



# SIGNALLING THE FUTURE

Our £1.5 billion commitment to provide Britain  
with world-leading mobile coverage.



### Olaf Swantee, CEO, EE

As you may know, I come from Holland. In many ways the Netherlands is the perfect country to build a mobile network. It's very flat – 50% of it is within one metre of sea level – and the cities aren't too densely populated or overly cluttered with large buildings.

Even before I came here more than three years ago as CEO of EE, I knew the picture in the UK would be very different. The UK is a large country of hills and valleys, with heavily populated urban pockets, and some of Europe's biggest buildings. Not only that, but it is a country that, as a result of regulatory and competitive pressures, has spent a decade sitting on under-developed networks and ignoring the fact it was falling behind its global rivals.

Yet still when I joined I was told stories about how our mobile network was performing well, how it was more than satisfactory. This made no sense to me. Yes, we ranked well against other UK networks, but on a global scale we were far, far behind.

### Rapid turnaround

And here we are, three years on, with EE now boasting the world's fastest 4G, the fastest 4G uptake in Europe (making it Europe's largest 4G operator), a world-leading dropped call rate, and a network that is consistently named number one by anyone that cares to measure it properly. Even Ofcom's own network reports last year saw EE named as the best UK mobile provider.

Our decision to invest time, money and expertise in creating a world-beating mobile network has spurred on UK competitors. We now see four networks offering 4G, fifteen million 4G users in the UK, and some of the most affordable 4G prices for consumers anywhere in the world. In fact, despite being far down the list as the 52nd country to launch 4G (behind places such as Angola and Azerbaijan), the UK as a whole now ranks 4th in the world in terms of 4G subscriber numbers.

This rapid progress is already boosting the economy, and will continue to do so over the coming years. According to economic consultancy Capital Economics, the eventual productivity gains from 4G mobile broadband to the UK could be in the order of up to £12 billion annually – up to 0.7% of GDP per year.

EE's network progress has been an incredible journey in a relatively short space of time. But again I look around and I'm not satisfied. I'm not satisfied because there are too many places where people in the UK don't have access to mobile networks they now need, even if they didn't need them in the past.

“ The eventual productivity gains from 4G mobile broadband to the UK could be in the order of up to £12 billion annually”

### The changing mobile landscape

We have a team at EE that deals specifically with local community issues. Around five years ago members of that team used to drive 40,000 miles every year trying (and often failing) to persuade rural community groups that it was okay to have mobile phone masts in their area. At the time they were fighting against us building masts, and it was hard to persuade them about the need for connectivity.

Nowadays, that same team drive up and down the country talking to community groups desperate for better mobile coverage and explaining why previous attitudes, technical and economic limitations, and government regulation, means they may not have the mobile experience they'd like.

It's a complete reversal, and shows how a mobile signal offering both voice and data is no longer a luxury, it is a necessity.

“ In the last year we have managed to reduce dropped call rates to a Europe-leading 0.42% while still carrying more than 150 million calls every day.”

It's why smartphone ownership in the UK has grown 20% in the last two years. Everyone wants access to the mobile internet, and everyone wants to be able to make voice calls virtually everywhere.

The change is backed by statistics. Our network supports over seven billion customer requests for internet content every single day; that's 81,000 requests every second – up more than 60% on last year. And the average person completes more than 200 different tasks every day using a smartphone; compared to 140 on desktops and laptops. Internet access via mobile is now central to our lives. This is all while more traditional services continue to be hugely important to our customers too; in the last year we have managed to reduce dropped call rates to a Europe-leading 0.42% while still carry more than 150 million calls every day.

This revolution in the way people use their mobile devices, and the demand that puts on the mobile network, is being driven by a new generation of mobile users. They are watching video and interacting on the go in ways that even three years ago seemed inconceivable. And they are demanding that we respond. Expectations are rightly high in a world where mobile connectivity is so important.

And it's not just consumers; businesses too want to have access to the fastest network so that they can work on the go, can innovate, and can reliably deliver their customers the services that will allow their businesses to thrive. 4G speeds, 4G coverage, and 4G reliability: these are the three things that matter most to our corporate customers across the UK, and the things that will define the success of every 4G network.

#### Our £1.5 billion commitment

At EE, we work constantly maintaining, updating, and improving the mobile service upon which the UK is now so reliant. But, clearly, there is a gap emerging between rural and urban mobile service. As world-leading 4G+ mobile speeds roll-out across London and other major cities, it would be easy for the UK's rural areas to slip even further behind.

Connectivity, both voice and data, is particularly critical to the UK, which has a huge service sector, and which will benefit from the productivity uplift generated by true mobility more than any other European economy.

And that's why, starting today, we are signalling the future by taking our commitment to deliver the best network to the UK to the next level.

We will use the latest technologies to find innovative ways in which we can ensure our customers receive a service that is unrivalled anywhere.

Over the next three years EE is planning to invest £1.5 billion on new technologies that will enable mobile coverage in every home in the UK, and will connect previously unconnected communities.

Alongside every home, we will continue our focus on roads and rails and parts of the country that people spend their daily lives. It means that we will begin to see geographic coverage for both voice and data of 90% of UK.

Around £500m of the total spend will be focused on improving rural coverage in the hard-to-reach parts of the UK that are asking for our help and to which we've not previously been able to deliver the mobile experience they deserve.

“ At EE we believe things are better when they're connected. It is our a mission to bring connectivity to more and more things, making them more useful than ever.”

Three key areas we will focus on to achieve this include: a ground-breaking and unique micro network technology using smaller sites to connect more than 1,500 rural communities; use of low frequency mobile airwaves to cover an over 1,500 square miles of the UK – an area bigger than the Lake District and Peak District National Parks combined; and the UK's first and most technically-advanced WiFi Calling and 4G Voice services.

We will also further expand our 4G network so that it covers more areas than existing 2G networks, and we will do so at a pace far outstripping our rivals. We will achieve with coverage what we have with mobile speeds: deliver beyond our customers high expectations.

And we won't stop pushing the boundaries in terms of speed. Our unrivalled 4G+ network, quadruple the capacity of standard 4G, is already being rolled-out in London, and will reach more of the UK's busiest cities this year, covering 30% of the UK by 2017.

### Connected vision

There's a logical question that can be asked when you consider the advancements we're making in the network space and also the changing ways in which customers are using it. That question is what can EE do as business to help those customers realise the possibility of superfast mobile connectivity everywhere?

“ We are showing why it is important for customers to experience both speed and capacity”

We invest in our network and push network advancements because at EE we believe things are better when they're connected. It is our a mission to bring connectivity to more and more things, making them more useful than ever.

Cisco recently predicted that connectivity in the UK will form part of a £9.5 trillion connected global economy by 2020. Cisco's also said that in 2013 the UK realised £18.5bn of value through what is commonly called the 'internet of things'. Addressed properly, the same report says that figure could've been £34.5bn.

To take the next step, from creating the best network for these connections to enabling the connections to take place through physical devices, we are focusing the business on four areas that we think will see huge growth in connections; four areas that we call our 'Connected Vision'.

The Connected Vision is a mission that means that we work with the best device makers in the world, giving them access to our network so that they can develop exciting new products.

It's a mission that also that means if customers want to connect to our network, and the products don't exist yet, or maybe they simply aren't good enough yet, then will build them ourselves.

It's a mission that will enable businesses to unlock the power of our network through their innovation and their imagination.

In each of the four areas that EE will focus its efforts we will launch new products and refine our existing portfolio. They range from connecting businesses and buildings all the way down to connecting individuals through small personal devices.

Connected Work is about improving working efficiency and allowing people to be better and more innovative in the workplace. It's also about giving businesses the ability to develop new products that use the EE network, such as our MVNO partners.

Connected Home is about bringing the world into consumers' homes, making people smarter. A great example of this is EE TV, which has been a spectacular success since launch, and brings the mobile experience into the home.

Connected Car is about keeping cars running efficiently and keeping people and their passengers constantly connected. It's an area EE already leads and we expect to extend our advantage. In the US we are already seeing the impact of connecting cars and networks – Verizon added 800,000 car connections in Q4 2014.

And finally Connected You, which is about allowing people to play, keep fit, interact, and share on the go in a seamless way.

From our analysis, the market opportunity is huge. 2014 saw 68% growth in tablet sales, and a 25% increase in mobile WiFi sales. 71% of our customers already own a tablet. By the end of the year a recent Kantar Media survey suggested that by the end of this year there will be 13.1m wearables users in the UK. In Q4 in the US, AT&T added 800,000 connected cars to its portfolio.

It is because of this trend, and because EE will be leading the way, that we expect to sell as many connected devices as smartphones by 2017.

We've got some very exciting announcements in the pipeline as part of our connected vision, and we'll be sure to reveal them to you very soon.

By pursuing the connected vision we are inviting ever more connections to the EE network. We are doing this because we can. Other networks cannot.

Visit Wembley Stadium, now connected by EE, and you will be using a network optimised for the future. If everyone in Wembley was an EE customer and wanted to stream video they could do it. It's an example of the three things you need for a scalable connectivity experience: The right spectrum, the right number of sites and the right backhaul.

We are showing that this can be achieved. We are showing why it is important for customers to experience both speed and capacity. Our Connected Vision is the realisation of the time and effort we have put into our network. It is the realisation of the investment we have put into the network. It is the realisation that you need to deliver more to give customers the experience and number of connections they will demand now and in the future.

### Staying ahead

Our focus on developing the ways in which people can connect to our network, and our investments in the network itself will, I believe, keep us far ahead of our rivals. Ofcom already ranks EE best for rural call quality and reliability, and best for 4G and 3G speeds and coverage. But in our unique competitive environment, and with the hard work I know the UK's four (perhaps soon three) major network providers are putting in, we cannot stand still.

Our commitment to being the best will not stop. Our engineering team drove more than 250,000 miles on the country's roads last year to identify dropped call areas so that these small pockets can be located and fixed. We have the MyEE App, which lets the network know when it hits a 'no service' area. It means we can identify the exact spots where customers are not able to make calls, even in areas where coverage is generally good.

And then there is 5G. EE is already leading the way developing the protocols and technologies that will deliver the 5G network. We don't know exactly what form 5G will take yet, but we will be the network that delivers it.

Throughout 2014 we talked about a renewed focus on customer service, which we will continue and accelerate throughout 2015. It is our commitment to service and to listen to our customers that has highlighted the areas we need to improve and to stay ahead in an ever-changing mobile landscape.

“ We live in a mobile world, and through our investment the UK will be a world leader.”

## Standing-up for our customers

Let me be absolutely clear when I say that EE already provides a world-leading mobile network. Ask anyone in the industry globally and they will tell you the same. The demands of our customers and our commitment to being the very best means that we will not stand still. Over the next three years our £1.5 billion investment will make significant changes to people's lives in rural parts of the UK, and to anyone who has suffered from lack of connectivity. We live in a mobile world, and through our investment the UK will be a world leader.

This UK leadership will be apparent not just in our network quality, but also in the skills of those delivering it. We have plans to bring 1,300 apprentices into our business, with the aim to offer the majority full time employment. In the last year we also announced 1,000 customer service roles would be coming back to the UK from abroad. We are investing in people as well as the network, to ensure the best service for our customers.

But this investment will be even more effective, even more powerful, if we can work with regulators to reduce the barriers to us delivering the best experience. So alongside our commitment to investment, we are resolving to stand-up for positive reform that makes it faster, easier and more cost-effective to roll out connectivity. We will also resist regulation that would erode our hard-won network gains, and also to making sure that archaic regulation preventing us from updating, expanding and improving our network is reformed.

By opposing regulation that limits coverage expansion and investing in cutting-edge network technology EE will continue to deliver the mobile connectivity that the UK deserves.

We are told the future is mobile everywhere. We are signalling that future now.



## SIGNALLING THE FUTURE

Our £1.5 billion commitment to provide Britain with world-leading mobile coverage

---

### Our £1.5 billion investment

We will spend £1.5 billion over the next three years on network improvements including widespread rollout of superfast 4G+ technology and further densification of our existing network to improve quality and capacity where coverage already exists. Here are three new developments that will specifically help areas of the UK with previously poor mobile connectivity:



#### Smaller sites, more coverage

- EE is developing a ground-breaking micro network technology that will connect rural communities using discreet smaller site that can simply be attached to the side of buildings.
- The sites are quick to set-up, less costly, and don't require the digging-up of roads because they are independent from fixed broadband.
- The first of its kind in the world.
- Early reports from our trials in Sebergham in Cumbria have been hugely promising.
- By changing the technology and approach, we have changed the economics of mobile networks, and can now cover small areas that have remained unconnected.



#### More spectrum, more coverage

- EE is using its unique spectrum portfolio – the widest in the UK – to reach previously unreachable areas using existing mast sites.
- 800MHz spectrum will be used to quickly improve our current rural footprint.
- 800MHz covers large distances and is perfect for carrying 4G voice and data.
- We're already making progress, updating masts at rural sites around the UK and will cover an extra 1,612 square miles – or twice the area of Greater London – via these updates alone in the next three years.
- We will bring the UK's best 4G network to 99% of the population, and bring high speed data, voice and text coverage to 90% of the UK's geography.
- We will also roll-out double-speed 4G to more than 90% of the population. And LTE-Advanced to 20 cities by 2018.

---

## 3

---

### Voice for all

- The next few months will see the introduction of two technologies we have been talking about for a while: WiFi Calling and 4G Voice
- WiFi Calling will allow customers to use the latest smartphones to make phone calls and send text messages in places where there isn't a mobile signal but there is WiFi connectivity
- It will mean we can provide coverage to anywhere with 2Mbps broadband connectivity. Even a nuclear bunker
- 4G Voice will see us using the 4G network, previously only supporting data, to carry high definition voice traffic
- 4G Voice will be supported over our 800MHz spectrum, as well as 1800MHz and 2.6GHz
- Through these technologies our voice services will reach 100% of people in the UK

---

## 4

---

### Blue sky thinking

- We will begin exploring "Air Masts": Essentially aerial small cells positioned in the sky above a hard-to-reach areas, using either tethered balloons or unmanned craft, bridging the UK's transmission gap.
- We will continue to lead the way in building then protocols and definition of a 5G network. A foundation for technology and research leadership to position EE and the UK as global leaders in the 5G future.

## EMPOWERING THE UK

Our £1.5 billion commitment to provide Britain with world-leading mobile coverage

---

### EE's success delivers huge benefits to the UK – here's how:

#### Empowering the economy

- 15,000 people employed in the UK, including contact centres that make us a major employer in areas such as Greenock, Merthyr Tydfil, Plymouth, Darlington and Derby
- Employment of 1,300 apprentices, with the aim to offer the majority full time employment
- Expanding our 4G network to cover 98% of the population by the end of 2015, changing the way people do business on the move
- Supporting more small businesses to get online with advice on setting up and running websites

#### Empowering the customer

- As a founding partner of Go ON UK, we're committed to building a digitally literate nation. Our Techy Tea Parties, held across the country, offer advice and support to those requiring help to get online
- Investing to improve quality of mobile coverage on road and rail to ensure a better consumer experience
- Trialling mobile voting to see how technology can tackle disengagement of young people from politics
- We're bringing 1,000 jobs back to the UK to support a better customer service experience

#### Empowering the countryside

- Increasing our use of passive infrastructure sharing where we place antennae on other networks' masts
- We've already brought 4G coverage to over 3,000 villages and small towns, and launched a 4G network to bring high speed broadband to parts of Cumbria for the first time
- Ground-breaking new technologies will help connect even more rural communities
- New spectrum will carry signal from our masts even further, covering more of the UK than ever before



## THE POLICY CHALLENGE

Our £1.5 billion commitment to delivering mobile to the whole of the UK



### We want to go further...

As Ofcom's Communications Market reports have repeatedly shown, the UK has one of the most competitive communications markets in Europe, with prices declining in real terms by 50% over the last decade for a bundle of communication services.

This positive competition, which has also seen significant growth in the number of mobile and broadband services consumers can choose from, is the result of a regulatory regime that encouraged network operators to invest as well as protecting consumers.

Whilst delivering great coverage requires more than just investment - we work with device manufacturers to ensure the latest phones are fine-tuned for our network - investment in networks from operators cannot be ignored. Investing in 3G and 4G spectrum alone since 2000 has seen the public purse receive £25bn in auction payments.

To ensure money is best spent in improving and extending mobile coverage, support is needed from government. The mobile industry face ongoing regulatory challenges that have reduced incentives for the mobile industry to invest.

Government and Ofcom have carried out a number of regulatory interventions over the last four years – reduction to Mobile Termination Rates, and now the proposed increase to the Annual Licence Fee that we pay – that have or will strip further, revenue out of the industry.

This revenue would be better spent in delivering investment to improve mobile coverage and the customer experience.

We would like to see government pursue a regulatory agenda that supports investment. This includes:

### A reformed Electronic Communications Code that supports growth

- Automatic rights to upgrade and share infrastructure (with appropriate safeguards);
- Upgrades should be enabled on a 'frequency neutral' basis rather than the current uplift in site rental for rolling out new services over existing or new spectrum
- Immediate access should be mandated to sites to maintain or repair them in the case of network outages with clearer rules about access to the courts to enforce emergency access
- Ensure the Code continues to cover the relationships between mobile operators and infrastructure providers

**Business Rates reform so new technologies aren't penalised:**

- Site sharing should be encouraged through not charging operators individually
- Reducing business rates on small cell and WiFi installations to encourage their wider use
- Government should apply the same charging regime to all fibre installations so that the dominant UK incumbent does not receive a tax payer subsidy

**Revised planning regimes across the UK**

- We would like to see an increase in the permitted height of rural masts so that they can cover a greater area

**Annual Licence Fees that reflect investment**

- Current Ofcom proposals are to increase the Annual Licence Fee we pay on our spectrum by a factor of three to over £100 million per year. This money would go directly to the Treasury rather than being available for investment in network upgrades and rural coverage.
- We would not oppose reasonable increases that strike a better balance in recognising ALFs strip money out of investment. The ALF system needs to be more responsive to our efforts to improve poor connectivity in rural communities.