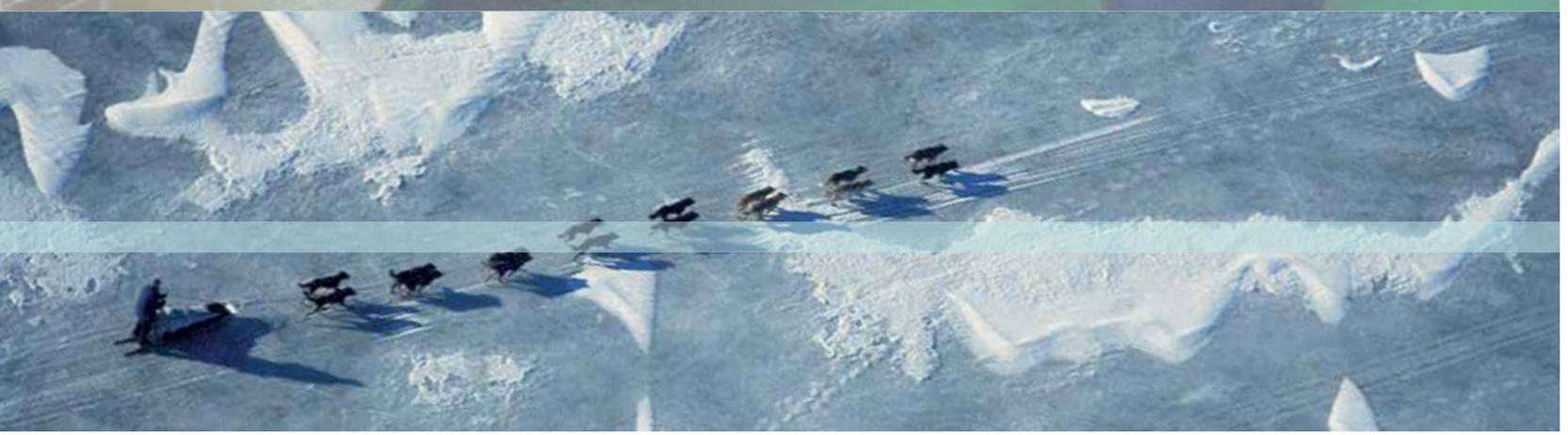
NEXST #1-12

Google fibre
Bringing a 1 Gb/s symmetrical network to Kansas

‘Connect Europe’
Commissioner Kroes on a €50-billion funding plan

Fast track to the last frontier
Alaska’s demand for high-speed access



Fibre to the people

As the volume of research data increases, the benefits of next-generation networks are becoming clearer. More and more people are now aware that FTTx networks are vital when it comes to creating new jobs, improving standards of education, reducing CO_2 output, providing economic impulses for rural areas and enhancing leisure time.

Governments, businesses and communities worldwide are calling for the speedy roll-out of ultra-fast broadband networks. Which challenges are they facing? Which strategies are being adopted to overcome these? In this issue, we'll be taking a closer look at initiatives which aim to get broadband to the end user quickly, effectively and at a reasonable cost.

"High-speed wireless service is the next train station, the next off-ramp. It's how we'll spark new innovation, new investments, and new jobs. When it comes to high-speed internet, the lights are still off in one-third of our households. For millions of Americans, the railway hasn't come yet."

Barack Obama, President, USA

"Broadband has the power to spur economic growth by creating efficiency for society, businesses and consumers. It opens up possibilities for more advanced online services, smarter utility services, telecommuting and telepresence."

Johan Wibergh, Head of Business Unit Networks, Ericsson

"Broadband provides immense opportunities for social and economic growth. We are committed to bringing broadband to everyone in Qatar."

Dr Hessa Al-Jaber, Secretary General, ictQATAR

"We call on world leaders to ensure that at least half the world's population and 40% of households in developing countries are using broadband internet by 2015."

UN Broadband Commission for Digital Development

"In all our committee consultations with governments in Asia on their national broadband plans, the implementation of fibre to cover rural areas is a particularly difficult issue. This is true in both developed and developing economies."

Jay Teborek, Chair, Regulation and Policy Committee, Fibre to the Home Council, APAC

"Our government spent $24 billion building a national high-speed backbone network linking government facilities and public institutions. During construction of the network, about 13.5% of South Korea's gross national product came from businesses selling equipment and services."

Sang-kyoo Choi, South Korean Ministry of Information and Communication (MIC)

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Google Fibre for Kansas City

In March 2010, Google announced plans to deploy an ultra-fast broadband network in Kansas City. The world's top search engine company believes this project will help drive the region's overall economic development

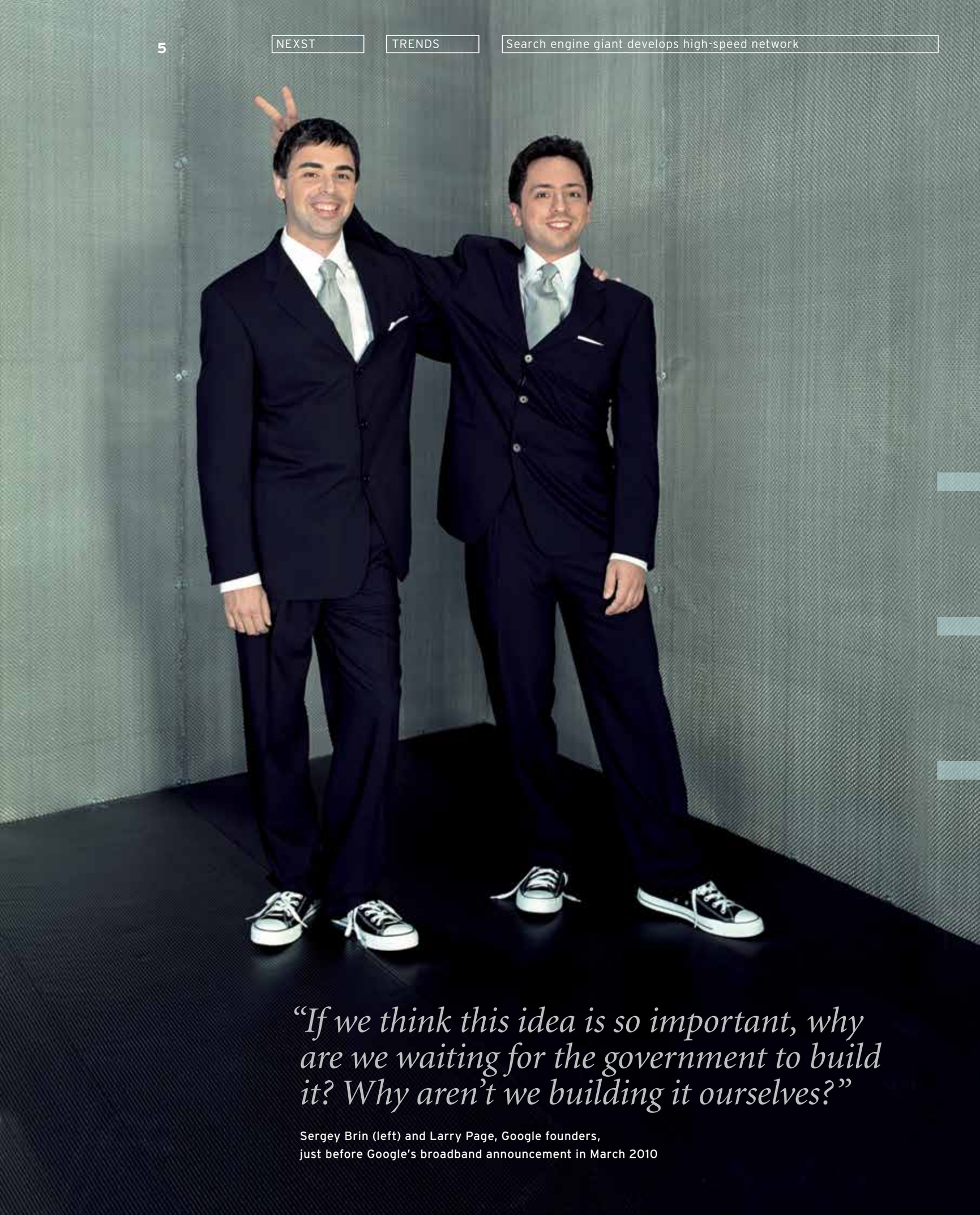
The network aims to provide the city's 150,000 residents with broadband internet speeds of up to 1 Gb/s. That's more than 100 times faster than what most Americans have today and fast enough to download a high-definition, full-length feature film in under five minutes. With its new network, Google aims to stimulate development of next-generation applications that utilise the new high speeds, together with local companies and universities. Google provides its own service at a competitive price, but consumers have the freedom to choose their own provider. In October 2011, Google began offering its 1 Gb/s service to residents at Stanford University. This provides the company an opportunity to develop best practices, which can also be applied to its Kansas City project.

JUST BEGINNING

Nearly 1,100 cities applied when Google announced its plans to build and test-drive a high-speed network in a US community. The company was looking for a city where it could "build efficiently, make an impact on the community and develop relationships with local government and organisations." Of course, many communities were disappointed not to have been chosen. Google's Milo Medin, Vice President Access Services, explains that this was the start, not the end of the project: "In the coming months, we'll be talking to other interested cities about the possibility of us bringing ultra-high-speed broadband to their communities.

"Over the past decade, the jump from dial-up to broadband has led to streaming online video, digital music sales, videoconferencing over the web and countless other innovations that have transformed communication and commerce. We can't wait to see what new products and services will emerge as Kansas City moves from traditional broadband to ultra-high-speed fibre-optic connections."

1 Gig ultra-high-speed broadband networks



"If we think this idea is so important, why are we waiting for the government to build it? Why aren't we building it ourselves?"

Sergey Brin (left) and Larry Page, Google founders,
just before Google's broadband announcement in March 2010

MOVING THE WEB FORWARD

So what led the world's top search engine company to invest in fibre? "Google wants to help move the web forward," explains Jenna Wandres, Google Policy Communications Associate. "That's good for users and good for Google, as our whole business is built on the success of the web. Google Fibre isn't our first investment in the 'future of the web.' We've put a lot of work into developing Chrome, our open source browser, which is specifically designed to work with rich, interactive pages. Chrome pushed the boundaries of existing technology, and contributed to a faster, open web. Google Fibre is part of our overall commitment to big bets and developing the technology of the future."

By investing in a next-generation technology infrastructure, Google believes this project will help drive the region's overall economic development. "In the same way that the transition from dial-up to broadband made possible the emergence of online video and countless other applications, we believe ultra-high-speed bandwidth will lead to new and unpredictable innovations," adds Jenna. "We're working with several partners, including the Kauffman Foundation, KCNext, and the University of Kansas Medical Center, who will help develop the gigabit applications of the future.

"Google is committed to playing an active and positive role in the community. For example, as a part of this initiative, the company will be connecting local schools and other city and public locations with its internet service," concludes Jenna.

Google, founded in 1996 by Stanford University graduate students Larry Page and Sergey Brin, is based in Mountain View, California, USA, in the heart of Silicon Valley. Google's mission is to organise the world's information and make it universally accessible and useful. The name 'Google' is derived from 'googol,' a 1 followed by a hundred zeros.

Today's economic challenges are providing a boost for European infrastructure. In fact, the European Commission considers investing in broadband an important part of its stimulus and recovery plans. *NEXST* speaks to *Ryan Heath*, spokesperson for European Commission Vice President and Commissioner for Digital Agenda, Neelie Kroes

Connecting Europe

Over the past decade, infrastructure spending in Europe has dropped steadily. The financial crisis has diminished the flow of private and public funding to infrastructure projects even further. However, the European Commission considers smart, sustainable and interconnected transport, energy and digital networks priorities for Europe's economic future.

"That's why we're proposing a new €50-billion funding plan as part of the EU budget proposals for 2014 to 2020," Ryan Heath explains. "This is intended to speed up long-term investments in transport infrastructure, energy grids and high-speed broadband networks. The fund is intended to encourage investors from the private and public sectors to finance such projects which, in some cases, would otherwise not be built. In line with Europe 2020, the EU's growth and jobs strategy, it also promotes cleaner transport and renewable energy, and virtually all of it will be ICT-enabled in some way." The proposal is now awaiting approval from national governments and the European Parliament, with the Commission hoping for finalisation in 2012.

€9.2 BILLION FOR NETWORKS

"The Digital Agenda is very clear: every European should have access to basic broadband by 2013 and fast and ultra-fast broadband by 2020," states Ryan. "Europe already has most of the highest take-up rate for broadband globally, but the Commission believes we need to go further. That is why it is proposing to spend €9.2 billion between 2014 to 2020 on high-speed broadband and related services. At least €7 billion would be available for investment in high-speed broadband infrastructure. This, in turn, should generate between €50 and €100 billion in public and private investment, a substantial proportion of the €270 billion needed to meet the Digital Agenda broadband targets.

ECONOMIC RECOVERY

"The fund would also provide grants to build the infrastructure needed for the roll-out of digital identification, procurement, health care, justice and customs-related services. We expect to receive project proposals from established telecoms operators, as well as from new players such as water, sewage, electricity utilities, cooperative investment projects, construction firms and public-private partnerships involving public authorities. These projects would be evaluated on the basis of their potential contribution to a digital single market in the EU. Together, this improved infrastructure and the digital single market are ICT's key contributions to Europe's economic recovery."

CREATING JOBS

Access to European eGovernment services through broadband would speed up administrative procedures, particularly for businesses operating in more than one member state, and reduce costs. In the area of health care, connection speeds over 50 Mb/s allow remote diagnostic examinations, making it possible to offer patients anywhere in the EU the best possible diagnoses, and ensuring remote back-up for health professionals looking after patients living at home.

Broadband is crucial to boosting productivity and competitiveness, and creating jobs. Global management consultants McKinsey & Company estimates that a 10 percentage point increase in broadband household penetration helps boost a country's gross domestic product between 0.9 % and 1.5 %.

Furthermore, investing in fast broadband network infrastructure immediately boosts employment. In Germany, the construction of broadband networks is expected to create almost a million jobs over the next ten years. In France, building an FTTH network would generate 360.000 jobs per year.

Fast broadband access also makes remote working possible and can open up substantial productivity gains for 23 million small and medium enterprises across the EU, giving them access to cloud computing benefits.

THE DIGITAL AGENDA

"For telecommunication networks, the most important objective at this moment is the removal of bottlenecks standing in the way of realising a European digital single market," adds Ryan. "There is the legislation we need to get right – for example on e-commerce and patents – but an overall improvement of the whole broadband network and the establishment of digital service infrastructure platforms matters greatly. Although many telecoms companies may not have enough incentives to invest right now, providing access to financial markets is expected to speed up investment. Credit enhancement would provide additional capital for investors, such as utilities, public private partnerships, established concession holders and network operators looking to recoup their investment over the long term."

RURAL SUPPORT

"The Commission thinks it's very important in the current economic climate to make sure the burden of risk is well spread. We need both telecoms companies and the public sector investing. It won't work if only some countries, some governments, or some operators, get involved. So the right incentives need to be in place to get everyone to the investing table.

"Last but not least, another major aim of the plan is to support investment in less obviously attractive broadband infrastructure projects, especially those outside urban or densely populated areas. By providing substantial funding and lowering investment risks, we could encourage investors to roll out high-speed broadband infrastructure outside of densely populated areas, allowing people living away from Europe's main urban areas to enjoy all the socio-economic benefits of fast networks."

CONNECT EUROPE

The European Commission has proposed spending €9.2 billion on broadband projects between 2014-2020.

Funding is part of the Connect Europe Facility, which proposes spending €50 billion on projects associated with transportation, energy and ICT.

According to the EU, the funding will "leverage other private and public money, by giving infrastructure projects credibility and lowering their risk profiles". This is critical to fund investment in more rural areas.

Digital Agenda for Europe has set targets for 2020 of broadband access for all at speeds of at least 30 Mb/s, with at least 50% of households subscribing to speeds above 100 Mb/s.

Ryan Heath, spokesperson for European Commission Vice President and Commissioner for Digital Agenda, Neelie Kroes

The EU Digital Agenda sets 2020 targets of broadband access for all at speeds of at least 30 Mb/s per second, with at least 50% of households subscribing to speeds above 100 Mb/s. (Very) high-speed broadband networks not only enable citizens to shop, create, learn, socialise and interact online in new ways, but also brings radical solutions to societal challenges in areas such as health and demographic change, energy and resource efficiency, transport, congestion and climate change.

As more and more Europeans flock to crowded urban areas, rural regions are struggling socially and economically. *Nadia Babaali*, Communications Director FTTH Council Europe, explains how broadband can help reverse this trend

A Europe of prosperous regions

"People living in Europe's major cities have a lot to deal with," states Nadia. "Long, stressful commutes, for example, or costly housing, pollution and difficult choices regarding where to live or send the kids to school. Yet at the same time, authorities in many rural areas are struggling to keep communities alive, as the young flock to urban areas. As a result, the level of services and infrastructure in these regions drops, and the average age of the population shoots upwards."

RURAL BENEFITS

Although there's a real danger that 'megacities' will continue to grow at the expense of rural communities, today's economic climate is not supportive of investment in widespread education, health and transport services.

"Fortunately, more and more governments are realising that high-speed broadband can reinvigorate rural areas, in a cost-effective way," adds Nadia. "Policy makers are recognising the fact that very high-speed broadband access is essential to the development of their economy. As essential as roads, electricity and water supply, in fact. Large and small companies and their employees can work effectively with clients and customers all over the world, regardless of where they are located.

"In my opinion, FTTH networks don't only benefit rural communities. They're good for the economy and the environment in general. Different groups benefit in different ways. In Sweden, for example, patients are using fibre-to-the-home networks to consult remotely with nurses, reducing the need for costly and time-consuming trips to distant hospitals."

NEW BUSINESS MODELS

A study conducted by the analysis and research company Ovum for the FTTH Council Europe proved that very high-speed broadband, even though it serves all sectors of society, offers the greatest benefits to rural areas. The market forces that encourage very high-speed broadband investment in large cities can't always be expected to invest in rural regions. Operators are willing to compete in order to build parallel high-speed broadband networks in densely populated cities, whilst people in rural areas often have no other choice than a poor-quality copper or a mobile network. Any provider of FTTH in these areas is likely to enjoy a high

FTTH CONFERENCE 2012 GREEN DONATION

The FTTH Conference 2012 will be held in Munich from February 15-16. In keeping with the FTTH Council Europe's commitment to improving the quality of life and contributing to a better environment, a €3 donation from each paying participant of the conference will be donated to a local environmental group. This year's 'green donations' will go to the Nature and Biodiversity Conservation Union (NABU). Founded in 1899, NABU is one of Germany's oldest and largest environmental associations.

per capita rate of adoption, along with a brisk take-up of services, such as TV, HD film download or health and community services – especially if they are prepared to adopt alternative business models.

"In Norway, regional energy supplier Lyse set up a subsidiary called Altibox in 2002," says Nadia. "Altibox was created to supply fibre to homes, including clusters of 300 or 400 houses in rural areas. By allowing customers to dig their own trenches, Altibox managed to keep connection costs low. Now, they have 13.4% of the total Norwegian broadband market and a penetration rate of around 70% of homes passed."

CLEAR TARGETS

"There is a common understanding that high-speed broadband based on fibre is an important factor for economic growth. This is also reflected in the Digital Agenda of the European Commission, which sets clear targets for the European Union: everyone in Europe should have at least a 30 Mb/s connection by 2020. And more than 50% of the households should already be connected to broadband speeds of more than 100 Mb/s.

"To reach those targets, the European Commission plans to make a budget of €9.2 billion available in the new budget period 2014-2020. This will trigger much higher investments, as only a portion of the total costs are covered by grants or project bonds out of this budget. But today it is already possible to use public money to support the deployment of fibre networks. The criteria are defined in the State Aid Guidelines for NGA Networks document, which was published in 2010 and which is currently under evaluation. The main objective is to avoid new monopolies in telecommunication in Europe."

LOOKING FORWARD

"People living in rural areas have the same right to be connected as people in the cities," Nadia concludes. "The right choice of broadband investment can create new lifestyle choices for city dwellers and stimulate rural economies. But any government that invests public money in very high-speed broadband must make sure they're not taking temporary measures. The capacity of wireless networks is inherently constrained. This implies a future restriction on the delivery of education, medical care and other social services. In addition, knowledge-based workers are likely to think twice before relocating to areas offering only wireless broadband. In my view, only FTTH, with its nearly unlimited capacity, fits the bill."

GOVERNMENTS GO FIBRE

When facing population decline, the community of Hudiksvall in northern Sweden decided to lay FTTH networks to attract employers and provide services. The result: an annual increase of between 6% and 14% in the number of new businesses since 2004, as well as the establishment of a new research centre by the Swedish research institute ACREO.

The French town of Pau completed an FTTH network in 2005, which helped create more than 800 new jobs and attracted the École Internationale des Sciences du Traitement de l'Information (EISTI) to build a campus in the town.

The UK, Italy, France and Portugal are helping to facilitate and fund high-speed broadband build countrywide. Municipalities and energy companies in other countries, including Sweden, Denmark, Norway and Germany, have already started their own initiatives to make fibre networks available to end consumers and businesses in rural areas.

Nadia Babaali, Communications Director FTTH Council Europe

The FTTH Council Europe is an industry organisation with a mission to accelerate the availability of fibre-based networks to consumers and businesses, in order to deliver a flow of new services that enhance the quality of life, contribute to a better environment and increase economic competitiveness.
www.ftthcouncil.eu

Social networks have changed the way in which we interact with each other and with the devices that surround us. *NEXST* discussed this traffic-generating social revolution – via Twitter – with *Mark Deuze*, Associate Professor, Department of Telecommunications, Indiana University, USA

A permanent change

Who can imagine a world without Facebook, Twitter, LinkedIn and similar networks – even though none of these existed just a few years ago? Since 2007, the use of social networking has doubled, according to web analytics form comScore. In 2007, about 1 out of every 12 minutes spent online was dedicated to social networking; today, it accounts for 1 out of every 6 minutes. Between 2010 and 2011, social networking use increased by approximately 25%, LinkedIn's US audience went up 58% and the time spent by the average US user on Facebook increased from 4.6 hours to 6.3 hours per month.

NExsT Digital @NExsT Digital 2m
@markdeuze Why are social media so popular, what is the attraction?

Mark Deuze @markdeuze 6m
@NExst Digital Social media enable, amplify and accelerate our human need to see and be seen

NExsT Digital @NExsT Digital 7m
@markdeuze How has the rise of social media changed the way in which we interact with each other as social beings?

Mark Deuze @markdeuze 14m
@NExst Digital Social media do not change us; only now it is possible to be part of a community without necessarily being in the same place.

NExsT Digital @NExsT Digital 15m
@markdeuze What are the implications for social structures, the workplace and education?

Mark Deuze @markdeuze 24m
@NExst Digital All the main spheres of life – work, school, play and relationships – converge in the way people use social media anywhere, anytime.

CONNECTIVITY AT ALL TIMES

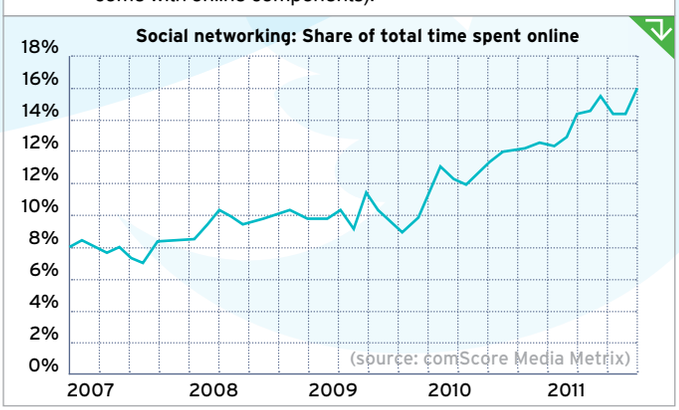
Social Media has become more and more important in our daily routines. With the rise of smart phones and tablets, more and more people are accessing networking sites 'on the go' via mobile browsers. Worldwide, more than 250 million people log on to Facebook regularly through their mobile devices. In August 2011, comScore reported that more than 72.2 million people in the USA accessed social networking sites or blogs on a mobile device – up 37 % from the year before. 40 million US mobile users – well over half of the total number – visit social networking sites almost every day.

NExsT Digital @NExsT Digital 1m
@markdeuze In which way have social media changed the way we interact with the media and the devices that surround us?

Mark Deuze @markdeuze 12m
@NExst Digital We have come to expect connectivity and – an illusion of – control at all times.

NExsT Digital @NExsT Digital 15m
@markdeuze How do you see the future of 'traditional' broadcast media, such as TV?

Mark Deuze @markdeuze 38m
@NExst Digital TV in the future will partly be online and mobile; some TV will remain on our life-sized screens (that come with online components).



CAUSING A LANDSLIDE

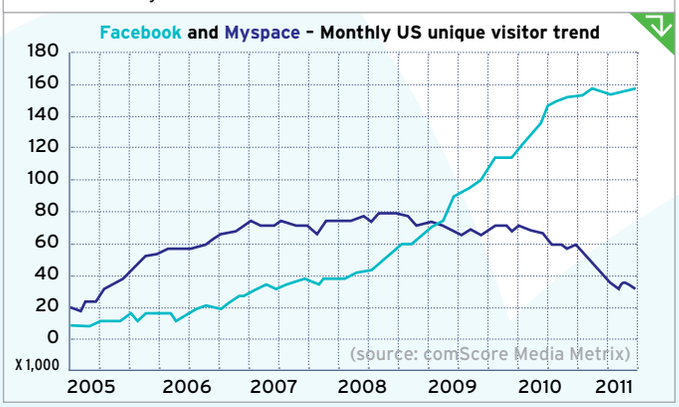
For marketing, advertising and sales professionals, social networks have caused quite a landslide. According to the 2011 Social Media Marketing Industry Report from SocialMediaExaminer.com, 90% of marketers indicated that social media is important for their business. 58% use social media for six hours or more each week, with more than a third investing 11 or more hours a week. 88% of marketers stated that the most important advantage of social media marketing is generating more business exposure. 72% named increased traffic as a major advantage, while 62% mentioned improved search rankings.

NExsT Digital @NExsT Digital 3m
@markdeuze Are social networks becoming just another advertising medium, or do they offer consumers a platform to interact with companies?

Mark Deuze @MarkDeuze 22m
@NExst Digital First and foremost, consumers will interact with each other. Companies will always play second fiddle.

NExsT Digital @NExsT Digital 23m
@markdeuze How can businesses, institutions and educational facilities keep up with such rapid developments?

Mark Deuze @MarkDeuze 25m
@NExst Digital Social institutions need to become part of the conversation society has with itself, instead of trying to talk to society.



SUSTAINABLE GROWTH

The exponential growth in social media usage shows no signs of slowing down. Facebook has passed the 750 million user mark, and seems set to reach a billion users in the near future. Facebook users install 20 million Apps every day. Wikipedia is currently hosting 17 million articles from more than 91,000 contributors. In the first half of 2011, Twitter was adding almost half a million users every day. Between March and July 2011, the number of tweets shot up from 95 million to 200 million. Already, global communications networks are straining. This unprecedented – and ever-increasing – growth calls for faster, future-proof digital infrastructure.

NExsT Digital @NExsT Digital 9m
@markdeuze Do you think the growth of social networks is sustainable, or is it just a boom that might end soon?

Mark Deuze @MarkDeuze 25m
@NExst Digital Human communication and interaction are fundamental to our survival, so social media will never end – unless we end.

NExsT Digital @NExsT Digital 26m
@markdeuze Is there a risk that a 'digital divide' will grow between those with access to devices and media, and those without?

Mark Deuze @MarkDeuze 28m
@NExst Digital The digital divide is real, but is not – solely – related to hardware. It has much more to do with knowing how to use media effectively.

Mark Deuze, Associate Professor, Department of Telecommunications, Indiana University

Mark Deuze studies and teaches new media and everyday life, and media management and media work in the digital age at Indiana University, USA, with joint appointments at Leiden University (the Netherlands) and the Lisbon University Institute (Portugal). He has written several books on these subjects, including *Media Work* (2007), *Managing Media Work* (2010) and *Media Life* (2012).

deuze.blogspot.com

NEXST NEWS

News and views on all the latest FTTH and telecoms developments

ASIAN RURAL FIBRE UPDATE

ANALYSYS MASON STRESS IMPORTANCE OF GOVERNMENT INVOLVEMENT

According to a report from consultants and researchers Analysys Mason, entitled *Analysis of rural fibre deployments in selected Asia-Pacific countries: India, Indonesia, Thailand and Vietnam*, the total revenue opportunity from fibre-based broadband services in these four leading markets is approximately $32 billion.

$29.2 billion would come from urban areas, while $2.7 billion lies in rural areas. The report, commissioned by the Regulation and Policy Committee of the FTTH Council Asia-Pacific, also claims that government involvement and financial support is essential to drive broadband penetration, particularly in rural areas. In these regions, services directly impacting the livelihood of the rural population, such as governance, education, health care and agriculture, are expected to drive broadband adoption.

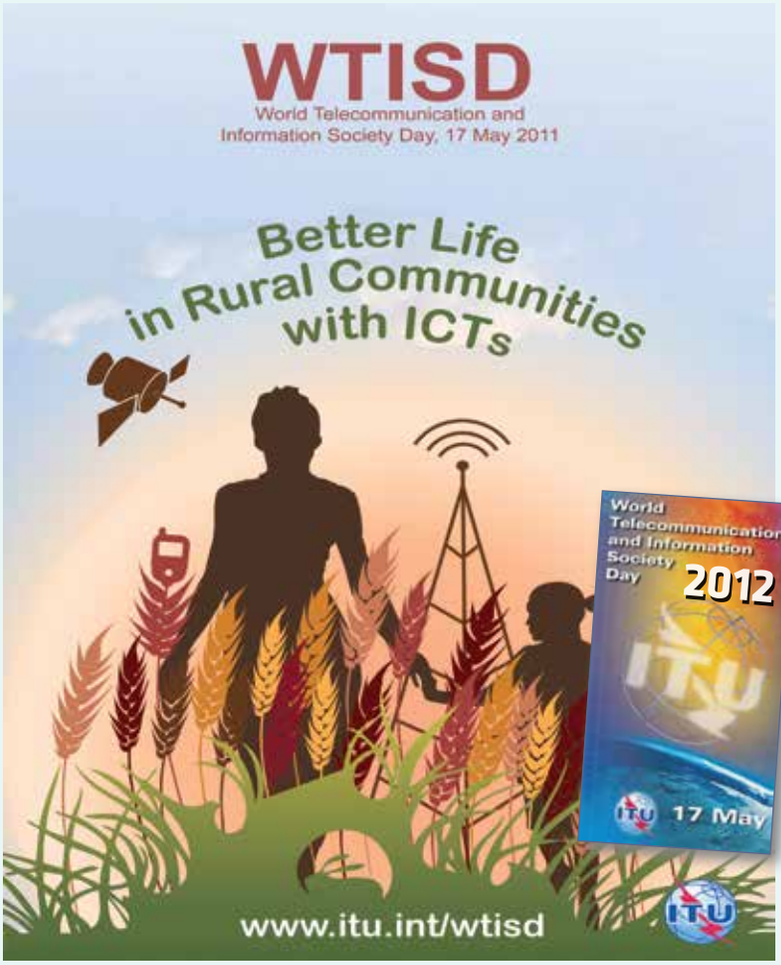
www.ftthcouncil.eu

TELECOM CHINA'S THREE-YEAR PLAN

100% FIBRE COVERAGE FOR SOUTHERN CHINA

China Telecom is currently rolling out its 'Broadband China, optical network city' project. In line with the government's plans to improve infrastructure, the company aims to cover every city in China with its fibre broadband service in three years, and convert all copper lines to fibre. Company officials have stated that they plan to bring fibre networks to all government, residential and business customers in Southern China. Some 40 million homes should be passed by 2011, 80 million by 2013 and more than 100 million by 2015.

www.chinatelecom-h.com



UN TARGETS GLOBAL BOOST

GREATER BROADBAND PENETRATION

The UN's Broadband Commission for Digital Development has stated that every country should have a national broadband plan by 2015. The Commission also claims that internet communications should be seen as a human need and a right. In its *Broadband Challenge* publication, the commission also states that broadband infrastructure and services contribute to economic growth and promote job creation. Consumers in both developed and developing countries should have access to affordable broadband. Therefore, expanding access to broadband infrastructure and services should be a top policy priority for countries around the globe.

www.broadbandcommission.org

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FASTER BROADBAND BOOSTS GDP

STUDY QUANTIFIES IMPACT OF SPEED

A study conducted by Ericsson, management consultants Arthur D. Little, and Chalmers University of Technology (Sweden) in 33 OECD countries shows that increased broadband speed contributes significantly to economic growth. Doubling the broadband speed for an economy increases GDP by 0.3%. Last year, Ericsson and Arthur D. Little concluded that every 10 percentage point increase in broadband penetration leads to a 1% GDP increase. "The results of this study support governmental policies that recognise and promote the importance of broadband," says Erik Bohlin, professor at Chalmers University of Technology.

www.ericsson.com

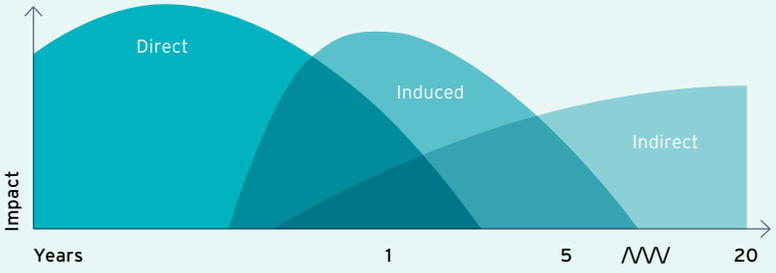
GIGABIT PREMIER FOR THE UK

BRITAIN'S FIRST RESIDENTIAL 1 GB/S FTTH INSTALLATION

ISP Hyperoptic has started offering residents of Prices Court, a riverside development in London, UK, access to 1 Gb/s symmetrical download speeds through FTTH. "The UK is effectively lagging in our rate of fibre broadband adoption, holding us back in so many ways from an economic and social perspective," said Dana Tobak, Managing Director of Hyperoptic. "The copper-based networks widely deployed in the UK right now were not designed for data transfer and really can't keep up with the demands of new consumer technologies."

www.hyperoptic.com

POSITIVE EFFECTS OF BROADBAND SPEED ON THE ECONOMY



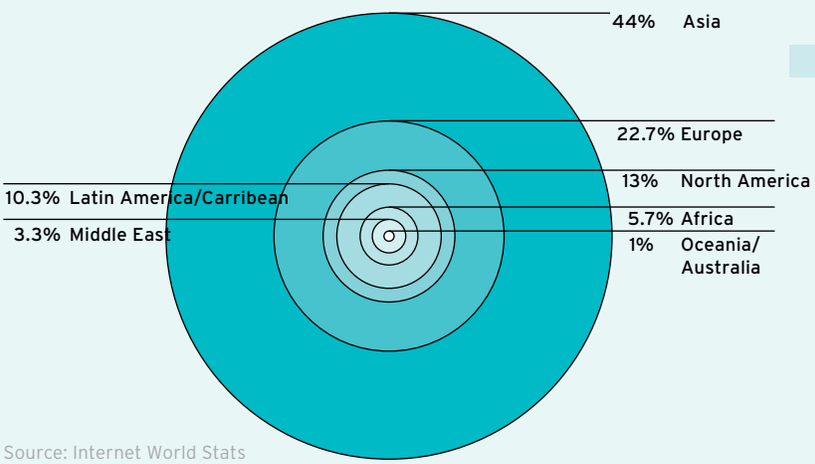
Direct effects
In the short run, more jobs will be needed to create the new infrastructure, such as construction, telecommunications and electronics.

Induced effects
New ways of doing business create more advanced online services and new utility services, such as telecommuting and telepresence.

Indirect effect
Include spillover effects from one sector to another and efficiency improvement in the economy.

Source: Ericsson

INTERNET USERS IN THE WORLD BY WORLD REGIONS - 2011

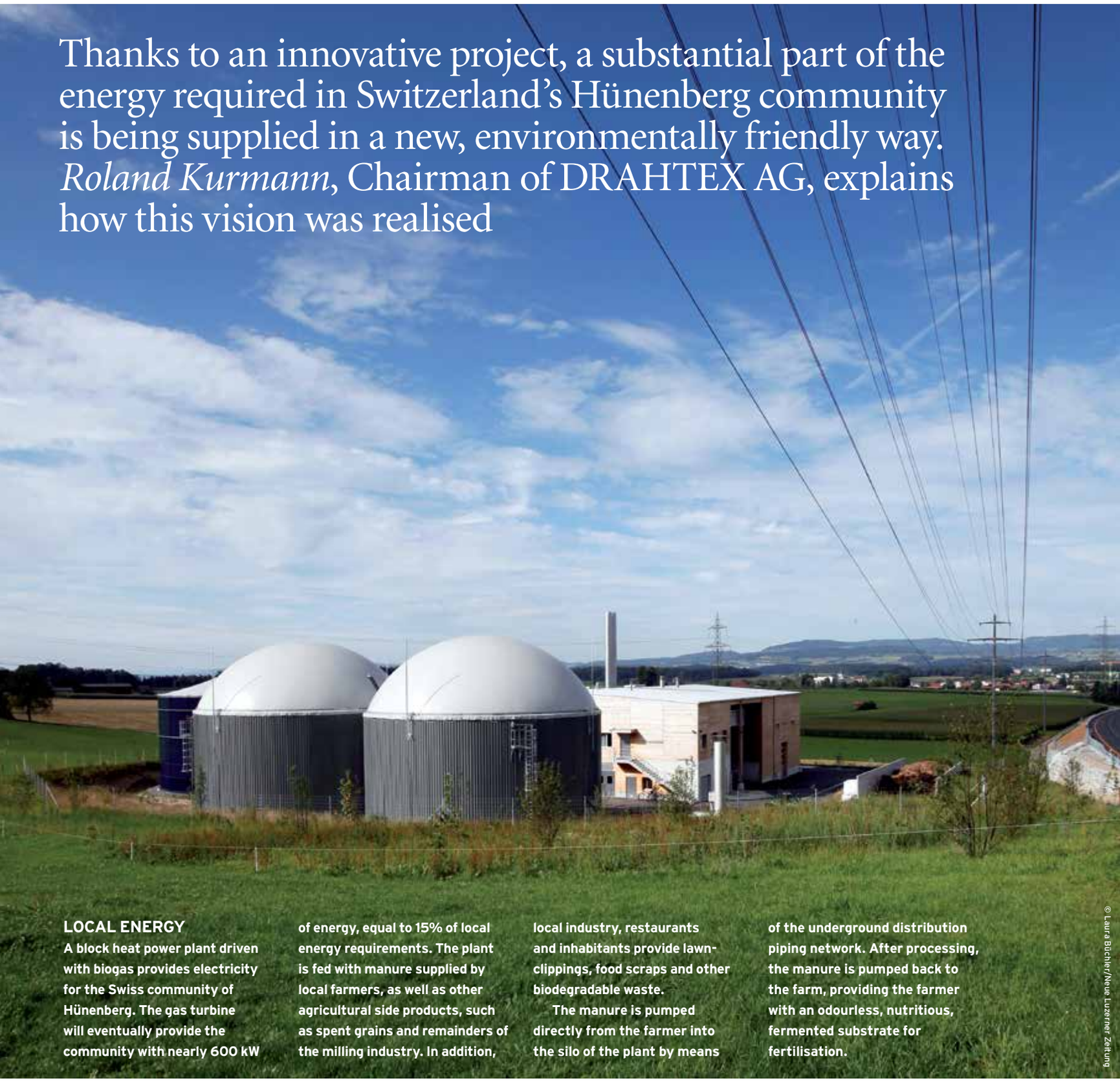


Source: Internet World Stats

HOUSHOLD DOWNLOAD INDEX (WWW.NETINDEX.COM)

Green energy and fast internet

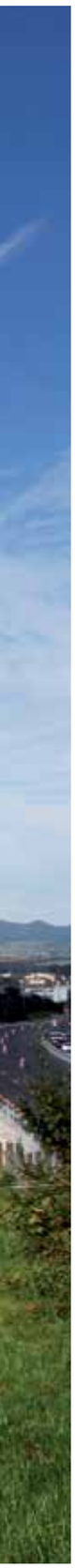
Thanks to an innovative project, a substantial part of the energy required in Switzerland's Hünenberg community is being supplied in a new, environmentally friendly way. *Roland Kurmann*, Chairman of DRAHTEX AG, explains how this vision was realised



LOCAL ENERGY
A block heat power plant driven with biogas provides electricity for the Swiss community of Hünenberg. The gas turbine will eventually provide the community with nearly 600 kW of energy, equal to 15% of local energy requirements. The plant is fed with manure supplied by local farmers, as well as other agricultural side products, such as spent grains and remainders of the milling industry. In addition, local industry, restaurants and inhabitants provide lawn-clippings, food scraps and other biodegradable waste.

The manure is pumped directly from the farmer into the silo of the plant by means of the underground distribution piping network. After processing, the manure is pumped back to the farm, providing the farmer with an odourless, nutritious, fermented substrate for fertilisation.

for Swiss community



The largely agricultural Hünenberg community is spread over 18.5 square kilometres and has just under 9,000 inhabitants. In a unique renewable energy project, fibre connectivity is providing the backbone for the supply and control of a considerable part of Hünenberg's energy demands, while taking high-speed broadband services to the community's residents as well.

GREEN FIBRE

"This is an entirely self-financed renewable energy project, in which fibre interconnectivity plays a key role," explains Roland Kurmann. "A fibre-optic network ensures control of one of Europe's largest biogas plants, while also providing high-speed broadband services to Hünenberg residents. That makes this village a showcase for both recyclable energy and rural fibre roll-out. Community stakeholders came together to invest in a cooperative venture, the Hünenberg IG, and were prepared to take the new energy supply and FTTH to all public buildings, providing a solid economical basis for financing and realising this project."

In a community assembly – the usual procedure in Switzerland – the people of Hünenberg voted to invest almost one million Swiss francs in order to connect all official buildings to this project. They also voted to buy shares of the company. This clearly shows the environmental infrastructure project is supported by people. In fact, the project is already expanding to another hamlet close by.

LONG-DISTANCE JETTING

"This project involved rolling out fibre cables over long distances, which is always a challenge," Roland says. "Draka JetNet^{XS} blowing technology helped deploy the underground fibre infrastructure, which runs alongside the biogas distribution network, over a total network length of 4.5 kilometres. Microduct blowing technology allowed us to introduce higher cable densities within a fibre network, as we could use smaller diameter cables inside the microducts."

With this technique, fibre can be blown up to 5 kilometres in a single session, at speeds exceeding 100 metres per second. Compressed air is a highly cost-effective and more reliable method of pushing fibre optics through multiducts, especially when long, uninterrupted lengths of installed cable are desired. Despite the challenge of jetting fibre over distances up to 5 kilometres, Hünenberg's fibre-optic network was installed rapidly and successfully.

Rolling out the fibre network in rural Hünenberg

EASILY EXPANDABLE

"We are proud to deliver the fibre infrastructure for such a project," Roland concludes. "Every component in the biogas heating plant is fully automated, and each process within the plant can be monitored and controlled from various sites, at any time – thanks to fibre, which is also used by the community for all the usual applications. This has made the investment interesting and profitable and the fibre network is easily expandable, to meet community energy management requirements as the plant's output increases."

Roland Kurmann, Chairman of DRAHTEX AG

DRAHTEX AG is a product distributor, project design, management and consulting company specialising in the development and production of cabling systems and components, including FTTH and FTTB customer design solutions. DRAHTEX AG has an international outlook and has been ISO 9001-certified since 1994.

LINKING THE FUTURE

The Prysmian Group, formed by the joining of Draka and Prysmian, is a leading global company in the telecommunications market. *Phil Edwards*, Executive Vice President Telecom and *Gert Hoefman*, Vice President Telecom Solutions, explain which new benefits and services the unified companies are providing

Gert Hoefman,
Vice President Telecom Solutions

Phil Edwards,
Executive Vice President Telecom

The Prysmian Group is the global leader in cable manufacturing, with a consolidated turnover of €7 billion (2010). The company has two major lines of business in energy and telecommunications. Thanks to the merger, the Prysmian Group can now offer the full range of products required for a future-proof network. Applications range from 100G data centres, 40G Cat. Ethernet office infrastructure, low-loss, long-haul, fibre-optical cables, and FTTH networks.

A POWERFUL COMBINATION

"The strength of both companies has always been their proximity to the customer and capacity for innovation," Phil explains. "Furthermore, our geographical footprints are a perfect match. That's an extremely powerful combination for a solution provider, as it allows us to deliver more value to existing and new customers.

"The group supplies telecom cables with optical fibres for any application. We offer standard G.652.D single-mode fibres, OM2/3/4 multimode grade fibres, NZDS fibres for ultra-long-haul networks, new standard bend-insensitive fibres (G.657.A2/B2) for FTTH applications and more. These fibres are literally at the core of our communications infrastructure, and as the world leader we are aware of the quality requirements of our customers. Also we develop specific fibres for specific applications. Our Multimedia & Specials division has developed a wide range of copper-structured wiring for high-speed transmission. Our Multimedia Cat.7 copper data cables are using the latest shielding technology. Data centres are being upgraded to 100 Gb/s high-speed switching – either with sophisticated structured copper wiring (Cat.7 and up) or the latest bend-insensitive, multimode, grade OM4 fibres.

"Corporate office networks also require higher bitstreams and more bandwidth. Our market demands plug-and-play solutions, so we are now offering pre-terminated versions of our copper- and fibre-based gigabit solutions specifically for these applications. The Telecom Solutions division is targeting outside telecommunication networks and the companies acting in this field."

TOTAL NETWORK SOLUTIONS

"Today, many operators are looking for fibre," says Gert. "National operators want to upgrade their copper networks – especially the customer connection – whilst new operators are deploying fibre all the way."

"However, we're not just aiming at being the leading optical fibre provider," adds Phil." We are offering and maintaining a wide range of cable solutions and pursuing innovation in that area. The fact that we can offer advanced, integrated cabling solutions in different areas simply makes life a lot easier for our customers.

"Integration of the fibre capabilities in the former Draka parameter allows us to offer our customers more options, whether they're single-mode fibres for consumer networks or high-grade multimode fibres for data centre applications. For instance, the OPGW offering of Prysmian can now be supplied with state-of-the-art, long-haul NZDS fibres developed by Draka Fibre.

"In effect, we've created a unique niche, as we can now provide a cable solution at any point within the access network: in the building, 100 kilometres away or even 5,000 kilometres from the point of origin. Looking ahead, our drive to ramp up access speeds means we're committed to bringing 100 Gb/s to everyone."

ONE-STOP SHOPPING

The world is becoming more 'digitalised' than ever, and the Prysmian Group is at the forefront of this advance, laying the communication network infrastructure. The Prysmian/Draka merger now enables the Prysmian Group to offer complete integrated FTTH solutions, regardless of the application. This could be creating an aerial network, a micro-duct network, or a network utilising sewers.

"The cable and connectivity portfolios of Draka and Prysmian are largely complementary," says Gert. "We consider our extensive product portfolio vital in this market. We want to demonstrate to existing and new customers that our future-proof solutions add value when it comes to speed, efficiency, ease of use and cost. A big challenge lies in bringing fibre from the basement to the customer's front door. With the Prysmian VertiCasa^{XS} solution featuring Draka BendBright^{XS} (G.657.A2) fibres at the core, an installer can quickly and, therefore, cost-effectively install single-mode fibres in a building without any splicing.

"The company's strategy focuses on further integrating the elements of a physical communications infrastructure. We are creating cabling systems that have the most suitable core, cables that meet and exceed customer requirements and connectivity products that enable plug-and-play telecoms solutions. This is where the strength of the Prysmian Group lies: true innovation with customer focus. In the end, it is important to both new and our existing customers to understand that the Prysmian Group now has all these capabilities in-house. Innovation is the core of all our business units and the full range of all our product ranges which can be used in their future-proof networks."

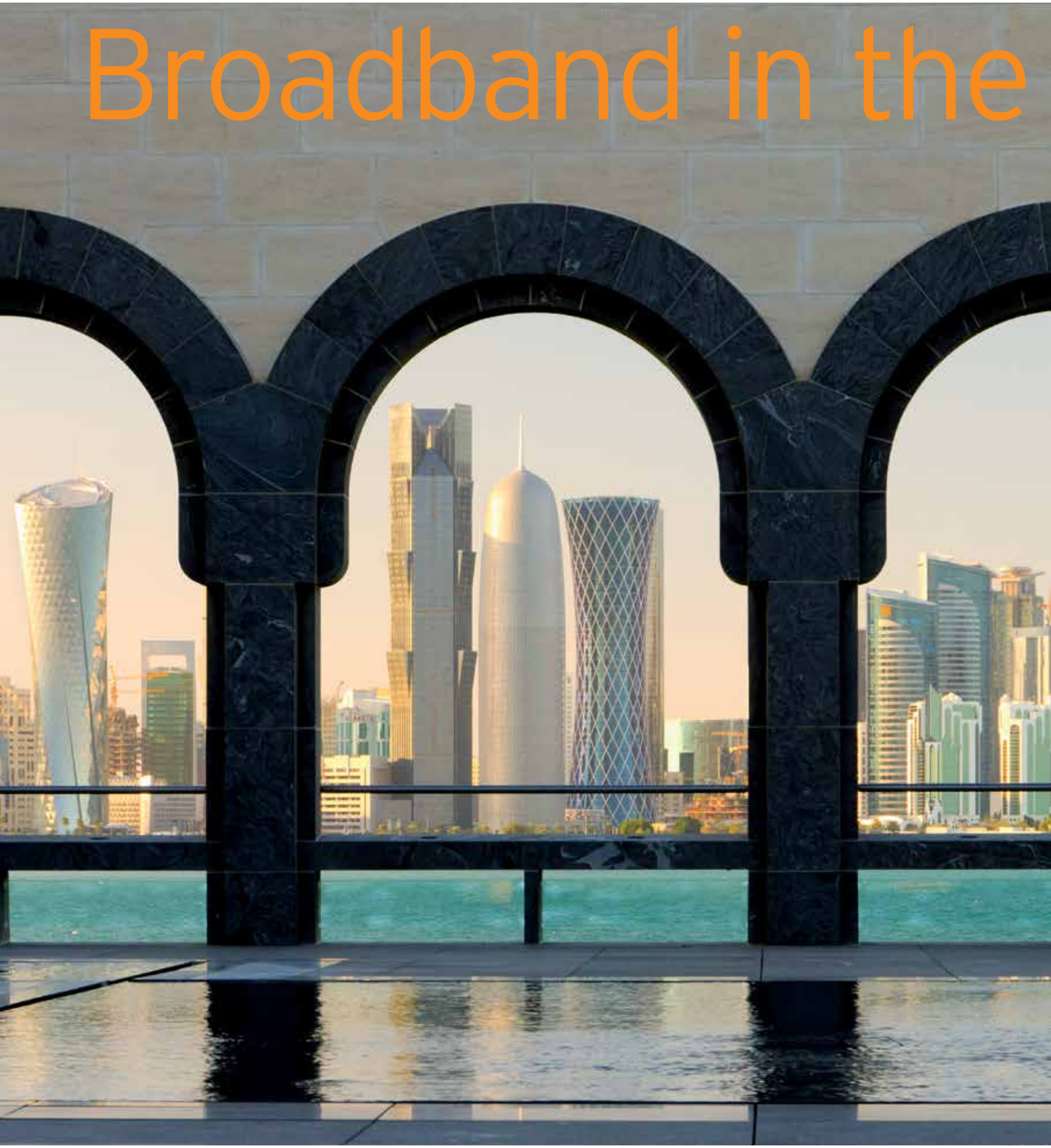
ONE-STOP-SHOPPING WITH PRYSMIAN'S COMPREHENSIVE INTEGRATED PORTFOLIO

Prysmian's fully integrated XSNet range offers everything required to build or adapt each segment of a low-maintenance fibre network quickly and cost-effectively. This includes top optical-fibre cables, carefully matched and easy-to-handle connectivity components, flexible design software, engineering advice and ducting solutions for indoor network, outside plant network and exchange - all based on three decades of broadband experience. With minimal effort, any network design, regardless of complexity or size, can be put together from scratch, updated or reconfigured.

Prysmian Group

The **Prysmian Group** is a global leader in the development, design, manufacturing, supply and installation of a wide range of cables for diverse applications in the energy and telecommunication sectors. The group has a strong position in high added value markets.

Broadband in the



Skyline of modern Doha, as seen throught the traditional curves of the Museum of Islamic Art

pipeline for Qatar

Qatar has a long-standing reputation for productivity and a solid economy, largely based on oil and gas production. *Mohammed Ali Al-Mannai*, CEO of Qatar National Broadband Network Company (Q.NBN) explains how fibre will help Qatar maintain this position by transforming the nation into a knowledge-based economy

With a population of less than two million inhabiting a total area of 11,586 square kilometres, Qatar might not appear to be an attractive market for fibre-optic network providers. However, the Gulf state has the highest mobile phone and broadband penetration rates in the Middle East. New technologies are creating exciting opportunities, but to make the most of these technologies, the people and businesses of Qatar need access to them.

That's why ictQATAR, the government body responsible for setting and nurturing innovative technologies, has adopted a five-year strategic plan for building a world-class ICT market and society, a plan that supports the Qatar National Vision 2030. In this plan, FTTH is seen as a vital stimulator, which is already generating business and job opportunities today.

NATIONAL NETWORK

"In 2011, the Supreme Council of Information and Communication Technology (ictQATAR) announced that Qatar's government has established a new company – Qatar National Broadband Network Company, or Q.NBN," explains Mohammed Ali Al-Mannai. "Q.NBN has a mandate to accelerate the roll-out of a nationwide, open, and accessible high-speed broadband FTTH network. Q.NBN will provide fibre access to citizens and businesses across Qatar, achieving coverage of more than 95% by 2015. High-speed broadband connectivity will allow effective use of the multimedia and communications applications which are central to developing Qatar's knowledge-based economy."

ONGOING COORDINATION

"Q.NBN will focus solely on the deployment of a passive network infrastructure, efficiently leveraging existing and new infrastructure in Qatar. By laying three fibres to each home, end users are offered a choice of operators as well as seamless connectivity, enhanced security, and affordable prices. This encourages competition based on quality and innovation. Our government-led initiative was developed in consultation with existing network operators Qtel and Vodafone, supporting the development of their broadband service offerings to end users and giving them the opportunity to focus on innovative services. Government support will also help ensure rapid deployment and seamless access in a competitive manner. As far as roll-out is concerned, we don't anticipate any major challenges.

At present, ictQATAR is busy creating a broadband network across Qatar with minimum access speeds of 50 Mb/s

Ongoing coordination with government entities, municipalities, and stakeholders is essential to ensure fast and efficient implementation."

KNOWLEDGE-BASED ECONOMY

"A strong ICT infrastructure serves as a catalyst for future development. A robust ICT infrastructure is critical to achieving the goals outlined in Qatar's Digital Agenda. Ease and speed of connectivity are the foundations for healthy and prosperous social and economic activities.

"Next-generation networks facilitate communication, access to information and provide a wealth of knowledge. These are the prerequisites for a prosperous, well-developed nation. High-speed access accelerates business development, and provides new opportunities for innovation, expansion, and e-commerce. It enables companies to enjoy video streaming and video conferencing, and allows them to utilise cloud computing, making processing and storing files far more secure and sophisticated.

"High-speed connectivity will also change the learning experience, improve inter-institutional collaboration, and broaden access to education. Broadband will enable the effective use of multimedia and communication applications. Furthermore, it can empower people with disabilities and remove barriers that would otherwise keep them from participating in everyday activities. Broadband can improve the lives of individuals on all levels, whether personal or professional."

Large, inspirational statements, visualising Qatar's momentum, are placed in various spots along the promenade in Doha

Doha's Education City, which houses branch campuses of some of the world's leading universities, including Carnegie Mellon, Georgetown, and the Weill Cornell Medical School, is at the forefront of the education initiative being adopted by many of the countries on the oil-rich Arabian Peninsula. With degrees awarded from their main campuses in the states, and recognised by the American education system, the institutions aim to educate a new generation of great Arab minds closer to home

THE ICTQATAR NATIONAL PLAN PRESENTS GUIDELINES IN FOUR MAIN AREAS OF ACTION:

Public Service Delivery: Improve access and increase effectiveness of public services. Create societal benefits from increasing volumes of digital information.

Infrastructure and Environment: Guarantee the roll-out and installation of a national, affordable high-speed broadband network with public and private investment.

Industry Development: Develop an innovative and entrepreneurial ICT market, improve the ICT skills and capabilities of the workforce, create economic benefits from increasing the quantity of digital and Arabic content on the internet.

Literacy, Skills, and Inclusion: Enhance digital literacy and skills, improve access and usage across all sectors of society.

Q.NBN SERVICE OFFERING IS DESIGNED AROUND THE FOLLOWING FIVE IMPERATIVES:

Nationwide: National coverage in urban and rural areas.

Open: Fair and open access to operators, promoting competition and innovation, and reducing prices.

Rapidly Deployed: 95% national coverage by 2015.

Affordable: Government financial support to promote uptake.

High-speed: Minimum 100 Mb/s.

ENERGY CITY QATAR

Energy City Qatar (ECQ) is the Gulf's first oil and gas industry hub. It lies north of Qatar's capital Doha and aspires to be 'the world's most technologically advanced development of its kind'. ECQ forms part of the major new city development, Lusail, which will house up to 200,000 residents. It provides a single point of access to markets and expertise, attracting industry leaders in oil & gas production, IOCs, NOCs, support services, infrastructure and downstream activities, shipping and trading, market and resource data, intellectual property and energy trading.

Draka was responsible for the design and engineering of the entire network and POP location, supply of all materials, all installation, commissioning and final documentation. JetNet^{XS} duct/microduct solution ensured that the Energy City fibre networks could be implemented efficiently and at the lowest cost. The proprietary microducts can take up to 144 fibres per cable and a total of 1,008 fibres for each 50mm duct. Using JetNet^{XS}, a team of three people can deploy up to eight kilometres of cables a day, compared with traditionally cable laying techniques that need twice the manpower for a quarter of the distance.

The Supreme Council of Information and Communication Technology (ictQATAR) connects people to the technologies that enrich their lives, drive economic development and inspire confidence in the future. ictQATAR is entrusted with two primary authorities: as the country's independent and fair regulator of the telecommunications market, and as the government body that nurtures innovative technologies to benefit those who live and work in Qatar.

www.ictQATAR.qa

Mohammed Ali Al-Mannai, CEO of Qatar National Broadband Network Company

Qatar National Broadband Network Company (Q.NBN) is a fully independent company with the government mandate to accelerate the roll-out of a nationwide, open, and accessible high-speed broadband FTTH network. Q.NBN operates within the existing laws and under license conditions issued by ictQATAR. Q.NBN will focus solely on the deployment of a passive network infrastructure, efficiently leveraging existing and new infrastructure in Qatar.

Thinking out of the box: VertiCasa^{XS}

HIDDEN EXTRAS
Scan the code below to watch an animated demonstration of the VertiCasa^{XS} system.

VertiCasa^{XS} system has been designed specifically to bring optical fibre directly to residents of high-rise apartments and offices

Getting fibre into multiple dwelling units (MDUs) can be costly and time-consuming. *Alessandro Pirri*, Prysmian's Director Connectivity and FTTx, explains how a new concept adopts a novel approach to this challenge

VertiCasa^{XS} is a breakthrough innovation which allows for easier fibre access to buildings. It has been designed specifically to bring optical fibre directly to residents of high-rise apartments and offices. The VertiCasa^{XS} system's new optical cable construction concept makes fibre access and breakout remarkably easy. It comprises all the accessories and connectivity products necessary to complete the full installation from the main fibre distribution point, usually in the basement, through to the end user.

"VertiCasa^{XS} is unlike any other solution because it's absolutely innovative," says Alessandro. "Basically, it's a tube with fibres already inside, ready to be picked up. But the great thing is that you don't need any special tools to use it. There's no need to hire specialist staff. Anyone who has experience with copper cables, such as electrical engineers, can work with this solution, without fear of damaging the fibre cables by touching them. Not only does this mean lower labour costs, it also saves a great deal of time, which quickly adds up to substantial savings."

FAST AND FLEXIBLE

"The initial suggestion actually came from a French customer. Because this person wasn't an engineer, he came up with a totally out-of-the-box idea: 'Why not just place all the fibres in a tray that can be connected in one go?' Of course, a cable manufacturer's first reaction would be to say this was impossible, but we stuck with it and came up with a solution. And now we see competitors coming up with similar concepts.

"All across Europe, VertiCasa^{XS} has been well received. It is often used in the 'last metres' part of networks. Because costs are kept low, it now makes sense to connect MDUs that house only a small number of people. Previously, this would not have been considered economically viable. VertiCasa^{XS} saves a great deal of time, effort and money for the installer. We're also looking to develop an outdoor application of the VertiCasa^{XS} concept, which will also allow metro rings installation. Who knows what other new, out-of-the-box ideas we might come up with?"

THE VERTICASA^{XS} CONCEPT

VertiCasa^{XS} is based on cutting a fibre upstairs and then feeding it to the floor where a subscriber is waiting to be connected. Different solutions have been developed for exposed and embedded indoor applications, as well as for outdoor.

The riser cable can be lowered from above in the traditional manner, but it can also be pushed up from below. The operator opens a window on the cable with a stripping tool and cuts it a few floors above the subscriber premises. On the subscriber floor, a second window on the cable is opened, and the previously cut fibre is extracted. The upper window may have to be closed with a cover while a breakout unit is installed on the subscriber floor.

The horizontal path to get to the customer is often the most challenging part of the installation. A low-friction drop tube has been fully engineered to house the fibre from the riser shaft to the customer home. It is first installed as a standard cable, then the extracted unit is crimped to the pulling rope in the drop tube and pulled into the customer termination box. Finally, the fibre is terminated and the network is ready for use.

Alessandro Pirri, Director Connectivity and FTTx at Prysmian Group

The Prysmian Group is a global leader in the development, design, manufacture, supply and installation of a wide range of cables for diverse applications in the energy and telecommunication sectors. The group has a strong position in high added value markets. The Prysmian Group has subsidiaries in 50 countries, 98 plants, 22,000 employees and places a strong emphasis on R&D.

Alaska could gain a great deal from high-speed access, yet 40% of the state lacks broadband internet. According to Senator *Lisa Murkowski*, this is 'not acceptable'

Fibre to the last frontier

↑ Isolated Nuiqsut is one of eight villages on Alaska's North Slope Borough. At 89,000 square miles, it is the nation's largest municipality, and one of the richest

An Inupiat family in warm winter furs stand on the ice shelf at Barrow, Alaska, the northernmost city in the US

An aerial view of the Inupiat city Barrow during the spring breakup of sea ice along the Arctic coast, Alaska

Alaska is not only the largest state in the USA, with just over 700,000 inhabitants it's also least densely populated. It is separated from the US mainland and its coastline is longer than all the other states combined. Approximately half of Alaska's residents live within the Anchorage metropolitan area, the rest are widely dispersed across the country. There are just four other towns with a population larger than 10,000: College, Fairbanks, Juneau and Wasilla. As a consequence, investors remain apprehensive about their chances of building a profitable FTTH network. Yet, like so many other vast rural areas, Alaska stands to gain a great deal from a future-proof infrastructure.

MAKING A DIFFERENCE

Alaska's economy largely revolves around natural resources, and it is widely regarded as the USA's gateway to Asia. The gas, oil, precious metals, timber and seafood industries provide most of the employment opportunities, along with local government. But broadband could change that, by enabling Alaskans to work in other industries, such as the IT and creative sectors.

SIGNIFICANT BOOST

Fibre would bring many other benefits, for example in healthcare. Many of Alaska's villages can only be reached by air, which makes the provision of timely medical attention challenging. Over the past ten years, more than one billion dollars has been invested in the development and deployment of advanced e-health solutions. The arrival of nationwide fibre could give these initiatives a significant boost.

Senator Lisa Murkowski is calling attention to the lack of Internet infrastructure in rural Alaska. "Nearly 40% of Alaska's land area doesn't have reliable high-speed broadband internet. That's an area – equivalent in size to Virginia, West Virginia, Kentucky, North Carolina, South Carolina, Tennessee and parts of Ohio – which has absolutely inadequate access, compared to what everybody else in the country knows and expects. That's how we operate on a daily basis.

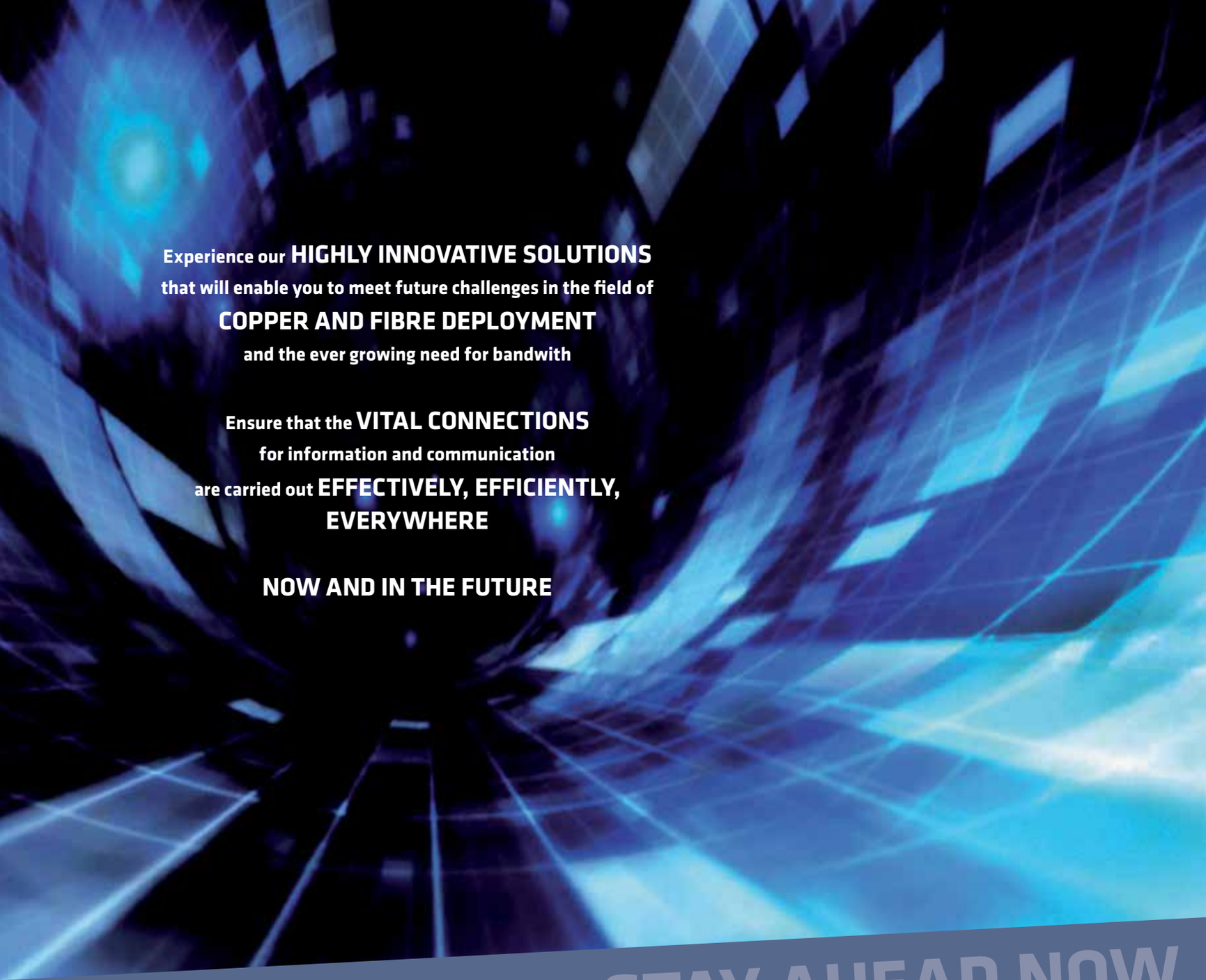
"I can tell you that the people of Virginia, West Virginia, Kentucky, South Carolina, Tennessee and parts of Ohio would not accept the fact that they cannot be part of the communications world of this century. I do think it's important that we understand that how, through access, we can make a difference in the lives of so many who choose to live in their homeland and want to remain there."

FIBRE BENEFITS

According to a study carried out by the analysis and research company Ovum for the FTTH Council Europe, a clear link exists between the roll-out of fibre in rural communities and attracting new business to area. The provision of fibre at a municipal level is considered to have positive benefits on health, education and other public services. These benefits range from reduced telecom costs to more efficient and new services, particularly in rural areas. Indirect benefits which may be derived from fibre roll-out range from bringing communities closer together to stimulating new ways of working.

Lisa Murkowski, Senior United States Senator, State of Alaska

Lisa Ann Murkowski is a member of the Senate Energy and Natural Resources Committee and a member of the Committee on Appropriations. She has helped protect and ensure that health care is delivered by the 100% Native American-owned and controlled Alaska Native Tribal Health Consortium and a network of tribally operated hospitals and clinics in rural Alaska hubs and villages. She was honoured with a Congressional Leadership Award (2009).



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