

# ICT infrastructure and smart devices drive the intelligent world



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According to Huawei's Rotating CEO Eric Xu, "The journey to an intelligent world has already begun." Huawei is a driver and enabler of this intelligent world, with collaboration sitting at the heart of a thriving ecosystem. Looking forward, Huawei's strategy comprises three elements: building more connections, enlarging data pipes, and enabling digitization.

By Eric Xu

## 2016 in figures

In 2016, we showed steady growth in all of our businesses. Our total revenues hit 521.6 billion yuan, our operating profits were 47.5 billion yuan, and our cash flow totaled 49.2 billion yuan. Last year, one of our key priorities was to turn our investment into tomorrow's competitive edge, so we allocated 14.6 percent of our annual revenue to R&D. This investment helped make our products and solutions more competitive and drove progress and technological advancement industry-wide.

Over the past 10 years we've invested 310 billion yuan in R&D, and our R&D headcount now totals 80,000, which has helped us maintain leadership in many domains. In

the future, we plan to invest US\$10 to 20 billion in R&D annually to support the company's ongoing growth, which we expect to remain steady, if not as fast as before.

Over the past two years, we've increased our investment in basic research, which was a significant strategic shift. We raised the percentage of our budget for researching and innovating key future technologies so as to lay a better foundation for enabling the intelligent world.

This intelligent world has three major characteristics:

- **All sensing:** All people and things will have the ability to sense.
- **All connected:** People and people, things and things,



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and people and things will be connected.

- **All intelligent:** Every object will become intelligent, and our world as a whole will be intelligent.

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The journey to an intelligent world hasn't just begun. Many years of exploration and innovation are driving industry development, presenting huge business opportunities.

If we look back 22 years to 1995, Siemens achieved the very first machine-to-machine connection. Now, there are over 8 billion IoT connections around the world. As early as 1999, Video Networks in the UK launched the world's first IPTV service. That was 18 years ago. Today, more than 150 million homes have IPTV services. DOCOMO launched the first mobile video service in 2001, 16 years ago. Now, there are more than 2 billion mobile video subscribers worldwide. Amazon offered the first cloud services to enterprises 11 years ago in 2006. Today, 40

million businesses globally use all types of cloud services. Each of these opportunities was beset by problems and challenges, but now they're the primary drivers behind the next wave of growth.

With such a massive buildup in progress and experience over many years, we're convinced that a turning point in new growth is upon us. On the journey to an intelligent world, how can companies seize the huge amount of opportunities? This is something we've been thinking about, and it's where we hope to make a contribution.

## What does a digital organization look like?

To seize these opportunities, not fall behind, and create an intelligent world, we believe that enterprises, including businesses, governments, non-profits, and schools, must go digital. But what exactly is a digital organization? Our definition and objectives must be clear, otherwise there's nothing to work towards.

At Huawei, we believe that the five characteristics of digital organizations are:

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- Providing employees, partners, and customers with a ROADS experience: real-time, on-demand, all-online, DIY, and social.
- Empowering employees.
- Innovating with greater agility to quickly respond to changing customer needs and technology.
- Developing a healthy ecosystem because, in the digital era, no company can survive alone. You either play a leading role in the ecosystem or you participate in it. A business that's part of a healthy ecosystem is better positioned to grow and exploit new opportunities.
- Achieving intelligent operations, with technologies like big data and AI enabling automated and intelligence-backed decisions to increase operating quality and efficiency.

Further discussion is necessary, because we must clarify our target to establish a clear direction that leads to fewer mistakes.

## Three strategies

Nobody knows what form future smartphones or smart devices will take. But, we know that they'll evolve from smart devices to intelligent personal assistants. In the past, we mainly used phones to

make calls. Now, mobile apps make life easier and let us work more efficiently. In the future, phones will go from enablers to intelligent assistants that understand us. Following our research in this domain, we launched our own intelligent phone. Through this process of exploration, we believe that the direction of smart devices is clear.

As Huawei positions itself as an enabler and driver of the intelligent world, we need to define what we do and what we don't do – what we focus on ourselves, and where we need to work with others. Our strategy is threefold: Building more connections, Enlarging Data pipes, and Enabling digitization.

Building more connections is about connecting the unconnected, both people and things; increasing bandwidth; and delivering a better experience.

Enlarging data pipes aims to make video pervasive in work and life, for example, in communication, troubleshooting, education, or healthcare. People want video to do various tasks, and no longer just rely on voice and data services.

Enabling digitization is where we aim to help the ICT industry fully embrace the cloud and enable all organizations to go digital. Cloud services will be a basic business model in the future, so part of our strategy is to drive cloud services as the one platform for customer engagement and customer services.

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Huawei has been building connections for the past 30 years, based on our mission to build a Better Connected World by connecting people to people, people to things, and things to things. We aim to do this by creating seamless connections in all scenarios that give people a smooth and continuous experience whether they're at work, at home, or in the car. And we won't stop there – our next step is to continuously improve the connected experience.

With respect to enlarging data pipes, we view video as a basic medium of information exchange in life, work, management, decision-making, and public safety. So how can we enable video to play a bigger role in empowering life, work, and vertical industries? This is a question we need to explore. More specifically, we want to enable telcos to succeed in the video business by positioning video as a key way to grow and monetize data traffic. We also want to build a video-based production system to help all industries and businesses improve the efficiency and quality of their production processes and decision-making.

When it comes to enabling digitization, we've taken a number of steps: First, we've built an All-Cloud ICT infrastructure to enable organizations to go digital. Second, we're helping telcos serve their enterprise customers with cloud services. Third, we're helping telcos build cloud-based, intelligent, fully digital operations systems that deliver a ROADS experience. Fourth, we plan to start by building a digital Huawei. We know

that we must address a broad range of challenges and problems, acquire the right experience, and learn from that experience to help other industries and organizations succeed with digital transformation.

## Cloud native with public cloud

Many people have doubts about Huawei's commitment to public cloud. They wonder if we're determined to stick with it, or if we'll give up halfway. We've taken a two-pronged approach to public cloud:

- In China we run our own.
- Elsewhere, we're working with operators like Deutsche Telekom (DT), China Telecom, and Orange to develop public cloud services.

As a basic business model, cloud services are a crucial part of what we do – we provide ICT infrastructure for operators and enterprise customers to drive an intelligent world. Cloud is the essential component; it's the basic model for engaging with customers. For this reason, we're determined to build an open and trusted public cloud platform and work with partners to provide customers with public cloud services.

This year we established a dedicated Cloud Business Unit (BU) with a single mission: to get a solid public cloud business up and running. To this end, we'll invest heavily in the Cloud BU. Our strategy is to build a Huawei public

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cloud family that includes public clouds independently operated by Huawei and public clouds developed with telcos, where we combine telco strengths with our own to tap into the public cloud market. Examples of this approach include the Open Telekom Cloud with DT and eCloud with China Telecom.

We'll also work with telcos to serve key industries and collaborate with our partners to build an entire public cloud ecosystem. We want to help customers in different verticals migrate their applications to the cloud and develop cloud-native applications on our public cloud. Our greatest advantages include our global service presence, global partner network, and strong customer base in the enterprise market. By bringing together our online and offline capabilities and building on years of telco partnerships, we hope to explore a different way of approaching public cloud.

## AI, IoT chipsets, LiteOS

Huawei doesn't position artificial intelligence as a new business in itself, or a new industry we're about to create. We view it as an enabling technology for improving our existing products, solutions, and services to create better value for customers. We're also using AI to increase efficiency and to make our phones intelligent.

We've had a pretty clear IoT strategy for years – we position ourselves as a provider of products and

components. Traditional networking is naturally part of our business. That, combined with enterprise IoT gateways and home IoT routers, will ensure that all things get connected.

Based on years of experience, we've developed a cloud-based IoT connection management platform that helps telcos and our partners realize secure, reliable, and efficient IoT connections. It also provides scenario-specific APIs for our partners to develop industry-specific applications.

IoT chipsets running LiteOS are also something we're active in, with the aim of making communication and connections in the IoT environment much easier. To create value from IoT, we'll develop a cohesive IoT ecosystem that all partners and telcos can use to meet different verticals' IoT requirements.

This is what Huawei does. But, we're also clear on what we don't do. We don't do industry-specific IoT applications; we don't develop or resell IoT devices; and we don't do end-to-end integration for different industries or enterprises.

This whole issue around strategic positioning is something we've been thinking about for years. Now it's clear: We focus on ICT infrastructure and smart devices, and we're striving to become an enabler and driver of the intelligent world. [www.huawei.com](#)