NETWORKED SOCIETY ESSENTIALS

ERICSSON

A CONNECTED WORLD IS JUST THE BEGINNING

We are on the brink of an extraordinary revolution that will change our world forever. In this new world, everyone, everything and everywhere will be connected in real time. We call this the Networked Society and it will fundamentally change the way we innovate, collaborate, produce, govern and achieve sustainability.

Imagine, in a few short years, more than half the world's population will benefit from LTE coverage. It is the fastest developing system in the history of mobile communications. We forecast that by 2020 there will be 26 billion connected devices – well on the way to our vision of 50 billion – transforming lives, businesses and society. Today, 91 percent of the world's population has access to mobile communications; data traffic doubled between 2011 and 2012 and is expected to grow about 50 percent each year until 2018. While the pace of change may seem fast, in reality it will never be this slow again.

NETWORKED SOCIETY

This is our vision of the future. It goes beyond the quantity of connected devices, and is the result of people starting to use those connections to make their lives and businesses better and more efficient. We facilitate this development through our ideas and solutions, our products and services, and our partnerships.

The Networked Society is not really about the connections however, but rather about the impact these are having on our world. It's about new ways for us to collaborate, share and get informed. It's about innovative ways of doing business that are creating efficiencies in the public and private sectors. And it's about how we can shape the future together and find solutions to some of the greatest challenges facing our planet.

When one person connects, their world changes. With everything connected, our world changes.

Most industries, including our own, are set for major changes in terms of how they do business and how they serve their customers. In our sector smart concepts are already being introduced, such as flexible charging for electric cars and connected shipping vessels. Other industries, such as music and entertainment, are also embracing innovative new delivery models. Using widespread broadband connectivity, companies such as Skype and Spotify are helping consumers move beyond physical media into a social, collaborative and always-available networked experience.

Looking ahead, connectivity will drive fundamental change for us as individuals as well as the communities we live in. Empowered students and teachers are already turning established models of education upside down; entrepreneurs are opening up businesses online in less than 20 minutes and the 2.5 billion "unbanked" people around the world are increasingly getting access to mainstream financial services.

Technology revolution

With the Networked Society we are talking about a fundamental shift in technology that is on par with the industrial revolution and major innovations such as the steam engine, electricity and steel manufacturing. The difference now is that the pace of change we are witnessing makes these shifts look slow in comparison. Less than 30 years ago, in the early days of the internet,

Those who have the ability to rethink, reinvent and innovate will be winners in the new ecosystem.

digital products for entertainment and communications started to have an impact on our economy. Soon after, tools for digital distribution, such as forums, blogs and communities, as well as e-commerce, began to play a more significant role. Today, digitization is creating a second economy that is vast, automatic and invisible – bringing with it the biggest change since the industrial revolution. Hyper-digitization, mobility and the internet of things are having a transformative impact on business models across industries and on society as a whole.

The data explosion
People at work, kids at home and students in the classroom are all creating data. Devices and sensors attached to millions of things are taking measurements and providing up-to-date readings over the entire globe. These will be stored and used later by countless different applications. Connected individuals and the internet of things will continue to generate massive amounts of data.

This places tremendous pressure on the network which needs to be capable of delivering relevant, personalized, end-to-end services and applications, and of meeting some pretty high expectations. And it all needs to be handled smoothly regardless of the number of subscribers or the amount of bandwidth being demanded. We believe that 4th-generation IP-networking, service provider software-defined networking (SDN), OSS/BSS, real-time analytics and heterogeneous networks are some of the key technologies that will ensure the integrity of the future network.

New mindset
Today, empowered individuals and communities are the drivers of fundamental change. This is leading to business opportunities and solutions that are addressing global challenges such as urbanization, poverty, access to education and health care, climate change and our use of natural resources. We believe ICT is the fundamental enabler of this transformation and progress.

A world that is connected in real time will place many new requirements on us while opening up opportunities beyond our imagination. The key players in the Networked Society are those who understand its requirements and have the ability to rethink, reinvent and innovate in order to seize the opportunity of this value-creating ecosystem.
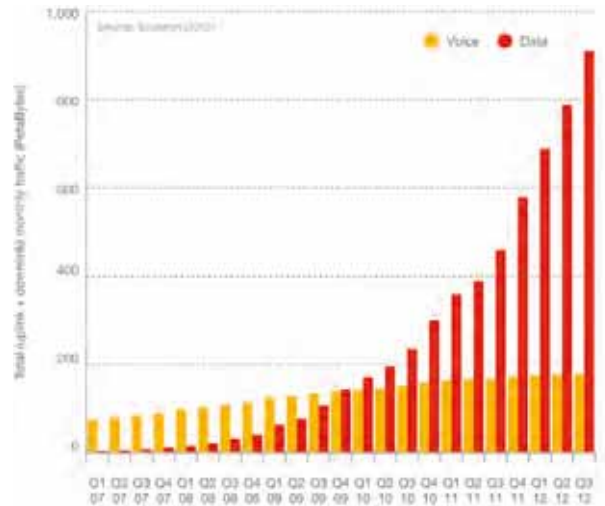
Traffic in mobile networks continues to grow at an impressive rate, driven by the uptake of smart devices and apps. This rapid growth is having a significant impact on networks globally.

EMPOWERING PEOPLE
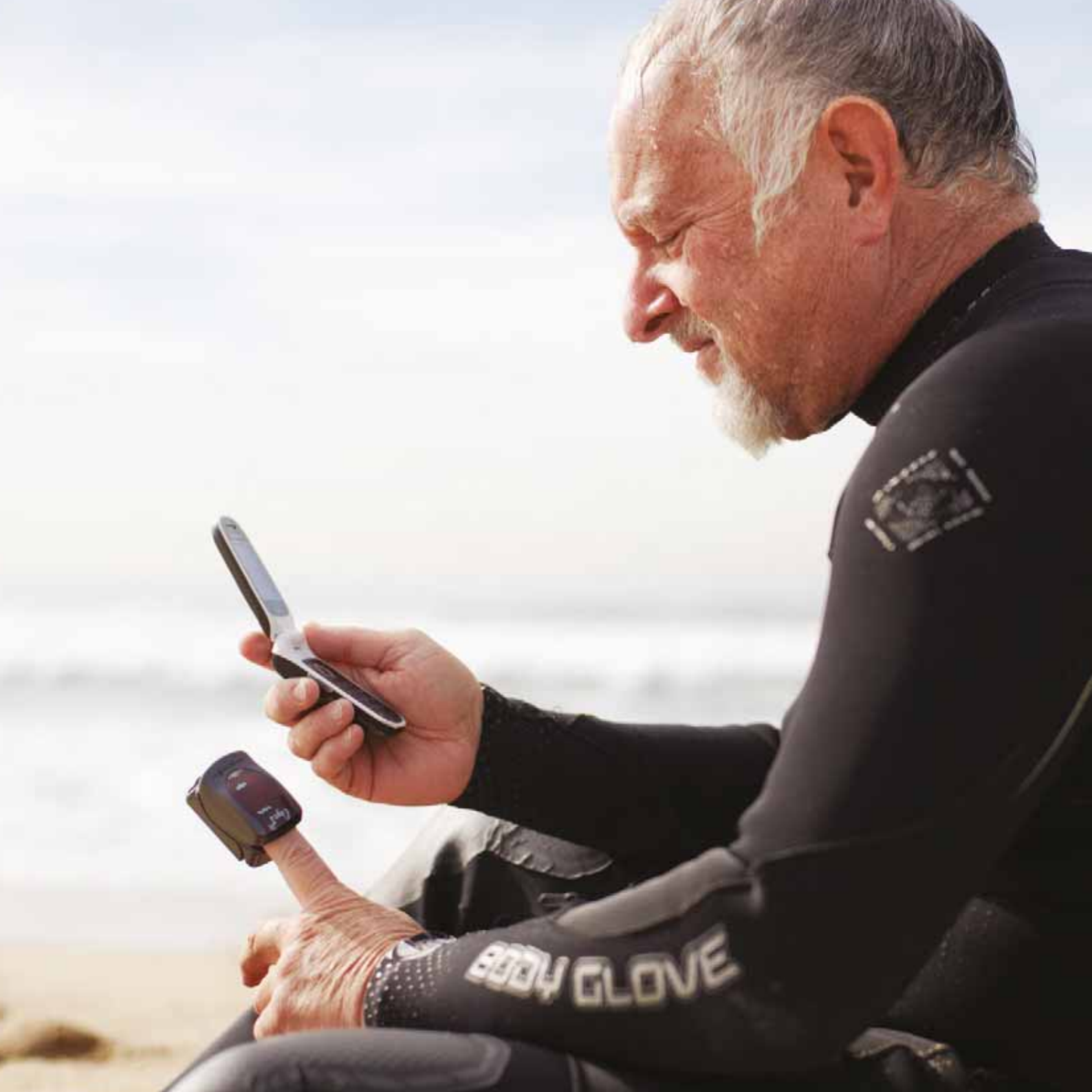
EMPOWERING PEOPLE

The Networked Society will impact our lives in profound ways. It's about freedom and empowerment and opportunities to realize our full potential. As we collaborate more on problem solving, we will open up new doors to learning and education, economic prosperity and an improved quality of life.

Technology is giving us the freedom to challenge established models and to find solutions to the problems our society faces. It has proven to be a basic enabler of economic growth and an improved quality of life. Numerous academic reports highlight the connection between ICT and economic development. And for individuals in developing countries, ICT is facilitating

some of the most fundamental human needs, such as education, health, safety and security.

ICT is also empowering us as consumers. Technologies such as broadband and mobility help us to save time and money, encourage entrepreneurship and new job creation, allow for increased earnings and provide opportunities for advanced e-learning initiatives.

The freedom of choice

Mobile connectivity is empowering us as individuals. It is giving us the freedom to choose how we create, collaborate, communicate and share, and opening up opportunities for us to develop and prosper. This is especially true in the areas of learning and education. Up until now schools have been based on a factory model with roots

CONNECT TO LEARN

Education is essential to ending poverty and to ensuring a productive life for people all over the world. Mobile broadband is helping society to make great strides in this area, connecting classrooms in even the most remote villages so that students can benefit from a 21st-century education. Connect To Learn is a collaborative effort between Ericsson, the Earth Institute at Columbia University and Millennium Promise, and it uses the power of ICT to bring a high-quality education to students everywhere.

BANKING THE UNBANKED

With its huge reach, mobility has the power to change the lives of millions by bringing financial services to unbanked or under-banked communities through technologies such as the mobile wallet. In countries such as Kenya (M-PESA) and the Philippines (GCASH) mobile banking services are well established. In Kenya, for example, M-PESA serves about 15 million users and it is estimated that up to a third of Kenya's GDP passes through the mobile-banking system (Safaricom, 2012).

in the industrial revolution, but today fresh skills and a passion for constant learning are changing all of that. Initiatives such as the Khan Academy, where students attend classes from home and do homework in the classroom, are greatly impacting – and in some cases redefining – established educational models.

Within the field of entertainment, market-makers are taking advantage of the sharp uptake of mobile-broadband services and pioneering new models for online business. Disruptive companies such as Netflix and Spotify have taken their respective industries by storm. Today, Spotify has more than 15 million active users worldwide while Netflix has more than 30 million streaming members across several continents.

And while about 2.5 billion people lack a bank account or are otherwise outside the realm of mainstream banking services, the fact that there are now 4 billion mobile-phone users on the planet means that many can be offered basic financial services for the first time.

"Yesterday you graduated and you were set for life, only needing to 'keep up' a bit with ongoing developments. Today when you graduate you're set for, say, 15 minutes."

Don Tapscott, author, speaker and adviser on media, technology and innovation

CLASSROOM DISRUPTION

ICT is literally breaking down the walls of the classroom and we are starting to look upon learning as something that takes place everywhere, all the time. School systems filled with digital natives using broadband-enabled mobiles devices are fundamentally changing the classroom. For example, Coventry University in the UK has partnered with us to provide live lectures to up to half a million students online. Using our cloud-based solution, students can listen to and interact with lecturers and tutors via their smartphone or tablet. Other top universities, including Harvard, Princeton, Stanford and MIT, are teaming up to build common educational ecosystems, offering free online courses that are open to anyone.

MOBILE FINANCIAL SERVICES GO ON THE FAST TRACK

Operators and financial institutions now have a chance to evolve their businesses and meet consumer needs and expectations in new ways. Our ambition is to accelerate access and interconnectivity between the m-commerce ecosystem and the existing financial world. In early 2012 we signed a strategic agreement with Western Union that will enable our customers to easily include Western Union Mobile Money Transfers in the service suite of their mobile financial service offerings.

DRIVING BUSINESS AND ENTREPRENEURSHIP

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What does the Networked Society mean for business? From consumer behavior to new business models and processes, technologies such as broadband, mobility and the cloud are transforming many aspects of the global marketplace – in both developed and emerging economies.

Our research shows there is a strong correlation between ICT and economic development. For example, in a study of 33 OECD countries, we found that for every 1,000 new connections, 80 new jobs were created (Ericsson and Arthur D Little, 2010-2011). In a similar study of 23 OECD countries, we found that a 1 percentage point increase in broadband penetration increased new business registration by 3.8 percent (Ericsson and Stockholm School of Economics, 2012).

MOBILE CONNECTIVITY ON THE HIGH SEAS

Connectivity is just the starting point for new ways of innovating, collaborating and doing business. Our cooperation with Maersk Line is an example of how the shipping industry is using mobile communications to employ new and efficient ways of addressing fleet management. By providing connectivity to Maersk's fleet of shipping vessels, we are helping them to manage delivery times, improve interaction with their ships, enable proactive issue resolution and prompt information sharing with customers, and improve energy efficiency.

"Connectivity in the future will change behaviors of people, society and business."

Hans Vestberg, Ericsson President and CEO, from the company's 2011 Annual Report

ICT has become an integral part of our working and living environment, and will continue to be an important resource for business, government and society at large. By combining information, knowledge, processes and technology, ICT is driving efficiencies and fueling innovation – and it will play a crucial role in helping organizations of all sizes to connect, collaborate and compete more effectively. The initial benefits of ICT are improved development and production efficiencies. However, as we move forward, these technologies will transform whole industries. Just think what e-commerce has meant to retail and then imagine the implications ICT might have on other industries, such as health care, entertainment, transportation and energy.

The future of business

The landscape that our customers operate in is changing dramatically. In addition to managing and expanding their existing business, many organizations will increasingly need to engage in new business areas, such as cloud services and service ecosystems, as well as evolving toward serving enterprises in new markets. Over the next five years, many sectors – including technology,

telecommunications, entertainment, media, banking, retail and health care – will continue to be reshaped by the application of ICT to their business. Fuelled by high-growth economies and new technology, the speed of business activity from product development to customer response has accelerated in the constantly-changing global marketplace. Real-time business intelligence and predictive analysis is required, not only for faster decision-making but to cope with unexpected market risks and opportunities.

M2M CONNECTIVITY BOOSTS BUSINESS

Mobile broadband and machine-to-machine (M2M) connectivity are helping SCA – Europe's largest private forest owner and biggest hygiene and paper company – transform its business. With M2M connectivity, SCA is optimizing efficiency across its wide-ranging, forest-based operations with direct business benefits such as lower costs, higher productivity and better working conditions for its employees. SCA has also realized significant environmental benefits, including improved fuel efficiency, reduced waste and minimized use of chemicals.

FLEXIBLE CHARGING PUTS ELECTRIC CARS IN THE FAST LANE

Rapid digitization has implications that go beyond the borders of traditional industries. Digitization of charging infrastructure, for example, is making it easier to deploy electric cars around the world, while at the same time optimizing the use of the power grid. Together with Volvo Car Corporation, Göteborg Energi and Viktoria Institute, we are building an ecosystem that allows drivers to control charging while their cars are plugged into any ordinary power outlet. Additionally, this system directs energy costs to the car owner's bill and allows a driver to set the time and amount to charge either on a console in the car or remotely via a smartphone or tablet.

THE DIGITAL MUSIC REVOLUTION

We are beginning to see evidence of ICT transforming whole industries. Digitization changed the music business by creating substantially cheaper delivery models. Now mobility, broadband and the cloud are completely reshaping the entire industry by enabling services such as Spotify that can deliver the entire world's music library – whenever and wherever we want it. Today, responsive services not only know what we are listening to, but also what our preferences are, and are able to automatically tell our friends all about it. Compare that to buying a CD in a dusty old music store.

TRANSFORMING OUR SOCIETY

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Over the next 10 years, our society will see more change than in the previous 100. By 2020, there will be 26 billion connected devices – greatly outnumbering connected people – and the contributions of ICT will have brought about significant economic, social and environmental progress for hundreds of millions of people around the world. And this is only just the beginning.

The past 25 years have brought a digital age, massive computing power, high-speed data access and mobile communication. More recently, we have seen the emergence of the cloud, bringing communication and information technologies together to form a new, emerging ICT industry. Over the next 25 years, advances in technology and infrastructure performance will continue to change our society, helping us to address poverty, human rights, climate change and other challenges.

There is strong evidence that supports the positive correlation between ICT and social, economic and environmental development. Our research, for example, shows that for every 10 percent increase in mobile and broadband penetration, GDP increases by 1 percentage point. We can also see that doubling connection speeds yields a 0.3 percentage-point increase in GDP (Ericsson and Arthur D Little, 2010-2011).

It took 100 years to connect 1 billion places, and 25 years to connect 5 billion people.

REDEFINING CITY LIFE

The combined forces of mobility, broadband and the cloud will transform all parts of our world – but the first place where we will see great change is in cities. Cities are incredibly diverse environments and their residents are often more likely to embrace change and innovation than to avoid it. The Skolkovo Innovation Centre, for example, on the outskirts of Moscow, is an ambitious urban initiative aimed at modernizing Russia's industries, and is part of the country's vision to become a world leader in scientific research and development. At Skolkovo, Ericsson is opening an R&D site which will focus on broadband communication; intelligent transport systems (ITS); cloud applications; smart grid technologies for the utility sector; and machine-to-machine (M2M) technologies.

Broadband-enabled technologies have the potential to seriously address the challenges of climate change. More intelligent electricity grids and connected transportation systems will significantly reduce greenhouse gas emissions (GHG), redefine urban landscapes and pave the way for a low-carbon economy. The Climate Group's SMARTer2020 report estimates that ICT-enabled solutions can deliver a potential reduction of 9.1 $GtCO_2e$ (gigatonnes of carbon equivalent) by 2020. This represents 16.5 percent of the projected total in that year, which is a 16 percent greater reduction than estimated in 2008.

By optimizing services and activities for greater energy efficiency, we can create opportunities for transformative solutions that fundamentally change the way we live and work.

TRANSFORMING PUBLIC SAFETY

High-speed mobile broadband and LTE-based technology are providing new opportunities for the public safety sector. For example, mobile broadband enables applications such as direct video communication from the site of an accident to the communication center. Improved situation-awareness empowers efficient decisions, secures assets and may, in the end, save lives. Ericsson is partnering with Motorola in the US to deliver LTE solutions that provide the most advanced mobile-broadband technologies available to public safety. These deliver unprecedented access to real-time, multimedia information – anywhere, anytime.

STOCKHOLM ROYAL SEAPORT

The sharp uptake of mobile broadband and new digital services is fundamentally changing the way cities operate, evolve, and how they will eventually transform. In Sweden, Ericsson and the City of Stockholm are developing ICT solutions, such as smart grids, intelligent street lighting and more efficient public transport, for a new city district in the capital city. The Stockholm Royal Seaport project involves the development of a former industrial and port area into an attractive and sustainable living and working environment. The aim is to build a climate-positive city district by 2030, utilizing a climate-smart and efficient infrastructure connecting 10,000 homes and 30,000 workspaces.

A POWERFUL PLATFORM

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ICT services have profoundly changed the lives of billions of people. In the Networked Society, instantaneous information, interaction and collaboration will continue to create innovative ways to meet the needs of people, business and society. Our role is to capture these opportunities and to work together with customers, partners and consumers to make these possibilities a reality.

Our platforms are driving innovation and sparking new consumer and producer behaviors, functionalities and even new business models. We are leading the market in mobile broadband, managed services and OSS/BSS, and this gives us an unrivalled ability to support our customers while positioning us to partner with a broad range of stakeholders and influencers who will also create value in a universally connected world.

A Networked Society is when people, businesses and society use connectivity to their benefit and we are helping to realize this together with customers, suppliers and consumers globally. What follows here are some examples of how our technology and expertise are contributing to shape the future of the Networked Society:

Mobile broadband
Without ubiquitous mobile broadband there can be no Networked Society. We are an integral part of making this a reality. In its first year, LTE usage soared from zero to 150 million people, and today about 455 million people benefit from this technology. Of these, about 300 million are served by Ericsson networks. We understand that smart networks that are scalable and offer superior

Commercial LTE networks serve around 455 million people worldwide. About 300 million of them are covered by Ericsson networks.

performance are of the utmost importance and we are leading in the development of heterogeneous networks – high-density infrastructure that will meet future capacity needs effectively, especially in urban areas.

BROADCASTERS ADAPT TO FUNDAMENTAL CHANGE

Broadcasters are facing complex challenges and fierce competition in a rapidly changing TV market. The launch of new on-demand and multi-platform television services is requiring them to adapt to fundamental change in their business models. Several major broadcasters, including C More Entertainment, TV4 Group Sweden and Canal+, have turned to Ericsson to help launch new, innovative playout services to the Nordic countries. Ericsson is also managing playout operations serving several leading broadcasters in France, the UK and the Netherlands.

2 billion users are already served by Ericsson's Charging and Billing solutions

Operations and business support systems (OSS/BSS)

Our customers need to manage an increasingly complex reality. The networks they built for voice are now carrying more and more data, and new consumer demand requires them to launch services in minutes rather than days. To stay ahead, they will need to consolidate their systems while retaining efficiency and simplicity in their operational processes.

This transformation will be characterized by large, complex projects involving advanced software solutions alongside consulting and systems integration. With our support systems and business processes, we don't just help our customers operate their businesses, we help them develop, scale, optimize and transform them in a cost-effective way.

Managed services

We are in a period of incredible change; networks are becoming more complex, while our expectations are that the services running on these networks should work well, be affordable and easy to use. The managed-services model can play a vital part in the Networked Society, as it frees up resources for our customers, enables more specialization, a greater focus on user experience and customer relationships, and improves innovation power, agility and speed. All of these factors are key for sustainable business differentiation and for success in the future.

Professional services

We have developed a unique service-delivery framework based on a combination of global scale and skill. We have invested more than USD 1 billion in common global processes, methods and tools to enable synergies, efficiency gains and knowledge sharing. Additionally, we have more than 12,000 consulting and systems-integration professionals who work on 1,300 highly complex integration projects each year. This is not easily accomplished by anyone else in the market.

SMART METERING IN ESTONIA

Mobile connectivity is making it possible for power companies to introduce new tariff models and more accurate and timely billing, while helping consumers reduce costs by giving them more control over their energy consumption. Estonia is one of many countries that are installing smart meters to contribute to the EU target of improving energy efficiency by 20 percent by 2020. Ericsson is supporting the largest utility in Estonia, Elektrilevi, with the deployment of 630,000 smart meters as well as Operation Support Systems to manage the meters and the data collected.

Cloud

Consumers, enterprises and society in general are increasingly becoming networked, driven by smart connected devices, broadband networks and cloud-based services. The cloud, in particular, is set to redefine many aspects of the ICT landscape, from enterprise IT usage to tailored services for government and utilities, and for industries such as media and automotive. The advantages of a cloud-based network infrastructure are numerous from a functionality, cost and business-model perspective.

Ericsson's concept of a network-enabled cloud is a comprehensive plan to simultaneously evolve cloud computing and telecom-network technologies. The network-enabled cloud builds on and combines today's telecom assets and delivers dramatically improved QoE, new business opportunities, faster time-to-market and reduced cost for operators. In this way, it is creating a platform for innovation that will help realize the Networked Society.

NEW POSSIBILITIES OF THE CLOUD

Operators are ideally positioned to offer high-quality, high-security and high-availability cloud services to enterprises. And, as enterprises become increasingly mobile, the demand for cloud-based services will only increase along with the possibility to lower their IT operating expenditure. As part of our network-enabled cloud concept, we have introduced a new offering for building and optimizing data centers that includes planning, designing and implementation, and as well as a complete cloud computing platform, including management and security.

At the end of 2010, Ericsson signed a seven-year Managed Services contract with 3 Italy to consolidate its data center and modernize its IT infrastructure.

OUR INSIGHTS

We are just beginning to explore the possibilities of the Networked Society. By engaging in conversations with a broad range of stakeholders and by researching the value of mobility and connectivity, we will continue to uncover and share insights about our future connected world.

To truly understand where we are headed, we gather insights and share information together with people and organizations from around the globe. Our Networked Society Lab, for example, researches ICT-driven transformation in society, industry and service provider business while each year Ericsson ConsumerLab interviews more than 100,000 empowered individuals in more than 40 countries to understand how their behaviors are changing. Our research results in reports such as the Networked Society City Index which provides information and ICT benchmark material to city mayors,

"We believe in a Networked Society, where connectivity will only be the starting point for new ways of innovating, collaborating and socializing."

Hans Vestberg, Ericsson President and CEO, from the company's 2011 Annual Report

local authorities and other decision makers. By exploring the Networked Society, together we can build the future we envision.

Below are a few more opportunities where you too can be a part of the discussion.

JOIN THE CONVERSATION:

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consumerlab

Ericsson is shaping the future of mobile and broadband internet communications through its continuous technology leadership.

Providing innovative solutions in more than 180 countries, Ericsson is helping to create the most powerful communication companies in the world.