



# Bringing 5G to life in banking and financial services

Unlocking the potential of 5G as a  
differentiator and efficiency driver





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# Introduction

5G will be the next big differentiator in banking and financial services, offering those organisations that get its application right the opportunity to pull ahead of the rest. In fact, we'd go further: 5G will be an essential business enabler in just a few years, and those who don't act now run the very real risk of losing the digital transformation race and seeing their business stolen by the likes of an Uber or Airbnb digital disruptor.

5G is more than a vision. It's a reality that organisations are deploying right now - but that's only the beginning of what's possible. 5G is an opportunity to invent your own future. This can involve 'borrowing' and adapting uses from other industries or challenging providers to get the technology to meet your most ambitious needs. It's a time full of potential – and also some uncertainty; potentially, the applications that will make 5G an overwhelming success haven't been invented yet. But perhaps your project will break new ground and lead the way?

Our recent [The Future in 2021 survey](#) shows that, of all transformative tech, 5G has seen the biggest growth in adoption since last year and almost a quarter of organisations are now planning to invest in 5G tech.

This whitepaper shows you the 5G innovation that's already operating across a variety of industries and signposts how you could adapt its uses to meet your organisation's current and future requirements.

**Start exploring the possibilities of 5G.**



5G has seen an

# 18%

growth in adoption since last year

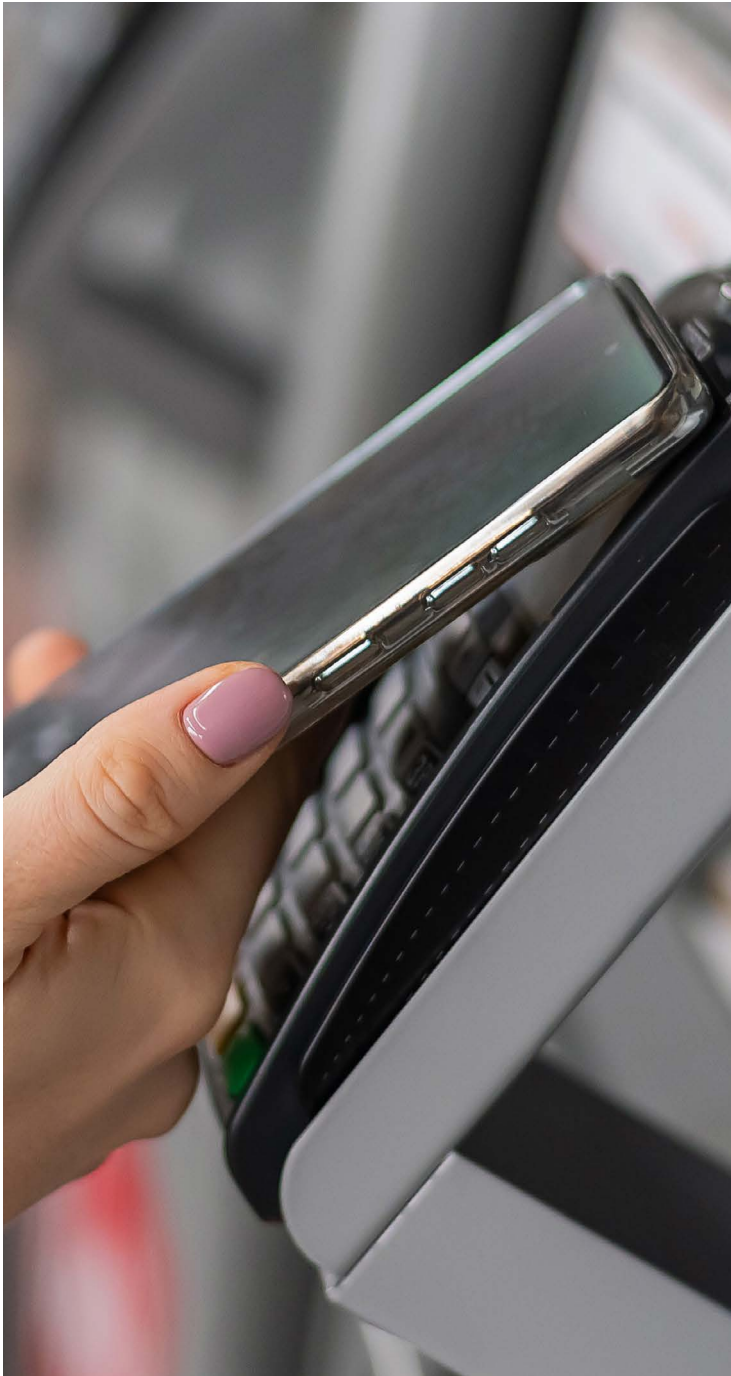
# 23%

of organisations are now planning to invest in 5G tech

**Paul Taylor**  
Managing director  
global banking, BT







# What does 5G mean for the banking and financial services sector?

When you explore the possibilities of 5G, you find a communication environment that has the potential to fundamentally transform banking and financial services.

## Transformational seamless connectivity

At its heart, 5G is a catalyst for seamless connectivity. It completely changes how we think about enterprise data networks, cloud, collaboration and edge solutions, and it opens up new opportunities for digital transformation. 5G will work in harmony with WAN, LAN, wi-fi and security solutions so that it won't matter if you're inside, outside, in the office, on the trading floor or in a branch. 5G will make sure that everything keeps working, seamlessly, from jitter-free video calls on mobile devices, to instantaneous trades wherever you are and real-time access to cloud-based banking services. And it will be deployed for banking and financial services organisations using a straightforward approach, with all the technicalities and interoperability taken care of.

## The ability to do more in a data-driven world

5G will offer a step change in bandwidth, offering up to a 100-fold increase on 4G, bringing lower latency and increased reliability. 5G uses the latest and most efficient radio technology, providing an extra layer of capacity and allowing a large number of devices to be connected all at once. It's a world away from an overcrowded mobile network that can be agonisingly slow or completely inaccessible.

In an increasingly data-driven world, it will support significantly increased network capacity and control, enabling substantially greater volumes of connections within a richer, more reliable network ecosystem. Better capacity and control mean the banking and financial services sector will be able to collect and analyse larger amounts of data more effectively, for improved decision-making, operations and energy efficiency.

There'll also be a 5G-powered step change in productivity, as 5G underpins better, more intuitive ways of working. Training new recruits using 5G-enabled mixed reality instead of paper manuals or guides is just the beginning.



### **A springboard for innovation**

Ultimately, 5G will be the foundation for new, digital innovations and better business agility that can span the Internet of Things (IoT), Augmented Reality (AR) and Virtual Reality (VR), automation and services driven by artificial intelligence. It's a key enabler to getting the most out of other technology. Whether this means setting up a pop-up branch in minutes, delivering virtual financial agents to serve customers wherever they are, or simplifying the securing of mobile payments – 5G will be the backbone of progress.

### **But only if increased security vulnerabilities are tackled**

5G adds another dimension of complexity and sophistication to cellular security architecture and across private, public, mobile and fixed networks. However, a skilled partner with the right security-focused technology will be able to mitigate security risks and deliver assurance and certainty, across every application, component, device and industry environment that 5G will support.





# 5G myth-busting

Understanding the full potential of 5G depends on understanding what it is – and what it isn't.

First up, 5G coming along doesn't mean the end of 4G. In fact, 4G networks will play an important role supporting 5G, and 5G won't replace 4G within the next ten years. To start with at least, 5G devices will stay connected to both 4G and 5G at the same time. This will guarantee connectivity and increase overall network capacity until, eventually, 5G standalone deployments replace 4G.

5G isn't set to replace wi-fi, either. Wi-fi technology (including Wi-Fi 6) will continue to play an important role for indoor data networks, thanks to cost, ease of deployment and widespread device support. Wi-fi is fantastic for in-building wireless connectivity – especially on smaller sites or offices where printer connectivity and email access are the order of the day. But it doesn't give you connectivity wherever you or your staff are. Your wi-fi network operates in a band that's only allowed to operate at very low power. So, when it comes to adopting mobility in a larger building or campus, then 5G cellular technology is your best option.

And the same goes for mission critical applications and services, which benefit from the ultra-reliability that 5G offers.

5G isn't infallible though. Take the issue of access, for example. 5G uses slightly higher frequencies than 4G, and the higher the frequency the harder it can be for signal to penetrate through buildings. Glass, in particular, can act as a reflector. The current 5G spectrum is a compromise between good penetration into buildings and far reach, and we'll use our expertise to make sure we position antennae to maximise coverage.

It looks like the network of the future will deliver the best experience using a range of access technology types (fixed, mobile or wi-fi), matched to the needs of the customer — all supported from a smart hybrid core. Imagine a device that's connected to the enterprise's wi-fi and the 5G network at the same time. This simultaneous connection will mean the user won't notice a dip in connection as they leave the building, and they move from wi-fi to 5G.



## Think ‘convergence’ when you think 5G

Convergence is a key concept in understanding 5G and its potential for banking and financial services. 5G converges or bridges fixed broadband with mobile broadband, and you’ll hear references to 5G’s ‘converged core’, emphasising its role in merging two networks with a single governing core.

When it comes to experience, this convergence brings seamless service with no glitches when you change from indoor wi-fi to outdoor mobile networks. And on an operational level you can preserve IP addressing and session continuity as you move from one to the other.

### An industry poised to take advantage of 5G

Forrester research reveals that

# 65%

of financial services firms are interested in harnessing the potential of 5G enterprise networks, which is more than in several other industries like retail, media, entertainment, public sector and healthcare.

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According to the McKinsey Global Institute, 5G will extend mobile finance and credit access across developing countries.

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Global accountancy firm PwC predicts that 5G applications in financial services will add US\$85bn to global GDP by

# 2030

# 5G will be key to addressing critical sector challenges

Four waves of change are sweeping through the banking and financial services sector, and 5G could be pivotal in meeting the challenges they bring.

## WAVE 1

### The digital takeover

Banks are running expensive physical infrastructure for a dwindling number of customers. While the pandemic accelerated branch closures and the adoption of digital channels, a radical rethink of services is still needed, and 5G has a central role to play.

'Active' branch users globally are expected to fall to

**16%**

by 2023.



## WAVE 2

### The experience economy

The customer experience in banking and financial services is paramount, but this involves a balancing act – delivering to customer expectations while keeping costs under control. The goal is to make customers more loyal, more active and cheaper to serve. Investing in cloud, IoT and 5G tools will be critical to achieving this.

**51%**

of consumers expect banks to anticipate their needs and make relevant suggestions before they even make contact.





# 5G will be key to addressing critical sector challenges

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## WAVE 3

### Cultural shifts

Many banking and financial services organisations are adopting a hybrid model of part-office, part-remote working. This creates a swathe of new challenges that involve significant cultural shifts for the organisation. From ensuring employees can work from anywhere at any time, to reducing real-estate footprint – all while maintaining levels of security and productivity – 5G can be a vital enabler.

# 50%

of financial services employees list communication and connectivity with their teams as the biggest challenges of virtual working.



## WAVE 4

### Sustainability

Corporate social responsibility requirements and customer expectations are turning the spotlight on 5G's sustainability credentials. The 5G industry is aware of this and is rising to the challenge.

The technological shift from legacy network technology onto 5G is driving significant energy demand reductions and reducing carbon emissions. Reducing the carbon footprint of mobile networks is a multifaceted exercise that needs to start with building the infrastructure. A mature network of 5G towers will be upwards of 90% more energy efficient than legacy 4G networks. Then, as 5G adoption accelerates, legacy networks can be decommissioned, and the overall energy and carbon efficiency of mobile networks will increase. BT and Accenture research estimates that the potential of 5G is an indicative 5.9 Gt CO<sub>2</sub> emissions abatement per year based on adoption of mobile solutions in 2030.

E-banking alone has the potential to abate up to 3 Mt CO<sub>2</sub> emissions globally by 2030.

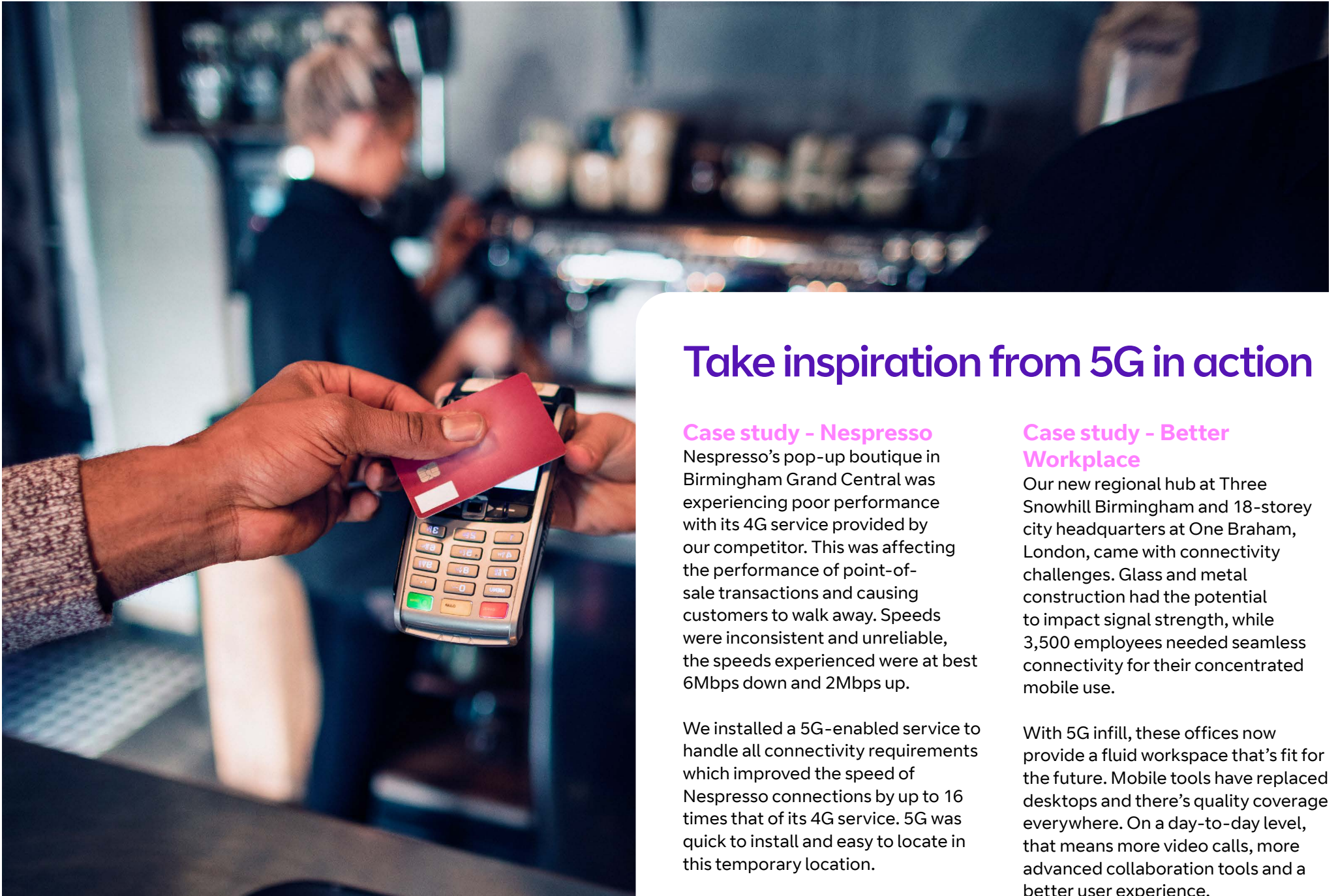


# Imagine the possibilities of 5G

5G is developing fast and is breaking out of dry use cases into practical, workable solutions that can benefit the banking and financial services sector. Its potential is significant, with 5G-powered improvements to customer experience predicted to make a **net contribution to global GDP by 2030 of US\$55bn**, and 5G-enabled fraud prevention measures predicted to **contribute US\$30bn to global GDP by 2030**.

But what's holding many organisations back is feeling unsure about how the promise of 5G can translate into practical benefits for their organisation. It's time to imagine the possibilities and then plan how you can make them your reality.





## Take inspiration from 5G in action

### Case study - Nespresso

Nespresso's pop-up boutique in Birmingham Grand Central was experiencing poor performance with its 4G service provided by our competitor. This was affecting the performance of point-of-sale transactions and causing customers to walk away. Speeds were inconsistent and unreliable, the speeds experienced were at best 6Mbps down and 2Mbps up.

We installed a 5G-enabled service to handle all connectivity requirements which improved the speed of Nespresso connections by up to 16 times that of its 4G service. 5G was quick to install and easy to locate in this temporary location.

### Case study - Better Workplace

Our new regional hub at Three Snowhill Birmingham and 18-storey city headquarters at One Braham, London, came with connectivity challenges. Glass and metal construction had the potential to impact signal strength, while 3,500 employees needed seamless connectivity for their concentrated mobile use.

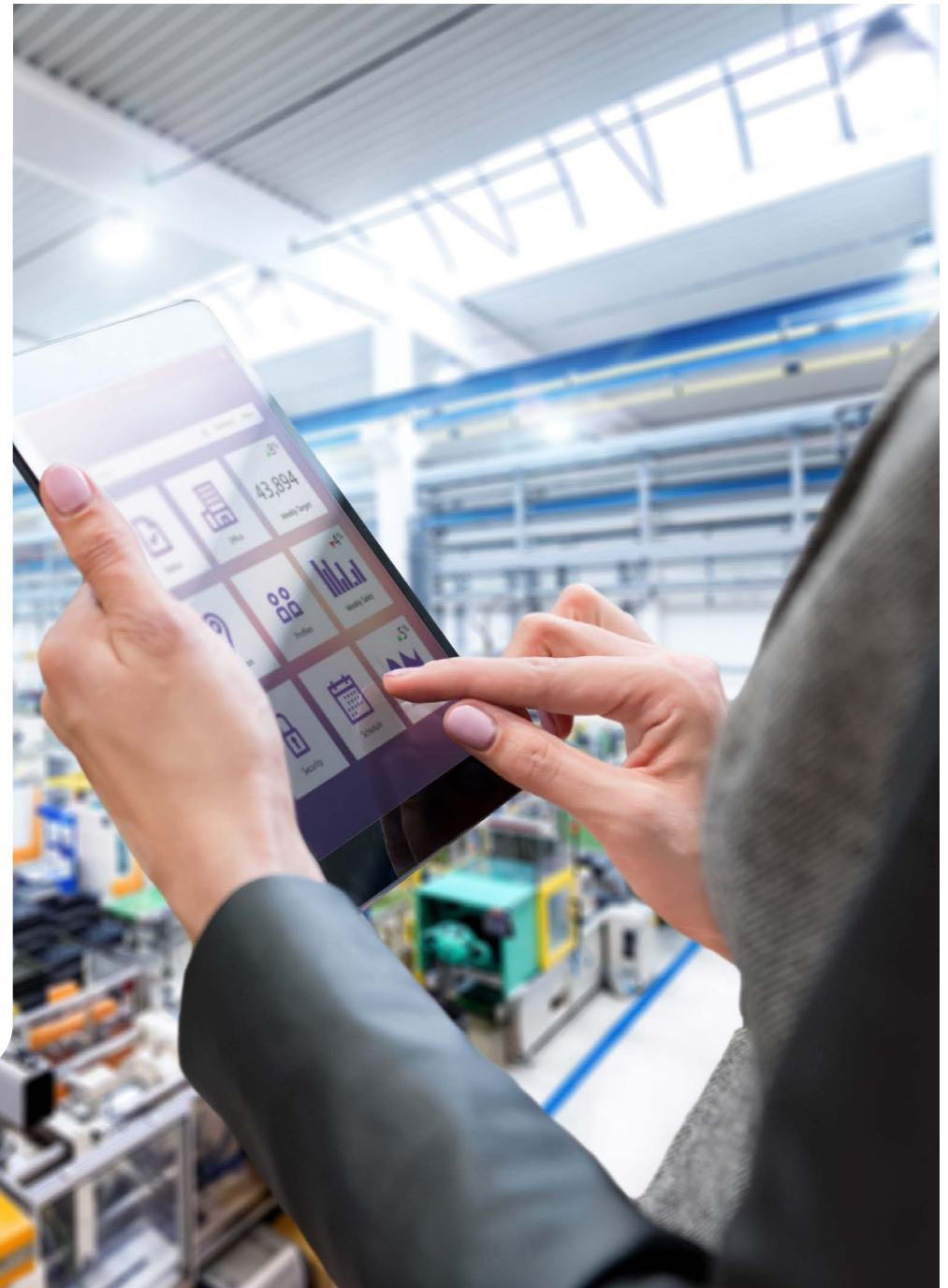
With 5G infill, these offices now provide a fluid workspace that's fit for the future. Mobile tools have replaced desktops and there's quality coverage everywhere. On a day-to-day level, that means more video calls, more advanced collaboration tools and a better user experience.

# Take inspiration from 5G in action

## Case study – Co-op

Together with Co-op, we're piloting potential uses of 5G across Co-op's operation:

- **Rapid site set-up** - for new store deployments, market testing short-term stores and festivals.
- **Safeguarding colleagues** - connecting CCTV with 5G and an AI overlay to proactively identify 'red-listed' problem customers on entry to the store.
- **Supporting colleague and customer communications** - enhancing the mobile video communication potential by connecting colleagues and customers in an immersive, personal way, wherever they are.
- **Enabling personalised promotions and communications** - traditional hard-copy mailing shifts to dynamic personalised promotions direct to the customer's device.
- **AR** - creating new ways for customers to interact with the Co-op brands, driving in-store experience and improving access to products and product information. This includes apps that use an AR visual overlay to demonstrate how products will look in the home.
- **Personalised video marketing** - building on customer intelligence drawn from the Co-op membership card scheme to deliver high quality, personalised video messaging to the customer's device.
- **Demographic sensing digital media** - in-store and in-window digital content tailored to the customer as they approach.





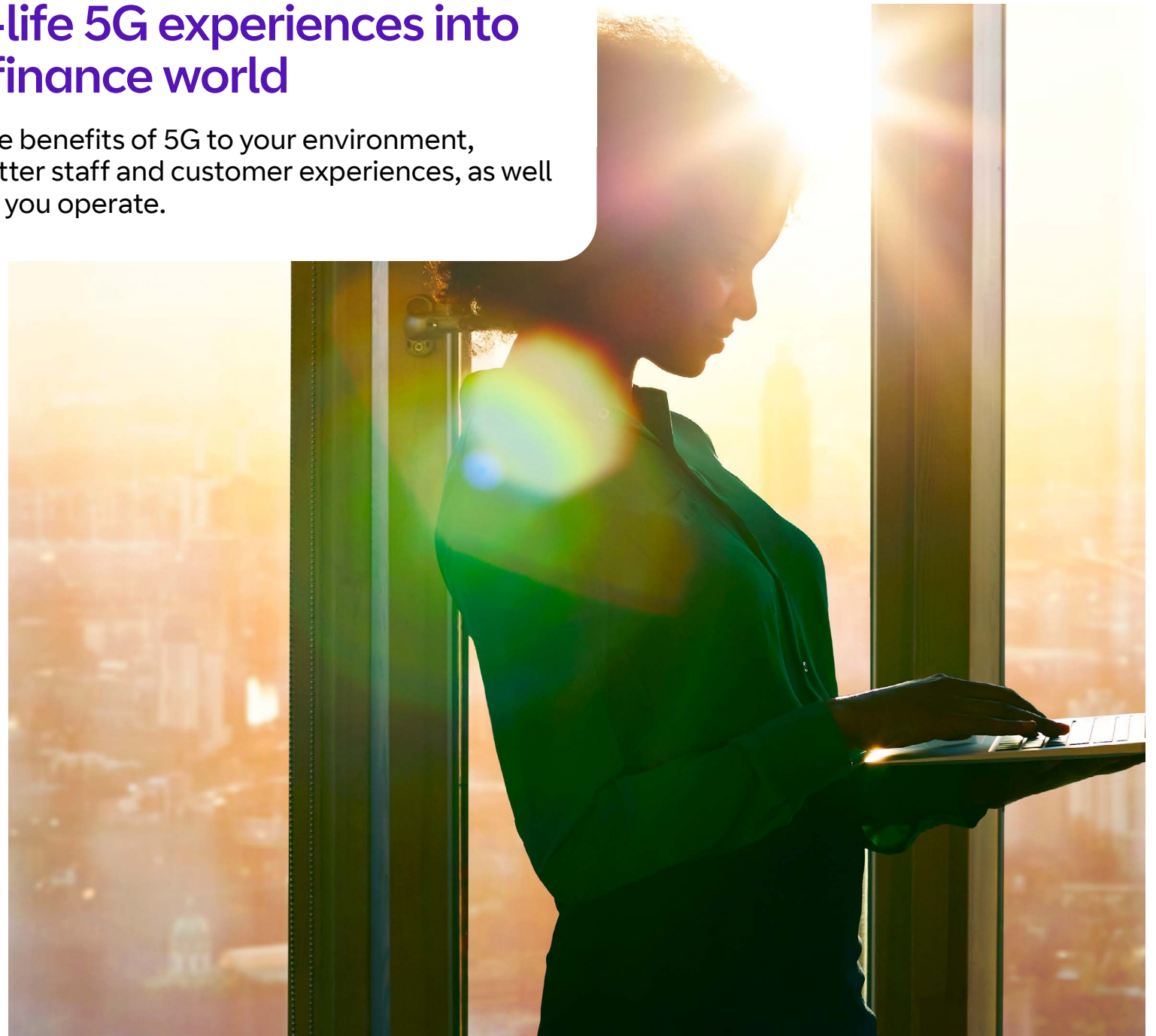
# Pull through real-life 5G experiences into the banking and finance world

Here's how you could apply the benefits of 5G to your environment, opening up possibilities for better staff and customer experiences, as well as innovative advances in how you operate.

## Connect branch offices more cost-effectively and flexibly

5G frees you from dependency on fixed-line connectivity, increasing your responsiveness to customer needs for short-term services. It makes pop-up branches quick and easy to set up, giving you access to all your core systems. Perhaps you use 5G connectivity to get up and running while you put fixed infrastructure in place, or perhaps it's a fixed term project that you'll wind down as quickly as you set it up when you're done. Maybe you'll use 5G connectivity to make a mobile bank branch office viable, or you'll use it to support a short-term ATM at an event.

Already, banks in China are using 5G to enable smart branches that can offer cross-border financial services such as cross-border account openings and banking services for Chinese students studying abroad. They're also operating 5G-automated retail branches to offer unmanned banking outlets.



### **Provide more dynamic workplaces free from wires**

5G can transform the working environment by cutting the complexity of the network infrastructure required for offices and branches. It supports easy access to systems from wherever the individual wants it, banishing the fixed-point desktop computer. 5G makes it simple to give everyone the same high-quality working environment and also controls hardware equipment costs. And when it comes to working on the go, 5G offers fast and reliable connectivity when out and about, as well as opening up a world of opportunity for organisations relying on technicians or engineers. They can now tackle skills gaps by sending lower-skilled employees out in the field and connecting them to remote experts.

### **Facilitate access to cloud-based services**

As services such as video banking become more data hungry, the need to send data to a central database for analysis will increase – and 5G is an effective way to deliver low-latency, high bandwidth connectivity to support cloud-based services. This will mean you can create lighter applications on the devices, but still rapidly access data-heavy applications, giving a great experience for employee and customer.

### **Enhance virtual, augmented, self-service and automated solutions**

Now we're more reliant on video calls, 5G steps in with a mobile data speed that far outstrips home broadband networks, banishing grainy picture quality while video conferencing. 5G also supports high-definition (HD) and even three-dimensional (3D) video without delays or interruptions. Think about being able to offer customers real-time video consultations when it suits them, with no lags or drops in connection. 5G supports the connectivity and AI-based technologies that make this possible. Imagine virtual financial agents that interact with customers' voice commands via VR glasses. Or automated financial assistants that use location awareness and AR to show relevant offers to customers via their smartphone cameras.

### **Help build API platforms for ecosystem partnerships**

The use of third-party APIs within the financial services sector is growing and this is creating a partnership ethos. Third-party apps need access to financial databases to make transactions, but the round trip from app to database and back can cause latency lags that impact on experience. 5G's low-latency, high-quality service makes sure the inclusion of third parties doesn't affect customers.

### **Support mobile trading by brokerage firms**

5G can offer capital markets real-time mobile trading capabilities. Faster connectivity and more data capability enable brokers to access more stock market information in real time on mobile devices, helping them to trade anywhere. Longer term, 5G's vastly improved data download and upload rates will support financial services institutions to better predict market movements.

### **Improve online security for mobile financial transactions**

Although 5G will increase the surface for cyber attacks by increasing the number of connected devices, it also brings security benefits. 5G simplifies the connectivity access procedure, generating a secure tunnel and automatically assigning a fixed IP access directly to the connected device. 5G will also support multimodal biometric security measures, the ability to rapidly analyse data points like geolocation, transaction amount and merchant ID to reduce fraud attempts. Potentially, customers could access bank services simply by submitting to a facial recognition scan, without the need for bank cards or other verification.

### **Reimagine mobile banking app design**

With 5G, a lot of the computing behind a mobile app can shift to the cloud, meaning apps can offer more updates, secure communications and immersive experiences. It will also open up new customer service opportunities such as real-time translation for agents and access to better customer data, plus personalised, AI-driven recommendations almost instantaneously. Apps will have the power to track more data for seamless payment options and better video connections can add services, such as damage assessment for insurance, document verification or branch directions.

### **Simplify mobile payments**

By making simpler but more secure authentication and encryption possible, 5G will boost the use of mobile, real-time payments. Combined with a growth in IoT devices, financial institutions will face demand for mobile payment services as all sorts of items – from smart appliances to self-service stores – become payment portals.



# What does the future of 5G hold for banking and financial services?

The future of 5G is so rich, we've yet to map out all the ways it will transform the banking and financial services sector. However, there are four clear areas to watch and explore:

1

## Enhanced mobile broadband

5G drives faster mobile broadband that offers increased capacity to deliver more media-rich content to customers via AR – potentially it could give access to the metaverse. The vision of the metaverse will fuel customer experience expectations and, as 5G coverage and take up expands, customers will look to financial institutions to keep pace.



2

## Private 5G

At first glance, private 5G can look very similar to wi-fi. However, it's important to see how it combines edge computing with access networks to create data autonomy - meaning all data will stay within defined boundaries. It removes the need to hold sensitive data in data centres that sit outside the perimeter of control. It's possible to build a whole network on a site if that's what your financial institution wants.

5G

3

## The ability to offer advanced services on demand

Offering services over 5G to consumers who are increasingly likely to have 5G-enabled devices and access to a public 5G network opens up the way for financial institutions to enhance the customer experience on devices, wherever the customer is. Currently, customers can speak to their bank via an app or on webchat, but it's fairly impersonal. 5G will support a great video chat experience.



4

## Holographic communication

Holographic communication is not just about how you deliver the hologram to the glass; it's also how you upload the content from the capturing device and how much processing power is needed to produce the hologram from different camera views.

Volumetric video capturing is about being filmed from multiple angles in ultra-high-res. While video compression is being worked on, in the current scenario, combining multiple inputs and accesses like this would need huge bandwidth capacity. 5G unlocks the possibility of holographic communications between staff and customers.



# Why BT

## **We understand your market**

We're woven into the fabric of the financial services community and have been for decades. We bring that deep experience together with our combined expertise to create and deliver the experience financial services organisations need.

## **We're at the forefront of 5G's development**

As part of key industry bodies, including 3GPP, BBF, ETSI and the GSMA, we're working on initiatives to develop and follow 5G's strategic roadmap. We're also working on a range of EU collaborative projects driving 5G use cases forward, and we're active in UK initiatives including projects with DCMS and the 5G Innovation Centre.

This work is hands on – we enjoy direct research relationships with over 30 universities, partner with more than 150 companies, and spent £2.8 billion on R&D in the last five years. And we're always keen to know what our customers want from these initiatives, so we developed customer partnership forums like Co-create, Co-innovate and the Global Advisory Board (GAB). These forums bring customers onboard so we can integrate their vision and develop solutions that are fit for purpose, not just off the shelf.

## **We have end-to-end deployment capabilities**

We're not just a 5G partner; we have full end-to-end capability to rollout 5G. Deployment is complex. 5G impacts various technology stacks and areas of business infrastructure, so we draw on our range of expertise to get it right. Our experts across network infrastructure, cloud services and security are all critical, working together to create the converged core that guarantees a quality, end-to-end service.

## **We're delivering the network that underpins 5G in the UK**

Already, in collaboration with the EE 5G network, BT 5G is available in parts of 168 UK towns and cities. This is a rapid growth from our starting point of covering 71 locations in 2019. We will be launching a new 5G core network upgrade by 2023 to support the next generation of 5G capabilities.

Our BT / EE partnership is committed to offering a 5G network anywhere in the UK by 2028, meaning millions of customers and businesses will benefit from our expanded network and the new on-demand solutions it'll support.

We take this UK-refined expertise and expand it out throughout our global portfolio, partnering with leading technology providers around the world to replicate this 5G success wherever our customers need it.

## **We have deep experience in delivering 5G private networks**

It's not just theory for us; we're making 5G private networks a reality for financial sector organisations around the world. Our 5G private networks deliver full separation from wider public networks that provide the security and data control banks and financial services organisation need. We configure the parameters of our 5G private networks to meet exact specifications and we use them to open up access to services in locations not reached by public networks. We find customers are turning to a private network in dynamic environments where fixed cabling is costly to reconfigure or relocate, and in situations where existing wireless technologies can't meet capacity, availability, latency, density, reliability or throughput requirements.



# Start building your 5G future

The 5G era for banking and financial services has arrived.

Already, leading financial organisations around the world are bringing 5G to life throughout their operations, using 5G to power transformation and establish an edge.

5G will play an increasing role in how banking and financial services businesses operate. And its high speed, ultra-reliable and low latency network connectivity will help the sector to meet developing customer service expectations. The potential impact on the sector is enormous but, to fully realise the possibilities of 5G, organisations need a strategic approach that factors 5G into their technology roadmaps.

To make 5G a reality, organisations need to forge strong, collaborative partnerships with providers who can deliver the complete package of security, infrastructure, cloud and technologies that 5G takes. And they need to draw on these partnerships to develop both their thinking and viable routes forward.

Beginning your 5G journey involves looking around and seeing how other organisations both outside and inside your sector are using it. Many companies are already piloting using it, so they're a great source of inspiration.

**To find out how partnering with us could help your organisation leverage 5G, talk to your BT account manager.**





Offices worldwide.

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