

Baidu 2019 Environmental, Social and Governance Report

Make the complicated world simpler through technology



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OUR VISION

TO BE A TOP GLOBAL TECHNOLOGY COMPANY
WHICH BEST UNDERSTANDS USERS' NEEDS AND
ENABLES THEIR GROWTH.



Baidu 百度

About This Report

Baidu's vision is to be a top global technology company which best understands users' needs and enables their growth. Our mission is to make a complicated world simpler through technology. Following our corporate culture, we aim to break the digital gap and benefit the world with technology.

In 2008, we joined the United Nations Global Compact (UNGC). In 2015, our Chairman and CEO Mr. Robin Li met with Ban Ki-moon, then Secretary-General of the UN in Beijing, where Robin expressed his support for the UN's Sustainable Development Goals (SDGs)¹. In 2020, we formally established the Baidu Environmental, Social and Governance Committee (referred to as ESG Committee). Consisting of senior management and external consultants, the ESG Committee advises the Board of Directors on sustainable development issues and develops ESG goals and roadmaps to address concerns from stakeholders and international community, enhancing our brand value and competitiveness. Under the ESG committee, there is an ESG working group with members from Corporate Social Responsibility Department, Investor Relations Department, Human Resources Department, and Legal Affairs and Risk Management Department. ESG committee will combine related business lines and functional departments together to establish

¹ Robin Li, Chairman and CEO of Baidu, is the first Chinese entrepreneur to publicly support the UN's 17 Sustainable Development Goals.

and improve risk management mechanisms, ensure effective communication with our stakeholders, and together improve the ESG performance of Baidu.

At the same time, to better reflect Baidu's understanding of sustainable corporate development, as well as our confidence and determination to build a sustainable business model, from 2020, Baidu will release Environmental, Social and Governance Report (referred to as ESG Report) on an annual basis. Baidu takes an open, transparent, and realistic attitude to achieve sustainable and lasting progress in ESG performance.

This inaugural edition of the ESG Report covers the period from January 1, 2019 to December 31, 2019. The Report will note any information that lying outside the above scope.

We prepared this Report with reference to the *Nasdaq ESG Reporting Guidelines 2.0* and the Global Reporting Initiative (GRI)'s *Sustainability Reporting Guidelines*.

Baidu attaches great importance to stakeholder opinions and welcomes feedback via esg@baidu.com. Your comments will help us further improve our ESG performance. Thank you very much.



Corporate Governance

Compliance with laws and regulations is the basis of stable operation and sustainable development. To this end, we have established a sound corporate governance structure to maximize our internal efficiency. We attach great importance to business reputation and compliance with high ethical standards. We aim to maintain the high-level corporate governance standard as the foundation for sustainable development.



Function of the Board of Directors

Baidu operates a well-structured and efficient corporate governance mechanism with defined rights and responsibilities in strict accordance with the *Nasdaq Stock Market Rules* and other applicable laws.

The Board of Directors is responsible for developing our overall strategies and policies. It also monitors the performance of management and sustainability to safeguard our long-term interests and those of our shareholders.

Baidu believes that independent non-executive directors offer a diverse set of perspectives and specialized knowledge to support our business strategy, performance, and management and thereby ensure that the interests of the company and shareholders are accommodated in a balanced manner.

Moreover, Baidu highly values and recognizes the diversity of its board of directors. We foster this diversity by appointing Board members on merit. The Corporate Governance and Nomination Committee considers a number of factors when nominating candidates, including gender, age, cultural and educational background, professional experience, skills, knowledge, and duration of employment.

During the reporting period, the Board of Directors consisted of one executive director and four independent non-executive directors. All five directors boasted extensive industry experience, one of whom was a financial expert.

Name	Age	Tenure (years)	Current board memberships (including Baidu)	Independent	
				Of management	Of other interests ²
Robin Yanhong Li	51	20	4	No	No
James Ding	54	14	2	Yes	Yes
Brent Callinicos	54	4	2	Yes	Yes
Yuanqing Yang	55	4	3	Yes	Yes
Jixun Foo	51	<1	1	Yes	Yes

Table: Details of Baidu's Board of Directors

² Other interests refer to " employees, government, shareholders, etc."

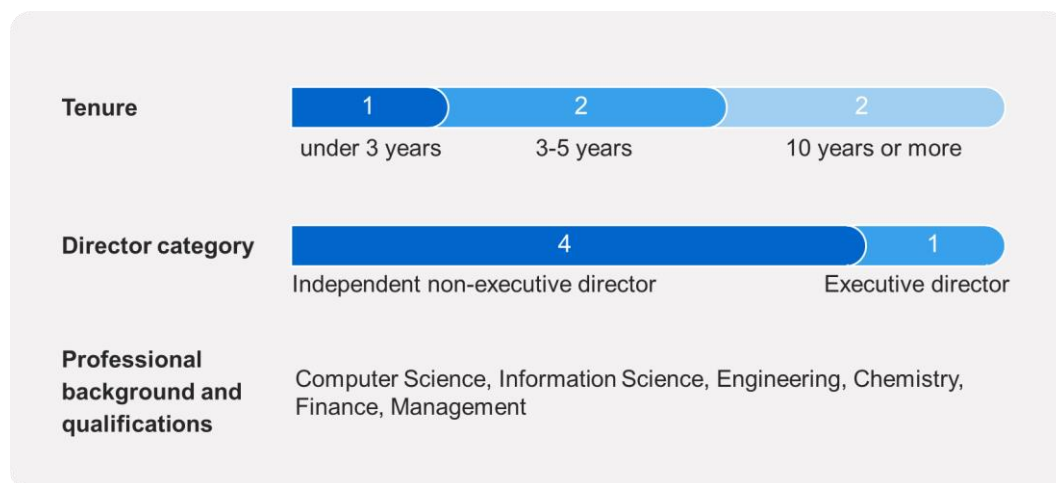


Figure: Diversified board composition



Risk Management

Baidu puts a high value on risk management. Baidu's Board of Directors determines and reviews the nature and scale of potential risks and ensures the integrity and effectiveness of risk management and internal monitoring system. We have also built a top-down structure for risk management including risk identification, assessment, and treatment.

We established several internal organizations specialized in operational compliance management, including the ESG Committee, Data Privacy Protection Committee, Data Assets Committee, Safety Committee, and the Committee of Professional Ethics. All of these organizations are in the charge of or partially managed by the Company's senior management. To be specific, the ESG Committee is fully responsible for the overall management of ESG issues while other functions and business divisions will appoint personnel to implement ESG measures.



Anti-Corruption and Business Ethics

Baidu values a clean and honest corporate environment and is committed to preventing corruption in any form. We firmly comply with the *Criminal Law of the People's Republic of China*, the *Company Law of the People's Republic of China*, and the *Anti-Unfair Competition Law of the People's Republic of China*. We also follow the *United Nations Convention against Corruption* and *Section 406 of the Sarbanes-Oxley Act*, along with local business ethics-related laws and regulations in the regions where we operate.



Strengthening Internal Business Ethics Management

In line with the above laws and regulations, Baidu has enacted six regulations and additional terms: *Baidu Professional Ethics and Code of Conduct*, *Rules for Awarding and Punishing Employees*, *Baidu Avoiding Conflicts of Interest Policy*, *Baidu Professional Ethics Regulations on “Red Line” Management*, *Baidu Management Regulation of Construction of Professional Ethics*, and *Baidu Professional Ethics Reporting Management Regulations*. We drafted the *Baidu Professional Ethics and Code of Conduct* under the guidance of section 406 and applicable provisions of the *Sarbanes-Oxley Act of 2002*, which contains the highest level of business ethics principles. Its standards exceed many general codes of conduct and applicable laws. The six above regulations explicitly prohibit corrupt behaviors including falsification, solicitation for personal gain, bribery, ultra vires acts, malpractice, leakage of confidential information, conflict of interest, illegal bidding, and interference with investigation. These regulations and additional terms are enforceable among all our employees, senior executives, consultants, board members, part-time employees, and outsourced staff, along with those of our subsidiaries, branches, and affiliated companies (organizations whose decisions Baidu controls).

In 2009, we established the Committee of Professional Ethics, the highest decision-making committee for anti-corruption and professional ethics, to ensure the implementation of relevant regulations. It comprises of senior managers who guide, determine, supervise and inspect the work related to professional ethics and codes of conduct. The Committee's executive arm is the Professional Ethics Department, which is responsible for implementing professional ethics regulations. Our Board of Directors also established its subordinate Audit Committee, which leads and supervises the Internal Audit Department and receives its audit reports. The senior management is under the obligation to hear the reports of Internal Audit Department.

We conduct regular professional ethics and anti-corruption training for all employees and require them to pass the annual online professional ethics test. All Baidu employees passed the professional ethics test in 2019. The Professional Ethics Department also conducts targeted training for key business departments and confidential positions. In 2019, we conducted 22 offline training or awareness-raising activities for 2,670 employees from various key departments.

Baidu values feedback and reporting from diversified channels and strives to provide safe reporting channels for whistleblowers. According to the *Baidu Professional*

Ethics Reporting Management Regulations, internal employees and external individuals all have the right to report Baidu employees suspected of violating laws, regulations and our ethical rules. They can make these reports in person or via channels including email, letter and suggestion box. We fairly process these reports and in accordance with the law and regulations while ensuring confidentiality for whistleblowers. This prevents whistleblowers from any retaliation or unfair treatment such as dismissal, demotion, suspension, intimidation, or harassment.

Our Internal Audit Department's audit inspection team handles tasks including financial planning, revenues and expenditures, work compliance and anti-fraud investigations. Upon identified process weaknesses, the Department will work with the relevant business departments to rectify the problem and hold these business departments accountable for further improvements. In addition, The Professional Ethics Department also carries out special investigations upon sensitive positions to discover any possible corruption issues.

Baidu's Professional Ethics Department conducts special investigations to discover any possible corruption issues. In 2019, it investigated cases where employees from Baidu Post business unit were found of violating laws and regulations, internal employees illegally downloaded and leaked other employees' information, and department administrators illegally used department fees. We dismissed violators according to company regulations and referred some employees suspected of crimes to the public security bureau. These investigations help to avoid corruption and maintain a culture of integrity at Baidu.



Enhancing External Business Ethics

Baidu strictly abides by the *Nasdaq Stock Market Rules* and other applicable laws. We created the *Code of Business Conduct and Ethics*³ under the guidance of related regulations and business ethics. The choices of suppliers should be fairly based on their credibility, service, quality, and price, in the light of company's long-term business development.

³ See details: <http://ir.baidu.com/corporate-governance>

We have strict screening criteria for external partners, which involves specific requirements in the following four aspects: sustainable development and corporate social responsibility, business ethics, taboos of contact and interest reporting and restrictions on competitive products.

Our *Sustainable Development and Corporate Social Responsibility Requirements* for business partners clarify the responsibilities of suppliers in employee rights, occupational health, human rights and environmental protection. It stipulates that suppliers must:

- Comply with the host country's employment and safety laws and regulations
- Avoid adverse effects on the local environment
- Ensure safe and healthy workplaces
- Use procedures and facilities that meet international security standards
- Respect the rights of employees
- Ensure employees' freedom of speech and association
- Never use workers subjected to any form of compulsion or coercion

Our suppliers must accept audits in specific areas when necessary, including:

- Human rights (including freedom of movement, no discrimination, and dispute resolution)
- Labor employment (including child labor, forced labor, salaries, and overtime)
- Working and living conditions (including workplaces, canteens, and dormitories)
- Environmental protection (including storage and disposal of waste, exhaust emissions, and wastewater treatment)
- Compliance (including licenses, accident rates, and serious injury records)
- Potential impact (including pollution of soil and groundwater)
- Security (including site protection, container safety, and government permits)

Baidu stipulates that all its agents, clients, suppliers, third-party intermediaries, and other business partners must sign the *Honesty and Integrity Agreement* when cooperating with Baidu. The Agreement specifies: "The two parties promise and guarantee that they have adopted and should always adopt appropriate measures in business cooperation, strictly abide by business ethics and market rules, and prevent themselves or any agent from engaging in any action that violates national laws and regulations, the principles of integrity and fair dealing, and the company's anti-bribery,

anti-corruption, and anti-money laundering systems under any circumstances.” The agreement also prohibits behaviors including “false qualifications, commercial bribery, conflicts of interest, bid-rigging, money laundering, and disclosure of business secrets.”

Information Security and Data Privacy Protection

Information security and data privacy are of great importance in the digital economy. We follow the core value of “Compliance and Innovation” and continue to strengthen our self-discipline and self-supervision in data use and protection. Our focus on “Compliance” guides us to put users’ interests first by championing the legal red line of data privacy protection and the bottom line of our values while our “Innovation” ethos inspires us to explore cutting-edge technology to better safeguard data and privacy.

Baidu strictly abides by the *Cybersecurity Law of the People's Republic of China* and other applicable laws and regulations. Our internal rules and systems include the *Baidu Information Security Redlines*, the *Baidu Information and Product Security Punishment Measures*, the *Baidu User Product Risk Management Standard*, the *Baidu Data Security Strategies*, supported by perfect technical safety measures and self-supervision mechanism. Together, we provide users with an environment where “information is protected, choices are respected, and services are valuable”. Our policies pertaining to data privacy protection apply to all our subsidiaries and branches.



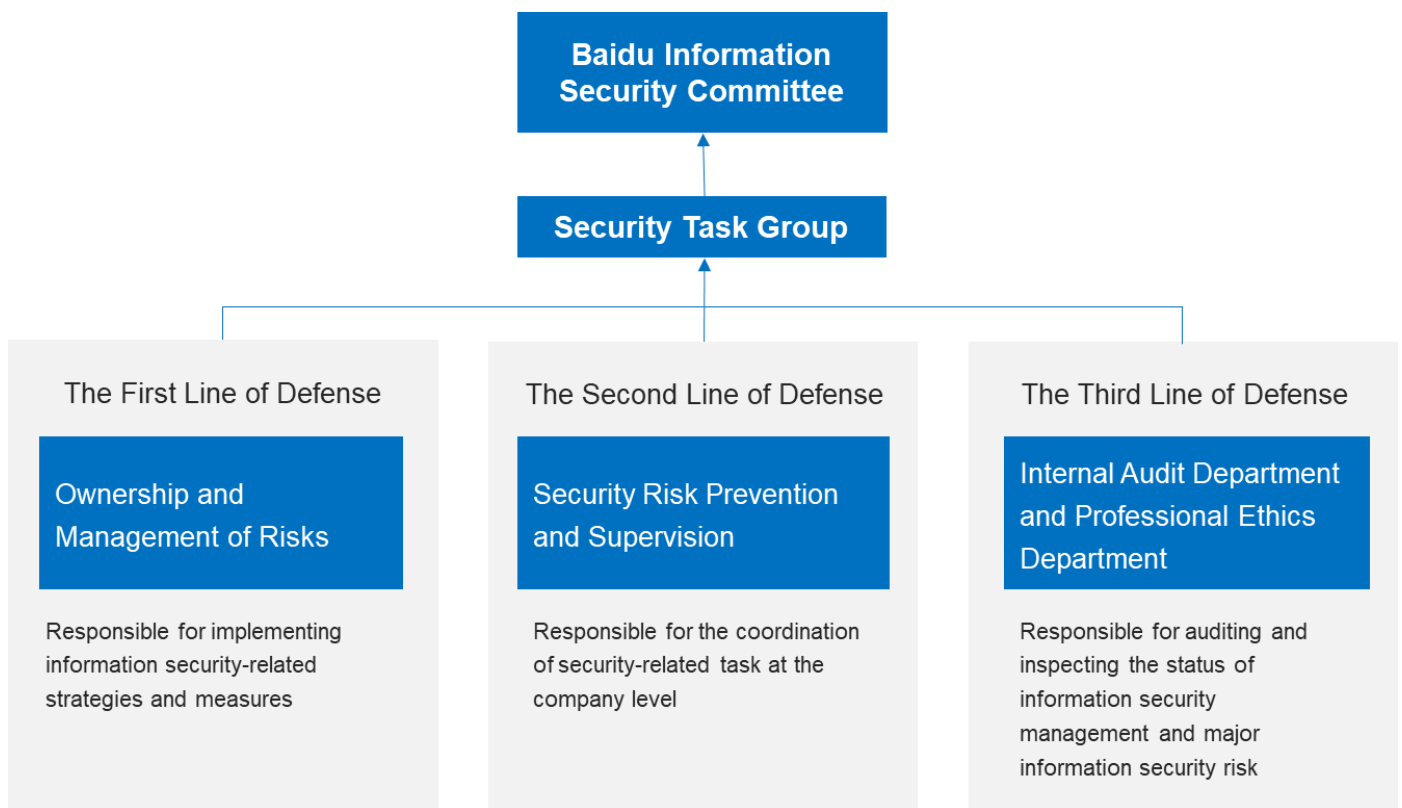
Systematic Management

Baidu has established a top-down management system for privacy protection. Our Data and Privacy Protection Committee, the highest level of the system, is responsible for strategy and decision-making on material data and privacy issues. The Committee also monitors compliance management for user's data protection, open data cooperation framework, and cross-border data. This ensures that our data privacy-related measures are eligible under applicable laws.

We created an information security management mechanism — “Three Lines of Defense”. We issued the *Baidu Security Organization Management Standards* to clearly specify functions, rights, and responsibilities concerning information security issues. The Information Security Committee of Baidu, as the top information security organization, is responsible for information security risk control decisions, resources allocation, and business line coordination.

- **The first line of defense safeguards and is responsible for the security of our information and products:** The head of each business department acts as its information security owner, implementing information security strategies and measures.
- **The second line of defense prevents and supervises information security risks:** A security working group comprising the Information Security Department and several others helps the Baidu Information Security Committee implement security tasks including:
 - Creating and updating information security redlines related policies and rules
 - Inspecting information security redlines related compliance
 - Managing high information security risks
 - Organizing and facilitating major information security programs
 - Handling major information security emergencies
 - Investigating information security cases and identifying accountable parties
 - Organizing employee information security awareness and skills promotion campaigns
 - Reporting to the Baidu Information Security Committee on a regular basis
- **The third line of defense is comprised of Internal Audit and Professional Ethics Departments,** and is responsible for the assessment of the status of information security management and major information security risks with

respect to inquiries of violations of professional ethics and information security processes.



Picture: Three lines of defense for Baidu information security management

Regarding internal implementation procedures, Baidu complies with the *Baidu Data Security Strategy*, focuses on Privacy by Design and Privacy Impact Assessment, and operates a business-wide auditing mechanism. We implement privacy protection plans and business plans simultaneously. Privacy impact assessments and privacy protection measures are initiated in sync with responsive operations of high security risks. This allows Baidu to carry out the basic principle of privacy protection throughout the entire data life cycle.



Data Technology

Baidu puts a high value on advanced technology for information security. We have developed and applied for various patents in this area as part of a continuous process of improving information security technology.

MesaTEE, Baidu's trusted and secure computing service framework, leads open source data privacy and security ecosystem⁴

Preventing data leakage and misuse in the public cloud, offshore data storage and other scenarios has become an urgent issue of common concern. Based on the extensive application of chip encryption, Baidu launched MesaTEE, the first trusted and secure computing service framework for memory security. In 2019, MesaTEE open source project was unanimously voted to be the incubator project sponsored by the Apache Software Foundation. This further enriches the trusted security computing technology ecosystem so that more organizations can benefit from the next generation of data privacy solutions, achieving inclusive security.

Baidu's federated learning platform Paddle FL, based on secure multi-party computation and differential privacy techniques, prevents personal information leakage in sharing training data

Baidu's Paddle FL (Paddle Federated Learning) platform contains privacy-preserving training algorithms and a federated learning framework by encrypting interchange data and adding noise to the gradient using secure multi-party computation and differential privacy techniques. Users can use the platform to train models with shared data while protecting their information from privacy disclosure.

Baidu cooperates with universities and standardization organizations home and abroad to drive industry growth. In 2019, we developed dozens of standards, working with international organizations such as IEEE and ISO/IEC and domestic organizations such as TC260, CCSA, and TAF. The cooperation above covers areas in AI security, multi-party computation, differential privacy, personal information protection compliance, and IoT security. Baidu has also supported collaboration between industries and universities as part of the Open AI System Security Alliance (OASES), the first alliance of intelligent terminal security ecosystem in China. We have established deep collaboration with Fudan University, Tsinghua University, and Wuhan University in AI model security and robustness evaluation of medical diagnosis models.

⁴ See details: <https://github.com/PaddlePaddle/PaddleFL>



User Service

Baidu developed the *Master Privacy Policy* and formulated separate privacy protection policies for every product and service. Meanwhile, Baidu established a Privacy Protection Platform (<http://privacy.baidu.com>) to educate users about Baidu's values and strategies of privacy protection and to collect feedback. In addition to fully giving users the right to control their personal information under applicable laws and regulations, Baidu also opens up complaint channels where users can seek advice and provide feedback relevant to personal information protection. Baidu established a user service center (<http://help.baidu.com>) and website for user information protection complaint (<http://help.baidu.com/personalinformation>). The user service center also serves all users in account security, payment and report of harmful information.

Baidu holds fast to the “3C” principle of user privacy protection

- **Consent:** Baidu will notice users when collecting their information and ask for their consent pursuant to applicable laws and regulations.
- **Communication:** Baidu communicates with users in a readable and accessible way, explaining the purpose, rules and scope of personal information collection. We also use animations and illustration for declaring our privacy policies.
- **Control:** Baidu strive to grant users the necessary control over the use of their personal information within legal limits. We added privacy setting in our products that enable users to dynamically turn on or off application scenarios of personal information and easily access to the data that we collect. Our products also publicly provide channels for requests and complaint of data update, modification and delete.



Information Security Inspection

Baidu conducts internal information security inspection in the following two aspects:

Regular inspection of security technology for relevant systems

- Threat monitoring and detection capabilities of basic security and in-depth defense, with a security emergency team responding to and handling information security incident 24/7.

- Detection and audit on core end-to-end data use behaviors as well as tracing audit on abnormal access behaviors.
- Simulated attack and defense tests to identify the defects and risks of the current system and information security capability.

Information security related internal and external audit

The Internal Audit Department independently conducts information security audits and detection, identifies defects and problems and carries out special audits. Baidu's core systems have been assessed by the qualified third party as China's classified protection of information system security Level- 3, and some major systems are even assessed as Level-4⁵. Baidu's products, including Baidu Cloud, Baidu Drive and other business lines, have been regularly assessed to privacy and information security related ISO/IEC certifications.



Employee Training

To draw employees' attention to data privacy and security, Baidu has developed a training mechanism, including online courses, forum publicity, news notifications, offline professional training courses and information security- themed activities.

In 2019, we offered over 100 information security training courses through live broadcasts and online videos. Participation of these training courses exceeds 50,000 person-times. We also conduct at least one annual mandatory information security and privacy awareness test. All employees are required to pass the test.

Baidu information security training in 2019

- Information security training for new employees: 27
- Department-specific training: over 10
- Security technology talks: every quarter

⁵ There are five levels of China's classified protection of information system (level-1 is the lowest and level-5 is the highest). Level-4 is the compulsory protection level, which is generally applicable to country-level core systems in important areas and sectors. Level-5 is the special protection level, which is generally applicable to extremely important systems in vital areas and sectors of country level.

Baidu enhances information security skills of employees

Baidu's technical staff training standards dictate different skill requirements corresponding to different roles. The Baidu Institute of Technology and the Information Security Department also run a series of offline and online security technology training sessions to constantly enhance employees' capability on information security.

Baidu raises security awareness with network attack and defense drills in 2019

Baidu regularly conducts network attack and defense drills to raise security awareness for all employees. The drills simulate external attacks to test employees' defense capability of common types of network attack and educate them with customized training roadmaps afterwards. In 2019, we conducted two attack and defense drills addressing the blackmail virus and bad USB threats, effectively improving the employees' ability to identify attacks.



Assessment and Training of Business Partners

Baidu is cautious about awareness and supervisory capability on privacy and information security among our suppliers and business partners. Before we accept suppliers' products or services, they must undergo strict information security and privacy due diligence in areas including the legitimacy of data sources and information security capabilities.

We conduct privacy risk assessments before deciding whether to proceed with business partnerships. Any business partners (including our holding companies, affiliated companies and acquired companies in process) receiving data from Baidu shall promise to take all the protective measures required by Baidu in the cooperation agreements and the information security and confidentiality agreements.

We will also conduct unified information security and privacy training for informal employees including interns and outsourced employees. We develop guidance for outsourced employees including the *Outsourced Management System*, the *Outsourced Employee Management System*, and the *Code of Conduct for*

Outsourced Employees in Office Workplace and other systems to be implemented by suppliers. Outsourced employees must undergo required training and pass the examination before working. At the same time, Baidu requires them to sign the *Letter of Commitment for Employees from the Outsourcing Company* to ensure data privacy protection among informal employees.



Social Responsibility for Information Security

Baidu values the importance of information security, actively shoulders social responsibility and assists the law-enforcement agencies in cracking down on cybercrime. In 2019, Baidu carried out special actions on data security and protection of personal information as well as our governance of fighting underground economy of network information contents. In the same year, we blocked 77.79 billion malicious web pages, detected 25.12 million malicious web pages newly-added on a daily basis, shut down 413,000 websites invading user privacy. Baidu also assisted the law enforcement in the crackdown on underground market.⁶

Baidu released the Brightness Action Plan to crack down on telecom fraud

In May 2019, Baidu released the Brightness Action Plan under the guidance of the Inter-Ministerial Joint Conference Office of the State Council. Backed by its dual search engines of AI technology and "search + information flow", Baidu cooperated with the Ministry of Public Security of the People's Republic of China in monitoring and tracking the online underground market, informing the government and the public with first-hand anti-fraud news and accurately cracking down telecom fraud.

We give full play to our advantages in technology and security detection capabilities, to empower partners and regulators so that they can protect users' information security by identifying privacy compliance issues in apps.

⁶ For more information, please see: <https://110.baidu.com>

Baidu supports the governance of illegal collection and use of personal information by apps

On January 31, 2019, the Baidu Information Security Department officially launched the Baidu privacy compliance inspection assistant which can help companies to conduct privacy compliance inspections of products on different ends including apps with high-efficiency and low cost, thus avoiding privacy violations.

We built the service based on long-term internal practices and accumulation of advanced AI technology, Android system API library and SDK knowledge base in the area of mobile security. As the first privacy compliance solution for mobile apps openly available to external services in the industry, it is widely used by other companies and national inspection agencies.



Human Capital Development

At Baidu, we know that our most significant resource is talent. We support this by continuously improving our talent management system. We focus on fair recruitment practices and a transparent performance appraisal system. We support employees with non-salary benefits, care for their physical and mental health, and develop multifaceted training courses to help them with career development.



Diversified Recruitment

Baidu focuses on diverse recruitment across college and university, attracting graduates to our talent teams. Our campus recruitment programs incorporate the following four approaches:

Spring internship recruitment

Reserve enough interns as required for business development and autumn campus recruitment

Autumn campus recruitment

Recruit young talent qualified for Baidu

Overseas campus recruitment

Recruit outstanding overseas graduates qualified for Baidu

Top campus talent recruitment

Select outstanding postgraduates, Ph.D. students, and post-doctorates committed to artificial intelligence industry research and development regardless of region

Picture: Diversified campus recruitment programs in Baidu

We also operate the Campus AI DU program for all outstanding graduates from colleges and universities worldwide. In 2019, the program attracted professional AI talent from colleges and universities including Tsinghua University, Peking University, the Chinese Academy of Sciences, Hong Kong University of Science and Technology, and Sydney University. Baidu nurtures talent through regular internships and assigns senior employees to guide qualified interns and newly recruited graduates. Nearly half of the interns who perform well choose to stay and work for Baidu after their internship.

As for social recruiting, we post job openings regularly on our recruitment website talent.baidu.com based on the needs of different business lines and work with recruitment companies to fill positions.

Fair recruitment is a guiding principle at Baidu. Our management mechanisms ensure legal and compliant recruitment practices, eliminate discrimination, and protect employee rights and interests. According to the *Management Standard of Baidu Recruitment*, during recruitment, each candidate should be respected and provided with equal opportunities. Equal employment should be carried out regardless of gender, race, color, age, nationality, religion or physical disability. The *Baidu Employee Manual* pledges to respect and protect all human rights of employees, put an end to any discrimination in employment and industry and by no means engage in any disregard or violation of human rights, and aligns itself with proposals by the *Universal Declaration of Human Rights*, the *International Covenant*

on Economic, Social and Cultural Rights, the ILO Declaration on Fundamental Principles and Rights at Work, and the United Nations Global Compact.

We deployed our self-developed intelligent recruitment system in 2015, ensuring the accuracy of the model, avoiding algorithm-based bias, and ensuring fair recruitment routines and results, especially in equal opportunities for women.

2019 saw us earn several accolades including Most Attractive Employer and Most Attractive Employer in the Internet Industry by Universum⁷, 2019 Employer Excellence of China and 2019 Campus Employer Excellence of China by 51jobs⁸, and the 2019 China Best Employer Award in Beijing and 2019 Campus Recruitment Campaign Award by Zhaopin⁹. Shixiseng¹⁰ honored us with the New Force · Favorite Employer of Young Chinese People Award, while the America China Office Association gave us the Best Career Cooperative Partner Award. We earned awards from several other institutions, including Tsinghua University School of Economics and Management which named us Best Cooperative Partner for Career Development. We received recognition as an excellent business partner from the Career Center of Beijing Higher Education and Peking University, while Fudan University, Tongji University, Shanghai Jiaotong University, Beijing University of Posts and Telecommunications, China University of Science and Technology, Wuhan University, and other universities acknowledged us as a key recommended employer. The Five College Consortium of Northeast China (Harbin University of Technology, Harbin Engineering University, Northeast University, Jilin University and the Dalian University of Technology) recognized us as a university industry collaboration career practice base, while the Dalian University of Technology named us a strategic partner in university industry talent pipeline development.

We had 28,305¹¹ employees at the end of 2019 averaging 30.2 years old. Female employees comprised 43% of our workforce. Females accounted for 46% of all management (40.58% of middle-level managers were females). The specific classification is as follows:

⁷ Universum is the most recognised Employer Branding specialist in the world.

⁸ 51job is a leading provider of integrated human resource services in China.

⁹ Zhaopin is a professional provider of human resource services in China.

¹⁰ Shixiseng is a platform providing internship opportunities for college students by cooperating with world-wide leading companies.

¹¹ This total number of employees covers the core business sections in Baidu (excluding holding subsidiaries of Baidu).

Classification		Percentage
By gender	Male	56.97%
	Female	43.03%
Middle management	Female	40.58%
Technical staff	Female	33.28%
By age	30 or below	62.01%
	31-40	35.76%
	41 or above	2.23%
By academic background	Below bachelor-degree	16.84%
	Bachelor's degree	44.95%
	Master's degree	36.92%
	Doctoral degree	1.29%
By university	Double first-class disciplines in mainland China	19.64%
	Double first-class universities in mainland China	29.42%
	Other colleges and universities in mainland China	46.47%
	Universities in Hong Kong, Macao and Taiwan	0.66%
	Foreign colleges and universities	3.81%

Table: Employees' classification in Baidu



Omni-Directional Talent Pool Strategy

Baidu is committed to cultivating talent through technology education and taking the lead in it. We partner with many universities and research institutions across the country. We have attracted skilled professionals in AI and other disciplines and have helped cultivate national AI faculties and long-term national talent reserves via the following initiatives.

Fostering Teachers and Professionals

Since 2015, we have worked under the guidance of the Ministry of Education on an education project involving university industry collaboration. By providing various resources such as funds, courseware, teaching materials, training, open-source technology, data, experimental platforms and cases, Baidu has fully supported colleges and universities in developing AI + New Engineering Majors, reforming AI

curriculum and growing AI teacher teams. We also helped build AI laboratories in universities and implemented AI projects initiated by college and university students. Such in-depth university industry collaboration integrates five complementary modules, which unlock the real value of technology, data and platform. The five modules are Reform of Teaching Contents and Curriculum System, Creation of An Environment for Practice, Training for Teachers, Joint Fund for College Student's Innovation and Entrepreneurship, and Innovative Start-up Education Reform. Over the past five decades, we have invested nearly ten million RMB in teaching and scientific research funds and supported nearly 320 projects in about 200 colleges and universities. We have set up courses related to AI in 137 colleges and universities and established AI laboratories in 39 schools. We have trained and otherwise served over 1,000 professional AI teachers.

Since 2018, we have worked with many key universities in China to organize training programs for AI teachers, educating them in our deep learning platform PaddlePaddle and AI training platform AI Studio. We also provide resources for university teachers including Baidu AI open source technology, open datasets, online and offline courses, AI training platforms, and computing resources. Trainees also have access to training materials, which include 32 class hours of courseware and supporting experimental code. As of 2019, these programs have involved teachers from 400 universities.

Promoting learning through competition

Baidu scouts for outstanding technical talent at home and abroad through competitions including Astar, the Baidu & Xi'an Jiaotong University Big Data Competition, the IKCEST International Big Data Competition, and the China Collegiate Computing Contest - Artificial Intelligence Innovation Contest. These contests are instrumental in boosting the growth of talents in the internet and AI industries in China.

Astar is our high-level programming competition for Chinese college students and programming enthusiasts. This competition focuses on algorithms and includes two events: Programming Competition and Developer Competition. We have held this contest 15 times since 2005, cooperating with over 1,000 college and university partners and attracting over 250,000 student contestants. It has earned the nickname the 'Huangpu Military Academy of AI' and 'Manufacturer of AI Celebrities' thanks to its encouragement of domestic programmers. The finalists get fast-track access to Baidu campus recruiting and internship.

The Baidu & Xi'an Jiaotong University Big Data Competition and IKCEST International Big Data Competition is an international collaboration initiated by Baidu and Xi'an Jiaotong University, organized by the United Nations Educational, Scientific and Cultural Organization (UNESCO), the International Knowledge Center for Engineering Sciences and Technology (IKCEST) and the China Knowledge Center for Engineering Sciences and Technology (CKCEST). It demonstrates deep collaboration between government, industry and universities. This event has been held five times since 2015. As of 2019, it has engaged more than 6,500 teams of contestants from over 440 universities in 16 countries in total, including all domestic double first-class universities.

The China Collegiate Computing Contest - Artificial Intelligence Innovation Contest (CCCC-AIIC) is a science and technology innovation competition for students of all majors in China. It was initiated and hosted in 2018 by the Ministry of Education's Steering Committee on the Teaching of Computer in Higher Educational Institutions, the Ministry of Education's Steering Committee on the Teaching of Software Engineering in Higher Educational Institutions, the Ministry of Education's Steering Committee on the Teaching of Computer Course in Higher Educational Institutions, and the Association of Fundamental Computing Education in Chinese Universities, and has been organized twice by Baidu, Zhejiang University, and local government. The academician Pan Yunhe, leader of the national New Artificial Intelligence Strategic Advisory Committee, serves as the director of the Contest Steering Committee, and academician Zheng Nanning and academician Gao Wen are the deputy directors. Over 30 AI experts in China have been invited onto the Expert Committee to form a top-level think tank. The competition has been successfully held for twice and has developed into the most high-profile and the most extensive domestic AI competition for colleges and universities. It consists of seven divisions for contestants in the mainland China, Hong Kong, Macao, Taiwan, and for overseas contestants. In addition to applications from prestigious universities in China, it has also attracted the active engagement of well-known universities such as Pennsylvania State University, Singapore National University and Hong Kong University of Science and Technology. As of 2019, over 3,000 teams have signed up for the competition, which are translated into more than 5,000 contestants, across 450 colleges and universities.

University-Industry Collaboration on Talent Class

Since 2016, Baidu and Xi'an Jiaotong University have cooperated to select students from the top ten performers in over 20 AI-related majors. Both parties developed an

AI training knowledge map and talent training programs, and defined AI talents training standards, offered AI practice courses and set an example for China's AI talent education. As of 2019, a total of 143 top AI talents have been trained and provided with talent scholarships.

Baidu Scholarship

We created Baidu Scholarship plan in 2013 to grant 200,000 RMB per person as scholarship. Each year we select 8 to 10 top Chinese students from AI field and provide them with data, platforms and expert advices. The scholarship encourages the talented future technology leaders to solve the most pressing technical AI problems. As of 2019, a total of 66 winners have benefited from the scholarship.

In 2020, we will arrange AI courses for primary and secondary school students, cooperating with the Beijing Municipal Education Commission to compile the first official textbook for the EasyDL tailored training and service platform. This initiative will shift AI technology from professional training in colleges and universities to a new stage of universal education covering primary and secondary school students.



Diversified Training

Baidu has developed training courses at different levels to provide self-improvement opportunities for all employees including interns and management. Our *Baidu Training Management Standard* defines a mixture of required, open, and specific training courses. All trainees must take required courses at specific stages to qualify before completing a program. The open courses are training courses for employees' comprehensive competence, quality and job-specific skills and employees can sign up for them voluntarily. The specific training courses are targeted training courses conducted by Human Resources Department's learning and development center, covering targeted topics in response to the specific needs of one or several business departments. Other training courses include lectures and various online open resources addressing employees' common concerns.

In 2019, we delivered 568,162 hours of online and offline training¹² for employees, averaging 25.04 hours per person. Online training including live broadcasts reached 90.18% of employees and offline training reached 61.38%.

Training type	Examples of course content
Required courses	New Employee Orientation, Learn to Lead-New Managers, New Director Boot Camp, etc.
Open courses	Quick Learning - Capsule Program, General Skills Learning Program for Employees, Big Shots Exchange Program, etc.
Specific training	Customized Small Group Learning, Enterprise Selling Training Camp, General Skills Learning for Shanghai Office, etc.
Other training	Visionary Project, Senior Management Face to Face, 10 Minutes Business Class, etc.

Table: Diversified training in Baidu

In addition, Baidu offers tailored training programs and manager training programs covering different management systems and levels. The tailored program delivers customized training content designed for different business activities, with training methods include lectures and workshops. At the beginning of each year, each system's organizer creates an annual business group (BG) training plan, designs training programs and delivers content. In 2019, we launched 48 tailored training events, covering 1,180 attendances with a total training time of 7,648.5 hours. Manager training programs are to help them better motivate staff and improve team efficiency and cohesion. In 2019, manager training courses cover 1,774 attendances for a total of 18,879 hours.



Scientific Performance Evaluation System

Baidu has developed *Baidu Performance Management Standard* to regularly evaluate employee performance, assess their ability to meet their responsibilities and help in their progress. The performance management process consists of three parts: objective setting, performance guidance and performance evaluation. We first employ objectives and key results (OKR) to set objectives, and then the manager provides guidance including daily guidance and an OKR review of employee performance.

¹² Not including hours occurred among employees from the direct sales system.

Finally, we rate employee performance based on employee's task performance and radiation performance. This regulation applies to all full-time employees at our headquarters and branches.

We use the IMPACT concept model¹³ to evaluate employees' business performance as part of our annual performance appraisal. At the end of each year, we start a performance appraisal to assess two aspects of our employees' work: their business performance and the positive impact on Baidu beyond their on-the-job responsibilities. The annual performance appraisal includes self-evaluation, peer evaluation, supervisor evaluation, performance calibration meeting, evaluation result confirmation and approval. Following the evaluation, the immediate supervisors share performance evaluation results with employees and help them improve through the performance improvement plan (PIP). In 2019, all of our employees were engaged in the performance appraisal.

We have channels through which employees can appeal their performance evaluation in the event of disagreements. Employees can submit performance complaints within five working days after querying the open performance results in the ERP system. After receiving the appeal forms, HRBP¹⁴ will communicate with the immediate supervisors, superior supervisors, and the departmental heads to gather information and fill in a form of *Preliminary Handling of Performance Evaluation Complaints*. Within eight working days of the appeal, HRBP will inform the employees of the preliminary handling opinion approved by leading business partner (BP) and the departmental head and deliver it to the performance manager for filing. Employees who do not accept the preliminary handling opinion may appeal again.



Competitive Non-Salary Benefits

Baidu cares for every employee. We have developed the *Instruction on Baidu Caring Benefits Management* and *Baidu Community Management System* to offer all employees non-salary benefits including full-time employees, interns and contractors.

¹³ An employee's performance evaluation model developed by Baidu.

¹⁴ Human Resource Business Partner, the organizer in charge of human resource management in each business unit.

We offer employees free breakfast, midnight snacks, and allowance for lunch. We have a variety of food that can meet all kinds of employee's demands from different ethnic groups and different regions.

We have lounges, massage rooms, hairdressing salons, libraries, stores, coffee shops, gyms, yoga rooms, badminton courts and basketball courts for employees. Each office building has a special lactation room and clinic for nursing mothers and employees in need.

We also allow appropriate departmental budgeting for team-building exercises, and we support internal interest-based groups via 26 clubs covering fitness, dance, music, working out, and outdoor activities with ample funding.

We use flexible work schedules and offer paid holiday and time off in lieu of overtime work in addition to the statutory annual leave entitlement, to enhance employees' work-life balance.

We send gifts and tailored best wishes to employees on statutory holidays, birthdays, weddings, childbirth, bereavements, illnesses, and other important occasions. We celebrate Children's Day with holiday gifts for those who have children under 13. We offer holiday gift packages for family members on major festivals such as New Year's Day and Spring Festival, and we hold a Family Day event at least once a year when employees can invite their family members to enjoy parent-child activities at Baidu.

We hold a ceremony and provide a small gift for female employees returning to work after birth-giving, and we also offer high-quality maternal and child health resources for mothers and children.

Our Greenpine Plan provides commercial insurance for the parents of employees who join us for at least two years. It offers insurance coverage of 300,000 RMB regardless of age, health, social security, residence, or other factors. Employees' family members can also enjoy physical examinations at a discount. We also have a Caring Fund to support employees in the case of serious disease and other extreme difficulties.



Advanced Occupational Health and Safety Management

Baidu abides by the *Labor Law of the People's Republic of China*, the *Work Safety Law of the People's Republic of China*, the *Fire Protection Law of the People's Republic of China*, and other applicable laws and regulations related to occupational health and safety. We created the *Baidu Specification on Office Management*, the *Baidu Office Emergency Plan*, the *Baidu External Personnel Management System*, and the *Access Card Management System* among other systems to ensure workplace safety.

We strictly control building access. We inspect fire protection measures regularly and undertake annual fire and earthquake rescue drills to keep employees aware of and prepared for emergencies.

We place great emphasis on our employees' health and strive to prevent occupational diseases. We give all employees free annual physical examinations and supplementary commercial insurance along with free professional psychological counseling.

We provide a variety of fitness equipment and hired professional coaches to give our employees instruction. We also plan to offer an exercise program to combat occupational diseases¹⁵. We encourage employees to take exercise after work and to keep healthy.



Smooth Communication Mechanism

Since 2011, Baidu has regularly conducted a Human Capital Index (HCI) survey each year to assess satisfaction levels and concerns across all employees. It gives us different perspectives from employees to help improve our management processes.

The survey is conducted every November and lasts for 10 working days. It assesses employee satisfaction via four sub-indices: High-Performance Indicator - HPI, Employee Retention Index - ERI, Organizational Innovation Index – OII, and Core Values Index – CVI. The survey obtained over 20,000 pieces of feedback from

¹⁵ Ergonomic injuries, such as cervical spondylosis and tenosynovitis.

employees at Baidu headquarters in 2019. The average response rate from 2017 to 2019 is 97%.

In addition, the *Baidu Employee Manual* specifies that "Open communication is encouraged. Employees can discuss any issues related to employee management with their immediate supervisors, head of business, Human Resources Department or senior managers of the Company at any time. We desire to create an open and comfortable working environment for every employee by constantly improving employee policies". We have established channels for open employee feedback and complaints. Employees can raise questions or suggestions via email, our intranet, or other platforms or inform the Human Resources Department. The person in charge will respond to it within one working day and help the employee contact the relevant person within two working days to discuss settlement of disputes.



Low-Carbon Development

Baidu recognizes the importance of environmental protection in sustainable development and responds to the national call for energy conservation and emission reduction. Baidu has joined the Climate Group's global initiative EV100¹⁶ and strives to be a socially responsible company in low-carbon development, energy conservation, and environmental protection. In 2019, our cold-plate liquid cooling technology received the ODCC 2019 Project Award, along with other environmental awards such as the China Association of Communications Enterprises' Advanced Unit of Energy Saving Technology Innovation in Communication Industry in 2018 - 2019.

¹⁶ As a global initiative, EV100 brings together 67 forward-thinking companies to build demand for electric vehicles. As one of these supporting companies, Baidu is committed to promoting the use of electronic vehicles and installing vehicle charging stations in the workplace. Visit <https://www.theclimategroup.org/ev100-members> for details.



Environmental Key Performance

Baidu values energy conservation and emissions management and complies with applicable laws such as the *Environmental Protection Law of the People's Republic of China* and the *Energy Conservation Law of the People's Republic of China*. Below are data of our energy consumption and waste discharges in 2019:

Indicator	Unit	Data of 2019
Diesel oil	L	386,404.61
Natural gas	m ³	2,409,789.00
Electricity	kWh	490,628,065.20
Steam	t	8,221.20

Table: Baidu energy consumption in 2019

	Indicator	Unit	Data of 2019
Non-hazardous waste	Office paper	kg	42,205.33
	Domestic waste	t	4,574.10
	Kitchen waste	t	1,633.88
Hazardous waste	Electronic equipment waste	piece	8,455
	Light tubes	tube	6,154
	Toner cartridges	cartridge	601

Table: Solid waste generated by Baidu in 2019

Indicator	Unit	Data of 2019
Freshwater consumption	m ³	1,286,617.48
Domestic sewage	m ³	76,259.00

Table: Baidu water consumption in 2019



Green Office

Most of Baidu's greenhouse gas (GHG) emissions come from data centers, office buildings, commuter shuttles, and charging stations. The above-mentioned GHG emissions in Scope 1 and Scope 2 totaled 305,979 tCO₂e in 2019. Baidu also calculated the Scope 3 GHG emissions in 2019, and the amount was 19,810 tCO₂e.

Scope	Unit	Data of 2019
Scope 1 ¹⁷	tCO ₂ e	5,390.52
Scope 2 ¹⁸	tCO ₂ e	300,588.92
Scope 3 ¹⁹	tCO ₂ e	19,810.24
Total	tCO ₂ e	325,789.68

Table: Baidu GHG emissions in 2019²⁰

We have also adopted energy-saving methods in data centers, office buildings, commuter shuttles, and charging stations as part of our social responsibility drive. In 2019, our data centers reduced GHG emissions by 184,064 tCO₂e, that of our office buildings by 2,437 tCO₂e, and that of our charging stations by 517 tCO₂e for a total GHG emissions reduction of 187,018 tCO₂e.

Green Data Centers

Data centers are the main energy consumers within Baidu due to their computing-intensive role in searching, cloud computing, big data and AI services. With an aim to build green, low-carbon, energy-saving, and environmentally friendly cloud computing data centers, we employ green and energy-saving technologies to constantly improve energy efficiency. At the same time, Baidu data centers apply AI to enhance energy efficiency and reduce GHG emissions.

Our self-built data centers adopt multiple power supply plans including mains electricity + UPS, and mains electricity + HVDC offline. We also use a large-scale chilled water system with a natural cooling module to continuously decrease the PUE²¹ and increase energy efficiency. In 2019, the average annual PUE of all Baidu self-built data centers was 1.14, a decrease of about 0.02 compared to 2018. The average annual PUE of the most energy-efficient data center was only 1.08.

Baidu has also tested and deployed some technologies on a small scale to further improve energy conservation and emission reduction. These include direct fresh air

¹⁷ Direct emissions, including losses, emissions from stationary combustion sources, boilers, kitchen equipment, and refrigerators.

¹⁸ Indirect emissions, including emissions from purchased electricity, steam, and heating power.

¹⁹ Other indirect emissions include domestic sewage, emissions from business travels, and buildings.

²⁰ The quantity of greenhouse gas emissions is expressed as a carbon dioxide equivalent. We sourced the data and sum of emission factors from international and domestic authoritative institutions. Emission factors for fossil fuels are calculated by lower heating value according to the *China Energy Statistical Yearbook 2017* and fuel gas emission coefficient in IPCC2006. The electronic power emission factor is based on the average emission factor of the national power of 2015.

²¹ Power usage effectiveness (PUE) is a commonly used global metric for the energy efficiency of a data center. PUE is the ratio of the total energy used by a data center to the energy delivered to IT equipment. A PUE value near 1.0 would indicate high energy efficiency in the data center.

cooling, indirect evaporative cooling, heat pipe backplates, water-cooled backplates, cold-plate liquid cooling, solar photovoltaic, and distributed lithium battery backup unit (BBU).

Case study: Photovoltaic power and purchased wind power help Baidu reduce GHG emissions

Baidu's Yangquan Data Center was the first to explore new energy applications. Now it can generate 120,000 kWh of power a year with its solar photovoltaic system. The Yizhuang Data Center also established a photovoltaic power station on the roof, with an annual generation capacity of 155,000 kWh. Every year, the photovoltaic power system of Baidu data centers reduces GHG emissions by 268.5 tCO₂e.

In 2019, the Yangquan Data Center entered into a contract with a power supplier to purchase 30 million kWh of wind power, equivalent to a reduction in GHG emissions by 29,040 tCO₂e.

Green Office Buildings

Baidu strives to create energy-saving and environmentally friendly office buildings. We have established management measures such as the *Baidu Technology Park Energy Management System* and the *Baidu Building Water Saving Guidelines*, clarifying the water and power-saving methods to be used. Our monthly *Energy Consumption Analysis Report* details our monthly consumption of water, electricity, natural gas, fuel oil, steam, and analyzes the year-on-year differences. Thus, we are able to better understand our energy consumption patterns and formulate feasible energy-saving measures.

We have also created a series of energy-saving solutions, including the *Operational Energy-Saving Plan for Baidu Buildings, Equipment and Facilities*, the *Energy-saving Solution for Central Air-Conditioning and Ventilation System*, the *Energy-Saving Solution for Power Distribution Equipment and Facilities*, the *Energy-Saving Solution for Escalator Installations*, and the *Energy-Saving Solution for Water Supply and Drainage Facilities*. We have continuously met our energy-saving goals by systematically implementing these management and technical measures, making energy-saving plans and implementation plans. We continue to offer training to raise employees' awareness of energy savings in the workplace. We have taken the following measures to save energy, reduce emissions, recycle sewage and waste.

Energy conservation and emission reduction methods

- Green lighting – We use LED energy-saving lamps widely in office buildings, saving about 930,000 kWh of electricity every year. Designated employees conduct daily inspections to ensure lights are turned off when no one is in the office.
- Heat recovery – Our fresh air conditioning system recycles cold and heat, saving 1.8 million kWh of electricity during the cooling season and 150,000 m³ of natural gas during the heating season.
- Clean energy – The Baidu Technology Park uses solar collectors to heat domestic water and reduce natural gas consumption.
- Nitrous oxide emissions reduction – Baidu improved the nine gas-fired boilers in the office area of the Baidu Technology Park in 2019 to reduce nitrous oxide emissions from 120mg/ m³ to 30mg/ m³.

Wastewater and waste management

- Wastewater usage – We reuse the treated cooling water for office buildings' toilet flushing. The technology park also built a rainwater collection system that can reclaim 2,400 m³ of rainwater each year.
- Wastepaper usage – To save paper, we use all single-sided non-confidential printed documents for receipts. We also encourage our employees to resort to paperless.

Green Commuter Shuttles

We have been operating electric commuter shuttles since 2015, supporting the daily commutes for tens of thousands of employees across each office area. As of the end of 2019, all of the commuter shuttles we operated were electric.

Charging Stations

We established the *Management System of Electric Bicycle Parking and Emergency Charging Service* and the *Applicable Management Methods for Baidu Motor Vehicles*. We have installed charging stations in office areas in Beijing, Shenzhen, and Silicon Valley to encourage employees to travel in green vehicles since 2016. As of November 2019, there were 117 charging stations and the number is still increasing.



Green Products

Baidu shares the sustainable development concept with society and our users. We endeavor to combine environmental responsibility with our services and products for a green lifestyle.

Green Travel: Xiaodu Farm

The Baidu Corporate Social Responsibility Department and Baidu Maps launched the Green Travel program in 2017. We introduced the Xiaodu Farm within Baidu Maps to campaign for green travel and GHG emissions reduction.

In 2019, Xiaodu Farm users completed 100 million green journeys, representing a total carbon emissions reduction of 44,010 tCO₂e.

Green Life: Waste Sorting

In 2019, we promoted waste sorting in China by optimizing our users' search results to better display the waste category when users searched for waste sorting. We also launched our AI Waste Sorting mini program in July, which uses visual and speech recognition to help users identify and sort waste with technical support including quick Q&A, voice, visual, and text searching.

As of January 2020, the mini program had served over 1.3 million users. In 2020, we expect to bring convenience to more users as waste sorting will be implemented nationwide.

A large white robot with a black paw print on its head is the central focus of the image. It is interacting with a group of people, including a man in a blue vest, a man in a black and white jacket and cap, and a young girl in a pink shirt. The background is a dark blue wall with a white panel and a purple display case.

Social Responsibility and Innovation

Baidu focuses on fulfilling our social responsibility, operating under the principle of science and technology for a better life. We are committed to upholding social responsibility practices when developing new products and upgrading services. In 2019, we received accolades including the China Corporate Social Responsibility Excellent Project, China Charity Corporate Award, China's Top 10 Respected Companies of 2019, Top 10 of China Corporate Social Responsibility 500 of 2019, Best Practice Award for Enterprises Achieving Sustainable Development Goals of 2019, Best Innovation Award for Government Industry Technology Application Scenario, and Outstanding Award for Responsible Corporate.



Harmful Information Management

Baidu complies with the *Protection of Consumer Rights and Interests Law of the People's Republic of China* and related laws and regulations. We work to eliminate harmful content from our products and services and ensure the legitimacy of information. In 2019, the Baidu Content Security Center removed over 53.15 billion pieces of harmful information, including pornography, gambling, forgery and distribution, fraud, scam, drug abuse, terrorism, dangerous goods, infringement, and illegal information trading. The Center also removed about 460 million medical variant search terms²², and about 3.277 billion illegal advertisements. AI techniques removed over 53.07 billion harmful pictures, texts, videos and audios. Besides, over 75.1 million harmful files were removed by manual inspection. There were over 2.83 million effective reports received from individuals, corporations, government functions and other sources.



Wildlife Protection

While we rigorously implement environmentally sustainable policies and initiatives, we also actively participate in initiatives that aim to improve biodiversity. These included working with the International Union for Conservation of Nature (IUCN) to tag and maintain search results related to over 400 endangered animals on Baidu Search, removing over 260,000 entries containing inappropriate information related to wildlife and blocking 1.4 million posts about the illegal wildlife trade. We also cooperate with non-profit organizations, such as the International Fund for Animal Welfare, to conduct a series of events that promote public awareness of conservation efforts and science.



Baidu AI Xunren

Baidu has used AI in collaboration with government departments and social organizations to help locate lost or trafficked children and to help intellectually disabled people find their relatives. We have helped reunite over 10,000 lost or

²² Criminals replace fonts and change the order of related search words to avoid detection.

trafficked people with their families. Facial recognition technology has improved the accuracy of locating the missing people across regions, and of different ages, thus much less time is needed to find them.



Baidu Xiaojudeng Charity Platform

Since 2006, Baidu Xiaojudeng Charity Platform has brought equal education opportunities to over 300,000 financially disadvantaged students by donating books and necessities to approximately 1,000 schools in 28 provinces across China. In 2019, we donated Xiaodu Home smart devices as AI assistants to teachers, providing better educational resources to 50 elementary schools in China. This has improved the teaching quality in rural areas and reduced local teachers' work stress.



Baidu AI to Help the Senior and Visually-impaired

We launched a project to help the senior at Dashilan Beijing, which uses our Xiaodu Home smart device to improve the quality of life for seniors by fulfilling their demands. The project helps the elderly to enjoy the convenience and fun of smart life even when staying at home. By the end of 2019, over 100 seniors had benefited from the service. To improve living conditions among the visually impaired, Baidu has launched a project in schools for the blind and blind massage parlors in over 40 cities. The project uses Xiaodu²³ Home smart devices to assist daily activities for visually impaired individuals.



Baidu Women Caring Project

Baidu has established a positive gender perspective to eliminate gender discrimination by optimizing the search results of female-related key words. We also help women protect their legal rights. We collaborated with the Beijing Assistance Center of the Institute of Psychology of the Chinese Academy of Sciences to launch the Ai Ta Xin Fang mini-program to help address common female psychological

²³ Xiaodu is an AI assistant of Baidu.

problems and provide online consultations for over 1.2 million users. Baidu Maps also launched the Nursery Finder function to help breastfeeding mothers find nurseries in public.



Baidu Maps' Ambulance Reminder

Baidu Maps uses AI to inform drivers of approaching ambulances, clearing the route for ambulances to pass in heavy traffic. Since launched in 2018, the Ambulance Reminder Function has made 10 million notifications, fighting for more rescue time for thousands of lives.



Baidu Common Benefit Project

Baidu Common Benefit Project promotes public welfare by offering free online advertising to 200 philanthropy programs in social organizations. The project helps develop a better cyber space, draw social attention and increase engagement in philanthropy programs and attract more participants in philanthropy. It has prompted nearly 1 million RMB for certain social organizations from public donations.



Baidu Supporting the Fight against COVID-19

When an unexpected outbreak of the COVID-19 pandemic affected the country in early 2020, Baidu supported the nationwide battle against the virus. Our Public Emergency Committee developed strategies for different communities through our products and platforms, data and technologies. We also offered preventions for our employees.

Products and Platforms

Baidu published the *Big Data Search Report on COVID-19*, providing users with accurate pandemic information and reference for governmental decision making. We also updated various products immediately with useful functions to help fight the pandemic. The Baidu app's Fight against COVID-19 Channel provides accurate information on COVID-19. During the spring festival, search queries on the COVID-

19 exceeded 1 billion, as users came to Baidu for fact-checking and finding more reliable information. As of April 1, 2020, the views of the real-time data report of the COVID-19 have reached 5.4 billion.

We launched the Fever Clinics Map on Baidu Maps promptly based on official data from the National Health Commission, allowing users access to a list of nearby medical institutions with fever clinics. Baidu Maps is providing timely information, such as the location of traffic control areas, designated hospitals and infected cases, to help people better manage the situation. We continue to upgrade the Baidu Maps Migration Big Data platform (<http://qianxi.baidu.com>) at high frequency, making it available in over 300 cities. With rich data, this platform provides public, media, government, and research institutions with a comprehensive migration big data service.

Since January 2020, the free Baidu medical consultation platform called Ask Doctors, began to provide all users 24/7 free medical consultation services of all hospital departments. The consultation team comprises over hundreds of thousands of doctors from public hospitals. In March 2020, Baidu Health launched the philanthropic project to provide overseas Chinese with free online medical consultations, psychological consultations, live expert presentations, and prevention tools.

To support education while schools are closed, Baidu collaborates with online education partners and provides home teaching as well as free educational resources that worth 100 million RMB. The resource offers preschool education, elementary education, stories, English study, and developmental games for children aged between 3-12. At the same time, Baidu and Du Xiaoman Finance together donated 20,000 Xiaodu smart device to the medical staff at the front line in Hubei, helping them to communicate with families.

In January 2020, the Baidu Charity Platform launched a fundraising project to fight against COVID-19. Using data promotion and intelligent big data distribution, the Ten Billion Data Empowerment Program called for donations from the public. The donation went to medical staff, people affected by the epidemic, and medical institutions. During the epidemic, we launched 20 philanthropy projects, of which 85% has achieved their fundraising targets that exceeded 12.91 million RMB. We worked with social organizations to make donations to the front line in Hubei, Henan, Fujian,

Guangdong, Chongqing, and Jiangxi provinces. The donations helped to purchase medical supplies for key groups including medical staff, the elderly, and students.

Data and Technology

Baidu has pledged 300 million RMB epidemic and public health safety special fund to provide disease control organizations and medicine R&D organizations with computing resources, special AI platforms, and technical expertise for medicine screening and development.

Baidu Research has open-sourced its RNA (Ribonucleic acid) structure prediction website and a linear-time algorithm LinearFold to speed up COVID-19 RNA structure prediction to genetic testing organizations, epidemic prevention centers, and research centers all over the world. As an example of LinearFold's efficiency, by applying the tool to the secondary structure prediction for the COVID-19 RNA sequence, our AI scientists have reduced analysis time from 55 minutes to 27 seconds, showcasing a 120-fold speed-up. At the same time, Baidu Research quickly responded and launched the optimized algorithm for COVID-19 mRNA vaccine. The algorithm guarantees the consistency of vaccine protein with higher stability and protein translation efficiency, which are two key measurements of vaccine effectiveness. Many domestic and foreign scientific research institutions are using the algorithm for vaccine research and development. Baidu Research has also developed an integrated algorithm and website platform including a virus mutation database, an evolution tree, mutation tracking, and visualization. Baidu Research also provides analysis results of the algorithm. We worked with the Center for Viral Disease Control and Prevention of the China Center for Disease Control and Prevention to establish the Baidu Workstation for the long-term tracking of new viruses worldwide.

The Robo-call Center Solution serves three outbound use cases: mobile population survey, local resident report/return visit, and key group notification. The Robo-call Center Solution can dial 1,500 numbers per second, making it hundreds of times more efficient than manual outbound calling. From January 28, 2020 to the end of the epidemic, the platform remains free of charge to users at all levels of government including health committees, communities, and disease control and prevention centers.

Baidu leveraged its facial recognition and other AI technologies to develop and deploy many fever-screening systems to railway stations, hospitals and municipal

government buildings in China. Baidu's fever-screening system can remotely measure the temperature of up to 200 people per minute and is able to alert abnormalities. Baidu's AI model has also been open sourced, to further help reduce the spread of the coronavirus.

Baidu Apollo autonomous vehicle platform offers disinfection and supply delivery services with its business partners. Baidu Brain's AI Developers Fighting the COVID-19 Protection Program also provides medication, face masks and food deliveries, and unmanned fever-screening and sterilization services for all developers and business partners.

We have set aside Gongdu Program to help SMEs by open-sourcing AI technology. The Program also assisted SMEs that engaged in business transformation in this new environment. The upgrade includes a special fund along with mass-marketing resources and customized marketing solutions.

The Responsibility for Employees

Baidu's Employee Care Package offers prevention suggestions for traveling staff members, along with policies on employee quarantine, remote working, and delayed work resumption. The Package ensures smooth operations and employee safety at Baidu.

A person is standing on a rooftop walkway, looking out over a city skyline at sunset. The sun is low on the horizon, casting a warm glow over the scene. The walkway has a glass railing on the right side. The sky is filled with soft, golden clouds.

Future Outlook

Baidu has continued increasing our ESG investments while improving our internal management throughout 2019. In 2020, we established the Baidu ESG Committee to continuously improve our ESG management and become a responsible enterprise.

We appreciate inputs from all stakeholders, and we promise to:

- Improve ESG management in future operations
- Maintain green and sustainable development
- Pursue low-carbon operations
- Improve information security management and data privacy protection
- Centralize user experience and customer service
- Prioritize employees training
- Protect employees' rights and benefits
- Strengthen our industry ecosystem through collaboration with institutions and industry-leading organizations

We are committed to solving social challenges and creating long-term value for stakeholders and human beings with the technology and innovation.



Feedback

Dear readers,

Thank you for taking your time to read the Baidu 2019 Environmental, Social and Governance Report. We are earnestly eager for your advice or suggestions about this Report and our work. Please fill in the form and send it to us by mail or email. Thank you!

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1. As a stakeholder of Baidu, your occupation/employer is a/an:

- ☐ Shareholder ☐ Employee ☐ User ☐ Supplier or Business Partners
☐ Government ☐ Community ☐ Financial Institutions
☐ Academic Institutions ☐ Others (Please specify) _____

2. The comprehensive evaluation to the Baidu 2019 Environmental, Social and Governance (ESG) Report?

A. Readability (easy to understand; good design; interesting; easy to find information.)

- ☐ 3 points (Good) ☐ 2 points (Satisfactory) ☐ 1 point (Poor)

B. Reliability (information in the Report is true and reliable.)

- ☐ 3 points (Good) ☐ 2 points (Satisfactory) ☐ 1 point (Poor)

C. Information Integrity (fulfill your requirement of information)

- ☐ 3 points (Good) ☐ 2 points (Satisfactory) ☐ 1 point (Poor)

3. In addition to the information provided in this Report, what other information would you like to know?

4. Please indicate additional advice toward the Report or Baidu.

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