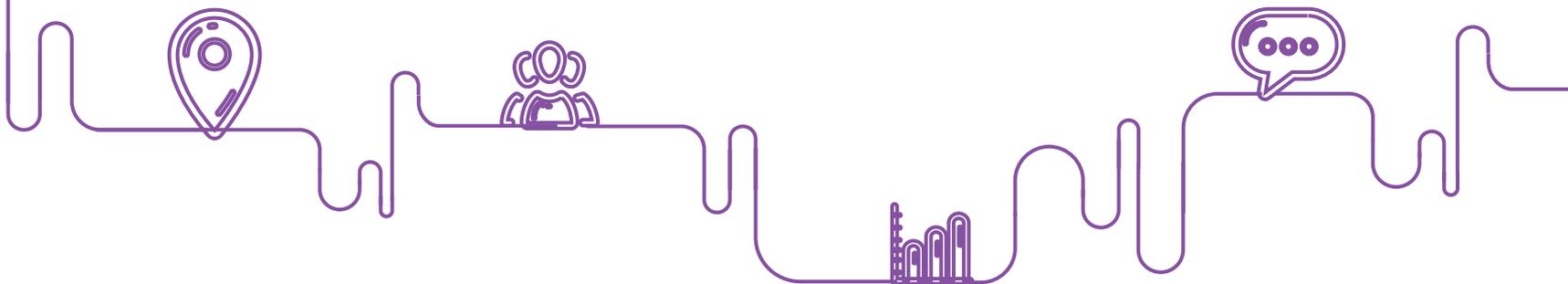
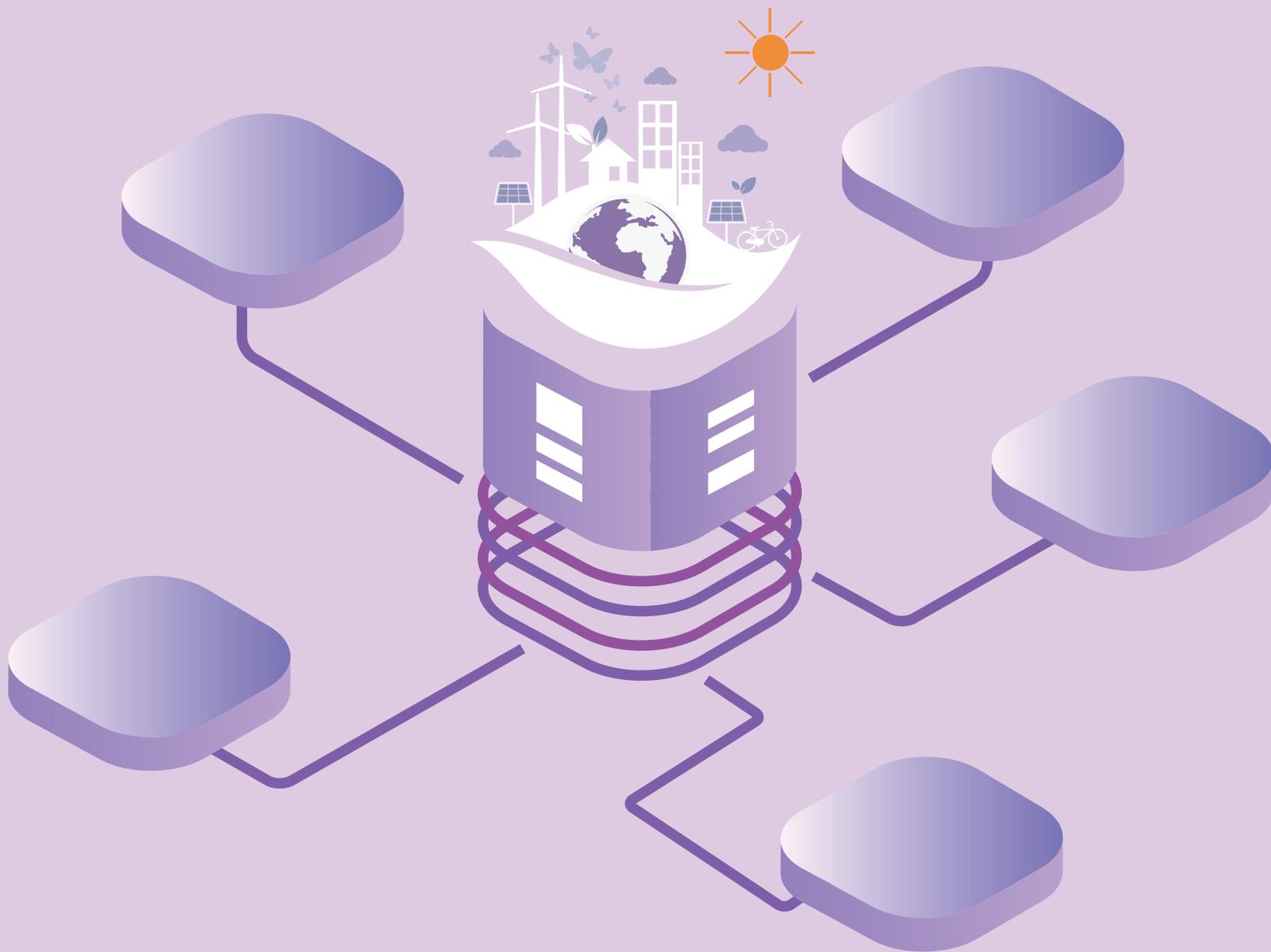


New Ecology

FACILITATING NEW DEVELOPMENTS CONNECTING IN AND OUT

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NEW ECOLOGY: Facilitating New Developments Connecting In and Out

China Unicom has been actively building a new ecology connecting in and out and committed to the development of an open, shared, inclusive and win-win beneficial environment with ecological partners, teaming up to care for the daily needs of people. By building ecological capabilities, China Unicom has facilitated high-quality development for the value chain and providing support for the betterment of life for the people in concerted efforts.

Measures adopted in 2018

- Stepping up with the co-building and co-sharing use of telecommunication infrastructure facilities, and enhancing network service ability, the efficiency and quality.
- Driving concerted development and fulfilment of social responsibility among enterprises along the value chain such as equipment suppliers, terminal suppliers, open channel operators, virtual network operators and private capital enterprise partners.
- Deepening cooperation with Internet companies in the forging of capabilities in New Retail, brand promotion, channel touchpoint, industrial Internet, and other areas.

Actions to be taken in 2019

- To engage actively in cooperation with partners in the co-building and co-sharing of 5G construction.
- To further enhance cooperation in the value chain, leveraging more extensive cooperative Internet touchpoints to provide users with communication products with more favourable terms and network service at better quality.
- To deepen product cooperation and expand business scale in cloud computing, Big Data, Internet of Things (IoT) and industrial Internet.
- To investigate new capital cooperation with partners.

CO-DEVELOPMENT WITH PARTNER OPERATORS

In thorough implementation of the new development philosophy and based on the principle of “mutual success in cooperation and co-development”, China Unicom has been vigorously driving mutually complementary operations and in-depth cooperation in resources and innovation among peer operators in the industry with a special focus on enhancing network service ability and network quality, in order to generate synergies and enhance the co-building and co-sharing of telecommunication infrastructure facilities.

- Co-built and co-shared communication infrastructure facilities such as transmission pole lines, pipelines, underground cables and indoor distribution systems to reduce project investments and achieving efficiency of over RMB750 million.
- Co-built of 2,100 route-km of transmission pole lines, 4,900 route-km of pipelines and 3,690 indoor distribution systems.
- Co-shared usage of 6,500 route-km of transmission pole lines, 860 route-km of pipelines and 765 indoor distribution systems with partner operators.
- Opened up 8,540 route-km of transmission pole lines, 1,030 route-km of pipelines and 1,100 indoor distribution systems for co-sharing by partner operators.

Responsibility performance indicator	2016	2017	2018
Co-building rate for indoor distributed system (%)	73	71	79
Co-sharing rate for indoor distributed system (%)	63	93	93
Pole line co-building rate (%)	85	88	91
Pole line co-sharing rate (%)	92	95	95
Pipeline co-building rate (%)	85	92	94
Pipeline co-sharing rate (%)	86	98	96

STARTING A NEW CHAPTER OF MUTUAL SUCCESS FOR THE INDUSTRY

Targeting the value chain, China Unicom has expanded cooperation in an open-minded manner in numerous areas, including technology, services, resources and capital, to build a positive industry ecosystem.

Cooperation with equipment vendors

© Driving regulated management

- The procurement of supplies is conducted in strict accordance with the Company's relating regulations for procurement and in adherence to the principle of fairness, impartiality and openness.
- Intensive “transparent procurement” and “green procurement” have been implemented in active fulfillment of the Company's social responsibility. Through centralised procurement at the group level and the provincial level, procurement costs were lowered, as the amount of centralised procurement accounted for 88% of the total procurement amount.
- A procurement system has been established to comprehensively streamline and affirm China Unicom's procurement management systems of 1+2+N. In 2018, 16 procurement management systems were formulated (including new additions and amendments).

● Currently, there are already 25,000 suppliers providing 940,000 commodities for the e-commerce platform, while the number of annual orders amounted to 1,252,000, with a net transaction amount of RMB41.26 billion, representing a growth of more than 55%.

In the central enterprise procurement management benchmarking organised by the SASAC, China Unicom retained ranking 2nd in 2018. In the tender inspection organised by MIIT, no significant operational issue in procurement was identified, indicating notable improvements in tender compliance.

25,000

environmentally-accredited enterprises listed on the e-commerce market

◎ Driving equipment suppliers to fulfill responsibilities

● To prevent supply chain enterprises from making any negative impact on the society, a supplier black-list management mechanism was established to manage post-performance assessment of the e-commerce platform, with a view to enhancing real-time management and risk prevention in a relation to integrity and swift settlement, as well as building a legal risk prevention and management mechanism regarding procurement and communication.

● Internet+ procurement has been implemented through the promotion of the e-tender system and order trading system throughout the Group. With improving capabilities in e-commerce market, the Company is well-positioned to provide convenient procurement services for sunshine poverty aid.

● A total of 320 participants from our branch companies, subsidiaries and headquarters departments enrolled in 3 training sessions on the procurement system.

◎ Cooperation with terminals suppliers

◎ Building a mechanism and platform for strategic sharing

● At “China Unicom Partners’ Conference” convened in Chongqing in 2018 attended by about 1,000 partners and over 10,000 representatives of industry peers, China Unicom presented the plan for cooperation and operating strategy to the value chain. There were 54 brand partners at the crowd-funding conference, offering 315 types of products, more than 60 million sets of crowd-funding terminals, and 7.44 million sets of omni-intelligent devices, with an aggregate transaction amount of approximately RMB50 billion.

◎ Contributing to the development of the industry

● China Unicom has formulated and improved the terminal standards while protecting intellectual property rights. Amendments have been made to the 4G terminal standards, intelligent SMS specifications and VoLTE specifications, and 14 white papers have been issued, including the All Network Access Terminals (China Unicom) White Paper 3.1 and Novel Terminal White Paper V1.0. Among them, “China Unicom 4G+/5G terminal enterprise standard, industry standards and international standards” has received China Unicom 2018 Technical Standard Class I Award.

● The cooperation in the six-mode all network access terminals has continued to expand, accounting for a dominant share of the 4G terminal market. As at October 2018, six-mode all network access terminals accounted for 85.5% of market share, representing a year-on-year increase by 5.7%.

● MIIT approved eSIM trial in 7 cities, where strong efforts have been made to promote Apple Watch S3 based on the “one-number, two-terminal” eSIM to satisfy various forms of user requirements for smart terminal communication.

◎ Driving terminal suppliers to fulfill responsibilities

● China Unicom performs prudent checks on suppliers in respect of industry credentials, product sources and financial/tax auditing, with a special emphasis on the responsibility for after-sales services to provide genuine assurance that terminals are proactive and reliable in connection with the national economy, environmental protection and user experience.

● Assurance on energy-conservation, eco-friendliness and safety. Shortlisted terminal manufacturers are required to provide information on quality accreditation, environmental accreditation, as well as financial reports and guarantee that such information is true and valid.

● Requirement on manufacturing partners to put in place a comprehensive after-sales service mechanism.

● Key tests being conducted on power consumption in the test of customised terminals and work with manufacturers for improvements.

● Requirement on handsets and their preloaded applications launched by terminal manufacturers in association with China Unicom to be in compliance with relevant national standards and to have passed national tests on the grading of terminal safety to ensure security of user information on the terminals.

● In prevention of any negative impact of terminal supplier on the society, China Unicom has highlighted the responsibility aspect in the legal terms under the supplier cooperation agreement; meanwhile, China Unicom has also procured suppliers to assist users’ liaison with manufacturers to solve after-sales issues. Since 1 January 2013, all partner manufacturers have signed the “test undertaking”. If partner manufacturers violate pertinent national regulations resulting in a negative impact on the society, punitive measures will be adopted.

◎ Cooperation with open channel

● Open channel cooperation with approximately 200,000 partners have been carried out to build a sustainable ecological channel cooperation regime for the win-win benefits between China Unicom, channels and users.

● Partners ability in compliant sales has been enhanced; financial capabilities such as red packets, e-coupons and instalments have been made available to increase capabilities in cooperating partners.

● Platform functions such as facial recognition and auto photo matching have been made available, and devices such as ID readers and automated card writing ability were made for partners to help with legal and compliant operations and real-name registration.

● Consistently enhancement in IT support capabilities by accelerating commission settlement and ensuring honest operations, in an overall enhancement of fund efficiency for partners.

● To prevent channel partners from making any negative impact on the society, amendments were in place for business agency agreement to further specify the duties, rights and interests of the parties and the requirements and execution details relating to legal sales and honest operation by distributors.



Cooperation with mobile virtual network operators (MVNO)

Enhancing MVNO cooperation

China Unicom has always actively supported the development of MVNO enterprises in a “proactive, cooperative, open and mutually beneficial” manner. In 2018, the Company commenced MVNO business in cooperation with 31 enterprises, expanding the scope of pilot operations to cover 220 prefecture-level cities, including most provincial capitals and economically developed regions. China Unicom has been actively promoting healthy development of the MVNO business by assisting MVNO operators to enhance their competitiveness through differentiation, optimising the module product features on a continuous basis, introducing the new business model of intensive cooperation, opening up the ability of speed limitation on domestic data, and providing anti-harassment and scam call analyses.

Approximately **55.14** million MVNO users as at the end of 2018, representing over **67** % of market share

Assisting MVNO operators on real-name registration implementation

China Unicom has provided assistance to MVNO enterprises on real-name registration implementation and network information security in number of ways.

- Implementation of real-name registration has been linked to the phone number allocation policy for MVNO enterprises.
- Network interception of junk SMS and other malicious messages, as well as free anti-harassment and scam call analyses supported by daily tweet of suspicious numbers.
- Interviewing non-compliant enterprises to demand rectification and convening of real-name registration work meetings on a periodic basis based on business development conditions to procure MVNO enterprises to step up with real-name registration.
- Significant improvements in real-name registration in the MVNO business in 2018, as all MVNO enterprises conducted rigorous real-name registration for new users in accordance with regulatory requirements, while progress was also noted in the handling of junk SMS, scam calls and other malicious network information.

Cooperation with private capital in network deployment

Broadband cooperation with private capital

In 2018, China Unicom actively advanced broadband cooperation with private capital with a special focus in the southern regions, building 7.46 million new ports for private capital broadband cooperation, out of which 5.64 million were located in southern provinces and cities. There were close to 40 million private capital cooperation ports, accounting for approximately 16% of all broadband ports. A broadband cooperation plan has been drawn up with Founder Group to provide services to Founder users.

DEEPENING COOPERATION WITH INTERNET COMPANIES

Exploring “New Retail” pilot operations

China Unicom has engaged in intensive cooperation with various Internet companies such as JD.com, Alibaba, Suning, Tencent and Baidu, to explore the development in new retail operation.

- New Retail stores are established in cooperation, featuring intensive cooperation with strategy partners in areas such as supply chain, IT support, Big Data precision marketing, integrated online and offline operation, and intelligent applications.
- To replicate the experiences of new retail stores such as business model, mechanism and capabilities to China Unicom’s business outlets on a trial basis in order to enhance operating capabilities.
- A new retail platform system has been built to further integrate New Retail capabilities and export to open channel partners with a view to empowering, enhancing and increasing capabilities and capacities, and forming a novel cooperation model featuring joint operation, marketing and sales.

Enhancing cooperation in Internet promotion

China Unicom has launched campaigns on the Internet by taking opportunities presented by major events, such as leveraging the World Cup to strengthen promotion for Tencent King Card, Ice Cream packages, and other key businesses. Through the combination of TV and Internet advertising, China Unicom has built an all-touchpoint promotion and enhanced our brand affiliation by leveraging CCTV’s new core media resources and Youku’s privileged platform.



Pushing forward customer touchpoint cooperation

China Unicom and Internet partners collaborated to launch APP touchpoint cooperation. Through leveraging the partners' platforms, premium network services and concessionary packages to users were provided for the mutual benefit of users, partners and China Unicom. China Unicom has actively explored new models such as resource swap (SMA Model), launching extensive cooperation with Internet SMEs, FMCG companies, as well as banking and financial institutions to cover daily-life touchpoints of users.

- Cooperation with 54 Internet partners and 63 collaboration projects were in commence, including 139 Internet packages. More than 30 cooperative projects under the SMA business (resource swap model) were completed during the year.
- Channel touchpoint activities such as mobile qq, WeChat red dot diversion and b Station anniversary celebrations and Alibaba Singles' Day were successfully held.

During the cooperation, China Unicom conducted commission settlement, resource swap and ability output in a timely and proactive manner while in strict compliance with the cooperation agreement. In 2018, the number of 2I2C billing users, cumulative billing revenue and new users increased significantly as compared to previous year.

In a cross-industry cooperation between F.C. Internazionale Milano and China Unicom Qinghai, a new "Sports + Internet" model was launched in China, the first of its kind in the country, to present football fans with an exclusive Inter Milan Fan Card that combines communication interests and sports interests, in a move to satisfy the people's demand for quality life with the construction of a brand new sporting business ecology of the Internet era.



A press conference held on 7 November 2018 announcing the strategic cooperation between F.C. Internazionale Milano and China Unicom Qinghai.

More intensive cooperation in capital

- Yunlizhihui Technology Company Limited was established in a joint venture with Alibaba to provide theoretical and practical guidance in digitalised transformation on the back of core technologies such as cloud computing, Big Data, IoT, AI and blockchain, offering comprehensive solutions, cloud product services and IT technical services in areas including government service, finance, eco-environment, police, and manufacturing, and others. More than 150 mainstream enterprises in the value chain have been assembled in a joint effort to develop "Platform + Application" capabilities.



China Unicom teams up with Alibaba as a forerunner in the digitalised transformation of government and enterprises

- Yunjing Wenlv Technology Company Limited was established in a joint venture with Tencent to focus on Big Data-driven tourism, aiming to build core competitiveness in tourism big data and tourism application software, while providing core services such as "tourism big data, smart tourism development and operating services" for the empowering development of the tourism sector.
- Yunjizhihui Technology Company Limited was established in a joint venture with Wangsu to engage in CDN and CDN-related security and edge computing services, aiming to drive comprehensive upgrade in the services and products of the CDN industry.