

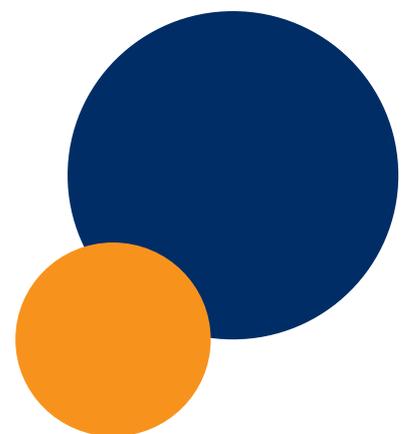
4G

- **Opinion piece**

4G – Releasing the next generation of mobile and remote workers

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● The key benefits of 4G technology

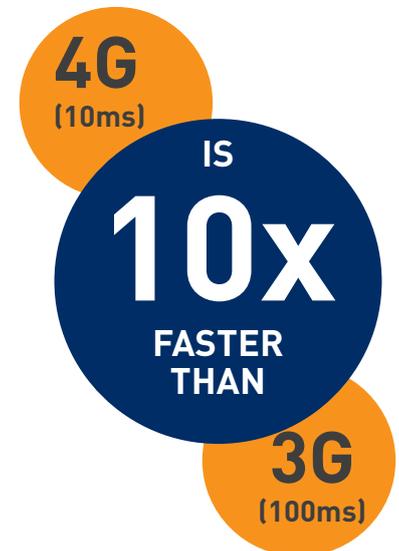
In the UK today, the majority of mobile users use third generation mobile technology (3G) on their smartphones and this technology has created a range of new multimedia and communication possibilities on our smartphones; such as the ability to instantly share photos on Facebook from anywhere in the world, video call friends and stream live sporting events from wherever we are.

In 2012, the majority of the UK's mobile networks offered a 3G service with HSPA+ technology. This can provide download speeds of up to 21Mb/s for smartphones or tablets. The roll-out of fourth generation, or 4G, mobile technologies in 2013 brings a wide variety of benefits including faster response speeds, faster download speeds and lower costs.

One of the biggest benefits of 4G technology is the faster response times or lower latency. Currently with a 3G connection, it can take about one tenth of a second (100ms) for information to be exchanged between a mobile phone and the internet. This may not sound like a lot of time but it can be significant for certain online activities and it also makes it difficult to develop high-end applications. With the advent of 4G technology, latency is reduced to one hundredth of a second (approximately 10ms). This then opens up the possibilities of many new kinds of smartphone applications, as well as benefitting smarter appliances and M2M technology.

The 3G mobile networks of today generally provide download speeds of up to 7.2Mb/s or up to 21Mb/s depending on the speeds supported by the handset itself. 4G networks should offer download speeds of up to 100Mb/s and these super-fast download speeds will enable the streaming of high definition video from smartphones or tablets whilst on the go and will enable the content stored in the cloud and accessed using a smartphone in fractions of a second.

4G networks are specifically designed for data and everything including normal phone calls can be treated as data on a 4G network. This means that a phone call in fact becomes a Voice over IP call in a similar manner to a Skype call. This move towards packet-switched phone calls, which are transmitted over the internet, will result in lower costs.



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● The impact of 4G on VPN access

Using remote access VPNs can significantly improve business productivity as it provides employees with greater flexibility regarding when and where they perform their business tasks. VPNs allow employees who need network access from home, either after hours or on weekends, to perform job functions such as answering emails or using networked applications.

Using VPN technology, employees are able to take their office wherever they go, which improves response times and enables them to work without the interruptions that are often present in an office environment.

Mobile VPNs are increasingly being adopted by businesses that have to provide their employees with reliable connections. The increased speed of data transfer offered by fourth generation (4G) mobile networks means that users can remain connected whilst on the move, as long as they are within the coverage area of at least one network. Therefore, employees can send and receive data reliably and securely without needing to wait or go back to the office for a physical broadband connection.

The advantages of mobile VoIP

Fourth generation wireless communications (4G) will move mobile communications completely into the realm of Voice over Internet Protocol (VoIP). 4G mobile phones will use the same basic VoIP system that computer softphone software programs and many long distance carriers currently do and they will transfer all the information they need to send over a wireless internet connection in a way that conforms to various internet protocols. This will allow them to maximise on packet switching, which is an excellent method of sending information from one destination to another, quickly and at a much lower cost.

Businesses can benefit from upgrading to 4G-friendly technology, as with all the data being transmitted by VoIP, there is the potential to save money and have increased security. The improved performance and reliability will turn mobile phones into mobile in terms of capabilities, which is the ultimate goal for 4G networks. One major trend that 4G will push forward is mobile video conferencing, which will enable employees working from remote locations to transmit videos using only the cameras on their mobile phones.

Every business is keen to have a telephone system that is straightforward to use and that can enhance practice and productivity, as well as a business phone system that is cost-effective, convenient and reliable. With an ever-growing number of employees relying on mobile phones to generate high levels of productivity and effectiveness, whether they are working in or out of the office, mobile VoIP plays a key role. Mobile VoIP systems offer major benefits because they allow international calls to be made over the internet without the expense of the international call costs that are charged by mobile networks.

4G will ensure that the data networks are fast enough to carry VoIP traffic and mobile VoIP systems provide employees with constant access to phone calls, enhancing convenience and allowing calls to be made and received, whether or not a person is working near to a landline. Fixed mobile convergence is another advantage of mobile VoIP as it helps reduce the number of missed calls. Web-activated mobile VoIP will be assisted greatly by 4G and enables the connection of calls through circuits that are cheaper and specially designed for long distance communication.

● 4G for your business

The remote connectivity, made accessible by 4G mobile networks and the associated technology available, will increase efficiency and business effectiveness due to the benefits of having a high-speed connection available on the move and away from the office. The enhanced speed and reliability of real-time communication means a reduced chance of breakdowns in communication, improved collaboration between employees and reduced costs.

Martin Stiven, Vice President of Business at EE says: **“4G is having a transformational effect on businesses across the world. It is unsurprising 86 per cent said that now they have experienced the benefits of 4G, they would not go back to 3G. We’re keen that small businesses reap the same rewards, helping them become more productive, efficient and innovative.”**

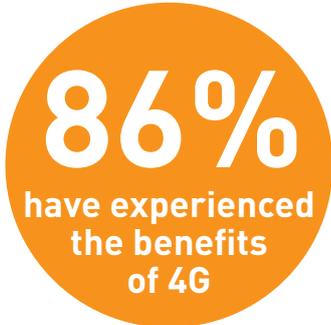
A recent survey by consulting firm Arthur D. Little which was commissioned by EE, indicates that 74% of UK businesses are intending to use 4G. Fifty per cent want 4G so they can have an internet connection without the cost and delay involved with the installation of a fixed line.

Consultant Joseph Place said that 4G brings gains in terms of innovation, cost reduction and enhanced productivity. **“For example, 4G can be used to set up a fully connected office almost anywhere, dramatically increasing agility and responsiveness.”**

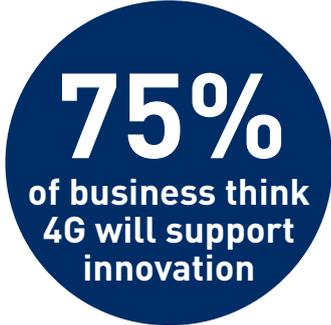
The survey showed that in the US, 75% of businesses see it as essential to support innovation. Examples of imaginative uses of 4G are striking. These range from law firms being able to access files at court instantly; vehicles being used as offices, sparing staff the need to use company premises; construction companies transferring large amounts of data in real-time to their headquarters; and field workers using cameras on-site to stream video data for analysis at their firm’s base.

In Germany, a hospital has used 4G in order to improve survival rates for patients suffering strokes as the speed of 4G communication enables quicker transmission of medical images from incident locations to the hospital for prompt analysis. As a result, it has seen transfer times reduced by 54%.

4G also enables businesses to steal a march on their competitors by bringing new goods and services to market. The survey uses the example of a German car producer providing cars with 4G installed to enable passengers to access the internet at enhanced speeds.



86%
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the benefits
of 4G



75%
of business think
4G will support
innovation

Cost reduction gains can also be very significant. The survey revealed that 47% of businesses said 4G had given them savings. A small business in Los Angeles saved £62,000 by bringing in hot-desking utilising 4G, therefore cutting down on their accommodation requirements and reducing printing costs by being able to transfer data electronically. One US company involved in construction estimated that the use of 4G saved it \$1000 per day and gave a 30% reduction in time required to complete projects.

Productivity gains are also marked. 86% of US firms believe that mobile workers are more productive. They can get information from the internet speedily and efficiently and can communicate with suppliers, customers and co-workers. Some 40% of businesses have their sales force enabled to use 4G to complete transactions whilst in the field.

Conclusion

4G has a lot to offer businesses both large and small in terms of tangible benefits, without the need for dramatic change. Businesses will see growth and improvements in productivity resulting from having faster and more flexible networks and a highly motivated workforce – all without having to make costly investment in new systems and processes. Major gains will flow from an improved customer response and increased competitiveness in the marketplace with more innovation and an enhanced brand presence on both the web and mobile devices.

Above all, 4G effectively addresses three of the barriers seen to be hampering the online purchasing experience – network reliability, slow connection speeds and payments being timed out. The result - better service, happy customers and increased profits for the business. The obvious implication of this final point is that businesses should not only utilise 4G for themselves, but also enable their customers to use the technology when dealing with them by implementing mobile-friendly websites and applications.

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