

Connections for growth 2020
A Blue Door point of view

Connections for business growth

How innovation in connectivity is
key to driving future productivity

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Connectivity is changing our lives at an ever-increasing pace

Connectivity is becoming ever more important in business and will underpin key growth levers in the UK.

Screen time is replacing face-to-face interactions. Attracting shoppers to browse and buy on the high street also means competing with online stores in our web-driven world. Engineers can monitor utilities' sites remotely, they don't need to physically visit to see what's happening. Hiring talent is no longer constrained by geography, and global markets have never been so easy to enter.

And as technology evolves, the connectivity we enjoy in our personal lives to save us time and effort is expected to be fully integrated into our working lives too. And it goes further. Business connectivity is expanding to include everything from machine-to-machine communication on the Internet of Things – so you have instant information from all your assets – to intelligent assistants that automate many routine processes.

Faster and more distributed wifi and mobile networks allow connections to your colleagues from wherever you are. Cloud computing, 5G and Low-Powered Networks deliver scalable infrastructures that can flex around an organisation's needs – adding or removing services; managing and reallocating resources and capabilities; and providing easy, secure access for workers wherever they need it. With Mobile Edge Computing at the heart of a 5G future, cloud services will run at the edge of the network, closer to the customer on the move. This will make it quicker and simpler to deliver the services that customers want, improving performance while reducing network congestion.

With better connectivity, we can share ideas more easily and react to change at speed, which means business happens faster and decisions are made smarter.

250 million connected vehicles

will drive on our roads this year – helping us drive more safely and economically.

87%

of companies have already experienced business acceleration thanks to cloud-enabled connectivity and collaboration.

85%

of companies plan to adopt 5G technology in the near future.

5G is needed to handle the **42 billion IoT devices which will be generating 79.4 zettabytes of data in 2025** – everything from environmental sensors to smart meters.

Internet of Things (IoT) – a network of devices that provide access to the information they gather e.g. location or temperature or acceleration. A centralised platform can analyse different inputs to determine what action should be taken, such as remotely monitoring production lines to identify potential problems and avoiding them through predictive maintenance.

Connectivity is defining our future

Doctor of Technology and television presenter Spencer Kelly provided the keynote at the 2019 Blue Door conference, where he offered us three examples of how connectivity could transform our lives within the next decade:

The Intelligent Assistant (IA)

The IA that you've come to rely on at home (such as Alexa, Cortana and Siri) will get a smart upgrade for the office, says Spencer. Deploying natural language, it will perform actions like setting up conference calls, transcribing and distributing meeting notes and minutes, and assigning action points – all captured and actioned by simply giving permissions for the IA to listen to selected conversations and meetings. All this automates more manual administrative processes, which improves productivity throughout the team by giving more timely information and allowing people to focus on the creative or revenue-building aspects of their roles.

Connected assets

Think of the benefits of having every part of your business connected and smart. Every vehicle in the fleet. Every item of stock. Every piece of machinery. But in 2025, we may have progressed further still. If each individual component of every piece of machinery is connected, your maintenance schedule is transformed. Now your machines are identifying wearing components before they fail, allowing pre-emptive actions to be taken, ensuring less down time. For example, plant- and vehicle-hire company Van Elle monitors assets with O₂ Smart Vehicle. It allows details of vehicle faults, oil levels, tyre condition and battery status to be matched against a large database of reverse-engineered engine codes, ensuring that vehicles are well maintained.

Connected efficiencies

Using Artificial Intelligence (AI) to analyse and interpret data collected by connected sensors, we will be able to benefit from all sorts of efficiency improvements to business processes. In agriculture, for example, networks of sensors in soil will monitor irrigation, nutrient and pesticide levels, ensuring the right balance at the right times to maximise crop yields. Meanwhile, food computers will control temperature, light and humidity, resulting in abundant, nutritious food grown more efficiently, in any climate and using fewer pesticides.

In short, connectivity will improve business efficiency and productivity.

“Everything works better when devices are connected and communicating with each other.” - Dr Spencer Kelly



Cost savings through connectivity

Better connectivity means we can make informed decisions – faster. Solving problems before they escalate in severity and cost. Uncovering efficiencies. This means greater connectivity can have a positive impact on an organisation's bottom line.

Transforming local authority services

In a pilot study last year, Norfolk County Council embedded low-cost road surface temperature sensors in roads in Yarmouth. They gathered data to determine when and how often the local roads needed to be gritted. The study showed that the council could save salt, fuel and driver time, whilst also bringing environmental benefits, including a reduction in carbon emissions.

Cost-effective driving

O₂ Smart Vehicle is a simple device that transmits vehicle and driver information, in real time. This insight can be used to extend the lifetime value of a fleet. For example, harsh braking by drivers can cause unnecessary wear to the vehicles and create costly repairs. As fleet managers can now use data to identify drivers who brake harshly, they can train them to drive more economically, preventing the need for regular repairs. The solution can also monitor performance of electric vehicles and plug-in hybrid electric vehicles alongside conventional vehicles, providing the performance information to influence future transport strategies.

Cutting data centre running costs

5G and the IoT form a formidable partnership, but it will take Machine Learning and AI to process the vast amounts of data that our connected devices will generate. The union of these four technologies will see us develop machines that learn for themselves and are capable of making business decisions. It's what enabled Google DeepMind, for example, to optimise the cooling system of Google's data centres. A range of sensor data was collected, including temperature, the number and location of open windows, the routing of network data traffic and the workloads of individual machines. DeepMind's AI system trained itself to control these variables in order to reduce cooling energy consumption, and achieved a 40% reduction, resulting in a 15% saving in the overall cost of running the data centre.

Save on office space

In the start-up world, it's common to save on upfront costs of securing your own building or workspace by sharing the space with other businesses in a collaborative work environment. However, creating a digital workplace – where employees can collaborate using videoconferencing, chat and information-sharing technology – could provide an alternative. For both start-ups and established organisations, a digital workplace can increase productivity, improve employee retention and save on the cost of office space.



5G and evolving opportunities

5G has been designed from the bottom up to deliver both the speed and low latency needed for a smart connectivity platform. By 2024, it's estimated that 5G networks will carry more than a third (35%) of mobile data traffic globally.¹ This will take connectivity into a whole new generation, moving us from the connected devices that we have today, to a world where most things are interconnected – completely changing the way we live and work.

"5G will give the consumer a completely new, rich experience that is unconstrained by speed and bandwidth. It'll deliver levels of interaction and engagement with the environment not possible with previous generations of technology. For business, 5G will be completely transformative, introducing a whole range of capabilities not possible until now."

Mohamed Aziz, who leads the RANSE (Radio Access, Network Strategy & Evolution) Team at O₂

5G in numbers²

Our research shows 5G-enabled projects could make every household up to

£450

better off a year

£145

will be shaved off our energy bills through super-smart grids. And council bills could be £66 cheaper thanks to connected refuse collection

In cities, 5G technology will support a greater number of smart solutions. These 5G-enabled smart cities will bring in total productivity savings of £6 billion across the UK. There are benefits in every sector – from health, with remote monitoring, telecare and telemonitoring, to transport with smart road systems easing congestion – saving the economy £880 million. Councils can invest these savings into solutions which further benefit people's quality of life, helping city residents become healthier, wealthier and happier.

"I don't think any of us can be certain about how the technology will evolve, but few doubt that it has the potential to change the way we live and work forever. We just need to take advantage of the opportunity that the technology presents."

Rob Searle, Head of 5G Delivery at O₂



A Blue Door point of view

Connecting machines

Many of us are becoming more at home with IoT. We can turn our lights on and off using smart speakers, and view who's at the door on our smartphones. As battery and connectivity technologies continue to evolve, we'll see more of our devices connected using a range of sensors, tackling bigger jobs.

Supply chain organisations have a new way to track shipments end to end

Engineering firms automate the tracking and monitoring of assets, as well as reporting and dynamically allocating servicing based on real-time diagnostics

Local authorities can connect and integrate transport services

In time, these connected devices will become more sophisticated – utilising AI to make autonomous decisions based on real-time information. By 2022, 62% of organisations' information and data processing will be performed by machines.³

"At the moment, we see pockets of use for IoT. Individuals have a few connected devices at home, for example heating and light controls that reduce power when they're not needed, saving them money. But in 10 years' time, it could be 20 or even 40 connected devices."

Ahmed Kotb, digital lead at The Institution of Engineering and Technology

³ WEF, 2018

IoT in action

Helping people live independently

By using IoT sensors in and around the homes of the elderly, vulnerable and disabled, MySense learns the behaviours of the occupant. It can detect if there are changes which could indicate a problem and raise an alert. For example, wristband sensors measure heart rate for drops or elevations that could indicate stress, illness or other abnormalities. And door sensors monitor unusual or even a lack of activity on front doors or fridges that could be signs of mental or physical issues. It helps carers to develop a better understanding of an individual's movements and habits, and to respond to their needs quicker and more effectively.

Smart streetlights

Omniflow are using IoT and 5G technologies to turn the street furniture of old into smart. They make carbon-neutral streetlights capable of many applications. These range from smart lighting to security and surveillance, driverless car support and even drone charging.

IoT on the road

Out on the roads, IoT helps things run more smoothly. For example, traffic lights can alert cars to an accident ahead and provide them with an alternative route where green lights are being held for longer. Whereas solutions like O₂ Smart Vehicle can offer tangible savings for fleet operations and improve driver safety by keeping decision makers updated on vehicle condition, with alerts for maintenance requirements and driver overtime.



Connecting the unconnected

Most of us take connectivity for granted, but some in society are in danger of missing out. It's important for businesses everywhere to address this digital exclusion. So that in the future, we can all have access to the education, income and entertainment that connectivity provides.

3 ways to connect more people and places

1. Reaching rural communities

Rural communities are often less well served by networks, as there isn't enough demand to cover the cost of mobile infrastructure investment.

At the 2019 O₂ Blue Door Conference, Melissa Giordano, Deputy Director of the Department for Culture, Media and Sport, shared several stories of the ways that a lack of connectivity affects pockets of rural households throughout the country. For example, a Bed & Breakfast owner who only leaves the house when absolutely necessary, for fear of missing a booking.

And the school children in Wales, whose parents must drive a few miles to a lay-by where the signal is strong enough to submit their homework.

To bring connectivity to more rural communities, O₂ and the other operators have together developed the Shared Rural Network (SRN) proposal. The SRN will increase all-operator geographic coverage from the current level of 67% to 92%, Partial Not Spots will almost all disappear and over 3700 square miles of the UK will for the first time be covered by 4G.

A Blue Door point of view

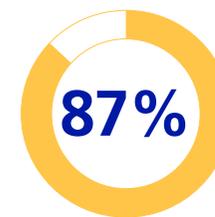
Connectivity in the UK today



of the population lack basic digital skills.⁴



of UK adults had never used the internet in 2019.⁵



of UK households have an internet connection.⁶



of UK adults use a smartphone.⁶

2. Accessible smartphones

According to the Lloyd's Bank UK Consumer Digital Skills Index, 56% of those with a disability are digitally excluded and 27% of adults with a disability have never been online.⁴ That's why we have a long-term partnership with RNIB. Together we have developed In Your Pocket, an intelligent mobile device that gives those affected by sight loss a fully functioning Smartphone as well as access to daily newspapers, popular magazines, audiobooks and podcasts.

3. Digital skills for Leeds City residents

Almost 100,000 residents of Leeds City didn't have basic digital skills – and some 50,000 adults had never used the internet or had not used it in the last three months. So, we helped Leeds Libraries deliver a secure, managed tablet lending service to extend digital inclusion to all and ensure that every Leeds resident has the digital skills needed today.

⁴ Lloyds Bank UK Consumer Digital Index, 2019

⁵ Office for National Statistics (ONS), 2019

⁶ Ofcom, 2019

Business that works together

At O₂, we're passionate about the possibilities greater connectivity brings: we've been on the journey and seen its rewards first hand.

If you'd like to see where connectivity can take your business, call us on 0800 955 5590, email o2@o2business.co.uk or get in touch with your O₂ representative.

To read more about O₂ points of view, explore our [blog](#).

Telefonica

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Our workforce benefits from technologies that have created a flexible working environment and better internal communications. For example, Microsoft Teams allows greater collaboration by making it easier to share information. Each day, there's an average of 11,000 participants joining meetings with 220,000 instant messages sent daily.

Soon, much of the country will be connected by 5G, and millions – possibly billions – of devices will communicate and intelligently work with each other to improve our businesses in ways we haven't yet imagined.

Our smart, connected devices will enable us to control and reduce our energy consumption at home.

The effort to connect more of society will bring everyone equal opportunities to have their say, enabling businesses to work better for customers and employees alike. And organisations will find solutions to challenges, both old and new, as more of us are able to connect and share ideas, free from the barriers of physical location.

When everything and everyone are connected together – whether that's machine to machine or person to person – we can communicate better, work more effectively, and achieve bigger things.

⁷ [Inmarsat, 2018](#)

In business, 45% of companies plan to use IoT to identify cost savings and 27% of companies report that IoT is already improving their decision making.⁷

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