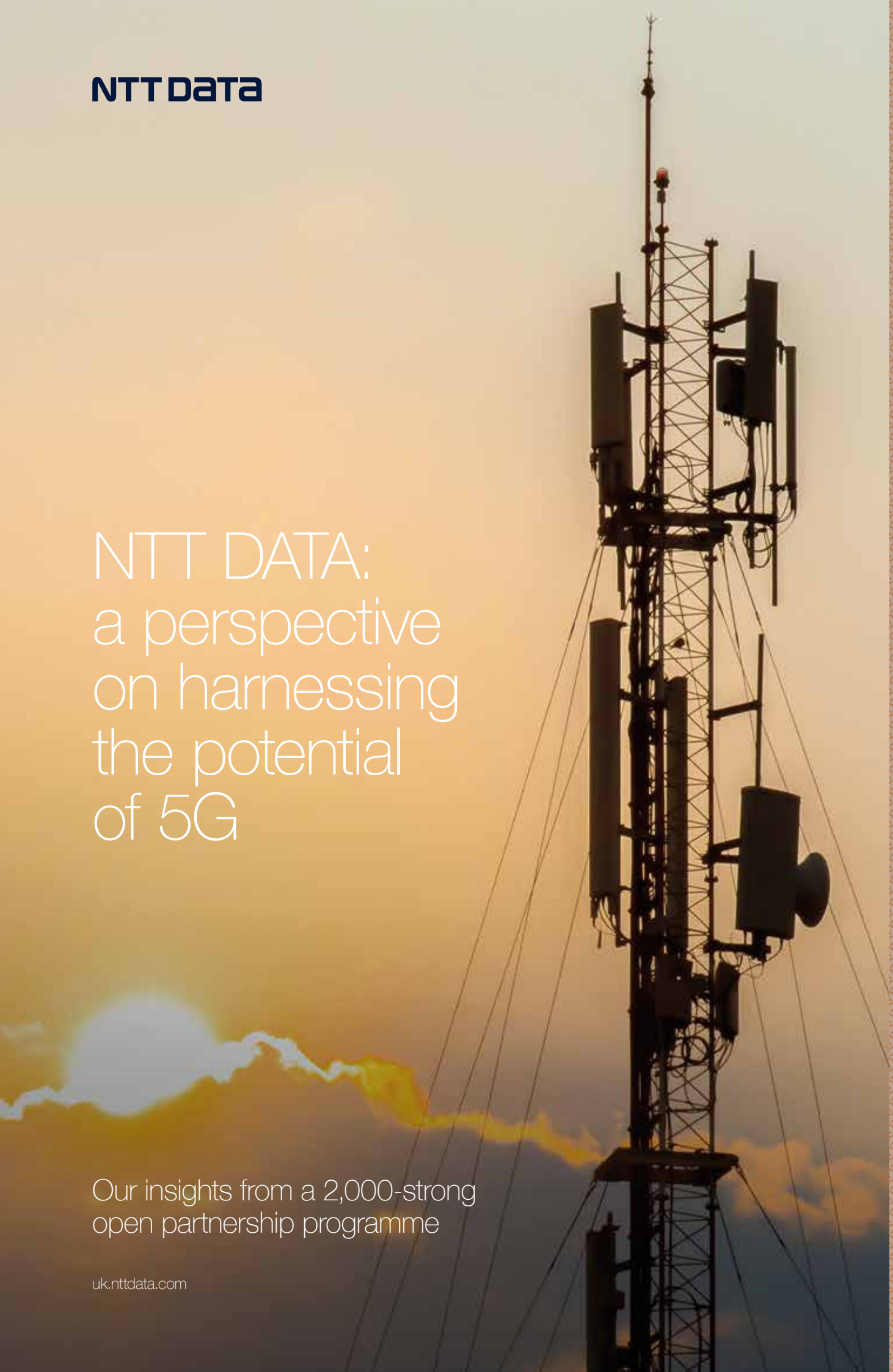
NTT DATA

素晴らしいガイド



NTT DATA: a perspective on harnessing the potential of 5G

Our insights from a 2,000-strong open partnership programme

uk.nttdata.com

GUIDING GREATNESS

The 5G gold rush and the commercial challenge

The advent of 5G networks has caused a great debate within the global telecommunications sector. The new generation of wireless networks is viewed as a saviour by some, set to transform the industry back into a growth engine. While to others, it looks to be another huge capital expenditure with an uncertain use case.

It is no longer the engineering that presents the biggest barrier to realising the full potential of 5G technology, but the commercialisation of the new wireless system in a mature market beset by pricing pressure.

For 5G to reach its full potential of becoming a significant revenue source, carriers need to adopt an 'outside in' approach to innovation rather than the traditional 'inside out'. This has not been the industry's strong point until now, as carriers are pipeline businesses that like to control as much of the value chain as possible. They trade well but partner poorly. An example being telecoms companies failing to collaborate around mobile payments, which has allowed technology companies to step in and snap up revenue streams.

To make the most value from 5G, carriers need to transform into platform businesses and, like Silicon Valley giants, learn to steer research and development toward a 'fail-fast, scale-faster' model. This represents a major cultural shift for most telecommunication companies, who will need to adopt an open partnering model rather than going it alone.

As telcos consider new operating models and capabilities, they will need to rapidly adapt to a world of smart partnering, multi-party revenue shares, joint go-to-market approaches, partner technology enablement and systems integration.

We have been at the forefront of 5G development and have fully embraced the open partnering model. Having identified 5G as a stimulant for new revenue streams in a sector of declining growth, we have now created a path to ideation, productisation and a go-to-market strategy that straddles both consumer and industrial applications. Our commitment is to invest 1 trillion yen, or £6.9bn, between 2020 and 2024 on 5G infrastructure.

A key component is developing a partnership model, with a community of companies ready to move quickly as soon as technologies are commercially launched. This model reflects a 'B2B2X' strategy that relies on research and development to create new services and stimulate value through partnerships beyond the telecoms sphere. Collaboration with companies in sectors unrelated to telecoms has produced unique concepts within fields including AI, media technology and the IoT. In the realm of 5G, 2,000 companies have already participated in NTT DOCOMO's 5G Open Partner Programme, which will unlock the 'use case' conundrum for new technologies and provide critical insight into how 'non-core' revenue potential can be exploited.

NTT DATA are in a unique position to support telcos in laying the groundwork for the future 5G economy having already worked with global telecommunications carriers to explore both public and private use cases, and advising on how best to tailor the right products and go-to-market strategy.

It is no longer the engineering that presents the biggest barrier to realising the full potential of 5G technology, but the commercialisation of the new wireless system in a mature market beset by pricing pressure.

We understand there is unlikely to be a 'big bang' style launch success for 5G technologies. Instead, the journey from 4G to 5G will be non-linear as the development of technologies, ideas, products and go-to-market strategies emerge.

5G from infancy to launch

There are networks around the globe that have launched some form of 5G, but Asia remains the frontrunner. Networks in China, Japan and South Korea are seeing slimming opportunities from LTE and are pressing ahead to be early to market with 5G. Other markets have more to yield in monetising existing 4G networks, and could look to a more incremental path compared to Asia.

NTT DOCOMO was one of the first movers on 5G when, in 2014, it signed up six leading telecoms technology vendors to conduct trials at its Yokosuka research and development centre in Kanagawa Prefecture. This was the result of concept work and technology development that began back in 2010.

In 2015, those initial trials blossomed into advanced tests as we continued to pioneer 5G. In 2017, the world's first large-scale field trial in Yokohama, conducted with Huawei, helped shape the future of 5G. By 2018, further trials in Japan proved that low-power, high-speed 5G services capable of delivering connectivity to moving vehicles with multiple passengers were possible.

That has opened the door to target a variety of use cases including automotive, security, sport, imaging, healthcare, transport and construction in Japan. This experience has led us to work with Komatsu to develop a remote operating system for construction and mining machines, and Sony on concept vehicles that can be driven with a game controller.

Building an ideas engine with partners

The research, engineering and development of 5G technology was not done in isolation. A number of carriers, including those in the UK, have also started to prepare for the new wireless era.

We use a partnership model to foster the development of new companies outside of test labs and to harvest a range of ideas. It's an approach that's akin to the early days of Apple's App Store which enabled tens of thousands of developers to tailor services for the iPhone, which in turn generated demand from consumers for smartphones.

This helps change the perception of 5G from just a technology, to a platform that can help tackle real-world problems. For example, in the UK, we have partnered with ARM, Microsoft and Samsung to establish the DRIVE (Digital Research Informatics and Visual Environments) unit at Great Ormond Street Hospital. The unit aims to harness the power of informatics to revolutionise clinical practice and vastly improve patient experience at the hospital, before rolling it out across the NHS. The unit is seen as a 'hot house' for medical technology and a launchpad for new services enabled by the informatics hub.

In a similar vein, the 5G Open Partner programme was launched early in 2018 to open 5G network technology to governments and businesses looking to experience the technology and exchange information. Similar to the UK's Digital Catapults initiative, companies were invited to use the network and collaborate with us to develop new applications and use cases. The success in attracting partners to test the network has meant that we are further down the path to understanding 5G product and service ideation.

Partners have also been using the NTT Open Cloud, based on the NTT DOCOMO Cloud Platform, to connect directly to live 5G test networks. This launched in April 2018 and already has 2,000 participants – a number that's expected to grow to 5,000 by 2021.

Participants from the US and Israel have also taken part in the programme. NTT DOCOMO has established a live 5G network on the island of Guam and signed up companies including Sony, Plen Robotics and Israel's Humaneyes Technologies to launch services. American companies Aegis Systems, Smart Home Sentry and Flashframe are also testing out the Pacific island network.

This model reflects NTT DOCOMO's B2B2X strategy, based on research and development driving new services and creating value through partnerships with companies in different fields. An example is the collaboration with Toray Industries to develop 'Hitoe', which is a sensing fabric capable of measuring cardiograms and electromyograms.

Partners have also been using the NTT Open Cloud, based on the NTT DOCOMO Cloud Platform, to connect directly to live 5G test networks. This launched in April 2018 and already has 2,000 participants – a number that's expected to grow to 5,000 by 2021.

Create a buzz

Partnerships are critical to the process of ideation with 5G, but creating excitement also plays a part. The demonstration of the humanoid robot T-HR3, developed alongside Toyota, that can be controlled using 5G over a distance of 10 kilometres captures the imagination.

NTT DOCOMO also demonstrated that it could connect racing cars, including one travelling at 305 kph and daubed with a 5G logo, as part of its automotive trials. That helped to demonstrate the crucial role 5G can play in future V2X-connected car solutions with an eye-catching display.

Sporting events are being used as a key arena to show off 5G technology. The Winter Olympics in PyeongChang saw the introduction of some 5G technology in 2018 and NTT DOCOMO plans to make a bigger splash at the 2019 Rugby World Cup in Japan and the Tokyo 2020 Olympic Games.

In the UK, we've already seen the first live broadcast over 5G using remote production in November 2018 at the EE Wembley Cup Final. This not only proves sporting trials can be the ideal place for 5G innovation and ideation, but also shows the potential 5G brings to the broadcast sector, which has historically been reliant on satellite technologies. 5G is being trialled across a number of key UK cities in the coming months and NTT DATA's existing work in Tokyo on sporting and cultural events is the perfect precursor to create a buzz around those trials.

We have pioneered this approach at The Open, having partnered since 2013, with a data wall that provides shot-by-shot analysis both on the greens and to viewers at home. This year saw the data wall take a step forward as 3D-rendered graphics were added to enhance the experience further.

Fan engagement, with the use of mobile, is an area of expertise for NTT DATA which is a long-term partner of IndyCar racing. Our app allows users to get incredible insight into their favourite teams and drivers including telemetry, video streaming, leaderboard statistics and track maps.

Engagement and 5G can of course go beyond sports, as when EE trialled 5G services at the Glastonbury Festival in Somerset – an ideal launchpad for similar innovations in the cultural realm.

NTT DOCOMO also demonstrated that it could connect racing cars, including one travelling at 305 kph and daubed with a 5G logo, as part of its automotive trials.

Productisation and go to market

The future of emergency services communications and a variety of vertical sectors, including automotive, fast moving consumer goods and utilities, will be defined by 5G and successful use cases being deployed.

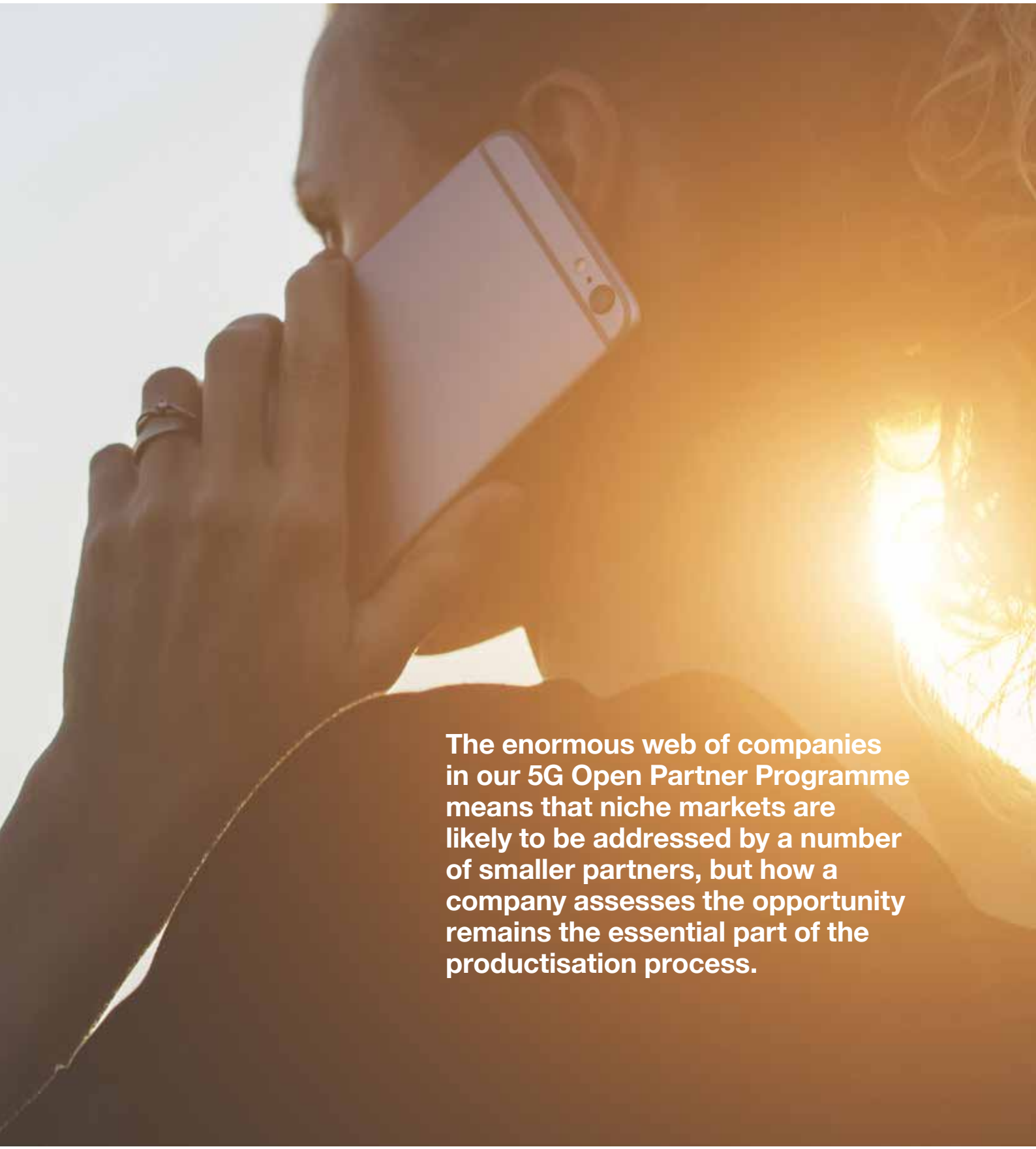
NTT DATA has already started working with other global telecommunications companies on the 5G use cases for public sector contracts – such as how to deploy 5G to reduce pollution through smart traffic management and air quality monitoring. Of particular note is the use of the 'Hitoe' smart fabric, developed in the 5G Open Partner Programme, which will be deployed to monitor psycho-physical stress among public workers.

But as with any network launch, the need for prioritisation is key. The enormous web of companies in our 5G Open Partner Programme means that niche markets are likely to be addressed by a number of smaller partners, but how a company assesses the opportunity remains the essential part of the productisation process.

Striking a balance between physical device manufacturers and service provision is a critical test in the early stage of network deployment. At its heart, 5G is a connectivity play – but 5G device development will likely determine both the consumer experience and the more urgent needs of industry. The poor experience reported by early Verizon users shows that both sides need to be aligned for productisation to work straight off the bat.

The need to prioritise the best ideas in the short term, but remain agile enough to pick unexpected winners early in the development is of huge benefit in improving return on investment. The explosion of 2G was in large part driven by the unexpected consumer adoption of SMS, which was originally a data network testing technology, while the failure of early 3G launches can partly be attributed to the assumption that consumers would demand mobile TV and video calling services even though the network quality was not up to delivering such rich media.

Security is an area where carriers can distinguish themselves. Breaches in the consumer realm can have a disastrous effect but the greater attack surface available in the industrial 5G world, where billions of sensors will connect just about everything, could be catastrophic if compromised. The security implications and liabilities related to such a network need to be front and centre in the productisation strategy.



The enormous web of companies in our 5G Open Partner Programme means that niche markets are likely to be addressed by a number of smaller partners, but how a company assesses the opportunity remains the essential part of the productisation process.

NTT DATA's 5G acceleration proposition

Technical expertise is the bedrock of a 5G launch, but developing new services is critical to the success of the new network in the future.

This is the model that we have adopted across our entire business, and our expertise is already being deployed in other global markets – backed by the largest partner network for the new wireless technology. Orange has already signed a deep research and development pact with NTT to speed up its own push into enterprise, cloud and IT; a partnership that Stephane Richard, chief executive of the French company, has called "precious".

Bringing thousands of partners that have already experienced, tested and delivered services over 5G means that we will hit the ground running at launch. NTT DATA is able to share that experience and expertise in delivering valuable services in a public sector and commercial environment, helping to hone the process of ideation, productisation and go-to-market in a 5G world, giving carriers a head start on the competition.

Orange has already signed a deep research and development pact with NTT to speed up its own push into enterprise, cloud and IT.

NTT DATA UK
1 Royal Exchange
London
EC3V 3DG
020 7220 9200

NTT DATA is a leading consulting and IT services provider, combining global reach with local expertise in over 50 countries. Whether it's business transformation, enabled by digital, data and technologies, safeguarding against security breaches, improving operational efficiency or driving new revenue streams, our vision as the Trusted Global Innovator can help organisations navigate the ever-changing digital landscape and deliver outstanding results.

NTT DATA offers a portfolio of best-in-class consulting services and innovative enterprise solutions tailored to suit the entire life cycle of IT investment. Supported by our international Centres of Excellence, our team of local experts can deliver on a wide range of services from transformation to agile development and intelligent automation for industries across manufacturing / automotive, banking, insurance, telecommunications, media and public services.