverage in the two news centers. China Unicom carried nearly 60% of international roaming subscriber services, provided "Gigabit to Desktop" top-speed internet interface for media reporters from all over the world, allowing them to publish timely multi-faceted reports to the world, which greatly facilitated the work of the news media and was well received by the media agencies.



Guarantee Communication for BRICS Meeting

In September 2017, the 9th BRICS Leaders' Meeting was successfully held in Xiamen, Fujian. China Unicom Fujian Branch firmly established the "Four Consciousnesses" and created a "full-scale, full-coverage, full-time" security system and launched 15 special projects. The company invested 690 million yuan to deploy 1,533 support personnel, 127 vehicles, and 35 emergency telecommunications vehicles, and successfully completed the tasks of information and communication and network security with the seamless-coverage high-speed communication networks and meticulous communication services. China Unicom Fujian Branch's outstanding contributions to this meeting have been highly recognized by the Ministry of Industry and Information Technology, the provincial party committee and the provincial government, by all major clients and has received 34 letters of appreciation from government departments at all levels and major customers.

Safeguard Information Security

In 2017, China Unicom conscientiously implemented General Secretary Xi Jinping's important instructional spirit of "No cyber security without national security," and resolutely implemented important national deployments, continuously strengthened the information security guarantee mechanism, improved the innovation support capabilities of the information security system, and conducted special actions against communication information fraud, continued to promote information security education activities, and built a strong wall for maintaining network information security and user privacy.

Improve information security work mechanism

China Unicom has actively established a network and information security guarantee system featured by "active prevention, timely detection, rapid response, and force recovery", strictly implemented the "Network Security Law," and issued "China Unicom's Network and Information Security Management Measures" to enhance publicity and training and strengthen staff's awareness of law-abiding and law-abiding.

- Strengthen user information disclosure and confidentiality management, strictly enforce customer data management standards, clarify "seven-forbidden behaviors", strengthen job number management in production and management systems, increase the SMS secondary verification mechanism, and hide user names, identity information, etc. Strengthen the privacy protection of users' personal information.
- Establish and perfect the user information security protection system, improve the user information security management system, encrypt and protect sensitive information, monitor data access logs through the bastion host, establish internal and external data service security audit mechanisms, improve information system security protection procedures, and strengthen information system security access and risk assessment.
- Effectively implement the real-name registration system, continue to register real-names of new users accessing to network, improve the "five-card for one-ID card within the country" procedure for handling disputable numbers belonging different cities, improve the accuracy of regular users' registration information, and check and eliminate the cases of multiple cards for one ID card. Perfect the accountability system for channel violations, perfect the record-keeping and verification mechanism for non-compliance penalties, intensify supervision and evaluation, and actively launch pilot programs for face recognition in physical channels.

1,247 sensitive information sheets under intensive monitoring

Regular monitoring on data access for **1.5** million times

Over **8,000** times of audits of sensitive information access

Severely crack down on communication information fraud

Special actions against communications fraud

China Unicom has carried out a special campaign to prevent and fight against fraud in communication information and ensured its effectiveness through three major actions: launching "sprinting operations" to realize a 100% real-name rate of telephone users; launching "Source Clearing Action" to realize real-name rate of 100% and the caller authentication rate of 100% for such services as 400 and voice services; and launching the "Fortress Action" to realize accurate interception of fraudulent calls.

Strengthen security management of network system

Further improve the information security monitoring and early warning and emergency response capabilities of network system, and quickly dispose various system vulnerabilities and cope with network attacks. Continuously carry out information security innovation practices, and exclusively launch fraud prevention public service in the industry, and has won 3 awards granted by People's Daily, the China Internet Association, and the Central Enterprise Security Notification Center, and gain praise by the vast number of users.

Promote regulated management of resale companies

Help resellers in various aspects to standardize their operations and protect the security of network information. Strengthen the Internet to intercept spam messages and shorten transmission time of call detail records. The implementation of the real-name system and the quality of users are linked to the code number allocation policy for resellers to guide the healthy development of the company. Hold meetings to urge the resale companies to pay attention to issues such as service quality, spam messages and so on and request the companies with problems to rectify their problems.



At the 2017 China "Internet Plus" Digital Economy Summit held in Hangzhou on April 20, China Unicom's fraud prevention public service was rated as 2016 China Internet + Top 10 Excellent Cases.

Based on the big data technology fraud prevention public services, China Unicom has explored effective governance measures, which have recovered a total of potential loss exceeding 870 million yuan for users since launching.

- Wide coverage
- Precise positioning
- Quick reminder
- Rapid linkage with public security agencies

China Unicom Beijing Branch, with the concept of "co-governance model" as its core, and multi-governance as its goal, build anti-communication fraud management system under the new model from such dimensions as internal and external organization governance, the types of telecommunication services available to fraudsters, and all aspects of the whole use process of users.

- In the whole year, more than 18 million illegal SMS messages were intercepted, nearly 100,000 subscribers were sent, nearly 40,000 fraud/harassment calls were handled, and nearly 15,000 illegal websites were closed.
- Cooperated with public security law enforcement agencies to complete the on-site arrest of a pseudo-base station, and stop and collect evidence for the number involved.

Launched non-profit anti-harassment alert service and communications guard to build a communications security system covering voice and data networks of mobile networks. Communications Guard has covered more than 10 million users. As of 2017, the total number of interceptions was 167,792,400. The number of anti-harassment service subscriptions reached 2,845,700. An average of 300,000 pop-up reminders were sent per day and a total of 1,269,200 numbers were accumulated in harassment number database.

Carry out cyber security propaganda and education

China Unicom has extensively promoted the awareness safety awareness and sent 1.27 billion short messages for all types of information security alerts throughout the year.

At the Fourth National Cyber Security Week held at the Shanghai National Convention and Exhibition Center, China Unicom promoted measures such as combating fraudulent calls, spam prevention, blocking malicious programs, and privacy protection.

On World Telecommunication and Information Society Day on May 17, China Unicom Qinghai Branch, carried out publicity and education for preventing communication fraud and mobile phone safety to enhance public awareness of the importance of communication facilities by means of making publicity panels, issuing propaganda color pages, and military-civilian joint protection lines, in order to improve the awareness of security protection.

In September 2017, in order to create a safe call and internet environment and protect people's information and property, China Unicom Liaoning Branch actively launched the "Network Security into the Community" campaign to describe common phone fraud and Internet fraud cases to the community and popularize the basics knowledge on communication security.

Purify Cyber Space

China Unicom has actively implemented the work requirements of "Network Security Law of the People's Republic of China" and the 19th CPC National Congress on strengthening the construction of Internet content, establishing a comprehensive network management system, creating a clear network space, and researching and developing network products and services conducive to the healthy growth of minors, prevent activities that endanger the physical and mental health of minors by using the Internet, and provide a safe and healthy network environment for minors.

In order to better promote the scientific development of the mobile game industry, Xiaowo Technology (a subsidiary of China Unicom) actively responded to the country's management requirements for online games, and led the industry to establish a "big data joint laboratory" with Shanghai Jiaotong University to jointly develop mobile anti-addiction systems based on data acquisition and analysis, and relying on an efficient and accurate monitoring system. The systems can suppress excessive game behaviors and help users to create a healthier and greener mobile game habit by detecting the user's game time and consumption amount and accurately identifying the minor's game status.

In the face of youth Internet addiction, China Unicom Liaoning Branch launched a "sunshine guarding" program to help parents effectively control their children's mobile Internet behaviors. The program designs a variety of functions such as online management, location guarding, behavior analysis according to adolescents' mobile Internet features, which can help parents guide youngsters to surf the Internet in a healthy way.





Lay a Solid Foundation for Sustainable Development with Responsibility Management

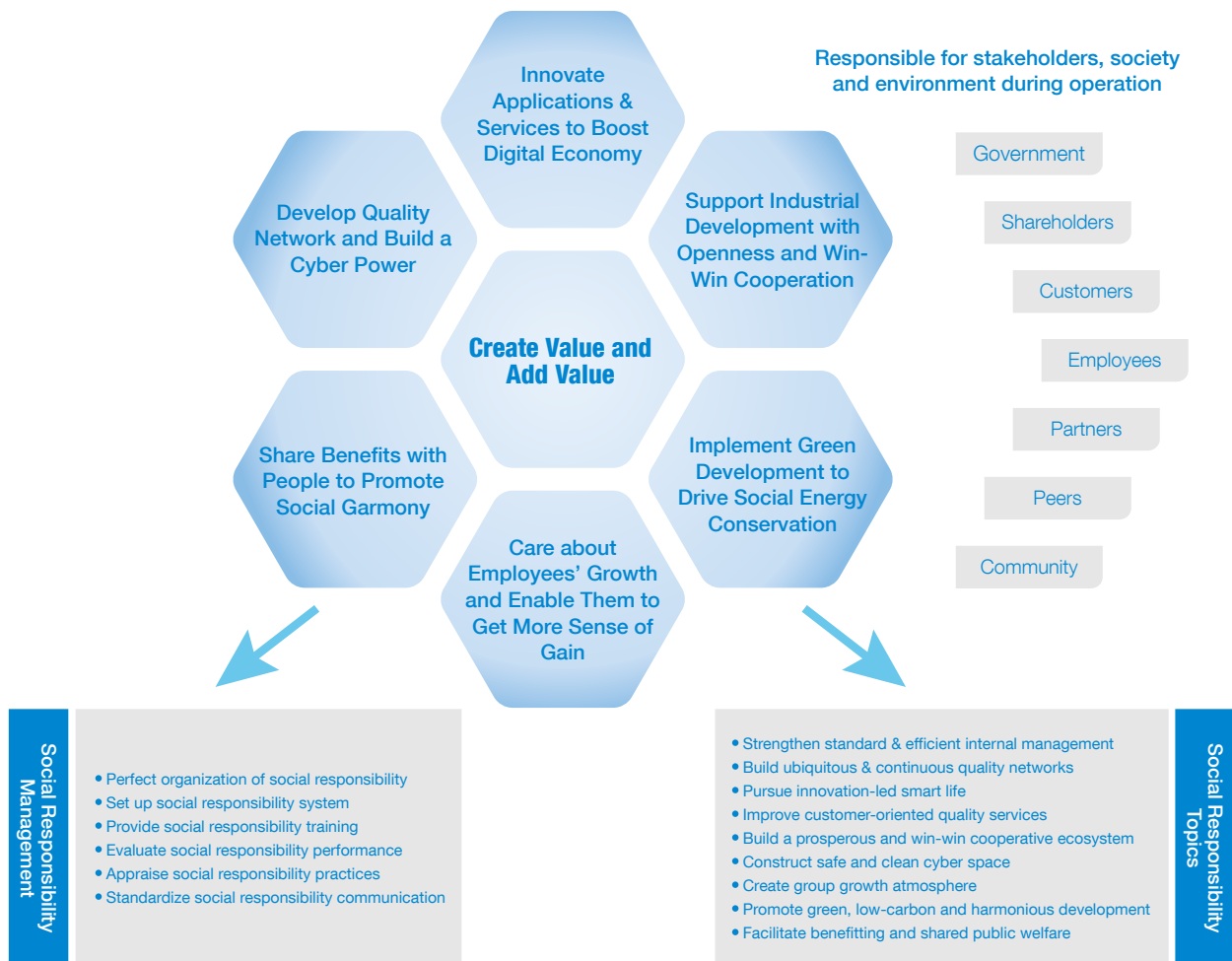
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- 70 Strengthen Responsibility Communication
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Lay a Solid Foundation for Sustainable Development with Responsibility Management

Responsibility Strategy

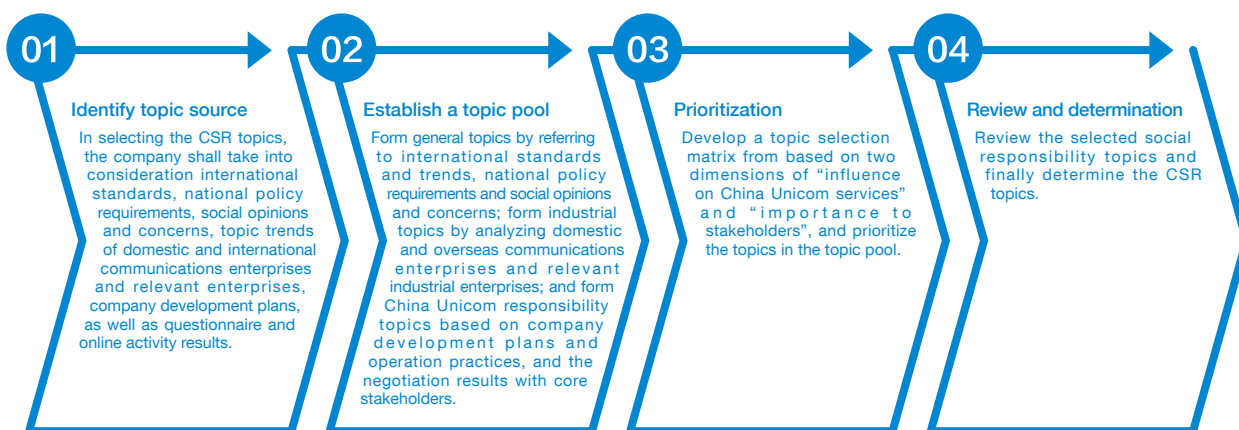
China Unicom, under the guidance of new development concepts of innovation, coordination, green, openness and sharing, implemented national strategic deployments such as network power building, "Belt and Road" initiative, and supply-side structural reform by practical actions, undertook liabilities by responsible operation, and ceaselessly enhanced creativity of economic, social and environmental values to promote sustainable development and make due contribution to national economic and social information construction.

China Unicom Social Responsibility Strategy

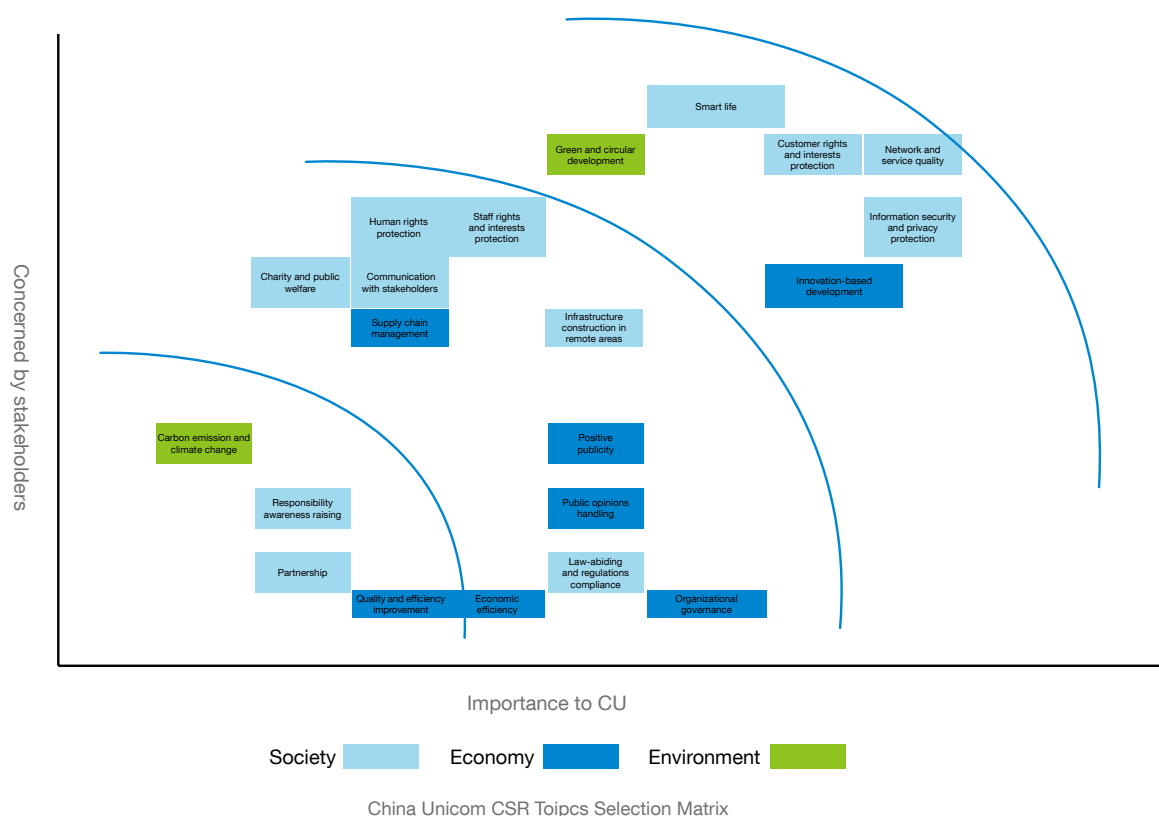


The Company, focusing on social responsibility management and practices, has continued to perfect the contents of responsibility management, and carry out responsibility practices with company characteristics around the topics to support the implementation of responsibility strategy.

China Unicom has established a social responsibility topic selection procedure under the principle of "closely following standards, regularly upgrading and continuously improving", and studies social responsibility topics every three years by closely following international changes and domestic trends, continuously taking advanced enterprises as the benchmark, keeping upgrading responsibility topics and using scientifically selected topics to guide corporate responsibility practices to ensure the practices can achieve good results, a high level and have influences.



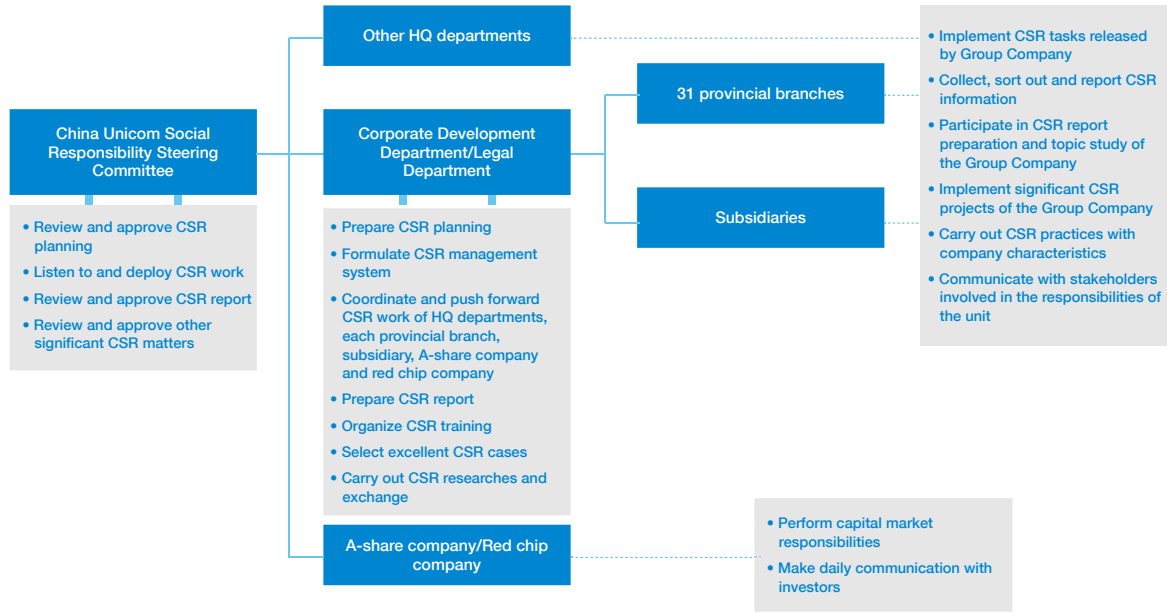
China Unicom Social Responsibility Topic Selection Procedure



China Unicom CSR Topics Selection Matrix

Improve Responsibility Governance

China Unicom has established an organizational system on social responsibility work covering the entire group. Under the leadership of the Social Responsibility Steering Committee, the Corporate Development Department/Legal Department serves as the office to take charge of daily work, and each provincial branch, subsidiary, A-share company and red chip company has a special department for social responsibility management and a special liaison person to carry out social responsibility work based on their relevant duties. The Social Responsibility Steering Committee is responsible for reviewing and making decisions on significant matters related to CSR, and uniformly leading the CSR work. The Group Corporate Development Department/Legal Department takes charge of the daily work of the Social Responsibility Steering Committee, and systematically coordinates CSR work promotion of all subsidiaries of the Company. The Group HQ departments, each provincial branch, subsidiary, A-share company and red chip company shall implement significant CSR projects of the Group Company, organize to carry out CSR practices with company characteristics, and take charge of the collection, processing and report of the CSR information and data of their units.



China Unicom Social Responsibility Working Bodies and Main Responsibilities

Strengthen Responsibility Communication

China Unicom, according to the expectation of stakeholders and substantial topics of social responsibilities, has set up a social responsibility communication mechanism to continuously carry out targeted communication.

Substantial Topics	Stakeholders	Communication Ways	Expectations to CU
Strengthen stable and standard internal management	Shareholders	<ul style="list-style-type: none"> Shareholders' meeting Investors communication meeting 	<ul style="list-style-type: none"> Timely and transparent information acquisition Long-term and stable investment returns Corporate governance and risk control Law abiding and clean operation
	Government	<ul style="list-style-type: none"> Face-to-face communication Meeting 	<ul style="list-style-type: none"> Fair market competition order Efficiency increase and costs reduction Party organization building enhancement
	Social public and media	<ul style="list-style-type: none"> Phone call and forum Online communication ways 	<ul style="list-style-type: none"> Timely learn about company information Information interaction with the company
Build ubiquitously connected quality networks	Customers	<ul style="list-style-type: none"> Service hotline Weibo and WeChat NPS (net promoter score) investigation 	<ul style="list-style-type: none"> Fast and smooth network Innovative and intelligent network services High-quality network in remote areas
Pursue innovation-led smart life	All related parties	<ul style="list-style-type: none"> Meeting Interview Weibo and WeChat 	<ul style="list-style-type: none"> Smart products improving life quality Innovative and forward-looking communications technologies Management systems adapted to the Internet
Improve customer-oriented quality services	Customers	<ul style="list-style-type: none"> NPS investigation In-depth interview, meeting Customer activities 	<ul style="list-style-type: none"> Preferential and transparent tariff policies Convenient and efficient service channels Effective after-sale services
Build a prosperous and win-win cooperative ecosystem	Partners	<ul style="list-style-type: none"> Partner meeting Meeting, interview Self-service portals of partners 	<ul style="list-style-type: none"> Wide cooperation fields Fair and open cooperation chances Rich and convenient support services
	Peers	<ul style="list-style-type: none"> Face-to-face communication Meeting 	<ul style="list-style-type: none"> Resource complementarity and capability improvement Cost saving and efficiency increase
	Customers	<ul style="list-style-type: none"> Interview, hotline 	<ul style="list-style-type: none"> Promote partners to perform responsibilities

Substantial Topics	Stakeholders	Communication Ways	Expectations to CU
Create safe and clean cyber space	Customers, government	<ul style="list-style-type: none"> Service hotline Weibo, WeChat Meeting, forum 	<ul style="list-style-type: none"> Smooth network at anytime anywhere Safe and healthy network environment Keep network information safe and secret
Build group growth atmosphere	Employees	<ul style="list-style-type: none"> Service hotline Weibo, WeChat Meeting, forum 	<ul style="list-style-type: none"> Protected legal rights and interests Training and professional development space Opportunities to take part in democratic management Get assistance when in difficulty Comfortable and safe working environment
Promote green, low-carbon and harmonious development	Environment	—	<ul style="list-style-type: none"> Green and environment-friendly corporate operation Recycling to reduce pollution
Facilitate people-benefitting and shared public welfare	Community	<ul style="list-style-type: none"> Meeting Forum Station in villages to support 	<ul style="list-style-type: none"> Continuous and effective donation Intensify poverty alleviation and assistance Volunteer activities for public welfare

In 2017, the Company extensively carried out public propaganda and interaction activities, strengthened communication and liaison with the public and journalists, and actively built a new ecosystem connecting both the internal and the external to present a more open China Unicom.

- Stuck to Internet-based publicity transformation and established a complete mechanism for media monitoring, reporting, feedback and response.
- Organized 25 publicity activities on faster and more affordable network, six-mode all-network-applicable terminals, ITU Telecom World, agreement signing with Beijing Organising Committee for the 2022 Olympic and Paralympic Winter Games, etc., published 133 press releases and organized 30 news interviews.
- Had more than 120 million new media followers such as on Weibo and WeChat, with over 1 billion post viewing times annually and won the title of the most influential new media account of Chinese companies and central enterprises for four consecutive years.

Improve Responsibility Fulfilling Capability

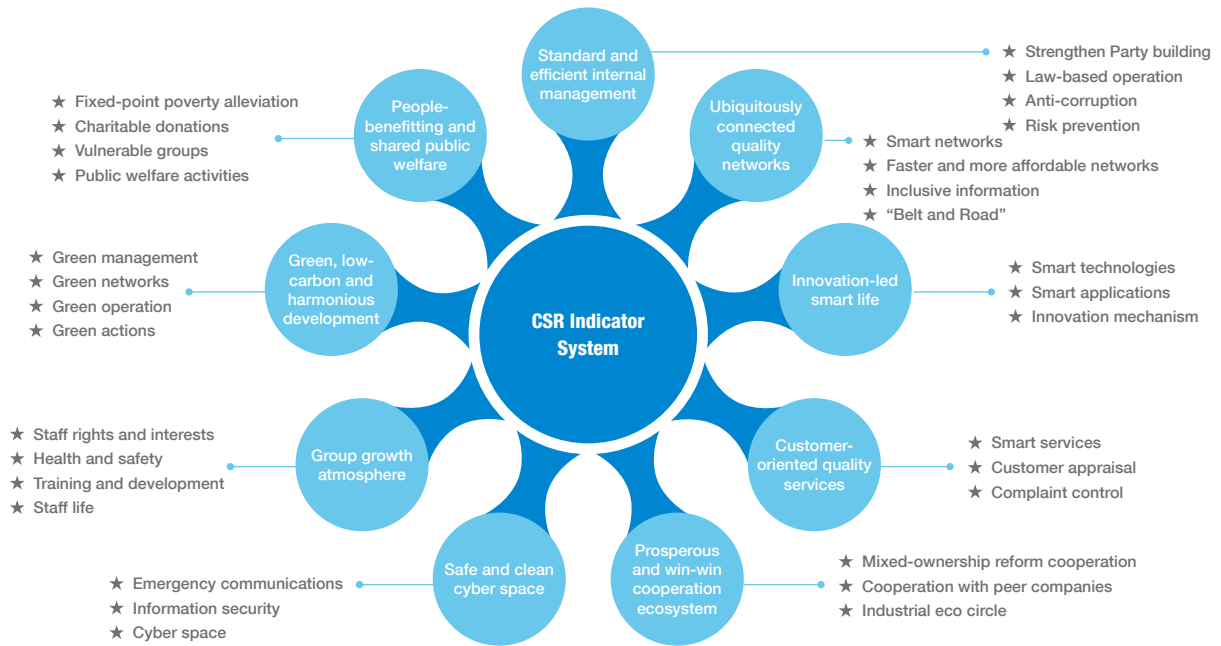
In 2017, China Unicom actively participated in various exchange and discussion activities held by the community for social responsibility performance, paid attention to responsibility development trend, learned from excellent enterprises' experience, and proposed ideas and opinions to boost sustainable and in-depth development of social responsibility.

Sponsor	Event Participated
SASAC	"Blue Book of Corporate Social Responsibility for Central Enterprises (2017)" and topic study on "Research on Overseas Social Responsibility of Central Enterprises"
	Contributed opinions to "Proposal on Corporate Social Responsibility Legislation (draft for comment)"
Committee for Social Responsibility of China Association of Communications Enterprises (CSR-CACE)	Took part in the development of the ICT industry social responsibility indicators assessment system and acted as a member of the drafting team
	Made a presentation on "Focus on Industry, Innovate Cooperation and Fulfill Responsibilities" at the 2017 social responsibility annual meeting of the ICT industry
	CSR-CACE Survey on Sustainable Development Demand (2017-2018)
UN Global Compact	Annual Survey on UN Global Compact Implementation – 2017
Shanghai Association for Public Companies	The 3 rd China (Shanghai) Listed Companies CSR Summit and the Launch of "Blue Book of CSR for Listed Companies in Shanghai (2017)"
CASS CSR Research Center	Central Enterprises CSR Forum and the Launch of "Blue Book of CSR for Central Enterprises (2017)"
EY	Climate Change and Sustainable Development Forum, communicated on the ESG report

Better Responsibility Performance

Perfect the indicator system

China Unicom followed international and domestic social responsibility standards, and further perfected "China Unicom Social Responsibility Indicator System" around nine substantial topics of the Company to drive social responsibility to actually integrate into corporate production and operation.



China Unicom Social Responsibility Indicator System

Honors and Recognition

In 2017, China Unicom sturdily performed social responsibilities, disclosed responsibility performance in time, and made progress in CSR work.

- The red chip company won the "First Place in China Best CSR" in the "2017 Best Managed Company Asia" selection held by FinanceAsia;
- The A-share company won the "Win-Win Cooperation" award during the appraisal and election for listed corporate social responsibility in Shanghai;
- The Group Company was rated five stars in the Corporate Social Responsibility Development Indexes for Chinese Companies, Central Enterprises and Chinese State-Owned Enterprises 2017 by CASS.

Appendix

🏠 KPIs

Category	Indicator	Unit	2015	2016	2017
Operation & Development	Total assets	100 million yuan	6,607.9	6,646.5	6,193.9
	Business revenue	100 million yuan	2,783.4	2,757.5	2,761.5
	Revenue from main businesses	100 million yuan	2,329.75	2,380.33	2,474.21
	Including: number of actual mobile users	10,000 users	25,231.7	26,382.2	28,416.3
	4G subscribers	10,000 users	4,415.6	10,455.1	17,487.6
	Local telephone users	10,000 households	7,385.8	6,664.9	5,999.7
	Fixed broadband users	10,000 households	7,233.0	7,523.6	7,653.9
	E-commerce turnover	100 million yuan	921.6	847.7	1,112.1
Network Capability	Labor productivity	10,000 yuan/person• year	84.59	87.12	92.12
	4G base stations accessed	10,000	39.9	74	85.2
	Fixed BB access ports	10,000	16,489	18,906	20,195
	BB coverage in administrative villages in the ten northern provinces	%	93	95	95
	Coverage rate of network at a speed ≥ 20 Mbps in urban areas	%	80	89	93
	Coverage rate of network at a speed ≥ 4 Mbps in rural areas	%	95	99	100
	Coverage rate of mobile network in township	%	100	100	100
	Coverage rate of mobile network in administrative villages	%	87	87	89
	Bandwidth of international interconnected network	G	1,415	1,711	2,072
	4G network access rate	%	-	99.69	99.72
	4G network call drop rate	%	-	0.10	0.1
Emergency Guarantee Investment	Number of channels in rural and remote poverty-stricken areas	10,000	28	26	20
	Total number of emergency communications guarantee participated	Time	387	393	361
	Emergency communications vehicles used	10,000 vehicle-time	12.9	12.4	13.7
	Emergency communications equipment input	10,000 set-time	12.4	11.5	10.9
	Personnel used	10,000 person-time	39.7	41.3	47.1
Independent Innovation	Technological innovation input	100 million yuan	36.3	48.2	58.1
	Number of personnel in technological activities	Person	2,759	4,508	4,195
	Contributions on international standards	Paper	647	614	649
	Industry standard	Item	247	226	228
	Patents applied	Item	582	621	648
Customer Service	Patents authorized	Item	242	232	346
	Annual average complaint rate per month	Person-time/million users	3.67	3.61	2.73
	General satisfaction	Point	76.5	77.5	77.99
	Including: Fixed line user satisfaction	Point	79.9	80.4	82.45
	Mobile phone user satisfaction	Point	77.4	78.8	79.13
	Fixed broadband user satisfaction	Point	70.8	72.5	74.62
Care for People	Mobile Internet user satisfaction	Point	75.0	75.9	75.05
	Gender proportion of staff	Male : Female	1.48:1	1.48:1	1.48:1
	Proportion of minority staff	%	6.69	6.78	6.89
	Proportion of females in senior management	%	11.7	11.7	10.6
	Staff training input	10,000 yuan	26,243	30,264	32,157
	Training length per capita in average	Hour	56	60	62
	Quantity of online learning people at Network Institute	10,000 person-time	310.7	458.5	1,533.3
	Total online learning length at Network Institute	10,000 credit hours	130	375	1,309.6
	Safety production training provided	Time	32	32	37
	Coverage rate of safety production training	%	100	100	100
	Proportion of contracted workers in labor union	%	100	100	100
	Input for helping employees in difficulty	10,000 yuan	1,323	967	937
	Condolence fund input	10,000 yuan	1,298	3,571	2,838
	Employee turnover rate	%	2.77	2.12	2.07

Category	Indicator	Unit	2015	2016	2017
Low-carbon Development	Special investment in energy saving & emission reduction	10,000 yuan	3.2	2	1
	Unit information flow energy consumption	Kgce/TB	12.4	6.47	7.5
	Petrol consumption	10,000 tons	5.76	4.56	2.91
	Diesel consumption	10,000 tons	2.03	1.28	2.45
	Natural gas consumption	10,000 m ³	1,030.96	1,099.56	708.1
	Electricity consumption	100 million KWH	145.75	138.93	139.86
	Water resource consumption	10,000 tons	2,377.1	2,289.25	2,221.06
	Coal consumption	10,000 tons		11.06	7.27
	Energy saved	10,000 tce	58.74	15.65	16.92
	Greenhouse gas emission	10,000 tons	546.81	509.89	518.8
	SO ₂ emission	10,000 tons	—	0.66	0.89
	Chemical oxygen demand (COD)	10,000 tons	—	1.83	2.54
	Amount of end-of-life disposal and recycle	100 million yuan	14.87	27.11	12.42
Compliance Management	Compliance training organized	Time	1,596	1,591	1,576
	Compliance trainees	Person	231,549	254,628	253,530
Community Responsibility	Registered volunteers	Person	14,118	17,042	23,998
	Volunteer activity participation	Person-time	20,026	25,386	39,966
	Credit rating	Grade	AAA	AAA	AAA
	Total tax paid	100 million yuan	124.8	120.9	75.8
	Jobs provided	Person	15,688	30,271	10,780
	Total donation	10,000 yuan	2,886.2	2,301.0	7,296

Note: the financial data of 2017 is preliminary data, which has not been audited.

Company Honors

- China Unicom won the “Best Management Team Asia”, “First Place in China Best CSR”, “Second Place in China Best Managed Company” and “Second Place in China Best Corporate Governance” in the “2017 Best Managed Company Asia” selection held by FinanceAsia. Meanwhile, Mr. Wang Xiaochu, Chairman and CEO of China Unicom, was awarded as the First Place of China Best CEO.
- China Unicom is awarded as the “First Place of Most Revered Telecommunications Enterprises”, “First Place of Asia Companies with the Best Investor Relations (Telecommunications)”, and “First Place of Asia Best Websites (Telecommunications)” during the “2017 Best Company Management Team Asia” appraisal and election held by Institutional Investor. Meanwhile, Mr. Wang Xiaochu, Chairman and CEO of China Unicom, was awarded as the “First Place of Asia Best CEO (Telecommunications)”.
- China Unicom won “Platinum Award for Excellence in Governance, Environment Protection and Corporate Social Responsibility” in 2017 Enterprise Award of The Asset. Mr. Wang Xiaochu, Chairman and CEO of China Unicom, was awarded as the “Best CEO”.
- China Unicom website (www.chinaunicom.com.hk) won the award of “Best Investor Relations Website”, and the Company’s CSR report (online version) (csr2016.chinaunicom.com.hk) won a gold award.
- China Unicom won the “Win-Win Cooperation” award during the appraisal and election for listed corporate social responsibility in Shanghai.
- China Unicom was rated five stars in the Corporate Social Responsibility Development Indexes for Chinese Companies, Central Enterprises and Chinese State-Owned Enterprises by CASS.
- China Unicom was appraised as the Best Organization Enterprise

during the overall quality management knowledge contest for central enterprises held by SASAC.

- China Unicom won honors awarded by the China Association of Communication Enterprises, such as “Cooperation and Contribution Operator”, “User Satisfaction Enterprise” and “First Prize of the 14th Communications Industry Corporate Management Modernization Innovation Achievements”.
- China Unicom won the “Five-Star Service Quality Award” by China Association for Quality Promotion at the 3rd China Forum of Quality Integrity Brands.
- China Unicom won the “Best Customer Experience Award” by Baidu Zhidao.
- China Unicom Cloud Data Company won MIIT “Cloud China Award”, “Cloud Computing Most Influential Award”, “Cloud Computing Top Ten Brands”, and won the “First Batch of Demonstration Units for IT Insurance Innovation”, “Five-Star Certification for Trusted Cloud Host Service”, and “Mixed Cloud Solutions Certification” at the Cloud Computing Summit.
- China Unicom eSIM Consumption IoT Solution won the “Best Mobile Technology Breakthrough Award - Asia” by GSMA.
- China Unicom System Integration Company won the “Luban Prize for Construction Project”, “National Quality Engineering Award”, and “Pangu Prize for China Electronic Information Industry”.
- China Unicom Unipay Company won the “Leading Award for Business Model 2017”, “Leading Award for Annual Financial Technology Brand 2017”, “China Most Influential Financial Technology Brand Award”, and “Best Service Platform Award for Inclusive Finance”.

Organizations Joined

Main Organizations Newly Joined in by China Unicom in 2017

Organization	Post
CACE Information and Communications Industry Energy Conservation and Innovation Alliance	Initiator
OIDAA	Vice President
National Big Data Alliance of New Energy Vehicle	Vice President
Beijing Payment & Clearing Association	Member
China Association of Big Data Technology and Application	Deputy Director
Cloud computing open source community - OpenStack	Gold Member
Network collaboration and choreographer open source community - ONAP	Silver Member

Report Specification

Report period	From Jan. 1, 2017 to Dec. 31, 2017, partly exceeding aforesaid range.
Report release period	The social responsibility report of China United Network Communications Group Co., Ltd. is an annual report.
Organization scope of the report	The report covers China Unicom Network Communications Group Co., Ltd. and its subordinate institutions. For the convenience of expression, "China Unicom", "the Group", "the Company" and "We" are used respectively in the report.
Reference standards	Guiding Opinions on State-owned Enterprises to Better Perform Social Responsibilities, SASAC; Guidance of Shanghai Stock Exchange for preparation of Report of Social Responsibility Performance; Guidance on Environment, Society and Governance Report, HKEX; Social Responsibility Report Preparation Guidance of ACSIQ and SAC; Guide on Preparation of China Corporate Social Responsibility Report (CASS-CSR 4.0), Chinese Academy of Social Sciences; Guide on Sustainable Development Report of Global Reporting Initiative (GRI) (G4 Edition); Social Responsibility Management System for China Information and Communications Companies, China Association of Communications Enterprises.
Instruction to Report data	The data of 2017 quoted in this report is the final statistical data. In case of any discrepancy between the financial data and the annual report, the annual report shall prevail.
Report quality guarantee	The Board of Directors and all directors guarantee that the information disclosed in the report is authentic, complete and correct, without any false record or misleading statement.
Language versions and claim	The CSR Report of the Company is issued in Chinese and English in forms of paper and electronic editions. The online Chinese report can be seen in the website of China Unicom: http://www.chinaunicom.com.cn . The online English report can be seen in the website of Global Compact: http://unglobalcompact.org .
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