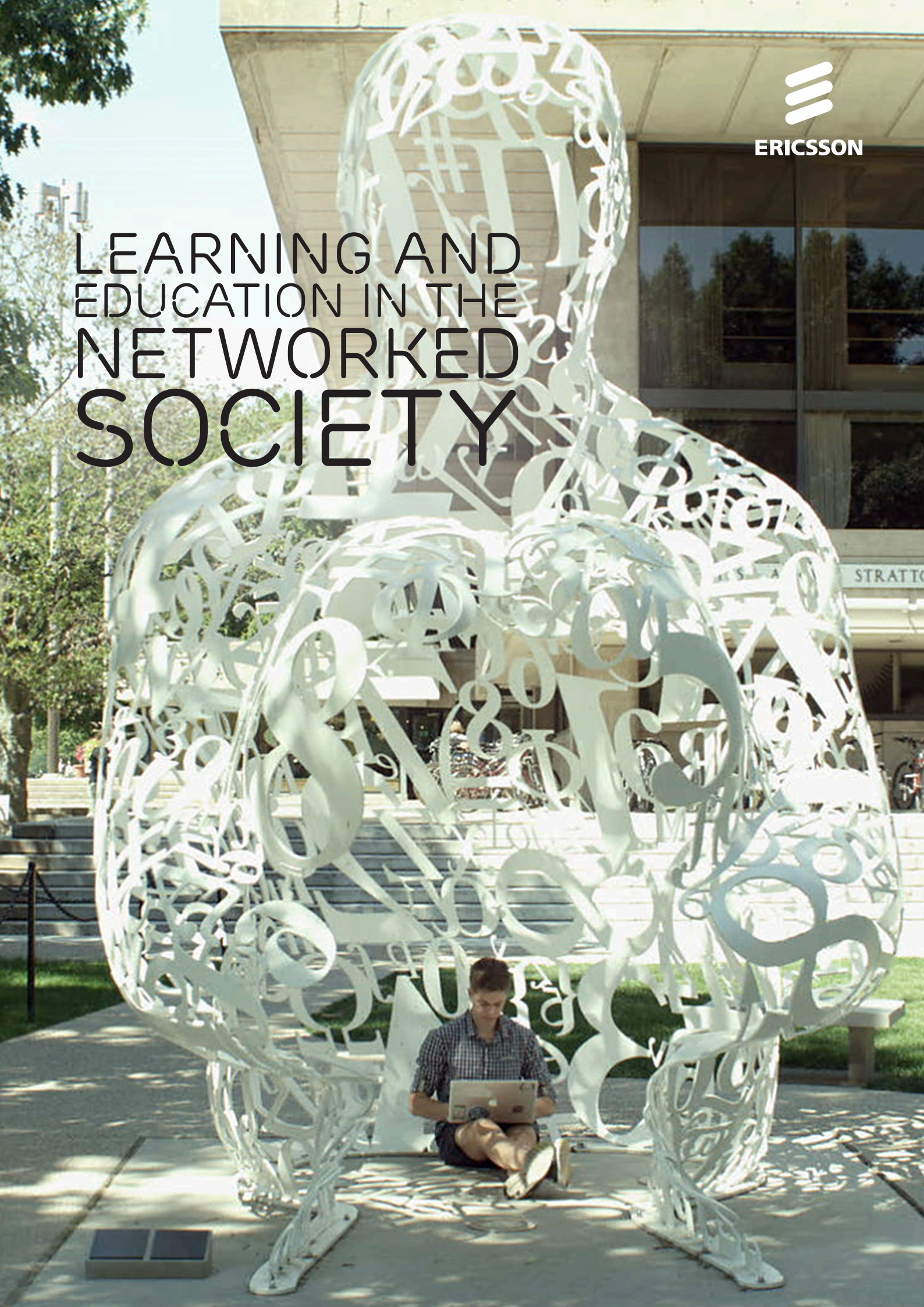# LEARNING AND EDUCATION IN THE NETWORKED SOCIETY

ERICSSON

CONTENTS

We are on the brink of a fundamental shift in society. As we journey towards the Networked Society we are unlocking the full potential of learning and education. Students and progressive teachers, empowered by technology, are turning established models on their heads while new skills and educational platforms are redefining our systems and institutions.

A CONNECTED WORLD

As we approach the Networked Society, empowered individuals and communities will drive change towards completely new ways of governing, doing business, innovating, learning and educating. It is change that is on the same magnitude as the Industrial Revolution – but this time the shift revolves around the role of ICT and how it is transforming our society.

It took 100 years to connect 1 billion places and 25 years to connect 5 billion people. Today 85 percent of the world's population has access to mobile communications, and by 2020 we expect there to be 50 billion connected devices. This is what we mean when we talk about the Networked Society – a world where everything that can benefit from a connection will have one.

This journey is unlocking the full potential of learning and education by turning established models on their heads. Students and progressive teachers, empowered by technology, are the catalysts for fundamental change. New skills and the passion for constant learning are becoming increasingly important and a new ecosystem is emerging that is greatly impacting, and in some cases redefining, established systems and institutions.

By 2017 mobile data traffic is expected to grow

15 times

Source: Ericsson Traffic and Market Report, 2012.

THE NETWORKED SOCIETY IS WHEN PEOPLE, BUSINESS AND SOCIETY ARE USING CONNECTED DEVICES FOR THEIR BENEFIT

FROM EVOLUTION TO REVOLUTION

As humans, we define ourselves by our ability to learn and to seek knowledge. It is a central part of our being and one of the most important aspects in the evolution of our culture. Today, learning is more than just a physical or mental activity. As we journey towards the Networked Society, learning has been transformed into an industry.

In its report, Understanding Knowledge Societies, the United Nations describes "knowledge economies" as those societies in which information and the creation of knowledge have replaced industrial production as the main contributor to GDP[1]. As part of this development, businesses and governments are integrating ICT into their core processes to increase efficiency, expand the scope and reach of their services and improve productivity.

One result of this development has been the rapid digitization of information and knowledge. Wikipedia, for example, was created in 2001 and is now one of the most popular sites on the internet with 22 million articles in 285 languages[2].

The number of networked devices overtook the total global population in 2011[3]

However, it is not just the scope of Wikipedia that sets it apart from traditional media but rather the collaborative approach it uses to changing, removing and modifying content on its pages. This has forced some commercial encyclopedia companies to shift focus. In 2012, Encyclopedia Britannica announced that after 244 years it would stop publishing the printed version of its encyclopedia.

"Fifty years ago we were a very poor country. Today we are the 14th largest economy in the world. With no natural resources, education is what has transformed our country."

Ambassador Young-shim Dho, UNWTO, South Korea[4].

1. UN Understanding Knowledge Societies, 2005
2. Alexa 2012
3. Broadband Commission, State of Broadband Report, 2012
4. Networked Society Forum (NEST) summary paper

CLASSROOM DISRUPTION

All around the world, a lively debate is taking place in the areas of learning and education. Is the status quo working or is it imperative that our school systems change? If so, how should they change and what is their role in the future? What about informal learning and how do we make education more accessible?

How will individuals and institutions within learning and education be impacted as we approach a Networked Society? In most parts of the world the school system was developed during the industrial age with factories as the model. How we define knowledge and education is still very much based on those historical origins. Schools in the industrial society reflected how people were working and organized at that time. But this is changing rapidly.

Breaking down the walls

Digital natives, who have grown up experiencing constant connectivity, have radically different notions of what it means to create, collaborate, communicate and share. This behavior is fundamentally changing our society and in particular the institutions of learning and education.

Today's young people live in an interactive culture characterized by unlimited access to information and content, anytime, anywhere. It is a culture that relies on peer-to-peer interaction for information to legitimize opinions, actions and behavior.

It is also a culture that is fiercely entrepreneurial. The internet is their experimental workshop where user-driven trial and error teaches entrepreneurial skills and helps the best ideas to quickly rise to the top. It is a collaborative style of learning that is defined by openness and sharing.

> "Schools were built with the factory as the model – the clock, the lessons. They are mirrors of the factory. However, nine out of 10 workplaces do not look like that anymore."

Patrik Hernwall, Associate Professor, Södertörn University, Sweden[6]

Knowledge everywhere

Today a person with a smartphone has instantaneous access to millions of articles, books, essays, academic research, instructions and lectures on every imaginable subject. This development has broken down the barriers that used to exist between knowledge and the schools and libraries that were the gatekeepers of this knowledge.

BORN DIGITAL
Digital natives were born in or after 1985 and have grown up in a world of computers, mobile phones and the internet – experiences that have and continue to shape their behavior. By 2020 they will total about 3.5 billion and comprise about 50 percent of the global population[5].

Lifelong learning

While informal learning has always been important, it has not always received the same attention as formalized learning. The fact is, most of our learning, however, is informal and done on a daily basis. Between the time we are born and up to the age when we start school – we learn to crawl, walk, run, speak and draw without any formal education.

Lifelong learning and information education will play an increasingly important role as people strive to develop their knowledge, skills and competence throughout their lives in an effort to improve income and grow as human beings.

"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[7].

The empowered classroom

Historically, the field of learning has had a top-down approach – but that is being turned on its head. Students and progressive teachers, empowered by technology, are now the catalysts for fundamental change. Young people, and their interactive and collaborative culture, are in stark contrast to how schools and the majority of school systems are organized today. David Buckingham, a professor at the University of London, says that while schools have remained relatively unaffected by the advent

Wikipedia has
22 million
articles in
285 languages

of technology, children's lives outside of school have been radically changed.

5. Ericsson
6. Glimpses of future school – Living and learning in a new media ecology, 2011
7. Don Tapscott, Macrowikinomics

THE SCIENCE OF CHANGE

ICT is significantly impacting how schools are organized and run. This change can be grouped into six specific areas that concern both processes and physical space.

Work tools
The tools of the trade for learning and education are changing as students bring their own devices with them, whether a smartphone, tablet or laptop. Progressive schools are working with 1:1 programs, where every student and teacher gets a laptop or tablet. Interactive whiteboards are also common tools for individual and collaborative work.

Technical solutions
Network connectivity and solutions for content management, communication and interactivity have become critical infrastructure for schools.

SOUTH KOREAN STUDENTS GET SMART
T-Smart is South Korean operator SK Telecom's tablet-based education platform for interactive learning. An online support community enables students to share study tips via a knowledge-sharing system.

Work space
Mobile phones, tablets and laptops are making the school desk as we know it obsolete. Today's progressive schools are rebuilding their classrooms to make them into multifunctional spaces with new ways of learning.

Through connectivity and mobility any space can be a potential place for school work and learning. The virtual classroom can complement the physical classroom and encourage collaboration, especially in areas where distance and travel are factors.

"In a school in west London, the children there redesigned a classroom with mood lightning, diverse furniture and the ability to accommodate any technology. It was so good they didn't want to go home."

Stephen Heppell, Professor, Bournemouth University, UK.

Ways of working
The idea that students should do one specific thing at one particular time is based on the needs of an industrial society. Project-based learning is more aligned with the reality of today's information society. In projects, students learn how to divide and take responsibility for different parts of their project, getting the opportunity to work both individually and in groups.

New tools are also opening up opportunities for individualized learning. Learning platforms, such as Knewton, are helping students see their progress and get feedback on everything from what time of day they learn best, to the areas where they need more demanding tasks.

Work relations
Teachers are, and will be, a vital part of education – but their role is changing. New ways of working mean the teacher's role is going from being a "sage on the stage" to a "guide by the side." Connected devices and new technical platforms are giving parents better insight into their students' performance, as well as more direct contact with teachers and school administrators.

NEW ECOSYSTEMS

edX is a not-for-profit enterprise founded by Harvard University and Massachusetts Institute of Technology that features interactive study specifically designed for the web.

Coursera is a partnership of more than 30 top universities from around the world, including Princeton and Stanford, that offers free online courses open to anyone.

NEW CLASSROOM MODELS

The **Khan Academy** is turning the classroom model on its head by having students follow lectures at home and do homework in the classroom.

The **Hole-in-the-Wall** project in India teaches students there how to learn with minimal intervention from teachers through exploration, discovery and peer coaching.

Skills and knowledge

Basic skills such as reading, writing and calculating will always be important – but in our rapidly changing world new skills and the passion for constant learning are becoming increasingly important.

Students need to know how to deal with the unlimited amount of information that is available on the internet. They must learn how to sift through it, find relevant, trustworthy information, and analyze and understand it in different contexts. Critical and analytical thinking will be especially important for students in the Networked Society. It is also essential that we know how to read, produce and understand new multimedia formats such as video.

MAKING THE GRADE

A new ecosystem is emerging within learning and education and the traditional participants of these areas will all be affected.

Governments

Governments are responsible for both the quality and level of education in their countries. The challenge will be to maintain a high level of quality even when faced with global competition. Governments therefore need bold visions and plans for investing in their countries' education systems while also supporting a culture of learning.

Schools and universities

The landscape that schools and universities operate in will transform and become far more competitive than it is today. As new players emerge, schools and universities will need to put more energy into fostering motivation and creativity while focusing on learning-to-learn in both a physical and virtual environment.

Competition means that schools will face increasing quality and cost pressure. New working tools such as laptops, tablets and smartphones need to find their way into the learning process as well as new support systems, individualized learning material, new methods for teaching and new measurements to gauge quality.

Research programs will also be impacted. Attracting research funding and talented people will become more difficult. Universities will try to reduce costs through alternative models such as online universities and distance courses as well as more collaborative and transparent forms of research.

Students

In the Networked Society, students are no longer constrained by the four walls of their physical classroom. A flexible curriculum, individualized learning and a global course offering means education can be adapted to the individual needs of a student. This puts additional demands on students to take personal responsibility to make the right choices.

Teachers

The theories and practices of teaching will need to adapt to both the physical and virtual classroom. The teacher's role will remain important although it will shift from being a gatekeeper of knowledge to a coach and guide.

Parents

A connected world means that the majority of parents will be able to transparently follow, and be more involved in, the learning process of their children.

NETWORKED SOCIETY

Google has scanned
and digitized more than

130 million
printed books

Source: PC World, 2010.

"The focus on learning-to-learn is
the most important thing we can do."

Stephen Heppell, Professor, Bournemouth University, UK.

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.

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