2017/18 Qualcomm China Sustainability Report

Qualcomm

Table of Contents

Message from Our CEO

Over the more than 30 years since our founding, 2018 proved to be an unprecedented year in the history of Qualcomm. We successfully navigated through many challenges yet remained focused on execution and driving sustainable value. What's more, we accelerated our leadership on 5G, which will bring a new era of innovation like nothing that's come before. I believe this ability to remain intensely focused on the future is what not only allows us to persevere but continue to pioneer a new age of invention.

In a time when our breakthrough technologies are the foundation for life-changing products, experiences and industries, we believe we have a significant opportunity to positively change the world. But how we do this is what truly defines us. Qualcomm has a long-standing reputation for conducting business with unquestioned integrity, being a great place to work, developing solutions for a sustainable world and much more. And in 2018, we remained steadfast on our path to achieving our 2030 sustainability vision in a number of ways.

Steve Mollenkopf
Chief Executive Officer
Qualcomm Incorporated

We updated our Code of Business Conduct — The Qualcomm Way — to address today's ethical issues and introduced a refreshed set of company values that reinforce the behaviors and culture that build integrity into everything we do:

Purposeful Innovation

Passionate Execution

Collaborative Community

Unquestioned Integrity

These four pillars further define the guiding principles that will help us foster a working environment that promotes creativity, invention, inclusion and respect among employees and stakeholders.

The successes of 2018 could not have been possible without the hard work and dedication of our employees. As such, we continued to prioritize inclusion throughout the Company. As this report highlights, we introduced a new mandatory diversity and inclusion training for senior management and improved the transparency and employee ownership of our annual review process. I am especially proud of the great work that our 20+ employee networks do to foster an inclusive culture and celebrate diversity across the globe.

And, we continued to focus on cultivating tomorrow's workforce through our strategic science, technology, engineering and math (STEM) education programs. The Qualcomm® Thinkabit Lab™ [1] expanded its impact in 2018 by collaborating with over 30 institutions across the United States and abroad, serving over 47,000 students since its founding in 2014. Through our ongoing strategic collaboration with *FIRST* ® (For Inspiration and Recognition of Science and Technology), we continued to provide hands-on experience with our technology to over 180,000 students from more than 25 countries.

Through our Qualcomm® Wireless Reach™ [2] initiative, we continued to broaden the impact of transformative technology in underserved communities throughout the world. In 2018 alone, programs to foster entrepreneurship, improve access to education and health care, aid in public safety and promote sustainable development helped enrich the lives of over 3 million people.

As we expand our operations and develop new products and technologies, we remain committed to minimizing our environmental impacts and meeting our 2025 greenhouse gas (GHG) reduction goal. To date, we have reduced our absolute Scope 1 and Scope 2 GHG emissions by over 15 percent.

As our innovative technologies transform the places where we live and work, sustainability is a key component of how we think about the future. It's important that our sustainability strategy not only reflects the world around us, but also prepares us for the world ahead. We remain committed to inventing breakthrough technologies that transform how the world connects, computes and communicates, enabling innovation that benefits many industries and billions of people.

Steve Mollenkopf
Chief Executive Officer
Qualcomm Incorporated

[1] Thinkabit Lab is a trademark of Qualcomm Incorporated

[2] Wireless Reach is a trademark of Qualcomm Incorporated

Message from Our Chairman in China

In 1978, the first year of China's reform and opening up, I was studying in college in Beijing. At that time, telephones were rare amongst most Chinese families, with the majority relying on post, telegraph and other methods to communicate. 40 years on, China's mobile communications industry has developed at a spectacular pace. China now has the world's largest mobile communication network and the largest number of mobile Internet users in the world. Wireless technology is enabling innovative products and services such as mobile payments, the sharing economy and ecommerce, dramatically changing the way we live and work.
In a range of areas, China is now among the global leaders in developing and applying mobile telecommunications solutions with myriad benefits to societies, economies and the environment.

Frank Meng
Chairman
Qualcomm China

"At Qualcomm we often say, 'In the past 30 years, we have connected people; in the next 30 years, we will connect everything.'"

Since our founding more than 30 years ago, Qualcomm has helped to enable and drive the development of the mobile ecosystem with the launch of 3G and 4G. Now, to support the expanding needs of the connected future, we are helping to lead the way to 5G — which we see having an even more transformational impact than previous Gs. Indeed, our vision for 5G is a unifying connectivity fabric and a platform for future innovations, ushering in the next era that we call the Invention Age: this time without barriers to invention.

China is essential to this vision. In early 2017, we commissioned and released an independent study, *The 5G Economy*, which found that China is expected to be the second largest investor in 5G related R&D, spending $1.1 trillion from 2020-2035. It also revealed that the 5G value chain could generate up to $984 billion in revenue and 9.5 million jobs in China alone. We are committed to collaborating with our Chinese partners on 5G to realize this historic opportunity with China.

With this in mind, I am delighted to present our latest "Qualcomm China Sustainability Report," which highlights various aspects of how we collaborated in China for joint innovation and a more sustainable future.

Our business model is based on collaboration and shared success with ecosystem partners. Only when our partners succeed do we succeed. The past two years saw us partner for global success as we collaborated with Chinese manufacturers to advance the reality of commercial availability of standard-compliant 5G NR devices based on our deep expertise and leadership in semiconductor solutions — providing Chinese manufacturers with the platform they need to develop premium tier and global 5G commercial devices.

We worked together with Chinese companies to explore new mobile applications and experiences enabled by 5G, including by working closely to build on the scale and rapid innovation of mobile by expanding artificial intelligence to devices, machines, vehicles, and things. Through innovation centers, investments and partnerships, we continue to demonstrate our commitment to complementary partnerships and collaborations, joint innovation and co-creation.

As inventors, we are pushing the boundaries of what's possible with the goal of making a positive difference for people and communities. This means ensuring that our breakthrough technologies can enrich lives and advance progress for all, enabling societal, economic and technological progress in diverse areas.

This is illustrated by one of our corporate responsibility initiatives, Qualcomm Wireless Reach, which brings our advanced wireless technology to where it is most needed. Over the past two years, we continued to work with stakeholders in China to equip rural teachers with 21st century computing and teaching skills, improve access to health care in rural areas, and address the challenges faced by the blind and visually impaired. Furthering STEM education is how we work to develop a diverse and inclusive workforce in the future and give back to our local communities. 2018 marked the 20th anniversary of our collaboration with Chinese universities. We've partnered with China's top universities to set up independent mobile laboratories and support cutting-edge research in areas that have been essential for the development of advanced communication solutions.

As we enter the Invention Age, it's more important than ever before to ensure that our inventions are sustainable. With purposeful innovation as one of our core values, we see future development as our responsibility, and we make considerable investments into the research and development of new technologies to accelerate the development of the whole ecosystem. Our business model, "Invent — Share — Collaborate", aligns with the development of China's wireless industry and China's overall development goals. We have benefited from China's development, and our partners in China have achieved impressive growth in China and global markets through cooperation with us. We are dedicated to continuing this shared value creation as we enter the Invention Age, through innovations in wireless technology and through our efforts to do business responsibly and sustainably.

Frank Meng
Chairman
Qualcomm China

About Qualcomm

We invent breakthrough technologies that transform how the world connects, computes and communicates. Our inventions have powered the smartphone revolution and connected billions of people across the world. We pioneered 3G and 4G technologies — and now, we have led the way to 5G. We have unlocked a fifth generation of connectivity that will be known as the one of accelerating progress and a new era of intelligent, connected devices.

Our products enable customers, transform industries and enrich lives. Our inventions help enable our customers and partners to compete, innovate and grow globally. We make industry-changing investments that customers harvest for their own innovation capacity. When we break through, the ecosystem leaps forward and the world benefits by the competitive options that emerge. Our products are revolutionizing industries, including automotive, computing and IoT, allowing connections between millions of devices in ways never imagined. Our inventions help create a renewed livelihood for many, and ultimately allow us the honor of enriching lives.

References in this report to "Qualcomm" may mean Qualcomm Incorporated, Qualcomm Technologies, Inc. and/or other subsidiaries or business units within the Qualcomm corporate structure, as applicable.

Our QCT supply chain

Qualcomm CDMA Technologies (QCT) primarily utilizes a fabless production model. This means that we do not own or operate foundries to produce silicon wafers from which our chipsets are made. We rely on independent third-party suppliers to perform the manufacturing and assembly, and most of the testing, of our integrated circuits. These are die cut from silicon wafers that have completed the package assembly and test manufacturing processes. Our suppliers are responsible for the procurement of most of the raw materials used in the production of our integrated circuits. Most of our foundry, semiconductor assembly and test suppliers are in the Asia-Pacific region.

$50b + invested in R&D and over 130,000+ patents and patent applications since 1985.

Revenue in 2018 [3]

$17.3b

QCT Qualcomm CDMA Technologies

QCT is a leading developer and supplier of chipsets (integrated circuits) and system software for use in mobile devices and in wireless networks.

$5.2b

QTL Qualcomm Technology Licensing

QTL grants licenses and provides rights to use portions of our intellectual property portfolio.

$187m

OTHER Businesses

Other businesses include our small cell and other wireless technology and service initiatives.

$100m

QSI Qualcomm Strategic Initiatives

QSI makes key investments that are focused on opening new or expanding opportunities for our technology while also supporting the design and introduction of new products and services for voice and data communications.

[3] The following is certain information that was originally filed with the Securities and Exchange Commission (SEC) on November 7, 2018 as part of our Annual Report on Form 10-K for our fiscal year ended September 30, 2018. We have not undertaken any updates or revision to such information since the date it was originally filed with the SEC. Accordingly, you are encouraged to review such financial information together with any subsequent information we have filed with the SEC and other publicly available information.

About Qualcomm China

With offices in 12 cities in China, we support a tech-forward economy and drive advancements in semi-conductors and mobile telecommunications. Our dedication to developing the world's most advanced technology in China for 3G and 4G LTE devices has not only brought us success in China but recognition across the world.

We're also committed to advancing our society with wireless technologies that bring long-term, sustainable progress to underdeveloped areas. Benefiting over one million people to date, our Qualcomm Wireless Reach program partnerships with Chinese operators and non-profits have improved lives through projects impacting healthcare, education, entrepreneurship, and bridging the digital divide between cities and rural areas.

Our Milestones

Working in close collaboration with our Chinese partners, Qualcomm has reached many milestones focused on enabling sustainable innovation and development in China. What follows are some of the highlights from this year.

Transforming the World Sustainably and Responsibly

Qualcomm Wireless Reach

+ **Enabled more than 2,600 community doctors to benefit nearly 500,000 patients across China since 2014**
  Qualcomm Wireless Heart Health program uses 3G/4G enabled, purpose built, ECG-sensing smartphones to expand access to CVD screenings in rural, underserved communities across China.

+ **Benefited 450 teachers and 9,000 students aged 7 to 15 since 2015**
  Qualcomm 21st Century Classroom program has developed a cutting-edge, 21st century learning environment in select classrooms at six schools located in government designated, poverty-stricken areas in the Sichuan and Jiangxi Provinces.

+ **5,900 volunteers from 32 provinces and cities provide support for 13,000 BVI people through the "See4Me" app**
  In collaboration with Business for Social Responsibility and Baoyi, a Chinese social enterprise, the "See4me" mobile app helps address the challenges that the blind and visually impaired (BVI) face in their daily lives.

STEM Education

+ **12th anniversary of our strategic collaboration with *FIRST*®**
  Qualcomm was an integral player in expanding the *FIRST*® Tech Challenge (FTC), a STEM robotics program, helping 58 *FIRST* Tech Challenge teams across China and sponsoring seven FTC competitions in Beijing, Shenzhen, Chongqing and Shanghai and two *FIRST* Robotics Challenge (FRC) in Beijing and Shenzhen.

+ **20th anniversary of our collaboration with Chinese universities**
  Our collaboration has resulted in more than 200 completed research projects; almost 1,000 published academic articles; and more than $1 million in donations to scholarships to Peking University, Tsinghua University, and Beijing University of Posts and Telecommunications.

+ **China Qcamp activities in Beijing hosted 84 girls and 14 teachers in 2017 and 2018, all from rural areas**
  China Qcamp, a collaboration with Children & Youth Science Center of China Association of Science and Technology, aims to spark rural girls' interest in science and technology.

Building an Innovation-Driven Economy Together

+ **World's first end-to-end 5G NR Interoperability Data Testing (IoDT)**
  We completed the world's first end-to-end 5G NR IoDT with ZTE and China Mobile.

+ **Qualcomm and leading Chinese manufacturers announce "5G Pioneer" Initiative**
  The initiative brings together Lenovo, OPPO, vivo, Xiaomi, ZTE and Wingtech to help advance reality of commercial availability of standard-compliant 5G NR devices expected in 2019.

+ **Joint labs and innovation centers**
  We opened several joint labs and innovation centers in China through 2017 and 2018.

+ **10th anniversary of QPrize China**
  Known as Qualcomm Ventures Sequoia Frontier Tech Startup Competition, the prize stays true to our purpose to act as a catalyst for Chinese startups.

Fostering Growth of the Semiconductor Industry

+ **10th anniversary of partnership between Qualcomm and SMIC**
  We celebrated one decade of collaboration with Semiconductor Manufacturing International Corporation with our technological expertise and experience.

+ **Deepening of our collaboration with SJSemi**
  We jointly announced that SJ Semiconductor Corp. has started the qualification of 10nm Ultra-high Density wafer bumping for Qualcomm Technologies.

+ **Opening of Qualcomm Communication Technologies (Shanghai) Co. Ltd.**
  We opened a semiconductor test facility in the Waigaoqiao free-trade zone in Shanghai, demonstrating our commitment to continue to invest and help develop semiconductor expertise in China — indicative of growth in semiconductor market leadership in the country.

Award Highlights

CSR Awards

- "Outstanding CSR Company of the Year" by Xinhuanet in 2018
- "Leading CSR Company Award" by WTO Tribune in 2018
- "Academic Industry Collaboration to Cultivate Talent Program Partner Award" by Ministry of Education in 2017
- "Most Valuable Partner Award" by Ministry of Education in 2017
- "Most Respected Enterprise" by The Economic Observer in 2017

Industry Awards

- "World Leading Internet Scientific and Technological Achievements" by World Internet Conference — Wuzhen Summit in 2017 and 2018
- "5G Industry Contribution Enterprise", Annual Golden Award by Communications Weekly in 2018 (presented at the China Communications Industry Conference supported by Ministry of Industry and Information Technology)
- "Outstanding Member" of Satellite Terminal Working Group of Telecommunication Terminal Industry Forum Association (TAF) in 2018
- Innovative Breakthrough in Mobile Technology Award — Global TD-LTE Initiative in 2018
- "Innovative Products and Application Award - Snapdragon X50 5G modem" by China Information Technology Expo in 2017
- Gold Award of Innovative Products and Application Award - Snapdragon 835 Mobile Platform — China Information Technology Expo in 2017
- "Best Terminal Solution Award" by Ministry of Industry and Information Technology in 2017
- "Best Achievement Award in the 5G Industry" (ICT Dragon and Tiger List) by CWW in 2017

Our Sustainability Priorities

Focusing Our Resources, Programs and Reporting

We work with Business for Social Responsibility (BSR), a global nonprofit business network and consultancy dedicated to sustainability, to conduct materiality assessments. These exercises, which we have conducted with BSR since 2013, include both research and interviews with key leaders from across the Company. The findings help us prioritize the sustainability issues that are most important to our business and our key stakeholders. By identifying our top sustainability priorities, we can then focus our resources, programs and reporting on these core topics. We regularly reevaluate our sustainability priorities to ensure we stay focused on topics that are vital to our stakeholders and to our business continuity and success.

Transformative Technology

Solutions for a sustainable world. Our innovations are helping empower people and enhance the quality of life around the globe.

STEM Education

Cultivating tomorrow's workforce. We're working to promote and improve science, technology, engineering and mathematics (STEM) education at all levels and to expand opportunities for underrepresented students.

Inclusion and Diversity

Creating a Company that reflects the world. We celebrate diversity among our employees and recognize that our varied backgrounds, experiences and ideas are critical to our success.

Sustainable Product Design

Protecting people and the planet. We're focused on creating products in ways that don't harm individuals, communities or the environment and sustainably procuring materials and minerals.

Privacy and Security

Promoting data protection across the mobile ecosystem. In our Company, in our products and in the mobile industry, we're working to process personal data responsibly and to make data more secure.

Ethical Governance

Doing business "The Qualcomm Way." We're committed to doing business with the highest level of integrity, respecting our customers, business partners and each other.

Supporting Our 2030 Sustainability Vision Through Streamlined Programs

Q&A with Angela Baker, Director of Corporate Responsibility, Qualcomm Incorporated

What is your role at Qualcomm?

I am looking at how our technology and programs help us create a more sustainable world, connected wirelessly. In 2018, we combined Qualcomm's wide-ranging social impact programs and the sustainability function into a unified Corporate Responsibility (CR) organization, which will streamline and strengthen our mission going forward. As Director, I think about how our strategic programs like Wireless Reach, Thinkabit Lab and Corporate Giving align with our business strategy. Additionally, I am responsible for the sustainability team that leads our work around reporting, materiality assessments and supports other divisions at Qualcomm that have responsibilities related to our corporate responsibility priorities.

Qualcomm has a 2030 Sustainability Vision. Could you tell us more about this vision and what Qualcomm is doing to achieve it?

For Qualcomm, sustainability is a strategy that drives long-term growth and profitability by including environmental, social and governance issues in our business decisions as they relate to our key spheres of influence: our workplace, our supply chain, local communities, our industry and the public policy realm. Our 2030 Sustainability Vision is our roadmap to inform strategic thinking on sustainability issues that are most important to our Company and helps us identify where we can collaborate with key stakeholders to create sustainability solutions. This vision helps us identify what success looks like for each of our six sustainability priorities.

One of Qualcomm's sustainability priorities is Transformative Technology. What does this mean to you?

At Qualcomm, we invent the tech the world loves, and our inventions are enriching communities across the globe. To us, "transformative technology" means using our inventions for good and to drive human and economic progress. Wireless Reach is our strategic initiative that brings Qualcomm technology to underserved communities globally. Together with our partners, Wireless Reach has impacted over 15 million people since its creation in 2006. Programs like these continue to demonstrate the positive correlation between access to technology and improved social and economic outcomes.

Similarly, STEM education is another sustainability priority area for Qualcomm. What is the motivation behind the focus on STEM-related initiatives?

Our STEM efforts are designed to increase the talent pipeline within STEM-related careers and nurture the next generation of inventors. As a technology leader, and a company of inventors, we are big believers in STEM education; it is part of who we are. That's why we invest in programs that impact students from kindergarten through college and beyond. Through programs like our homegrown Thinkabit Lab and our support of *FIRST*, we are committed to nurturing STEM, giving today's students the foundation they need to invent the future.

Where do you see sustainability heading in the next couple of years? And in this light, what will be Qualcomm's sustainability focus in the near term?

Across the Company, we're excited for 5G, which will have a significantly greater impact on industries, communities and everyday lives than previous generations of cellular technology. Our vision is for everything and everyone to communicate and interact seamlessly. Within CR, we will continue to work towards meeting our 2030 Sustainability Vision; responsible supply chain management, privacy and security; and diversity and inclusion will remain important priorities. Our efforts in STEM education, centered around inspiring and engaging the next generation, will remain a key area of focus. We will also continue to work to leverage breakthrough Qualcomm® technologies for the economic and social development of communities across the globe.

What progress has been made against Qualcomm's sustainability goals, priorities and commitments in relation to China?

There has been inspiring progress in China with many milestones achieved on the way to meeting our targets and 2030 vision across all of our priorities — in particular it's been fantastic to see our global strategic programs making a local impact, including our Wireless Reach, STEM education programs and university collaborations.

How would you describe your vision for Qualcomm's Corporate Responsibility in China?

It's all about creating shared value — our initiatives are targeted at collaborating across the ecosystem to help build an innovative and technology driven Chinese economy, and in doing so enriching lives and advancing progress for all.

Transformative Technologies

Solutions for a Sustainable World

Wireless Reach is a strategic corporate responsibility initiative that brings advanced wireless technology to where it is most needed. The goal of Wireless Reach is to create sustainable programs that use our technology as a transformative tool to foster entrepreneurship, aid in public safety, enhance the delivery of health care, enrich teaching and learning and improve the state of our environment.

Bringing Wireless Technology to Underserved Communities

Our programs demonstrate that our technology can break down geographic, socioeconomic, educational and cultural barriers that obstruct progress in emerging regions.

Qualcomm believes access to advanced wireless technologies can improve people's lives. Wireless Reach showcases how Qualcomm's technologies have a positive economic and social impact across the globe. Currently, there are 119 Wireless Reach programs in nearly 50 countries reaching over 15 million people through Qualcomm technology.

In China, we focused specifically on enhancing preventive health care, improving the teaching and learning experiences in rural classrooms and providing support to the visually impaired to positively contribute to improving their quality of life. We are helping local communities use information and communication technologies to modernize education and reduce poverty. Together with local health care providers and heart specialists, our technology is helping to reduce cardiovascular morbidity and mortality in rural areas, while our app "See4me" connects thousands of people who are blind and visually impaired to volunteers. Since 2006 our Wireless Reach portfolio has positively impacted over one million people in China.

Qualcomm
wireless reach

Wireless Heart Health

In China, despite drastic improvements in public health over the last 30 years and government action to prevent and manage cardiovascular disease (CVD), CVD-related morbidity and mortality has risen quickly and is the leading cause of death. Early detection, consistent monitoring and treatment can decrease CVD-associated health risks but reaching patients, particularly those in rural areas, efficiently and effectively remains a major challenge. As a result, most people in rural areas lack access to affordable screenings and don't know if they are at risk of or have CVD. Our Wireless Heart Health program uses 3G/4G enabled, purpose built, electrocardiogram (ECG)-sensing smartphones to expand access to CVD screenings in rural, underserved communities across China.

To take a reading, a healthcare provider holds the device to a patient's chest for approximately 30 seconds while the three built-in sensors collect the heart data and the ECG waveform is displayed on the screen in real time. Data is stored in the patient's Electronic Health Record and sent immediately over the wireless network for analysis by a cardiac specialist at the Beijing Life Care Networks Call Center. The center is staffed 24/7 by more than 20 physicians. The specialists provide local doctors with diagnostic and treatment recommendations within minutes, reducing barriers to CVD screening and treatment, bringing expert care to patients rapidly and for a fraction of the cost of conventional ECG machines.

Since 2014, this solution has enabled more than 2,600 community doctors to benefit nearly 500,000 patients across 23 provinces.

In October 2016, we released a white paper summarizing the results of a use and satisfaction survey which highlighted the program's success in supporting rural health providers to address the rising health burden of CVD. The results showed that health care providers are very satisfied with the ECG-sensing smartphones and believe they are providing improved care and services to patients with CVD. With the ECG sensing smartphones, costs are decreasing significantly, quality and reach of care is increasing, and satisfaction is high among patients and practitioners.

Qualcomm 21st Century Classroom

In China, there are more than 40 million children living in impoverished areas. The development levels of these children, particularly in health and education, are far behind the average. The Qualcomm 21st Century Classroom program, a collaboration between Wireless Reach and the China Children and Teenagers' Fund (CCTF), is a mobile broadband-based learning program that has developed a cutting-edge, 21st century learning environment in select classrooms at six schools located in government designated, poverty-stricken areas in the Sichuan and Jiangxi Provinces.

The Qualcomm 21st Century Classroom program supports the Chinese government's use of information and communications technology (ICT) to modernize education and reduce poverty. Mobile technology has fundamentally changed access to educational materials and this collaboration enables even greater opportunities to enrich teaching and learning, and address learning disparities by decreasing the digital divide.

Since program implementation began in late 2015, 450 teachers and 9,000 students — ages 7 to 15 — have benefited.

Teachers have received a total of 152 hours of instructor-led trainings, and 80 percent of teachers who participated in the trainings report their teaching skills and ICT knowledge have improved. In addition, over 500 teaching materials have been created and shared via an online platform. Based upon the program results, Wireless Reach is collaborating with CCTF to expand the program to additional schools in Heilongjiang province.

What does our 21st Century Classroom look like?

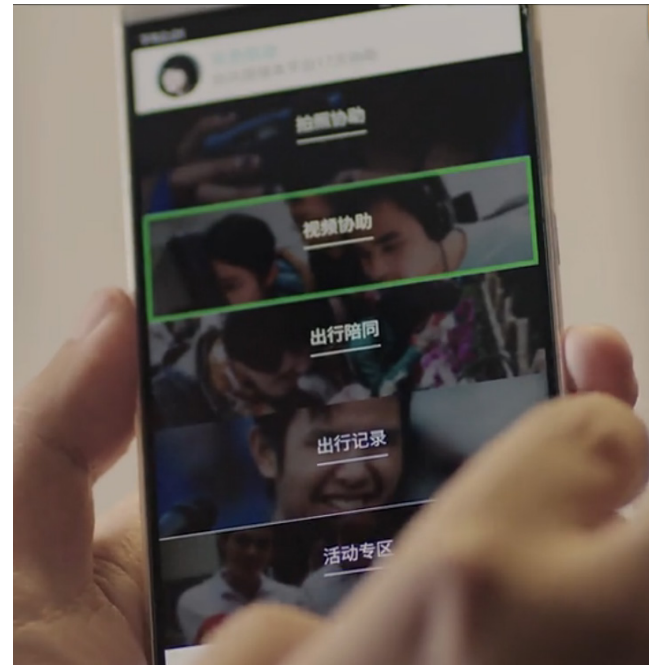
- All classrooms in participating schools are provided with broadband Internet connectivity and electronic smartboards.
- All smartboards and mobile tablets are linked directly to a customized resource platform where diverse digital education content can easily be downloaded and uploaded through the wireless broadband network. Smartboards and tablets are also linked to a classroom management system that allows teachers to access courseware, prepare classes, assign homework, prepare tests and track scores. The classroom management system also allows the students in pilot classes to review class videos, access reference books, communicate with classmates and teachers, and prepare for tests.
- Through augmented broadband capacity and an on-campus wireless network, participating teachers and students can also access the Internet and digital education resources at any time.
- Teachers were trained on how to use the new mobile devices to build curriculum, use digital platforms, work with digital content and leverage advances in individualized learning to improve student and teaching outcomes.

See4me

There are an estimated 12 million people who are blind and visually impaired (BVI) in China. Some information technology products exist to help them overcome navigation and information recognition challenges, but these technologies are not holistic and do not meet the unique needs of China's BVI community. To address the most pressing needs of this community, Wireless Reach, Business for Social Responsibility, Beijing Baoyi Interaction Scientific and Technological Company (Baoyi) and China Academy of Information and Communication Technology (CAICT) jointly launched "See4me", a free technology and volunteer services mobile application. The program features a free mobile application that combines remote, manual assistance from volunteers through picture and text message support, audio and visual support, and accompanying services to help the BVI overcome challenges.

People who are blind or visually impaired can use the "See4me" app's audio-visual, picture and text message support functions to communicate with volunteers remotely and receive remote voice-guided assistance for difficult-to-see information, such as the expiration date on a milk carton, instructions on a medicine bottle, or a CAPTCHA online verification code. Combining the existing built-in technologies of smartphones with remote manual assistance, volunteers can vocally guide BVI users, step-by-step, to navigate in public spaces such as supermarkets, malls, parks and transportation hubs. If planning to navigate a particularly complicated outside environment, the user can book a volunteer in advance to accompany them. These volunteers can assist the BVI user with activities such as going to the hospital or catching a train.

To date, 5,900 volunteers from 32 provinces and cities including Hong Kong and Taiwan provide support for 13,000 BVI people through the See4me app. The volunteers received more than 4,000 requests via photo and 9,800 requests via video call.



Sustainable Product Design and Protecting the Planet

Protecting People and the Planet

We focus on creating products that positively influence and impact individuals and society. We're achieving this by ensuring our direct operations integrate principles of sustainability and responsibility and by working closely with our supply chain. We want our products to be distinguished by their intelligence and by the care and attention we take in designing them.

Sustainable Supply Chain Management and Environmental Sustainability

Continuing our efforts in sustainable supply chain management

We require all of our semiconductor manufacturing suppliers to adopt either the Responsible Business Alliance (RBA) Code of Conduct or a similar code. By leveraging RBA tools, expertise and support to complement our supply chain management program, we can focus on conformance to high-level standards among all of our suppliers in relation to labor issues, health and safety, the environment, ethics and consolidated management systems.

The RBA Code of Conduct, which serves as our Supplier Code of Conduct, and The Qualcomm Way: Code of Business Conduct, have been cornerstones of our commitment to RBA and responsible supply chain management for many years. In 2018, we continued to make responsibility and sustainability part of our innovation process. Notably, we achieved Full Member status in the RBA. As a Full Member, we have deepened our commitment to the RBA Code of Conduct and continuous improvement of our supply chain sustainability. We completed a risk profile and audit plan for our supply chain, completed SAQs, accepted other member-initiated VAP audit reports for common suppliers and drove suppliers to close disqualifying priority findings. We published corporate responsibility data through our sustainability report and have been open and transparent about our progress. Our participation in RBA enables us to leverage tools and receive support to engage our supply chain on sustainability issues. It also gives us the opportunity to work with our industry peers to continuously improve our industry's supply chains and to responsibly manage impacts on people and the planet.

Environmental sustainability

We are committed to minimizing our environmental impact across our business, products and supply chain. We address the sustainability of our products through our Environmental Management System and various hazardous-substance elimination programs. We're also working to be a positive force in protecting the environment by continually looking for ways to conserve water, minimize energy consumption, lower emissions and reduce waste.

Qualcomm's Global Greenhouse Gas (GHG) Emissions

In 2018, we remained on track to meet our 2025 greenhouse gas (GHG) reduction goal to reduce absolute Scope 1 and Scope 2 GHG emissions from our global operations by 30 percent, compared to a 2014 baseline, by 2025. To date, we have reduced our emissions by 15.6 percent due primarily to space consolidations and operational efficiencies worldwide. Approximately 4.7 percent of this reduction is attributed to the purchase of CY2017 I-RECs and Carbon Offsets, contributing to low-carbon, sustainable development in China and India.

As we expand our operations internationally, we continue to look for new opportunities to reduce our global emissions.

Environmental Initiatives

Sichuan Household Biogester Project

In 2017, we invested in a portfolio of carbon offsets and renewable energy certificates (RECs) to achieve three percent of our total GHG emissions reduction goal of 69,191 metric tons of CO2e (tCO2e) through Natural Capital Partners — a company that specializes in helping businesses to meet their GHG and renewable energy targets through external projects. Our carbon offset purchases supported low carbon, sustainable development projects in China and India. The Sichuan Household Biogester project is a Gold Standard Clean Development Mechanism (CDM) project that distributes small scale biogas plants across the Sichuan Province, China. By using livestock waste to generate energy, low income households get access to clean, affordable power and improved waste management that delivers better sanitation and health and well-being. The installation and maintenance of the biogas plants also creates employment in the region. By offsetting our carbon footprint, we can bridge the gap between our reduction target and our internal GHG efficiency program, while also contributing to essential low-carbon, sustainable development around the world.

Our employee volunteer program Qcares organized several successful initiatives in China:

We celebrated the 49th Earth Day by planting trees. In April 2018, a group of 50 people, Qcares volunteers and their families, joined a tree planting activity in Beijing, where each volunteer planted a tree, and joined an interactive activity to make paper pulp from waste paper.

Following the CUW Weekend, in October 2018, our Shenzhen employees and their families — 25 volunteers in total — participated in a green community activity in Nanyuan Community in Nanshan District. They cleared an area of 2000m^2 and picked up over ten kilograms of garbage. Some volunteers and local residents joined an experiment that taught them how to make their own eco-friendly detergent substitute. At the end of the day, Qcares volunteers collected and classified a full box of 93 books that residents have exchanged for green plants and donated them to the Nanyuan community library.

Clean Up the World Weekend (CUW Weekend) is a global cleaning initiative held on the third weekend of September every year. In light of CUW Weekend, in September 2018, more than 65 Qcares volunteers and their families in Beijing and Shanghai participated in green community activities, including replanting green areas, repainting public benches and collecting used books. Community residents of all ages joined the activities, and many exchanged their used books for a green plant. We collected 474 books in Beijing and Shanghai.

In May 2018, we went to Nanhuizui Guanhai Park near Shanghai and collected 80 kilograms of trash. 15 Qcares volunteers from Shanghai with their families, 34 people in total, joined this beach cleanup activity. 85% of the trash found was made of plastic (plastic and polystyrene).

Privacy and Security

Promoting Data Protection Across the Mobile Ecosystem

A strong foundation of privacy and security is critical to the success of the wireless industry. Such a foundation supports user trust and the adoption of new and exciting mobile technology. We've made significant efforts to incorporate privacy and security measures across our products and services and the broader mobile industry.

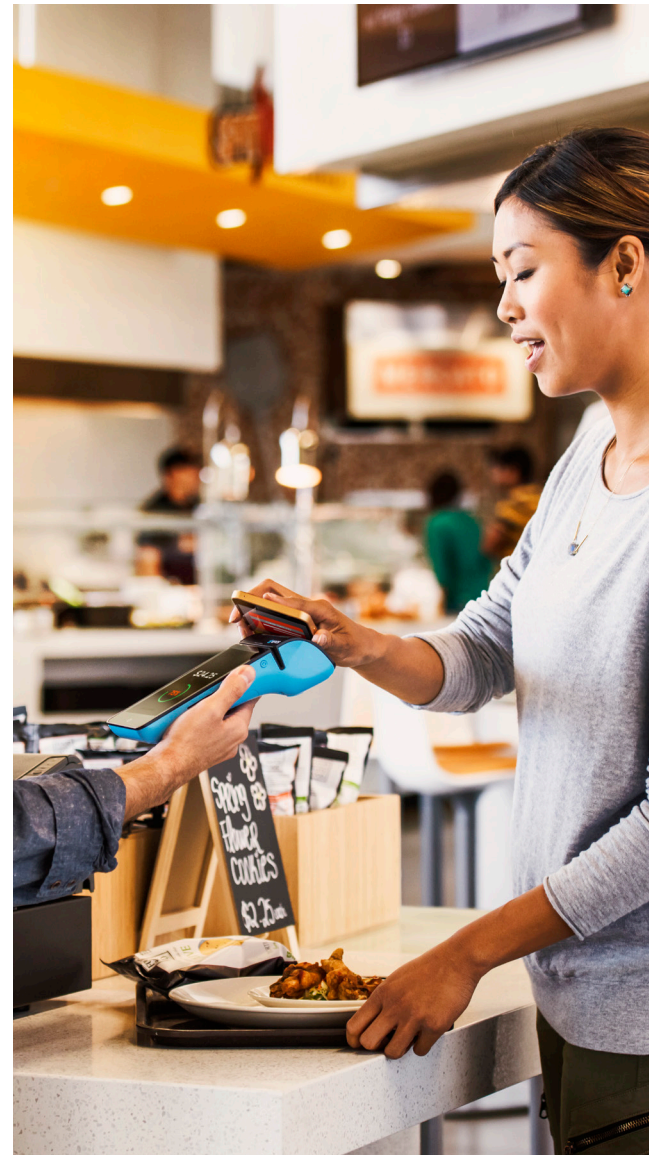
In our Company, in our products and in our industry, we're working to process personal data responsibly and to make data more secure.

Our Six Guiding Principles for Privacy and Security

We believe that the collection of personal information should promote trust, respect individuals' privacy and rest on a foundation of responsible security and privacy practices. Our efforts to implement and enable responsible privacy and data security practices are informed by our guiding principles:

1. Transparency in the collection, use and sharing of personal information
2. Providing or enabling meaningful choices over the collection, use and sharing of personal information
3. Providing or enabling value to consumers when using their personal information
4. Safeguarding personal information from existing and emerging threats
5. Maintaining the accuracy, quality and integrity of the data we collect
6. Responsible stewardship of personal information including limiting our collection, use, sharing and retention of personal information

These guiding principles are the basis of our roadmap and actions regarding privacy and security matters. They are the foundation for our business and are integrated throughout our engineering and production processes.



Safeguarding our Intellectual Property and Employee Data

To ensure strict compliance with our guiding principles and to manage or address any related issues regarding our products, services and intellectual property, we have hundreds of people dedicated to privacy and data security. These people specialize in product security, privacy, information security, risk management, application security, third-party security assessments, investigations and counter-threat analysis, security operations, physical security, privacy law and more.

Our efforts to safeguard our intellectual property and protect our employee data continue to have a strong focus on educating and training all employees about their critical role in keeping our business information safe. For several years, we have used education and strong management processes — in which our guiding principles are embedded — to build a culture of security across our Company. In 2018, we dedicated more than 330 hours to privacy and security trainings for our employees globally.

We strive to implement appropriate data protection for one of our most important assets: our employees. In 2018, we created an Internal Privacy Committee (IPC) which is made up of representatives from numerous departments, including human resources, information technology, employee relations, payroll, benefits, physical security personnel, data analytics and employment-related legal representatives. The IPC was created with several goals in mind. It serves as a platform to educate internal stakeholders on new laws or regulations affecting the collection or use of personal data. It serves as an entity that aids in the identification of new collections or uses of personal data and helps develop applicable processes to perform privacy reviews on those new collections or uses. It provides a forum for discussion in cases where a privacy issue spans multiple groups. It also acts as the main internal body that proposes new policies and procedures or changes to existing policies and procedures.

Putting Security First

Our guiding principles underpin the decisions we make when commercializing new technology. Cyber security is a primary priority. We work on our solutions until we can make sure that our users are safe and our products are in line with local regulations.

Qualcomm Technologies, Inc. (QTI) is a mobile security industry leader, offering the Qualcomm Security Platform (consisting of Processor Security and Mobile Security products), which is designed to provide robust, extensible security without compromising user experience. The suite of security technologies is helping to protect users of devices powered by Qualcomm® Snapdragon™[4] mobile processors as well as the security and integrity of their devices, identities and data. From OEMs and end-users to security ISVs and film studios, the entire mobile security ecosystem can benefit from QTI's strong and power-efficient security platform.

Qualcomm Snapdragon 845 Mobile Platform's Secure Processing Unit (SPU)

Security attacks change and grow in their sophistication, and will continue to do so. Because of this, we will continue to change and grow our security solutions within our mobile processors. The Snapdragon 845 features a new architecture that is engineered to help secure the valuable data and credentials that users store on their mobile devices like a vault. A new layer of hardware security — the Secure Processing Unit (SPU) — is added to the Snapdragon 845 mobile platform which is designed to guard data just like you physically protect your own personal valuable items.

For the end user, this means enhanced, security-focused experiences like mobile payments, engineered to give an additional level of comfort to accomplish more on a mobile device. For device makers, it will be an opportunity to bring together what were traditionally different components — like secure chips in SIMs or banking cards — into the Secure Processing Unit. Devices can be smaller and more integrated due to the reduction in number of components, while meeting the requirements of security-critical applications.

[4] Qualcomm Snapdragon is a product of Qualcomm Technologies, Inc.

STEM Education

Cultivating Tomorrow's Workforce

We work to develop a diverse and inclusive workforce of the future by fostering opportunities for students in STEM education. As a technology leader and a company of inventors, we take this responsibility seriously by investing in STEM programs and collaborating with key community stakeholders as we strive to enable everyone to have access to these opportunities and that they remain sustainable for future generations.

STEM Education Supports the Brainpower Behind the Inventions that we Bring to Life

Through our Qualcomm Thinkabit Lab, we expose students from all cultural and socioeconomic backgrounds to STEM concepts and careers that are essential to tomorrow's workforce, not only at Qualcomm but in every aspect of building the wireless Internet of Things (IoT) and 5G ecosystems. We also collaborate in public-private partnerships and work with outstanding organizations like *FIRST* to help inspire students worldwide to pursue STEM degrees and careers. By joining together, we have a much larger impact on improving the talent pipeline. In addition, through our University Relations program, we foster stronger partnerships with universities, focusing on research collaboration, as well as further recruitment of talented graduates. In December 2018 we celebrated 20 years of university collaboration in China.

Qualcomm Thinkabit Lab

Our Thinkabit Lab program is designed to inspire and engage students from all cultural and socioeconomic backgrounds. As part of this program, students are guided through our Qualcomm World of Work career exploration activities to discover their unique talents and learn about concepts and careers in STEM fields such as IoT, robotics and invention. Students also participate in hands-on engineering experiences. They learn basic programming and strengthen their problem-solving, collaboration and creativity skills by designing and building their own robotic inventions. Together, our unique Qualcomm World of Work and engineering activities help students understand where they might fit in the future workforce and expose them to many aspects of building advanced wireless technology.

Qcamp™ [5] for Girls in STEM

The Thinkabit Lab offered a free-of-charge, immersive summer camp program intended to introduce students to and solidify their interest in STEM. Every summer since 2014, we have engaged with others to bring engaging invention-based projects to more than 500 middle school boys and girls.

Qcamp continues to generate interest in STEM among rural girls in China

Following the success of our first all-girls Qcamp program in San Diego, we collaborated with other organizations to expand Qcamp to serve students throughout the United States and China. China Qcamp, a collaboration with Children & Youth Science Center of China Association of Science and Technology, aims to spark rural girls' interest in science and technology. In 2017 and 2018 the second and the third annual China Qcamps were held in Beijing. In total, the camps hosted 88 girls and 14 teachers took part, all from rural areas. During this week-long camp adventure in 2018, students dedicated approximately 20 hours to learning scratch programming and built robotic crafts on an Arduino platform to help address the top socioeconomic challenges that cities face today. The students also participated in a guided tour of our company's headquarters in China. They learned about our business culture and visited a modem testing lab and device certification lab to help them explore the inner workings of a mobile phone.

[5] Qcamp is a trademark of Qualcomm Incorporated.

Since its inception, China Qcamp has directly impacted 128 girls and 19 science teachers from 14 provinces throughout China.

> I watched and touched new things today — this is my first time experiencing them. I now find that there are many fields that Qualcomm technology is applied to.
>
> Though I use a cell phone every day, I didn't know the cell phone's heart: where the chipsets come from. Through the Qualcomm visit, I know how the chipset is designed and how the cell phone is tested before it is sold.
>
> What I learnt from the Qualcomm visit is that a great cell phone actually depends on the chipset.

STEM & Maker Community Activity

In 2017, we sponsored Shanghai Adream Foundation (SACF), a local foundation focusing on education in China, to develop a STEM curriculum. This competency-based curriculum is focused on maker skills and innovative learning for students. By the end of the first semester of 2018, the maker curriculum was used in 108 primary and junior high schools across China.

To provide access to the curriculum to more students, we continued to support Adream Foundation in modifying this curriculum and making it applicable to weekend activities. It was re-organized in 2019 in five communities in Beijing and one in Shanghai.

To ensure that there are enough qualified volunteers for these activities, in January 2019, SACF organized a Teach the Teachers (T3) training, where participants learned each module of the curriculum, and received tips on how to keep young students engaged during a STEM activity.

Over 40 university students, technology enthusiasts and parents from the four Beijing communities signed up for the training.

In addition, six Qcares volunteers and four Xiaomi volunteers joined the training, preparing to participate in future activities as teachers or teaching assistants. This is the first time that Qualcomm and Xiaomi volunteers have come together for one project. These weekend STEM activities will be organized in five communities from February to June in 2019.

Increasing Access to STEM for Students around the Globe through *FIRST*

2018 marked the 12th anniversary of our strategic collaboration with *FIRST*, an international not-for profit K-12 organization founded to inspire young people's interest and participation in science and technology while building their self-confidence, knowledge and life skills. Competitive, collaborative, educational, tough, and thrilling, *FIRST* organizes robotics competitions that draws hundreds of thousands of students from around the world to battle their bots. Since its founding in 1989, *FIRST* has achieved significant global growth and impact through its programs. For example, *FIRST* alumni are now 2.6 times more likely than a matched comparison group of students to enroll in an engineering course during their freshman year of college, and 75 percent of *FIRST* alumni are engaged in a STEM field as a student or professional.

This year also marked the third year of our technology integration in the *FIRST* Tech Challenge control system, which has provided more than 180,000 students from over 25 countries hands-on experience with our Qualcomm Snapdragon mobile technology platform.

Our involvement as a *FIRST* Strategic Partner has focused on supporting K-12 students in all four *FIRST* robotics programs, providing cutting-edge technology and expertise for *FIRST* Tech Challenge (FTC), while also helping to grow *FIRST* programs in global communities where access to STEM programs are either limited or do not exist. Our support for local student teams in regions including China focuses on those in need from underserved communities and diverse teams.

During the 2016-2018 seasons, we increased our support for *FIRST* robotics events, helping 58 *FIRST* Tech Challenge teams across China and sponsoring seven FTC competitions in Beijing, Shenzhen, Chongqing and Shanghai and two *FIRST* Robotics Challenge (FRC) in Beijing and Shenzhen. We established an FTC special award for China. We sponsored six winning teams to travel to Houston, in the United States, to compete against teams from other countries on the global stage. China Qualcomm employees also volunteered 840 hours during the competitions, either mentoring teams during the entire season or taking different roles, including competition judges, referees or hardware Inspectors.

University Collaboration

Our university partners are, and will continue to be, key contributors to our success in emerging research areas. In the last two years, we've supported 41 research projects at Peking University, Tsinghua University, Beijing University of Posts and Telecommunications, Institute of Computing Technology of the Chinese Academy of Sciences, Shanghai Jiao Tong University, Zhejiang University, Shenzhen University, Shandong University, Weihai, Sun Yet-san University, National Taiwan Normal University and National Tsinghua University on projects related to computer vision and deep learning.

Celebrating 20 Years of Collaboration with Chinese Universities

In December 2018, we marked a major milestone in China, celebrating our 20th anniversary of collaboration with Chinese universities. We've been nurturing and expanding these partnerships since Qualcomm and Beijing University of Posts and Telecommunications jointly established a research center in 1998.

Over the past two decades we've partnered with China's top universities to set up independent mobile laboratories and support cutting-edge research in areas that have been essential for the development of advanced communication technologies — including 5G, artificial intelligence (AI), deep learning, robotics, computer vision, image recognition, 3D reconstruction and other cutting-edge technologies. Our efforts have resulted in more than 200 completed projects and almost a thousand published academic articles.

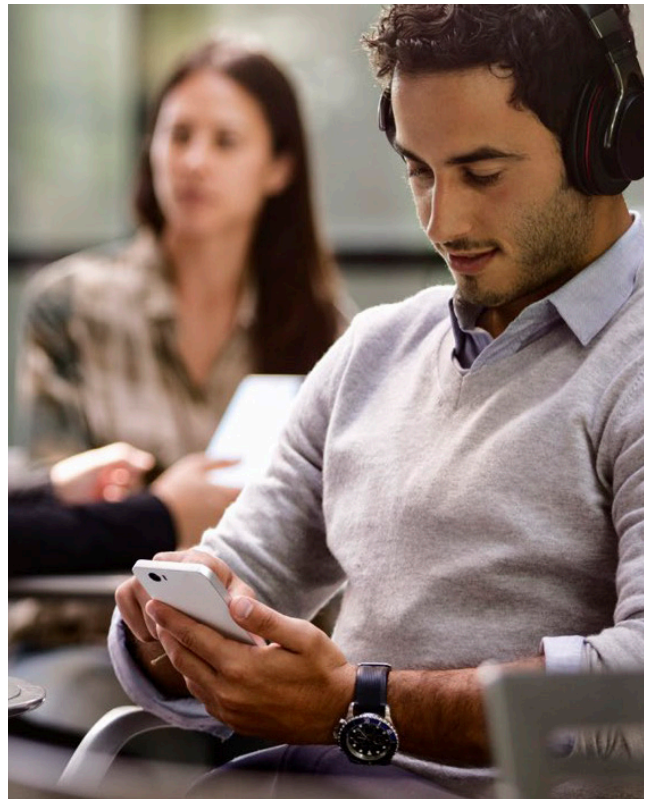
To create more opportunities for students and help promote STEM education in China, we've donated more than $1 million in scholarships to Peking University, Tsinghua University, and Beijing University of Posts and Telecommunications. Since 2015, we have supported 350 Chinese university students majoring in STEM fields to attend university level innovation and entrepreneurship competitions.

Inclusion and Diversity

Creating a Company that Reflects the World

Our commitment to inclusion and diversity remains one of our top sustainability priorities. We work to promote programs and improve internal policies and processes to demonstrate our steadfast commitment to building an inclusive and more diverse workforce. We foster inclusive practices across all of our departments worldwide to ensure that we remain a company that reflects the communities in which we do business.

Over the years, we have integrated our inclusion and diversity objectives into a growing number of Company programs, and we have established strong relationships with various internal and external stakeholders to help embed these values throughout our industry. We are proud of our accomplishments to date and know that we still have a lot of work to do in order to achieve our goals in the coming years.



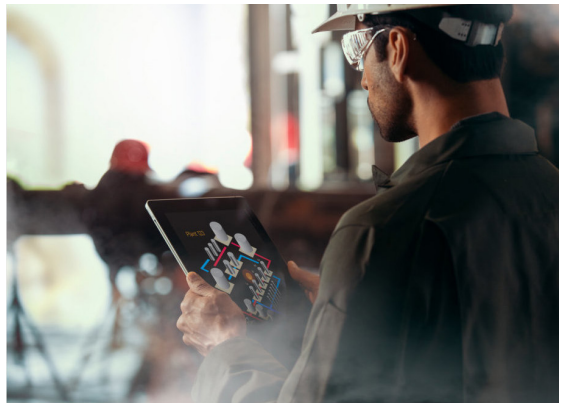
Training on Inclusion, Diversity and Leadership Expectations

In 2018, our inclusion and diversity team led mandatory trainings for 1,339 senior directors and above across the Company, using content focused on the business imperative and values of diversity and inclusion. The objectives of each two-hour training were to highlight how the Company values its commitment to creating a diverse workforce and to shed light on different elements of diversity management and unconscious biases. These trainings were available in-person and via livestream and/or a saved recording, making them easily accessible and convenient for participants. We have developed initiatives and opportunities to empower our senior-level managers to think critically about their understanding and vision for their employees' development. These managers have a strong influence on their employees' day-to-day experiences, ultimately impacting retention and attrition within the Company. Our core expectations have focused on ensuring that these managers have the right tools and trainings to facilitate and guarantee mentorship opportunities for their employees and to create a team culture that is inclusive and fair.

Employee Networks bring Inclusion to Life

A sense of belonging and community is essential to building an inclusive Company culture that celebrates diversity. Our eight Employee Networks (ENs) are employee-led, enterprise-supported, promote professional growth and offer collaboration and encouragement among different employee groups. Our EN communities include: women; Africans and African Americans; Latin and Latin culture; military veterans; university graduates; millennials; lesbian, gay, bisexual and transgender (LGBT); and differently abled employees and those that are caregivers of individuals with special needs. At the end of 2018, we had more than 20 EN chapters worldwide, including a Qwomen network in Beijing. We will soon introduce two additional Qwomen networks in Shanghai and Shenzhen. We're working to continually and strategically expand these networks.

Adapting our Policies and Processes to Better Serve Employees



In 2018, we worked on transforming some of our internal practices to adapt to the needs of our workforce and to promote transparency and consistency in our human resources processes. For example, employees worldwide have gained greater ownership of our annual review process and are now directly responsible for various aspects, such as soliciting 360 feedback from peers and colleagues or drafting goals for the next review cycle. We have also worked with an external expert to develop job leveling guides and detailed job descriptions that provide employees with guidance on the competencies and tasks required at each level of a job family as well as the responsibilities, scope and working conditions of each job. Our goal is to ensure full transparency of the expectations within each job category.

We recognize that our employees have important priorities outside of the workplace and we work to accommodate them. We updated a policy to proactively ask all new hires if they have any accommodation requests, making the onboarding experience more comfortable.

Ethical Governance

Doing Business "The Qualcomm Way"

We push the boundaries of what's possible in mobile technology, but we never push the boundaries when it comes to conducting business with integrity. We consider ethical governance to be a core requirement of doing business, a competitive advantage and the right thing to do. By exercising ethical leadership, we inspire confidence in the Company's future and create a safe and supportive work environment for our employees. In a dynamic global industry where innovation can create new ethical questions, our Code of Business Conduct guides how we responsibly conduct ourselves every day.

Updating our Policies

We are committed to doing business responsibly and sustainably, starting within our own walls. To ensure we operate with the highest ethical standards, we reinforce a culture of integrity and keep our policies up-to-date and accessible to all. In 2018, we reviewed and updated internal policies and procedures related to our ethical governance programs and created new guidelines or procedures where needed. For example, we released our revised Code of Business Conduct in October 2018, accompanied by learning check-ins relating to relevant ethics and compliance topics such as conflicts of interest, protecting Company confidential information and treating each other with respect. We also enhanced our conflict of interest program to require affirmative disclosures annually from all Company vice presidents and senior vice presidents.

Qualcomm's refreshed values

Our Company's values guide us in creating and maintaining an environment that fosters invention, encourages creativity and allows employees to thrive. In 2018, along with revising our Code of Business Conduct, we refreshed our corporate values and the supporting behaviors:

Purposeful Innovation
Raise the Bar
Drive Technology Leadership
Focus on the Customer
Engage Curiosity

Passionate Execution
Ensure Total Quality
Make Decisions Efficiently
Exceed Expectations
Empower People

Collaborative Community
Foster Inclusion and Diversity
Communicate Openly
Leverage Expertise
Be Respectful

Unquestioned Integrity
Do the Right Thing
Take Ownership
Cultivate Trust
Embrace Social Responsibility

Fostering a Speak-Up Culture

Our Code of Business Conduct sets out specific obligations for managers to act as leaders and role models of The Qualcomm Way and to promote an open-door environment in which all of their team members feel comfortable and safe raising questions or concerns.

In 2018, we strengthened our open-door policy and provided additional channels for communication around any issues that employees may experience. We promoted our Speak-Up campaign to highlight the importance of raising concerns as well as the Company's commitment to investigating and addressing those concerns while implementing remediating measures, as applicable. Through our open-door policy, we encourage constant and open communication with managers, direct engagement with Human Resources and voicing potential issues via our Business Conduct Hotline. The hotline is a 24-hour resource available to all employees. It is administered by a third party and allows employees to voice their concerns anonymously, where local country law permits. We have also designated specific individuals as points of contact. These people are part of the Company's management and located at our headquarters. They include local contact points for different geographic areas where we operate.

Employee Ethics Education and Communication

We actively engage our employees in our ethical governance programs to ensure they have a thorough understanding of what is expected of them. In 2018, we conducted 81 in-person FCPA and Anti-Corruption training sessions at our offices worldwide. New employees who joined the Company through recent acquisitions were among the participants.

80+ in-person FCPA and Anti-Corruption training sessions at our offices worldwide in 2018.

Assessing and Managing Risk

We continue to assess risks in our business and take steps to ensure that employees Company-wide adhere to our ethics and compliance protocols. In 2018, we completed an enterprise-wide compliance risk assessment and shared the findings with our Ethics and Compliance Committee. We used the results of the risk assessment to help us prioritize our ethics and compliance objectives and focus areas for the coming year. We also continued to take a risk-based approach to ensuring that we are only collaborating with reputable companies that do not have a history of bribery, corruption or other misconduct. We conducted reputational screenings and due diligence on several third parties that could come into contact with a foreign government or government official on our behalf.

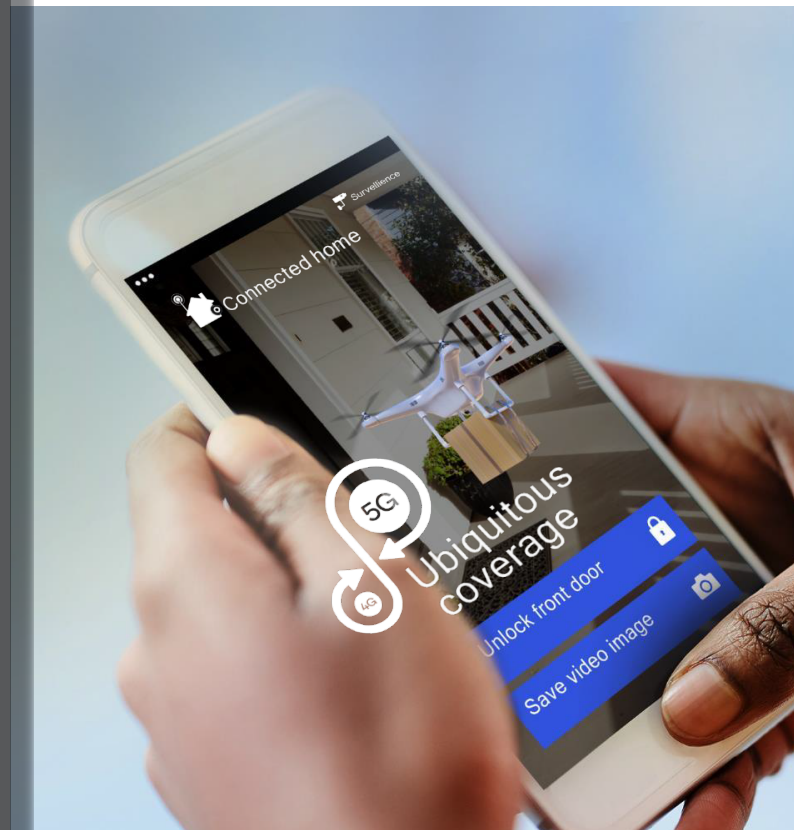
Connecting for Sustainability & Innovating for Future Growth

Sharing Industry Knowledge and Insights

We are committed to sharing our industry knowledge and insights, helping industries, nations and societies better understand and quantify the impacts of technology trends shaping the world around us. We also believe that sharing knowledge and insights can effectively construct a platform that brings together industry players and policy makers to unleash and maximize the potential of new technologies.

The 5G Economy

5G will be a major economic driver — spurring the innovation of new industries, products, services and job creation. In early 2017, we commissioned and released a landmark study, *The 5G Economy*, examining the potential economic and social impact of 5G around the world. *The 5G Economy* includes an economic impact study conducted by IHS Markit, as well as opinion research about the expectations for 5G among business and technology leaders carried out by PSB. The combined findings of the study show how 5G will profoundly affect the global economy and that business decision makers in technology and other industries overwhelmingly believe in the transformational nature of 5G.



5G

According to the study, in 2035, when 5G's full economic benefit should be realized across the globe, a broad range of industries — from retail to education, transportation to entertainment, and everything in between — could produce up to $12.3 trillion worth of goods and services enabled by 5G.

The 5G value chain itself could generate up to $3.5 trillion in revenue in 2035, supporting as many as 22 million jobs globally — in China specifically, this translates to $984 billion in revenue and 9.5 million jobs.

Over time, 5G will boost real global GDP growth by $3 trillion dollars cumulatively from 2020 to 2035, roughly the equivalent of adding an economy the size of India to the world in today's dollars.

As one of the countries in the forefront of 5G development, China is expected to be the second largest investor in 5G related R&D, spending $1.1 trillion from 2020-2035.

We released the Chinese version of *The 5G Economy* during our 5G summit in Beijing in February 2017, where we discussed the findings with leaders from China Mobile Research Institute, China Communications Standards Association, Future Forum, and mobile phone manufacturers.

Sharing Knowledge to Inform Industry and Policy Development

The rapid evolution of new technologies is generating new business models and business opportunities that span across vertical industries. In order to capture the new growth, industry players and policy makers need to be equipped with in-depth understanding of these technologies and their impact. Being at the frontier of emerging technologies, we have been providing technology expertise and real-world case studies along with other resources to support such studies carried out by Chinese research organizations and institutes. More efforts are being made to support similar studies related to a broad range of topics including 5G, artificial intelligence (AI), and the Internet of Things (IoT) leveraging our technology strengths and substantial learnings from real-world practices.

White Paper:
5G Technology Creates New Driving Forces for China's Economic Development

Launched by China Center for International Economic Exchanges (CCIEE), China Economic Consulting Corporation and China Academy of ICT, this white paper explores the transformational effect of 5G technologies on China's economic development, and results in actionable recommendations for policy makers and industry practitioners.

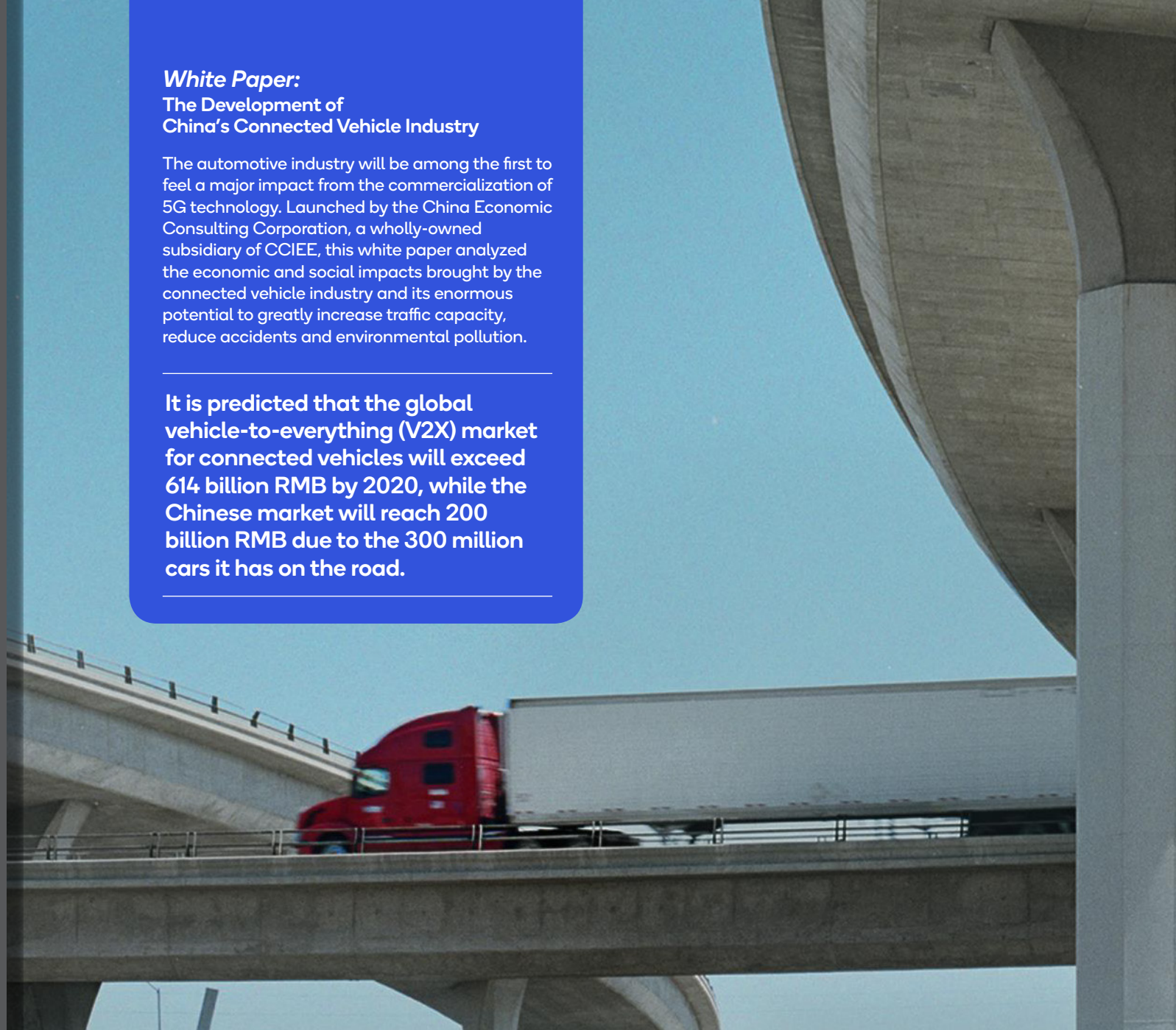
"Qualcomm provided us with great support during the development of the research reports. Our research team and Qualcomm's team cooperated well together and had many fruitful discussions, and during the process our team received valuable insights from Qualcomm's technology experts. Qualcomm also provided generous support for us in areas such as research focus, research content and reference materials, laying a solid foundation for future cooperation. The joint research put forward proactive and actionable policy recommendations in various areas such as building mechanisms between government departments to promote synergies, intellectual property protection, infrastructure construction, allocation of national spectrum resources, development of standards regulations and testing capacity, and strengthening international cooperation. The research result has been highly regarded by decision-makers and the industry."

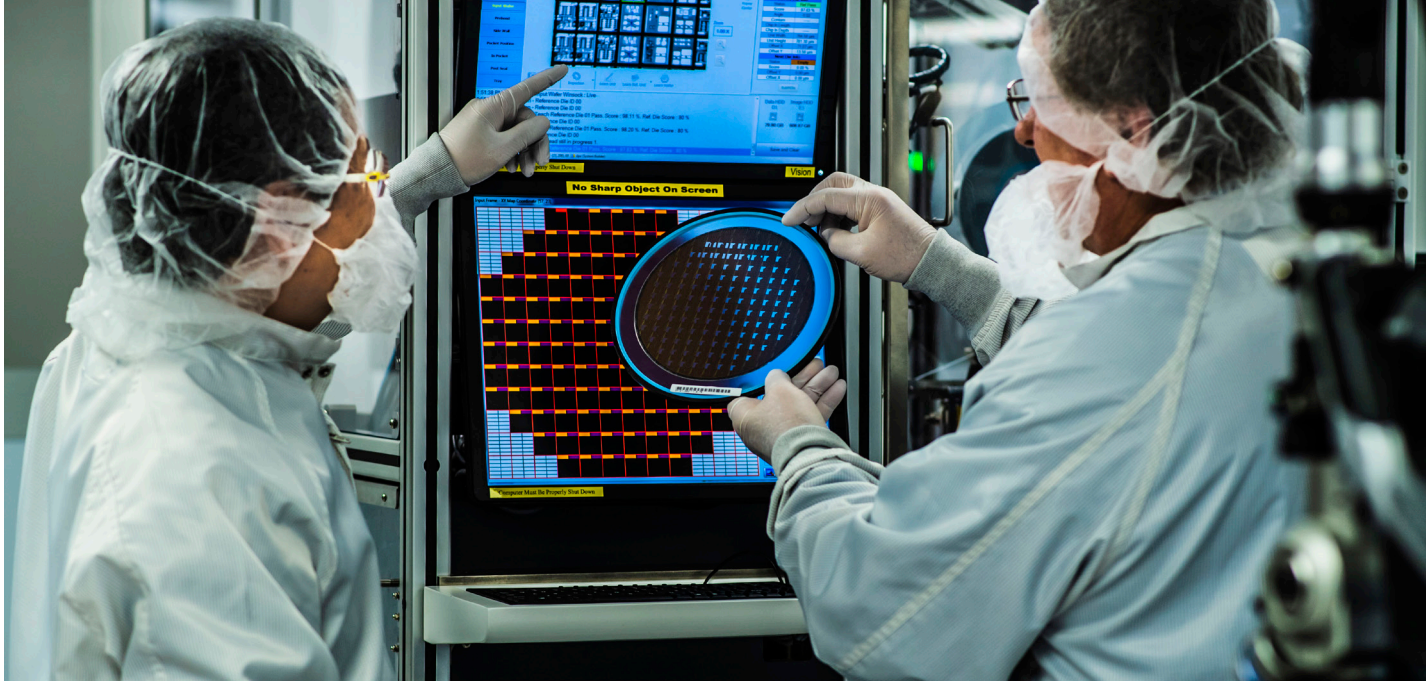
Zhang Jin
Researcher at the Planning Department of China Center for International Economic Exchanges (CCIEE)

White Paper:
The Development of China's Connected Vehicle Industry

The automotive industry will be among the first to feel a major impact from the commercialization of 5G technology. Launched by the China Economic Consulting Corporation, a wholly-owned subsidiary of CCIEE, this white paper analyzed the economic and social impacts brought by the connected vehicle industry and its enormous potential to greatly increase traffic capacity, reduce accidents and environmental pollution.

It is predicted that the global vehicle-to-everything (V2X) market for connected vehicles will exceed 614 billion RMB by 2020, while the Chinese market will reach 200 billion RMB due to the 300 million cars it has on the road.





Technology at the Frontier

China has a long history of invention and we want to continue being a part of this story of innovation. Since first introducing our technologies and products here over 20 years ago, Qualcomm has been dedicated to helping grow China's wireless industry by investing significantly in research and development, licensing our advanced technologies (which are the primary drivers of value in mobile devices) and providing the most advanced chipsets to our Chinese partners. We are inventing and collaborating across the ecosystem to help build an innovative and technology-driven Chinese economy, driving the development of technologies such as 5G, artificial intelligence and the Internet of Things.

Leading the World to 5G

We see 5G as technology as transformative as the automobile and electricity. It is a new kind of network that will not only interconnect people, but also interconnect and control machines, objects, and devices, redefining a broad range of industries with connected services from retail to education, transportation to entertainment, and everything in between. As we did with 3G and 4G, we are leading the world to 5G. We are designing a unified, more capable 5G platform by inventing many new technologies to meet 5G's expanded and radically diverse connectivity requirements. We are driving 5G New Radio (NR) from standardization to commercialization, contributing to 3GPP standard activities and collaborating with industry leaders on impactful 5G demonstrations/trials to prepare for commercial launches. At the same time, we are leading the evolution of 4G LTE to its fullest potential, pioneering 5G technologies and use cases today with LTE advancements such as unlicensed spectrum, narrowband Internet of Things (IoT), and more. Finally, we are supporting early 5G deployments and field trials with our Qualcomm Snapdragon X50 5G modem to gain real-world experience in preparing for 5G commercialization in 2019.

2016

The year we announced our products and prototypes.

In 2016, we focused on the global 5G standard 5G NR and showcased viability of some of the most challenging 5G technologies with our 5G NR prototypes. In October, we brought the first 5G modem — Snapdragon X50 to the world, supporting OEMs that are building the next generation of cellular devices, as well as aiding operators with early 5G trials and deployments.

2017

The year we showcased 5G technology readiness.

In 2017, we were hard at work on bringing 5G to life-accelerating 5G standardization, completing the world's first 5G interoperability testing, continuing research, announcing products, and more that would ultimately enable 5G NR commercial deployments in 2019.

In October, we successfully achieved a 5G data connection on a 5G modem chipset for mobile devices. In November, we completed the world's first end-to-end 5G NR IoDT with ZTE and China Mobile. The successful interoperable connection of the end-to-end 5G NR IoDT system serves as a significant industry milestone towards pre-commercialization of 5G NR technologies at scale, driving rapid development of 3GPP standards-compliant networks and devices.

In December 2017, the global mobile industry showed it was ready to start full-scale development of 5G NR, successfully completing the first implementable 5G NR specification. This standard completion was an essential milestone to enable cost-effective and full-scale development of 5G NR, which will greatly enhance the capabilities of 3GPP systems, as well as facilitate the creation of vertical market opportunities.

> China Mobile is committed to promoting the unified global 5G standard with industry partners. The achievement of end-to-end 5G NR interoperable connection testing, compliant with the 3GPP 5G NR standard, is an important milestone of 5G standard to productization and pre-commercialization from standard. China Mobile is committed to working with other industry leaders, including Qualcomm Technologies and ZTE to promote that the 5G products continue to mature and the 5G industry marches to success.
>
> **— China Mobile Communications Corporation**

> ZTE is aiming to become one of the first suppliers of commercial 5G equipment and solutions. During the course of 5G technology verification and product-based development, ZTE is actively verifying a multitude of key technologies, solutions and network models together with industry partners. The world's first 5G NR interoperable data connection, completed by China Mobile, Qualcomm Technologies and ZTE showcases our committed effort and periodical results.
>
> **— ZTE**

2018

The year we prepared for 5G NR commercialization.

2018 was a pivotal year in our journey to make 5G a commercial reality. We completed 5G NR interoperability testing and conducted field trials with our ecosystem partners. We also crossed many key milestones to prepare us for commercial 5G launches, such as the mmWave RF module for smartphone form factors, in order to provide users across the globe with multi-Gigabit speeds, ultra-low latency, and virtually unlimited capacity in 2019.

In January, during our 2018 Qualcomm China Tech Day in Beijing, we announced the "5G Pioneer" Initiative, bringing together Lenovo, OPPO, vivo, Xiaomi, ZTE and Wingtech to help advance reality of commercial availability of standard-compliant 5G NR devices expected in 2019.

Through the "5G Pioneer" Initiative, in addition to deep expertise and leadership in semiconductor solutions, we anticipate being able to provide Chinese manufacturers with the platform they need to develop premium tier and global 5G commercial devices. Together with leading Chinese manufacturers, we are not only exploring new mobile applications and experiences enabled by 5G, but also focusing on other transformative technologies such as AI and IoT to continue to drive technological evolution and industry transformation worldwide.

In February, we had an opportunity to demonstrate the next phase of the 5G NR technology roadmap, showcasing advanced 5G NR technologies for autonomous vehicles, industrial IoT, and spectrum sharing. That month we also successfully completed 5G NR Interoperability and Development Testing (IODT) based on the 3GPP Release 15 global standard with Huawei — a key milestone towards accelerating the maturity of the Release 15 5G NR ecosystem.

In June, we announced our collaboration with Datang Mobile on 5G NR IODT in 3.5 GHz band based on 3GPP Release 15 specifications, aiming to accelerate the rollout of 5G NR commercial deployments in 2019.

In July, we unveiled the world's first fully-integrated 5G NR millimeter wave (mmWave) and sub-6 GHz RF modules for smartphones and other mobile devices.

In September, we completed the first announced 3GPP-compliant 5G NR mmWave OTA call on a smartphone with Ericsson, paving the way for other global operators and OEMs to conduct tests in the field using their own networks and devices.

What's Next:

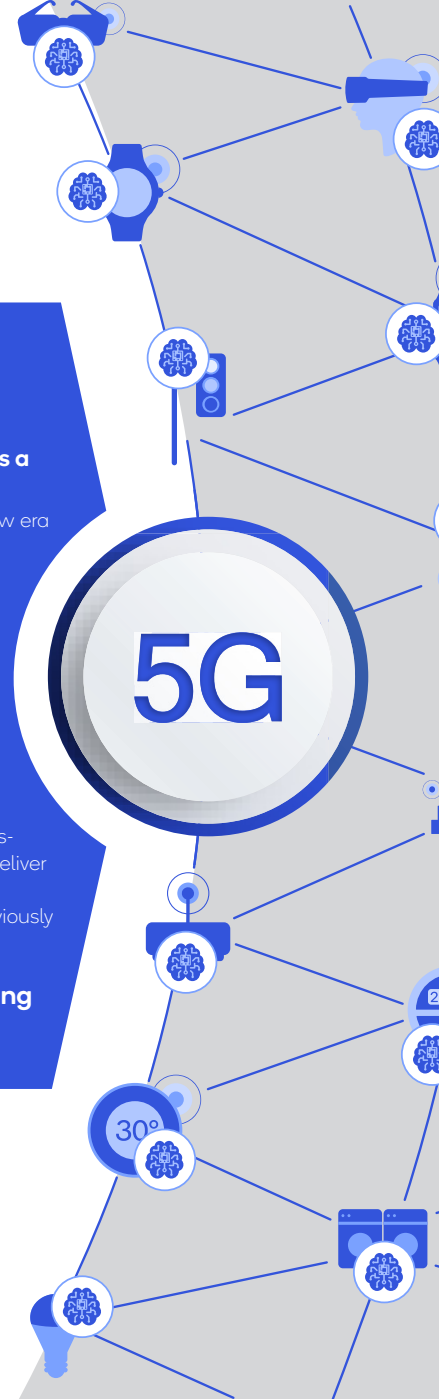
2019

The year 5G NR becomes a commercial reality.

2019 is the beginning of a new era for mobile communications, with 5G NR launches across the globe starting in the first half of the year.

After many years of hard work and collaboration, mobile form factor mmWave devices will finally hit the market. 5G NR mmWave-enabled smartphones, tablets, always-connected PCs, and CPEs deliver new and enhanced mobile experiences that are not previously possible.

This is just the beginning of the 5G World.



Artificial Intelligence is Transforming Everything

We envision a world where devices, machines, automobiles, and things are much more intelligent, simplifying and enriching our daily lives. They will be able to perceive, reason, and take intuitive actions based on awareness of the situation, improving just about any experience and solving problems that to this point we've either left to the user, or to more conventional algorithms. AI is the technology driving this revolution and China is projected to be the country whose economy could benefit the most from AI.

China's GDP could potentially become 26.1% higher in 2030 — the equivalent of an additional 7 trillion U.S. dollars — due to the impact of A.I. [6]

Building on the smartphone foundation and the scale of mobile, we envision making AI ubiquitous — expanding beyond mobile and powering other end devices, machines, vehicles, and things. We are inventing, developing, and commercializing power-efficient on-device AI to make this a reality.

AI Collaborations

October 2017 We announced plans to collaborate with SenseTime Group Limited on AI and machine learning for future mobile and IoT products.

May 2018 On Qualcomm AI Day, we announced we will work together with Baidu, Inc. to use the Qualcomm Artificial Intelligence Engine to drive conversion and application of Baidu PaddlePaddle open-source deep learning framework models on Qualcomm Snapdragon mobile platforms through the Open Neural Network Exchange (ONNX) interchange format.

May 2018 We announced our collaboration with Thundercomm Technology Co., Ltd., to support the large ecosystem of developers and manufacturers in China with their latest on-device AI commercial technology.

May 2018 We announced that we are working together with NetEase Youdao to accelerate the implementation of Youdao's real-scene augmented reality translation based on select Qualcomm Snapdragon Mobile Platforms, utilizing the Qualcomm AI Engine components.

[6] PwC '18

Accelerating the Internet of Things Ecosystem

As we move towards the future of smart bodies, smart homes, and smart cities, we're shipping more than 1 million chips for IoT every day.

Effective implementation of both commercial and industrial IoT solutions requires a complete ecosystem, and Qualcomm — with its security-rich, cutting-edge technologies in mobile connectivity and computing, fully integrated SoCs, purpose-built platforms, and strong, long-established working relationships across the entire ecosystem — is empowering customers and partners to transform their industries.

In China we collaborate with partners across the ecosystem to make it easier for companies of all sizes to succeed in designing and commercializing innovative IoT solutions.

IoT Collaborations

2016

December
At the China Mobile Global Partners Conference 2016 in Guangzhou, we signed a Memorandum of Understanding with China Mobile IoT Company Limited to enhance cooperation in the area of IoT.

2017

May
We announced our plans to commence the first of its kind LTE IoT Multimode Field Trials in China, with China Mobile Research Institute (CMRI) and China's leading smart bike sharing company, Mobike.

September
Mobike, the world's largest smart bike sharing service, announced plans to use IoT solutions from AT&T and Qualcomm Technologies, Inc., to support its station-free smart bikes in the U.S.

2018

May
We signed a cooperation agreement with China-ASEAN Information Harbor Co., Ltd and SUNSEA IoT to strengthen cooperation in the field of IoT.

June
Together with Gizwits, a global leader in IoT development platforms and one of China's top 50 most innovative companies, we announced our collaboration towards delivering the world's first commercial IoT development platform supporting field upgrade to LTE IoT.

August
We announced jointly with Datang Telecom Group the first successful multi-chipset vendor interoperability of 3rd Generation Partnership Project (3GPP) Release 14 C-V2X direct communications (PC5) Mode 4, which is also referred to as LTE-V2X. Successful C-V2X radio chipset interoperability represents accelerating commercial readiness for automaker and infrastructure deployments beginning in 2019.

September
Our partnerships are driving the development and maturity of the connected vehicle industry in China. In collaboration with China Mobile Research Institute and China Mobile IoT Company Limited, we announced new roadside units (RSUs) for 3GPP Release 14 LTE-V2X direct communication (PC5) based on the Qualcomm 9150 C-V2X chipset solution.

Empowering and Incubating Local Innovation

We are an invention company — our founding principle has been to invest and invent technologies that will advance the mobile industry. We have established a number of initiatives to make this vision a reality. Whether it is through joint ventures, innovation centers or venture investment, we are collaborating across the mobile ecosystem to help build an innovative and technology-driven Chinese economy.

Creating Shared Value

We benefit when our partners grow. We foster win-win cooperation along the value chain, which allows us to introduce our leading technology to our partners and help them grow independently. Apart from continuing the cooperation with the Chinese wireless industry, we have begun seeking new cooperation direction, deepening and enlarging our investment in China.

SMIC

Semiconductor Manufacturing International Corporation (SMIC) is a world-leading semiconductor foundry, and the largest and most advanced foundry in Mainland China. 2017 marked the 10th anniversary of partnership between SMIC and us and one decade of sharing our technological expertise and experience.

SJSemi

In September 2017, we deepened our collaboration with SJSemi when we jointly announced that SJSemi has started the qualification of 10nm Ultra-high Density wafer bumping for Qualcomm Technologies. Upon qualification, SJSemi will be mainland China's first Middle-end semiconductor company to enter the industrial chain with 10nm advanced process node production, continuing to claim a position along the world-leading advanced node semiconductor supply chain. The production of the 10nm wafer bumping in China is part of our efforts to support the development of the Chinese semiconductor industry to migrate into mainstream.

Qualcomm Communication Technologies

In November 2016, we opened Qualcomm Communication Technologies (Shanghai) Co. Ltd, a semiconductor test facility in the Waigaoqiao free-trade zone in Shanghai, extending our relationship with Amkor Technology, Inc., one of the world's leading providers of contract semiconductor assembly and test services. The new company combines Amkor's extensive test services experience and state of the art cleanroom facilities with Qualcomm Technologies' industry leadership in cutting-edge product engineering and development. This demonstrates our commitment to continue to invest and help develop semiconductor expertise in China, and is indicative of growth in semiconductor market leadership in the country. Through the ownership and operation of a semiconductor test center, we will enhance our focus on customer service, continue to develop our expertise in operational excellence, and increase our business presence in China.

Thundercomm

We formed Thundercomm in 2016 in a joint venture with Thundersoft to boost the development and innovation of the Chinese Internet of Things (IoT) industry. In May 2018, we announced our collaboration with Thundercomm to support the large ecosystem of developers and manufacturers in China with their latest on-device artificial intelligence (AI) commercial technology.

JLQ Technology

To expand our presence to new segments and customers, as an addition to our vibrant and fast growing semiconductor business in China, we formed JLQ Technology in Guizhou, together with JAC Capital, Leadcore, and Wise Road Capital in May 2017. This joint venture focuses on the design, packaging, testing, customer support and sales related to chipsets for mass-tier smartphones designed and sold into China. The JV will combine our advanced technology, scale, product portfolio with Leadcore's accomplished R&D capability as well as deep relationships in China, JAC Capital's wide connections in Chinese financial circles, and Wise Road Capital's financial and industry ecosystem resources at home and abroad.

China Telecom

In September 2018, together with China Telecom we jointly held the 10th E-Surfing Smart Ecosystem Expo, marking the 10th anniversary of collaboration between both companies. As one of the world's largest industry galas, E-Surfing Smart Ecosystem Expo attracted more than 300 companies and showcased the latest trends in global information communications technologies. Over the past decade, we have deepened our collaboration with China Telecom in areas such 5G commercialization which has helped to accelerate innovations in China's mobile technologies.

Labs and Innovation Centers

2016

October

Shenzhen Innovation Center

We set up the Shenzhen Innovation Center in October 2016, where we combine the world's leading wireless technology with local talent and innovation. We leverage the Shenzhen Innovation Center to strengthen and enhance our resources and investment in the city. The Center is equipped with multiple leading laboratories and features our first wireless communication and IoT Technology Exhibition Center outside the US.

November

Qualcomm and Tencent Joint Innovation Center

We have a strategic relationship with the Interactive Entertainment Group (IEG) of Tencent to identify and create leading immersive mobile user experiences in gaming and entertainment. The collaboration includes a joint innovation center designed to explore new user gaming and application experience in the future by utilizing the strengths of both parties.

2017

September

Nanjing Software Valley Qualcomm China Joint Innovation Center

Established in collaboration with China (Nanjing) Software Valley and Nanjing RuiYue Technology Co., Ltd (Nibiru), this innovation center focuses on promoting technological innovation breakthroughs and rapid industrial development in the fields of intelligent manufacturing, future networks, virtual reality, and AI in Nanjing.

October

Chongqing — Qualcomm Intelligent Connected Vehicle Collaborative Innovation Laboratory

Leveraging our R&D capabilities, we partnered with ThunderSoft and the People's Government of Chongqing to set up an innovation laboratory that provides the latest technology for the next generation of Intelligent Connected Vehicles and serves as an innovation platform for China and the world. This laboratory carries out research and innovates in areas such as intelligent cockpit, intelligent operating system, user interface and user experience, and security.

December

Qingdao Chip Valley — QTI — Goertek United Innovation Center

A collaboration between the People's Government of Laoshan District, Qingdao, Qualcomm and Goertek Inc., the innovation center actively drives the development of Qingdao in the IoT field.

2018

August

Chongqing Collaborative Intelligent Vehicle Institute

Led by ThunderSoft, the institute aims to accelerate the development of the Intelligent Connected Vehicle industry by bringing the main actors in the industry together towards promoting the transition from "traditional" to "intelligent, connected, automated and shared".

September

Chongqing — CETZ — Qualcomm China Intelligent IoT Joint Innovation Center

Focusing on incubation, R&D and innovation in IoT, this joint innovation center, a partnership with CETZ and ThunderSoft, features five innovative laboratories, as well as technical training centers and technology exhibition centers. The joint innovation center will provide technology assessment, initial R&D guidance and system compatibility testing services.

Qualcomm Ventures

Technology is constantly evolving and enabling a wide array of new products, services and businesses. Qualcomm Ventures is our corporate investment arm and its charter is to find and invest in the entrepreneurs and startups that are leaders in this rapidly changing innovation economy. We invest in cutting-edge technology in augmented reality (AR), virtual reality, AI, IoT, robots, unmanned aerial vehicle (UaV) and 5G. Today, we have investments in more than 120 portfolio companies from around the world, 49 of which are in China.

> We share a common vision with Qualcomm to invent new ways to improve communication around the globe. Qualcomm Ventures has provided us with tremendous support in PR, marketing and financing since 2018 and has generously connected us with Qualcomm Technologies. At the Snapdragon Summit 2018, Elevoc was given the valuable opportunity to showcase Vocplus Telecom, the AI speech enhancement solution featured on Snapdragon 855. Meanwhile, Elevoc has been actively assisting Qualcomm to enrich product lines with fascinating AI-based features. In addition to the smartphone market, we are working together to bring our voice interaction technologies to new frontiers such as IoT, VR/AR and automotive.
>
> **Eric Miao**
> CEO, Elevoc Technology Co., Ltd.

List of companies Qualcomm Ventures invested in during FY17-18

Qualcomm ventures

Memblaze

Memblaze focuses on providing enterprise-level SSD and flash solutions to eliminate I/O performance bottlenecks of data centers and make data processing faster and smarter.

Mobike

Mobike is the world's first and largest smart bike-sharing company. Its mission is to bring more bikes to more cities, using its innovative technology to make cycling the most convenient and environmentally-friendly transport choice for urban residents.

Creatcomm Technology

Creatcomm Technology is a China market leader in providing advanced, high quality, and cost-effective solutions for the outdoor and enterprise wireless connection market.

Microduino

Microduino, Inc. is an international company of makers and creators aimed at bringing easy-to-use electronics hardware to makers, designers, engineers, students and curious tinkerers of all ages and levels.

SenseTime

SenseTime is an innovative Information Technology company that harnesses Deep Learning as their core technology. They're dedicated towards spearheading break-through research and development in Deep Learning technology, so as to provide unique solutions for artificial intelligence applications and Big Data analysis.

Kneron

Kneron is an on-device oriented AI solution provider with a focus on software re-configuration and hardware compression + acceleration for IoT.

Gizwits

Gizwits is one of China's leading IoT development platform and cloud service providers, offering big data analytics; AI applications and IoT application services; comprehensive SDKs; IDE development environment; MCU and APP code auto-generators; a wide range of micro-services; and various vertical industrial solutions to help business partners and individual developers build, deploy and manage IoT products and applications efficiently.

YYG

YYG adheres to R&D of display technology and IP licensing as well as the design of driver IC, focusing on consumer electronics markets including mobile phones, notebooks, TVs, and AR/VR.

Elevoc

Elevoc is a leading machine hearing solution provider of deep learning-based speech enhancement and voice interaction technologies for smartphone, VoIP, automotive, smart home, etc.

Baicells

Baicells is known for disruptive and affordable 4G & 5G solutions. Baicells is setting the pace for 5G and future evolution with end-to-end cloud solutions that are designed to support a seamless migration to next generation.

QPrize™ [7] China: Celebrating our 10-year Anniversary

QPrize is Qualcomm Ventures' seed investment competition. It is designed to provide entrepreneurs with their first level of funding so they can launch their ideas into a successful startup business. In September 2018, we celebrated the 10th anniversary of QPrize China, known as Qualcomm Ventures Sequoia Frontier Tech Startup Competition, staying true to our purpose to act as a catalyst for our winners, providing them the initial capital to launch their great ideas and support the company until its first institutional funding round. The 2018 competition received 225 total submissions, of which 10 entered the final round. Top tier VCs from Qingming Venture Partners, Oriza Ventures, Sequoia, Zhen Fend, Northern Light VC, Lenovo Capital, Xiaomi, Samsung Ventures, Thundersoft and IDG Capital attended the event as competition judges.

One of our latest success stories is Kneron, an on-device oriented AI solution provider, who won the competition in 2017, and later secured over ten million US dollars in series A financing. The company already has customers around the world which include the top Chinese home appliance company that will ship out 50 million devices embedded with Kneron AI solution within one year.

[7] QPrize is a trademark of Qualcomm Incorporated.

About this Report

Since our founding in 1985, we have been committed to improving the societies where we live and work. We have been producing an annual sustainability report since 2006. Our global report can be downloaded from

https://www.qualcomm.com

This is our fourth "China Sustainability Report." Our report details the activities we conduct in China as they pertain to our global sustainability priorities and our efforts contributing to the sustainable development of China's mobile ecosystem.

The scope of this report includes the 2017 and 2018 fiscal years — October 2016 to September 2018. Facts and figures that fall outside of the reporting frame have been identified. Financial data is reported in USD.

Additional information about sustainability at Qualcomm is available at

www.qualcomm.com/sustainability

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