ADDING IMPETUS THROUGH INNOVATIVE DEVELOPMENT

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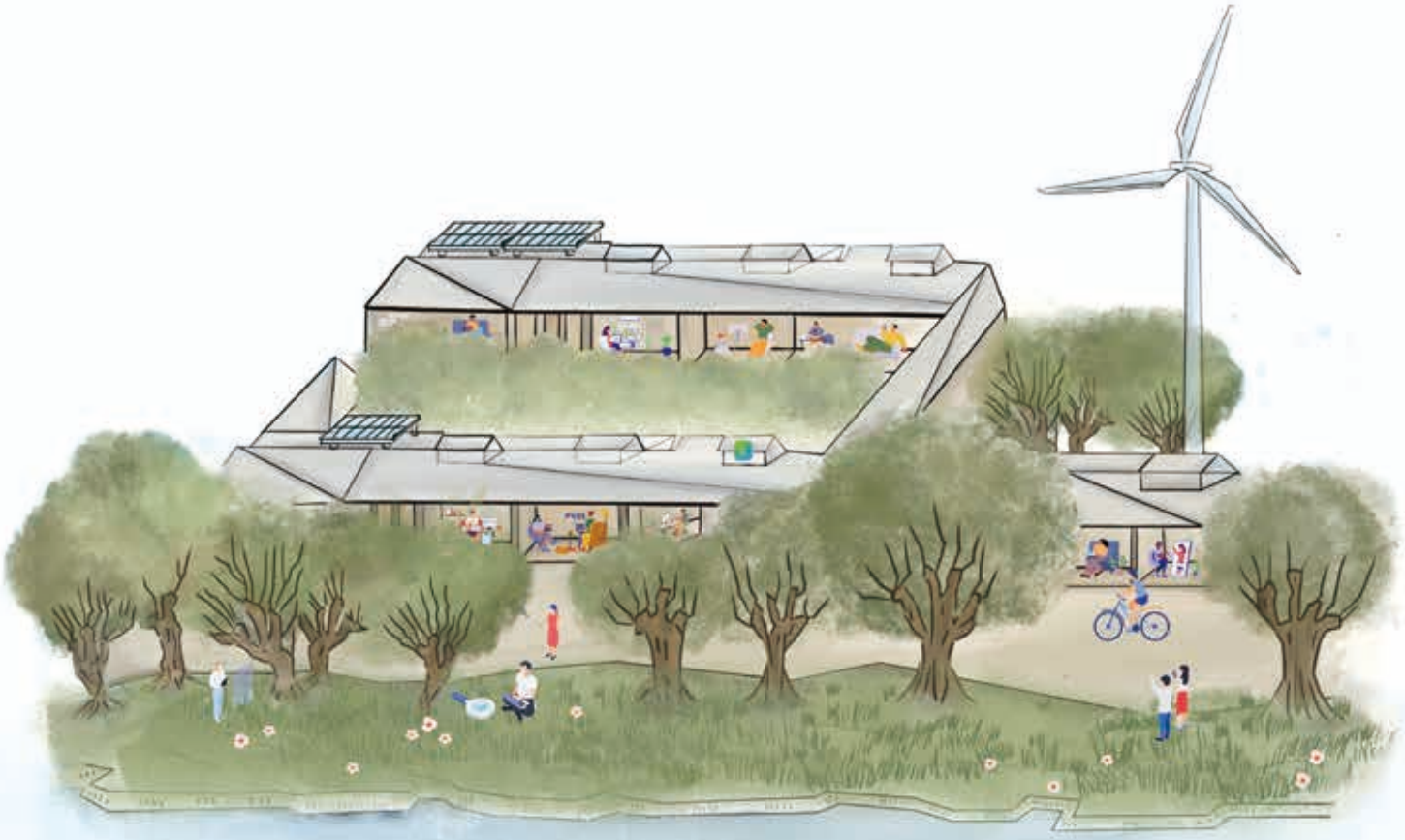


China Telecom adheres to innovation-driven development, and takes sci-tech self-reliance and self-improvement as the strategic support for its development. With meeting the digital demands of customers as the core, it deepens reform and innovation and promotes the reform of organisation and mechanism to adapt to digital transformation. China Telecom keeps enhancing corporate governance and uplifting its corporate governance capability, injecting new impetus to its high quality development.

SCI-TECH INNOVATION TO PROMOTE DEVELOPMENT

China Telecom attaches great importance to the key role of sci-tech innovation in promoting the high-quality development of economy, society and the Company. It focuses on four major research and development (R&D) directions, namely forward-looking research, cloud-network integration, network and information security and digitalised platform. China Telecom systematically promotes sci-tech innovation in aspects such as deepening system and mechanism reform, enhancing the construction of sci-tech talent team, exerting more efforts on achieving breakthroughs in core technologies and promoting cooperation on sci-tech research.

Enhancing sci-tech innovation system

The Company continues to enhance its sci-tech innovation system. It has fully completed the layout of R&D system based on fundamental research (Research, hereafter refers to R), application technology R&D (Development, hereafter refers to D) and operational development (Operation, hereafter refers to O), and developed an innovation system which deeply integrates industry, academia and research, so as to enhance its independent innovation capabilities constantly. During the year, the Company was awarded the title of "Enterprise with Outstanding Contribution to Sci-tech Innovation" by the State-owned Assets Supervision and Administration Commission (SASAC). In the field of R, China Telecom deployed key topics and pursued innovation on exploration projects with a focus on fundamental research and cutting-edge technologies; in the field of D, China Telecom built its internal R&D chain, and units which were in charge of the chain took the lead in integrating upstream and downstream resources to achieve breakthroughs in key core technologies with united efforts; in the field of O, China Telecom optimised the process of achievements transformation, put more efforts on the transformation of operation and development personnel, and promoted the scale application of achievements. China Telecom continuously optimised the structure of investment in R&D management, and enhanced the incentive mechanism for sci-tech research. It introduced top talents, and set up a nomination pool for chief experts, according to which 15 chief experts were appointed and re-appointed to lead key projects. A chief technical officer system was developed and more dedicated honours and awards for sci-tech innovation were introduced, to recognise individuals and teams who have achieved significant innovation results. China Telecom established a systematic sci-tech innovation organisation to create a good atmosphere for sci-tech innovation, and set examples to the promotion of sci-tech innovation. Under the leadership of China Telecom Science and Technology Association, 45 branches of China Telecom Science and Technology Association have been established. It successfully held the second Science and Technology Festival of China Telecom, owing to which the Company was selected as an Excellent Unit for Organising Activities in the National Science and Technology Day.

Sci-tech self-reliance and self-improvement

The Company strengthens the strategic supporting role of sci-tech innovation, leading to increasing influence in the industry. As one of the first origin units, the Company accelerated the construction of the source of original cloud computing technologies. China Telecom Cloud has achieved breakthroughs in key core technologies in the fields of cloud operating system, elastic computing, cloud storage, distributed database, CDN, etc. TeleCloudOS4.0 overcame open source restrictions, and "Xirang", the computing power distribution network platform of China Telecom Cloud 4.0, was selected as one of the "2022 Top 10 Super Projects of Central Enterprises". The Company constructed and launched "Hefei Quantum Metropolitan Network", the largest quantum metropolitan network in the country. The number of proprietary achievements and small and micro achievements of employees reached 84 and around 1,500, respectively. Revenues from services including Intelligent Video Cloud, e-Surfing Webcam and CDN reached the level of RMB1,000 million, revenues from seven services including China Telecom Cloud Desktop and Cloud Dam reached the level of RMB500 million, and revenues from six services including Website Security Expert and e-Surfing Security Brain reached the level of RMB100 million. Seven achievements including the Intelligent Operating System for the co-building and co-sharing network were selected into the "Recommendation Catalogue for Sci-tech Innovation Achievements of Central Enterprises (2022)" by SASAC.

The Company has achieved breakthroughs in sci-tech awards, patents and international standards. The 5G technology patents of the Company won the Silver Award of China Patent Award for the first time. The Company was granted the second prize of National Standard Innovation Contribution Award in the encoding and decoding of machine vision. Achievements in all-fibre backbone network was selected as one of the "World Leading Internet Scientific and Technological Achievements". In 2022, the number of domestic invention patents and PCT patent applications of the Company was 1.4 times and 2 times, respectively, over the same period last year. Currently, the Company has 55 employees holding important positions in the International Organisation for Standardisation and 4 serving as the vice-chairperson of ITU-T working groups.

[China Telecom took the lead in establishing the World Broadband Association (WBBA)]

With persistent efforts, the World Broadband Association (WBBA) was officially established, which strives to build an international cooperation and exchange platform in cloud-network technology innovation, thus enhancing international influence.

[China Telecom took the lead in developing 18 R17 technical specifications in the field of 3GPP RAN]

In June 2022, the 96th meeting of 3GPP RAN (wireless networks) announced the freezing of 3GPP R17 specifications, marking the official completion of the second evolving specifications of 5G. During the R17 specifications study and development cycle which lasted for 2 years and 3 months, the China Telecom Research Institute, on behalf of the Company, took the lead in developing 18 technical specifications including super uplink enhancement, network coverage enhancement, co-building and co-sharing evolution, networking of non-public networks and cancellation of system interference in 3GPP RAN area. It submitted over 1,000 technical proposals, which was among the global operators with most contributions to specification development.

Enhancing cooperation on sci-tech research

The Company stepped up efforts on industry-academia-research cooperation, and strengthened the integration of upstream and downstream innovative resources. It cooperated with renowned universities including Tsinghua University and scientific research institutes including Chinese Academy of Sciences as well as industrial chain partners including Huawei to carry out joint technology research and propelled the deployment and application of major research achievements in the fields of quantum, cloud-network, security and AI. National projects were jointly undertaken during the year, and a series of theoretical and prototype breakthroughs were achieved in cutting-edge technologies such as privacy computing, data confirmation right, intelligent computing framework and 6G integrated sensing and communication.

[China Telecom and Tsinghua University launched the Joint Research Centre of Next Generation Internet Technology]

On 8 March 2022, the launching ceremony of Tsinghua University-China Telecom Joint Research Centre of Next Generation Internet Technology was held at Tsinghua University. Leveraging the research centre, China Telecom and Tsinghua University will further make use of their respective advantages in sci-tech research, technology, talent and industry, and carry out extensive cooperation to seek for long-term development and achieve mutual benefits and win-win results.

Protecting intellectual property

The Company continued to establish a sound intellectual property management system and strengthened the protection of intellectual property. The Company has issued operational guidelines on intellectual property management covering the whole-life cycle of products, and organised training and promotion for the protection and requirements of use of intellectual property in respect of pictures, fonts and video and audio materials used in corporate operation and management. In 2022, focusing on 13 R&D chains, the Company continuously stepped up the application for invention patents in key areas concerning cloud, security, 5G, cloud-network operation and etc., increased efforts on the patent protection for key core technologies and products, and strengthened the layout and application of overseas patents, to enhance the international influence and competitiveness of its intellectual property, and build a moat for intellectual property rights.

[First Intellectual Property Forum by China Telecom]

26 April 2022 was the World Intellectual Property Day, on which China Telecom held its first Intellectual Property Forum and carried out the "National Intellectual Property Promotion Week" and other activities to promote the rule of law and to raise the awareness on intellectual property rights among all employees.

DEEPENING REFORM TO ENHANCE GOVERNANCE

Adhering to the excellent, prudent and effective corporate governance principles, China Telecom keeps enhancing its corporate governance methodology, and deepening reform, enabling its corporate deployment to further optimise and its governance system and governance capability to leap to a new level.

Deepening reform comprehensively

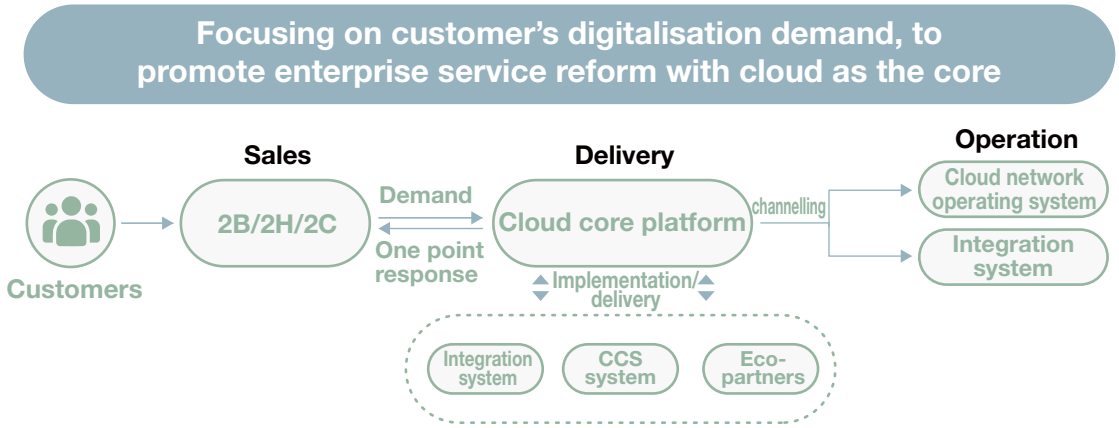
With meeting the digital demands of customers as the core, the Company deepens the reform of systems and mechanisms, and continues to enhance the market-oriented operation mechanism, so as to uplift its core capabilities and effectively stimulate corporate vitality.

The Company established a sound work mechanism, strengthened reform in a comprehensive, systematic and coordinated way, and developed targeted reform measures to form a closed-loop management cycle of "Plan Design – Follow-up and Advancement – Performance Assessment" and improve the quality of formulation of reform implementation plans and their advancement levels.

Modern corporate systems with Chinese characteristics were fully implemented. Reforms in areas such as government and enterprise service structure, cloud, security, sci-tech innovation, ecology and professional companies were deepened continuously. Three system reforms were promoted constantly with actual and effective actions, and market-oriented operation mechanisms such as tenure system and contractual management were carried out comprehensively.

The Company actively carried out reform publicity to create the strongest atmosphere for reform and innovation by various ways such as organising reform lectures, setting up reform columns on the Company's website, and promoting reform on WeChat public account, so as to publicise favourable reform cases, form reform experiences and promote reform models.

The Company accelerated the implementation of reform measures in important areas and key procedures, continued to deepen the reform of government and enterprises service structure, strengthened the construction of industrial research institutes, and put the cloud core platform of provincial and municipal companies into full operation. The reform of professional companies was expedited and intensified. Big Data and AI centre achieved corporatisation, the shareholdings of cloud company were diversified and cloud, security and IoT companies were selected as model companies for "sci-tech reform". The Company intensified its efforts on the layout of "aerial-ground in one" business and optimised the management system of satellite research institute. It adapted to the requirements for building a service-oriented, technology-oriented and secured enterprise by enhancing management systems in areas such as product operation and production safety.



Enhancing corporate governance

The Company continuously enhances its corporate governance methodology, regulates its operations, strengthens its internal control mechanism, implements sound corporate governance and disclosure measures, and ensures that the Company's operations are in line with the long-term interests of the Company and its shareholders as a whole. In 2022, the shareholders' meeting, the Board and the Supervisory Committee operated soundly and efficiently. The Company was dedicated to lean management while ensuring stable and healthy operation, and elevated its high-quality development to a new level, while continuously optimising its internal control system and comprehensive risk management in order to effectively ensure steady operation of the Company. In 2022, the Company convened 11 Board meetings, seven Audit Committee meetings, one Remuneration Committee meeting and three Nomination Committee meetings. The level of the Company's corporate governance continued to raise which effectively protected the best long-term interests of shareholders.

As at 31 December 2022, the Board of the Company consisted of nine Directors with four Executive Directors, one Non-Executive Director and four Independent Non-Executive Directors. There is no relationship (including financial, business, family or other material or relevant relationship) among the Board members. The Audit Committee, Remuneration Committee and Nomination Committee under the Board consist solely of Independent Non-Executive Directors, which ensures that the committees are able to provide sufficient checks and balances and make independent judgements effectively to protect the interests of the shareholders and the Company as a whole.

In August 2013, the Company implemented the Board Diversity Policy. The Company strongly believes that board diversity will contribute significantly to the enhancement of the overall performance of the Company. In determining the composition of the Board, the Company takes into account diversity of the Board from a number of perspectives, including but not limited to gender, age, educational background, professional experience, skills, knowledge, duration of service and time commitment, etc. All appointments made or to be made by the Board are merit-based, and candidates are selected based on objective criteria taking full consideration of board diversity. Final decisions are comprehensively made based on each candidate's attributes and the consideration for his/her valuable contributions that can be made to the Board. The Nomination Committee oversees the implementation of Board Diversity Policy, reviews the existing policy as and when appropriate, and recommends proposals for revisions for the Board's approval. Currently, the Board comprises experts from diversified professions such as telecommunications, accounting, finance, law, banking, regulatory, compliance and management and there is one female Director on the Board, with diversification in terms of gender, age, duration of service, etc., which in turn advanced the enhancement of management standard and the further standardisation of corporate governance practices, resulting in a more comprehensive and balanced Board structure and decision-making process.

The Company promoted the optimisation of the corporate governance systems of its subsidiaries, enhanced their market-oriented operation mechanisms, and strengthened the delegation of authority to enhance the vitality of development and operation and transform system advantages to governance efficiency. The governance structures of the Company's subsidiaries were further optimised, and the governance models of their board of directors were reasonably set according to their business characteristics and development stages with optimised director composition. In 2022, 17 subsidiaries of the Company have established additional dedicated committees under their board of directors. 10 subsidiaries have adjusted the number of their board seats, and the subsidiaries at all levels have appointed or removed 91 person-times of directors during the year. The subsidiaries of the Company had more standardised corporate governance practices and continued to enhance their institutional systems centring on articles of association. More support was provided to the performance of duties by directors and the exercise of rights by the management was safeguarded. In 2022, the Company's subsidiaries at all levels formulated over 300 regulatory documents related to corporate governance. The performance of duties by directors was guaranteed with measures such as proactive provision of production and operation information to external directors, establishment of normal communication mechanism and reporting significant events to external directors irregularly. The standardised management before, during and after board meetings was optimised to enhance the quality of board decisions. The Company's subsidiaries at all levels have comprehensively established systems for the board of directors to delegate authority to the management and the management to report to the board of directors, thus stimulating the vitality of the management in operations to enhance operation efficiency.