

**Full Transcript
of the statements made during the
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Opening Remarks

WILHELM ESCHWEILER: Dear Pilar del Castillo, dear ladies and gentlemen, it's my pleasure to welcome all of you to our BEREC Stakeholder Forum Meeting at this impressive meeting. If you compare the setting of our meeting of last year, so there has something changed.

Looking around, I'm glad to see so many of you for our fourth edition of the BEREC Stakeholder Forum Meeting. I see there's a proof of evidence for our ongoing fruitful exchange of views with stakeholders.

Therefore, I would like to take this opportunity to express my sincere gratitude for your participation and contribution to our work in the past, today, and with a future perspective.

I promise to be brief with opening remarks, although I know that this kind of promises at the beginning of a speech is usually rather raising doubts than expectations. However, I want to ensure that we have sufficient time to focus on the substantial issues of our meeting today as we are interested to hear your views and perspectives.

First of all, we are looking forward to our contribution and thoughts with a view to the BEREC work programme for next year.

Secondly, we are looking forward to your views and reflections with regard to the highly interesting roundtable discussions on our agenda for today.

Starting with the connectivity challenge, we will then move on to the new opportunities for innovation in times of a fast changing digital environment.

I'm pretty sure that both discussions are perfectly matching with the current major debate in the European telecoms world, the Commission's review proposals intending to shape the digital future of Europe and its citizens.

BEREC is committed to continuing taking an active part, an open-minded, constructive part, and to provide regulatory input with a view to the debate and the further legislative process.

In keeping my promise, I would now like to hand over to Sebastien to present the draft BEREC work programme for 2017. Thank you very much.

Presentation of BEREC Work Programme 2017

SEBASTIEN SORIANO: Thank you, Willy.

Dear all, I'm very happy to see you all today, top level representatives from companies, from telecom operators, industrial companies, digital companies, from the European Parliament, European Commission, European institutions, regulators and so forth.

As Willy introduced this speech, first I will present you the work programme of BEREC. I will try to do this in ten minutes. Let's say 12 minutes.

First of all, I think that we first have to look back a little bit on our common history. Yes, history.

After almost 20 years of regulation, Europe has achieved what I consider to be our greatest strength. Competition. I know this is not original, but I really mean it.

All over Europe operators are competing against each other to provide Europeans with networks and services, matching their current and future needs, and nowadays we can confidently claim that the opening of the telecom market to competition was in most cases a great success.

Let me tell you that BEREC has an important contribution to this success, making national experts -- national experts, the two words are important -- work together. People concretely involved in day-to-day regulation allow us to become more efficient by sharing best practices and defining common approaches on major issues such as net neutrality.

But this is not the end of the story, and now we have to look at the new challenges. As the European institutions are setting new political objectives for the telecoms sector, I strongly believe that, more than ever, national regulators and BEREC can help Europe to face these new challenges. We can be part of the solution.

Actually, with its 2017 work programme, BEREC is already committed to work on carrying out the top priorities identified by European institutions.

Let me tell you how. Well, the first priority -- now it's a kind of buzz word -- is connectivity. Sorry for that.

But before telling you things about connectivity, I would like to recall a proverb. I would like to share this with you. The person who really wants to do something finds a way; the other finds an excuse.

When it comes to connectivity, to be honest, nowadays we are hearing many excuses. Regulators are bad. Net neutrality rules are too tough. OTTs are competing in an unfair way. Merger control policy is bad, and so forth, and so forth. Excuses, excuses.

Let's talk about solutions. Let's try to find a way. I think that BEREC can really be committed in that, that we really can try to build some kind of pro-investment doctrine. That is already what we are doing in the fixed connectivity. You know that BEREC has issued this year a very interesting report, a report assessing the state of NGA, net generation access, roll-out in several Member States and investigating the main challenges and drivers to such roll-out. I really invite you to read this report. This is very interesting.

Next year, in 2017, BEREC will continue its work by carrying out comprehensive assessments of the need to review the common positions relating to markets 3A, 3B and 4, which are the markets related to broadband and net generation access market. This will be part of our programme.

That was for the fixed connectivity. Let's go to mobile connectivity. I'm sorry the picture is a little bit small, but you can see a guy in the mountains trying to phone with his mobile phone, to pass a call.

You know, just a few years ago, mobile networks were in most Member States mainly used for voice and SMS, and it was not a problem to not have the ability to pass a call in rural areas.

Times have changed. Nowadays we all wish to stay connected to Internet. Mobile networks' coverage has become crucial for Europeans. That is why this will be an important part of 2017's BEREC work programme.

First, this is not a surprise to you. At BEREC we believe that competition is in most cases the main driver to foster investment in mobile networks, and we regulators can even fatten incentives by making people understand that competition does not only deal with prices, but also with quality and coverage.

That is why BEREC will issue next year a common position on how to monitor the coverage of mobile network for regulatory purposes, but also to inform consumers and give them the power to choose their network provider pursuant to their specific connectivity needs.

As you know, competition doesn't bring whole coverage, and we also have to work on what we call challenge areas such as rural areas or, for instance, inside buildings, subways, and we will also work on this next year. And more precisely, we will issue a report on how to facilitate network connectivity in challenge areas. We certainly will propose to the RSPG, the Radio Spectrum Policy Group, our colleagues, to work with us on this item among others.

That was my first point considering the first challenge within Europe, connectivity.

The second challenge that we hear less about, to be honest, is about how to create an open environment in the digital world. Why is it so important? Because an open environment empowers end users. Because an open environment empowers new entrants. Because an open environment empowers innovation from all parts.

You know, we have been working very much this year on net neutrality to make sure that this open environment is guaranteed at the network level to make sure that Internet can be a real common good and that some people are not deciding about the good or the right innovations for everybody.

Next year BEREC will mainly monitor the implementation of the net neutrality rules, the regulations and the guidelines, and help NRAs share their best practices and develop net neutrality supervision tools and methods.

What we have to avoid is that people are trying to build Chinese walls. We have to make sure that innovation is possible from all parts.

This is what net neutrality rules allow and guarantee, and we have to make sure that this is also the case at the network level when it deals with innovation in the networks.

We are now on the verge of a new industrial and societal revolution called the Internet of Things, and we have to make sure that network innovation won't be the privilege of any closed club of operators in Europe. NRA and BEREC shall preserve an open environment for all connectivity solutions.

So next year BEREC will organise two workshops to further discuss the regulatory issues raised by the emergence of these new networks.

On the Internet of Things technologies and their impact on regulation, this will take place at the end of January, and the other one, on spectrum needs to foster innovation, this second workshop will be hopefully co-organised with RSPG.

Last but not least, when we deal with open environment, we have to look around. Europe secured the openness of the environment at the network level. It's about to do it. It is doing it. The risk is now that bottlenecks appear at other levels of the value chain. This is not in the hands of BEREC, as you know, but we can work on this. We can analyse situations, and that is why BEREC will adopt next year a report on the impact on content market and on devices on fixed and mobile telecom market. The idea is to have a clear picture about where are the new bottlenecks in the digital environment.

To finish, let me tell you that we are aware that, you know, BEREC has to be more present amongst stakeholders. This is why we organise this stakeholder forum from four years.

We can improve our internal process as well as the way we interact with stakeholders. So next year, in 2017, BEREC will test innovative regulatory solutions such as databased regulation and

Opengear solutions. I already mentioned this common position on mobile coverage monitoring. Next year we will also have the pleasure to launch a new collaborative working tool. This is something where we have been -- some stakeholders have regretted the way that BEREC made the consultation and public consultation. Well, that's the way we work. But we can maybe do it in a better way. So we will try something. We will see if it works, thanks to a collaborative working tool that we will both for internal working process and external consultation process. With this new tool BEREC will hopefully become more open to citizens and to the digital ecosystems.

Last but not least, BEREC will launch next year the review of its mid-term strategy for 2018/2020.

As a conclusion, let me remind you of Albert Einstein's advice. If you have one hour to find a solution, spend at least 55 minutes to well define the problem and no more than five minutes to find a solution.

As a final word, I can assume that BEREC can be an important part of the solution, can help to find a way and no excuses to solve well defined problems.

Thank you for your attention.

Now let's go to the first session, please. So I call Sharon White, Mrs Pilar del Castillo, Mr Eelco Blok, Mr Xavier Niel and Mr Sam Crawford.

Session I. The connectivity challenge: everywhere, on every terminal, for every service

SHARON WHITE: Great. Many thanks to Sebastien and Willy, who have set up this session incredibly well.

Those of you I don't know, I am Sharon White and I am the chief executive of Ofcom, which is the UK regulator for both telcos post and broadcasting.

I think we are going to have a very, very interesting and lively session this afternoon. As Sebastien has already said, the top priority within BEREC for next year, but also reflected in the discussions on the digital single market, is connectivity.

How do we ensure there is take-up availability of fast networks and how do we ensure that there is universal application of those fast networks at a point when public expectations are possibly rising even faster than our ability sometimes to invest?

I have a fantastic panel this afternoon who I will introduce now. I wanted to start off with Xavier Niel. As somebody in the UK who is desperate for new entrants, Xavier is the founder and chief executive officer of Free which has been an incredibly successful new entrant to the French market. Very much looking forward to hearing from Xavier.

I also wanted to introduce Eelco Blok, who is the chief executive of KPN, the Dutch telecommunications provider. Also a great story of success in the Netherlands that we will hear about a little bit later.

Sam Crawford, to my immediate right, who is the founder of SamKnows, who many of us around the room will know, probably taken their use of your services too, who is a great organisation that's really providing accurate measurement of speed which is crucial both to investors, but also actually to the end consumer.

And last but not least, I wanted to introduce Pilar Del Castillo who is a member of the European

Parliament and I think is going to be busy over the next 18 months, very much involved in the European negotiations around the digital single market.

So I think it's a fantastic panel which I hope will stimulate a very good discussion from everybody on the floor today.

Each of the panellists is going to give a five-minute presentation from the podium. We are then going to move into, I hope, quite a good time for some in-depth discussion from colleagues, experts in the hall today. I think we have also got some streamed questions and answers from those who are inputting their questions also by email with the wonders of technology today. So hopefully this is going to be a great stimulating afternoon.

Can I perhaps start then by welcoming Xavier to the podium.

XAVIER NIEL: Thanks. Our company is Iliad. We are a French operator. We started in 1999 as an ISP in fixed business. Then we went to the DSL. Then we came to the FTTH, and now we are mobile operator in France.

We have more than 18 million customers in France. We are doing about 4.5 billion revenue, 1.6 billion EBITDAM only in France. We have no debt. We have the highest investment effort in the industry in France, maybe in Europe. We have a CAPEX to sell of about 30 per cent, which means we invest almost 1.5 billion euro in our network in France every year. We have no dividends.

Thanks to the European regulation, we have clear roadmap to become an MNO in Italy. In the case of the merging between Wind and Tre(?) in Italy, we gain access to an (inaudible) package which will allow us to become operator, a new operator, a new mobile operator, and I hope new fixed operator, in Italy in the following months.

I know we are very special. We like to be altnets and we like to be new entrant in market and to create competition in this market.

I'm also on my personal basis investor in telco in a lot of countries. I own a telco business in Israel which is a very competitive market, in Switzerland which is less competitive, in Monaco where it's a monopoly, in Afghanistan or Singapore, and I like to create new operator in any kind of geography.

I think in Europe we collectively have a key challenge to address something for the benefits of the Europeans. It means for me giving access to a new generation access network.

So I'm in this telco business. I was in this business for the last 13 years, and when I compare Europe with other geography, I think Europe is doing well compared to the other continents.

We have succeeded in opening up the market to competition and today we can enjoy all its benefits. European digital culture is very advanced in most of our countries. Broadband and mobile penetration are very high. Innovation and investment are at a record level. In the context of high price competition, players have to differentiate their offers for investment in network quality and coverage.

We have attractive and affordable offers which are provided to our consumers, and the digital coverage of both mobile and fixed networks are already good, even it can always be improved.

From this clear positive picture we have to lay the path to the future. How can we succeed in providing to the European new generation networks at affordable conditions?

We have strong feeling at Free about that. We are totally convinced that competition and investment in connectivity shouldn't be opposed. They are the two sides of the same coin.

Competition is a major asset for Europe.

We are 100 per cent sure that it will be a terrible mistake to grant incumbents sort of regulatory holidays with the belief that it will be a solution to get NGNs quickly. When I watch the US market, where you have no competition, for example in the fixed business, you have no investment and for the consumer you have bad product at a high level of price.

In the telecommunication world there is a rule of thumb demonstrated over the last two decades. Incumbents are investing when they're facing competition. Without competition, they maximise their dividends.

In France altnets account for more than 50 per cent of industry's CAPEX and they are pushing innovation. Without Free in France, the price for the consumers would have been two or three times the price they have and the investment would have been smaller.

The purpose of regulation for the near future should be to ensure that both the incumbents and altnets are guaranteed a level playing field to invest. You should also have in mind that deploying NGAs is not only a question of money. We can experiment in France, for example, how easier it was and it is for Orange, due to its legacy and size, to get the architectures and process they want to use the ducts, for example, to get support from landlords and local authorities to appear as the official network operator, and it's tough in this environment to be an altnet operator.

To make it short, three very simple ideas. Competition and investment should not be opposed. Incumbents are only a part of the solution. Altnets have a clear role to play. Regulation has to favour competition when it boosts investment in new generation network. In other words, the altnets that are spending CAPEX have to be protected.

Having these three ideas in mind, the proposal for the Commission for the review of the telecom framework seems to us very positive. Competition remains at the core of regulation. Nevertheless, we have three main comments for the ongoing review of the framework.

First, on the access regulation. We think that the local regulator must retain the relevant tools to impose access obligation and not only act in case of failure of commercial negotiation or co-investment. When the incumbent has regained market share, it is already too late as NGAs market is not really freed.

Anyway, local regulator must be able to improve sharing when and where it's economically relevant, for FTTH for sure, but also for mobile in rural areas.

Passive access should remain the optimum remedy. It would have been impossible in France for us to exist without having a passive access to the Orange network.

Second thing, it's about spectrum. In France for the time being we have all the spectrum and we don't have any new spectrum coming for the following year, in the following year. But competitive access to spectrum is crucial for a vibrant and sustainable competition. Spectrum must be used where there is a need and not to be an asset the big player can use to (inaudible) competition. In a world in which the incumbent is buying all the spectrum, you cannot have for sure any competitors, which means you will not have any competition, which means you will not have any investment.

Local regulator should have the power to set the relevant conditions relating to spectrum, caps, renewal. I know it's complicated from a political point of view and in our country usually the politics are thinking only to the money they can get from the option in licence. But in some cases it could be an issue.

The last thing is regarding the institutional set-up in the EU. Co-operation between the local authority is very important to ensure consistency and good practices among Member States. Regulation should nevertheless remain mainly national to take into account the national specificities and ensure that the day-to-day dialogue between stakeholders and regulator is efficient.

As a conclusion, the gigabit society will only exist if regulation favours a significant level of competition which is the only way to push innovation and investment.

I can guarantee you and we can guarantee that Iliad will play its role and continue to be the maverick which will force its competitors to continue investing in order to differentiate. Thank you.

SHARON WHITE: Xavier, thank you so much indeed. A very powerful message about the huge driver of competition for investment, but also, I thought, a very carefully carved route for regulation there which we will discuss, I'm sure, in more detail later.

Can I now welcome Eelco Blok, please.

EELCO BLOK: Sharon, thank you.

Good afternoon. I'm delighted to be invited to speak at this roundtable session.

KPN is the largest provider of telecommunication networks and services in the Netherlands. You see some key information about KPN on this slide.

As an introduction to our discussion later, I want to share with you the current state of the Dutch digital society, what we did at KPN to achieve this current state, what we are doing to maintain this position, and how regulations could support building the gigabit society.

The Netherlands and the Dutch people tend to be very adaptive to change. They want to be at the forefront of innovation and expect to be connected by the latest technologies.

Next generation access such as fibre, VDSL, DOCSIS 3.0 and 4G is already well developed in the Netherlands and covers almost the entire country.

As you can see, the Netherlands is doing very well on digital economy and society and time spent on LTE, particular to its leading position in connectivity. KPN is proud to present these scores as we have done much to contribute to this situation.

The next slide shows that KPN has invested already heavily in the Netherlands between 2011 and 2015. This amounted to a total of almost 8 billion euros, including investments in Fibre-to-the-Home. Today we have 30 per cent coverage of Fibre-to-the-Home in the Netherlands. That means that 30 per cent of the households are already connected to Fibre-to-the-Home and excluding 1.3 billion in spectrum. With this investment effort, KPN has been ahead of the curve in Europe.

KPN has been able to roll out our 4G network to virtually all of the Netherlands, both in population and geography, ahead of the demand for mobile data utilising our good spectrum position.

On fixed networks, the graph on the right-hand side of this slide demonstrates that customers perceive KPN as best in class in terms of networks and services in the Netherlands. Resulting from our investment-led strategy, we have deep fibre penetration throughout the Netherlands. With around 80 per cent of the country covered with fibre or fibre-based technology by the end of this year, we have a fibre line going into almost every neighbourhood in the country. This has

led to almost three-quarters of our customers already having access today to more than 100 megabits per second.

KPN's fixed investment programme for 2016 and the years after focuses on investment on Fibre-to-the-Curb. For example, the roll-out of our next copper technology of (inaudible) Vplus will drive another doubling of the available download speed to the speeds of 400 megabits per second.

Supported by an excellent background and high fibre penetration, this only requires a simple software upgrade for the majority of our customers. This gives us the opportunity, when customer demand changes, to respond rapidly and efficiently by increasing bandwidth where needed.

So while Fibre-to-the-Home has been the talk of the town over the past years, Fibre-to-the-Curb can bring high-speed connectivity to our customers in a much faster and cost-competitive way. We believe this agile approach has greatly contributed to the current state of Dutch connectivity and has created the fundamentals for our gigabit society.

Being a heavily regulated sector, we believe the regulator should support us in further developing the gigabit society. The investments by KPN are done in a very competitive market, both horizontally between operators and also vertically between operators, OTT players, handset manufacturers and content owners.

In our view, supportive regulation should focus on three key items: a level playing field, faster access to and harmonisation of frequency allocation and, last but not least, same service, same rules.

Thank you.

SHARON WHITE: Okay, thank you very much indeed. I suspect many of us around the room are looking at the connectivity stats for the Netherlands with a great deal of envy. But it's come about not through accident, but through a very particular environment which we will discuss later. Thank you so much.

I then wanted to move on to Sam Crawford, who will give us a slightly different perspective in terms of the measurement and confidence in terms of the delivery of our networks. Thank you, Sam.

SAM CRAWFORD: Good afternoon, everyone. Good afternoon.

My name is Sam Crawford. I am the founder and CTO of a small London-based company called SamKnows. In case you haven't heard of us, what we do is we provide end-to-end broadband measurements service for regulators and ISPs all around the world. We work a lot in Europe with some of the regulators here, some of the ISPs here as well, and also in many, many other markets all over the world such as Brazil, right the way across to Singapore, Mongolia even, America, Canada. Many, many different markets.

So for us, whilst this is really our home turf and we know an awful lot about Europe and the UK market in particular, we have also had a great deal of experience of both the technical and the regulatory markets in many, many other markets too. So I'm hoping we can bring some of that perspective here as well.

So a little bit about us. We are about a five or six year-old company. We focus very, very heavily on providing very accurate, very robust and very reliable measurements so that the

regulators and the ISPs we work with, ie our customers, can make very informed and reliable decisions based upon that data, because after all, if you can't measure it, then you certainly shouldn't be spending money on it.

We do a lot of measurements in both the fixed line and in the mobile space. We are probably most well known for our work in the fixed line space with a device that we call the Whitebox which conducts measurements autonomously of end users' fixed line access performance.

Our main message when we first started, when we first launched the company, was that it's not just about speed. We wanted to move the conversation beyond speed and look at many, many other characteristics such as latency and packet loss, and increasingly nowadays the conversation is moving beyond that too. I'll return to that shortly.

So, like I mentioned, we have a lot of history working in many different markets. As you might guess from the accent, I'm from the UK. I was still a teenager when local loop unbundling was still being mooted as an idea. So I kind of grew up in an environment where competition was entrenched. It was a very, very good thing.

But since then, I've been doing a lot of work or we as a company have been doing a lot of work in markets where there was much less competition. One of the previous speakers brought up the US market as an example, and that's very true. There are many places where you can only purchase broadband or mobile services from a single operator, and in many other parts of the country you can only buy it from two operators. It's very, very different to what we are used to here in Europe.

I would say on the legislative side of things, there's an increasingly amount of focus these days, both in Europe and abroad, on legislating what is minimum levels of service for key network level, quality of service measures such as throughput, latency, packet loss, jitter perhaps, and we see many, many different implementations of this in different markets.

So in the US you have the open Internet order. In Brazil -- I don't recall the name of it, but they have legislation for both fixed and mobile networks, and the implementation of these is very, very different. Brazil has very, very, very heavy penalties if operators do not meet these metrics, these KPIs that have been set out.

Other markets do similar kinds of things, and it's very, very interesting this to see the different effects that this has had on the market. You could certainly argue it's not had quite the impact that they might have hoped for, whereas some of the other markets we work in, there's a much more positive message about speed is improving and this is fostering innovation and investment in the market as well, particularly as you open it up for competition too.

I suppose one thing that I just wanted to mention and perhaps leave this with is we need to be mindful of the future when talking about incoming regulation. So right now, as I mentioned, there's a lot of focus on network level quality of service measures. Increasingly we are seeing both our ISP and regulatory customers moving towards not just covering quality of service, but also quality of experience, looking at individual applications and how they perform, because speed on the access network to the user's home is one thing, but application performance for key OTT video services, websites, content being streamed from other markets, that frankly is one of the main uses of the Internet for many users.

So measuring that performance and being mindful of that as a use case which is only increasing and will continue to only increase is extremely important in our eyes.

Thank you.

SHARON WHITE: Thank you, Sam.

PILAR DEL CASTILLO: Good afternoon. Thank you very much to BEREC for giving me the opportunity to be here with you today.

Let me underline at the very beginning that the debate on the review of the regulatory framework in Parliament has still not started. Indeed, we still have not -- parliamentary reporters has to be attributed this year. But in that sense, you can understand you have to read me as just preliminary views from my side. It's all I can contribute today, and not so much on behalf of Parliament or expressing how the debate is going on.

I will limit myself to the recast directive, so-called European Code for Electronic Telecommunication, leaving aside other legislative proposals which are part of the same package.

I know one of those is the one affecting BEREC, which for different reasons of the past I also feel very involved with. Maybe in the debate we have some opportunity to come back to this one, but I'm not going to refer this. Only to those related to the code.

I think to understand that it is necessary to see where we are. You know much better where we are in the detailed context, but sometimes it's good to refresh how things were when the previous regulatory framework was adopted. Not when it was designed, still was two years in advance, but only when was adopted. That was 2009. From 2009 to now, the detail environment and the detail evolution has dramatically changed.

We were in a time in which the telecoms sector had their own very well defined frontiers determined by the telephony and access to basic Internet functionalities, and that was practically all in some way.

Today, not necessary to say in front of such an audience, but leave me underline again that we are far beyond that scenario. We are -- I would say fully, but quite close to be more and more fully a network society in which Europe has the potential.

This is the sense of the European Union. It has very much to be with the single market, and in this case with the digital single market. That is plain, not only for political reason, but also for the reason, the need for having such an instrument, such an area which is the European Union. And I must say that it is determinant on what will be the future of the European Union. It has a lot to be with the capability we have at the end to really build a big common interest through the European market, in this case through the digital single market.

This has not only consequences for the economies, but for the whole, let's say, political project of the European Union as well.

Well, in this new context there is no need to say that for achieving the new world, high connectivity everywhere and for everyone is critical. For this reason, at least for me, I think, we must congratulate the Commission for elevating to a core objective of the EU regulatory framework the availability and take-up of very high capacity connectivity.

We have not to forget that together with this still is there competition, and of course consumer rights, but still is there competition.

Among the proposals that I believe do represent a good step forward achieving the connectivity goals, let me just mention the strengthening of the proportionality requirements when mandating access regulation. In particular the draft proposal explicitly provides that wholesale access

regulation cannot be imposed on SMP operators in the absence of an end user's harm.

On the other hand, the requirement for (inaudible) to first consider mandating access to civil engineering such as ducts and poles and to impose other access remedies only if they conclude that would be not sufficient achievement of the objectives of the regulatory framework.

I must say that in this sense in my view the access regulation proposals do not revolutionise the existing regime, which is solid and well-established, but make a subtle -- you can say subtle subtle, well, in my view it's subtle -- shift in the emphasis to promote investment in the network.

Just to finalise, three points. One is the one there has to be with proposal for co-investment. I think there is a need to debate. There is a room for debate. If the measure that the Commission has proposed really stimulate that kind of co-investment, the requirement and the proper one must be to retune, refine change, and so on and so forth. That will be present, I'm sure, in parliamentary debates.

The level playing field. It is one almost iconic, you know, item that it is for a long time present in the debate, but it is there.

I think service provider for a similar service offering must be treated equally. This is a principle. But what I consider is still, you know, something that must be debate is on the technical feasibility of some of the measures.

On the other hand we must not forget -- I mean, on the one hand, to forget, but to debate on this technical feasibility. Maybe not the best one. Maybe it's not going to really achieve the goal that they try to reach.

On the other hand, which is also -- and I will insist in Parliament in the debate in that -- is that we have not to forget that deregulation for all, in some cases it could be, it might be, the best option, the best solution. So altogether it needs the debate of the level playing field.

Finally, finally, that's the last, on the spectrum. You know, they always persecuted desirable aspect in terms of a high level of co-ordination with European level, but always with the same answer by Member States, by Council. Always: please don't touch it. We have the ownership. No one discuss that. It's there. No one discuss that, you know, the money that you can get for the public budget through spectrum, natural spectrum auction. So it is for Member States. There's not any room for debate in that.

But it still is the same rule for debating and take decisions in a number of aspect which will, you know, boost the possibilities for the electronic communication sector to better develop in the European Union.

There's a number of things that the Commission has proposed. Proposals, many of them, they were in the original TSM dated in 2013. As you know, in the TSM Council denied to enter into the debate. So finally it was only roaming and net neutrality, as you remember.

Again, this proposal and some of new ones like, you know, the minimum licence duration which Commission has established in 25 years, which originally Parliament on the TSM will talk about and ask for 30 years. So we have to come back to this, and many other things which I am not to spend more time on this because we need to go to the question time.

Just my last message is that we have an opportunity. We in the European Union, we have all the time opportunities. The problem is that many of those times we don't really find and execute the right answer and the right decisions for those opportunities to be a reality. You know, that's something which is constant in our history, not only this sector, but in many others.

So this sector, the electronic communication, that needs an update. It needs to really refurbish

in some way the context in order to have, you know, the best environment to fully seize all the opportunities, and we must not fail. For the European institution it's a must. I'm sure that we will be, you know, subtly where we have to be in terms of the final outcome to really have the right response to this.

Okay, thank you very much.

SHARON WHITE: Pilar, thank you so much indeed. That's a very eloquent setting out of where the current state of discussions are.

We have about three-quarters of an hour or so for an open discussion.

Now, I'm assured that questions to panel members are going to appear by screen, but I also wonder whether, if colleagues have got questions directly on the floor and we have some microphones, perhaps we can gather two or three questions to start off with.

I can see one to my right and -- when the microphone comes to you, can you say who you are and just express your question or comment as succinctly as you can.

KANE MUMFORD: I'm Kane Mumford from the spectrum management newsletter PolicyTracker. I've got two questions, if that's okay.

The first one is for Sharon. I was wondering if -- the European Union has, you know, kind of repeatedly tried to kind of take control of spectrum harmonisation measures. Ofcom might not be in favour of this, but I was wondering if it was in favour of voluntary co-ordination of award processes.

My second question is for Pilar. I was wondering if you think the European Parliament will support the co-ordination of the submitting of draft proposals on award processes to a centralised BEREC sort of body to review it.

Thank you.

SHARON WHITE: Okay, thank you very much. Just to be clear on the two questions, I think the first question was to me, thank you, which is whether Ofcom has a view about processes, the proposals for co-ordination of spectrum.

We are very relaxed about greater co-ordination. I think, as Pilar has already set out, there is clearly a debate about the degree of more European -- "intervention" is not quite the right word, but more European sway, but that's a debate we are keen and will have over the coming months of the DSM.

I think the second question to Pilar was on the specific issue of the proposal that BEREC is made into a European agency rather than a more informal grouping.

PILAR DEL CASTILLO: Okay. You want to do the first one?

SHARON WHITE: On the first, as I say, we're pro-co-ordination, and that's probably as far as we would see any next step.

PILAR DEL CASTILLO: Okay. Well, I go to next. I'm so sorry because we cannot really hear very well from here. Maybe you have always to again say which one the questions are, because -- but now it's clear.

Well, previously to this debate this morning at 11.00 we had another debate organised by WIC, you know, which more or less, you can imagine, was, you know, more the same in some ways. More or less.

It was the Chair of BEREC present with me and with Anthony Whelan from the Commission. BEREC came to the -- let's say to the opinion, reflection, and questions. The Chair very nicely, well, addressing me, and he said: you as a matter of BEREC, do you think BEREC has not delivered properly? Do you think that -- and it's not. I mean, I believe that we had the right decision not to have an agency as it was proposed in 2007 and it was not finally adopted in 2009.

I think a kind of step forward from what it was, kind of very -- not very much co-ordinated, without specific resources and so. That was real improvement, BEREC, and I think BEREC has gained a lot of credibility, to tell you the truth.

With my colleagues in Parliament and with a number of stakeholders, BEREC, for example in debating net neutrality, everyone was: okay, let's see what BEREC has to say. There was, you know, an attitude and a perception of: well, this institution is something that we can trust about, you know, because -- and I think it's like that.

But as the Chair remember at that time, this morning, BEREC is six years old now and it's not the same. I mean, when you have six years, you have different needs which are new ones with respect to when you are born. So the idea of keeping the independence nature of BEREC, which I think is fundamental, it's crucial. It's crucial.

Then that will be interesting together to see what kind of new development can, you know, improve at the end of the day. You know, that view, which is one of the European Union, of the single market, and not the national one in which the regulator had been, you know, acting.

So I think let's see if we can find a base on the Commission or new proposals. We can find some kind of --

SHARON WHITE: I'm actually going to suggest we move on because I suspect we are going to have lots and lots of questions from the floor.

I've got a couple that have gone through by email, for which thanks, and I'm going to take them in reverse order.

The first question is about whether fibre should be at the heart of operators' connectivity strategy. Actually the question is ambiguous. It's unclear as to whether it's Fibre-to-the-Curb, as Eelco has argued rather strongly, whether it's Fibre-to-the-Premise, where we've got duct and pole access in a number of our countries.

I'd be interested in the panel's brief comments as to whether we should move strongly away from technology neutrality, which there have been some interesting rumbles that we should, or whether actually it's up to each operator to choose his or her investment strategy.

Xavier, do you want to start off, please?

XAVIER NIEL: Yes. Fibre is the endgame. For the next 50 years we know that we will have to use fibre. We will have 4G, 5G, 6G, 7G, 8G, but we still have behind fibre. Of fixed business, we will need of course the fibre. So it's the endgame. FTTC is the start game, but at the end you will have FTTH from everywhere to everywhere.

So it means that today, for an operator, if it doesn't gain access to fibre, he will not exist in five

or ten years, which means that we need a lot of regulation to allow, of course, the incumbent, but they have a big advantage because they own the ducts, they own the infrastructure, all the information to deploy this fibre. So it's why we need regulations which allow altnet to deploy and to have access to a passive fibre network all around every country in Europe.

SHARON WHITE: Great, fantastic.
Sam, what's your perspective?

SAM CRAWFORD: I think, to take the question very literally, yes, fibre absolutely needs to be at the heart of an operator's connectivity strategy. Whether you're talking about FTTH, Fibre-to-the-Curb, Fibre-to-the-Apartment Block, whatever. Ultimately, as we know with 5G that's coming up, the range of it is ultimately going to be a lot shorter than 3G or even 4G. So we are going to need fibre much, much deeper into -- much deeper towards the edge, towards the home. Ultimately eventually it will get to the home.
So in a nutshell, yes.

SHARON WHITE: Great. That's very clear. Thank you. Pilar?

PILAR DEL CASTILLO: Maybe Eelco, because I was just ...

EELCO BLOK: In my view we should discuss the fastest and most efficient way to provide all customers with high-speed broadband, and of course fibre plays a very, very important role in that.

But it starts with the customer and to be able to offer high-speed broadband to the customers, and then you talk about Fibre-to-the-Curb in certain situations, Fibre-to-the-Building, Fibre-to-the-Home, and also you should not forget DOCSIS 3.0 from cable, because at the end it's competition that drives the speed of high-speed broadband.

PILAR DEL CASTILLO: I will repeat subtly -- well, it's more or less the same answer, but in the same words the last speaker has said. I think exactly that. It was the one that can really better respond to the new demands. Well, it could be, you know, something new in a few years or more, but then now we are where we are. So this doesn't mean that the others has not a role to play because, you know, they are present. So you have to optimise what you have now. But in terms of future, more or less it is like that. It cannot be denied.

EELCO BLOK: One example. When five years ago somebody would have told me that in 2016 KPN would be able to offer, using their copper network 400 megabit download speeds on the existing copper network, I would have started laughing.

Today, in our network, we are able to offer 400 megabit download speeds just using -- well, it's the last part. It's Fibre-to-the-Curb, and just 500, 600 metres, 400 megabit download speeds using our existing copper network. And I'm convinced that in the next five years copper technologies will continue to evaluate, giving us the opportunity of offering even higher bandwidth speeds.

SHARON WHITE: I think this is very interesting. Sam will be at the forefront of this in terms of your point about measuring speed as well as reliability. I think this is where you have a very interesting debate as to whether we're entirely agnostic about technology when you think about reliability, quality of service as well as speed.

I wanted to move to the next question, which I think is implicitly a bit of a challenge to Pilar's comment during her presentation, that the new telco proposals aren't a revolution in terms of access regulation, but are about putting more focus on investment.

I wanted again to come to -- Pilar could maybe agree with herself. So perhaps I might ask the other panel members, perhaps starting with Eelco, as to whether that's how you see the proposals coming out for the telecoms regulation as a sort of evolution that's going to help you support your next tranche of investment.

EELCO BLOK: In my view -- well, looking at how we are taking decisions, investing in either fixed, mobile, fibre, upgraded copper, it's about customer demand and the return we can make on our investments. If there's an environment created that we can make a return with a longer term perspective in fixed connectivity, then, given the position in the market, we will for sure take a decision to invest in fibre, be it Fibre-to-the-Curb or Fibre-to-the-Home or whatever.

Of course, customer demand needs to be there, but looking at the huge growth in data, customer demand is there.

So, at the end, can you make a reasonable return out of your investments?

SHARON WHITE: And you see the proposals as something which is going to allow you to do this? I'm going to ask you to come off the fence a little bit.

EELCO BLOK: I'm not sure because it's all about the details and the details still need to be defined.

SHARON WHITE: We will come back in six months and ask the question.

Xavier, what's your perspective?

XAVIER NIEL: I think in the new framework, yes, it's more investment focused, but it's also more sharing investment, and sharing investment between all the operators on the market is very important for us. And the passive way, not sharing the active part.

So with this new framework we think that it gives to other -- in France we have already this framework, but I think it gives to other countries the ability to have a new operator which can appear and create new business in this, mostly in the fibre deployment.

It means also for the incumbent to have all the investors, which means maybe at the end of the day a better return on the investment.

I think it's a great framework. There's only one thing I think is important. It's to give more power to the local regulator, because if you have only a view from Brussels, it's great, but you have always small differences between countries. And having locally regulator, independent regulator, which gives small things, which adds small things in the framework, we can at the end of the day create something bigger and better.

SHARON WHITE: Okay, thank you.
Sam, do you have a view?

SAM CRAWFORD: Well, I don't have as much skin in the game as the operators here, but maybe just point to something we've seen in other countries, just echo the comments from a moment ago.

So at the national level, in the US, the FCC, Federal Communications Commission, regulates for the entire country. But we see a lot of interest from the individual states within the US who have very, very specific requirements.

So Hawaii, for example, is a state we are talking to very closely at the moment. They are very, very distant from the US. So they have a very different set of goals and requirements that they'd like to see met for themselves. There are certainly going to be countries not too dissimilar to that kind of mindset here in Europe.

But regardless of whether it's regulatory focused or investment focused, ultimately -- and perhaps I'm a bit biased here -- I'm going to say you absolutely need to measure it.

SHARON WHITE: Thank you. There are other questions that have come through electronically, but I was going to open the discussion again to the floor. There's one question again to my right. Have you got the microphone? If you can just say who you are.

NATHALIE STEIWER: Nathalie Steiwer, journalist for the French media context.

I have two questions for Free and for KPN. Can you explain us what will change concretely with the proposal of the Commission on the frequency?

Can you give me an example for your national situation, or in Italy or wherever, where the proposition of the Commission will change something for you? That's the first question.

The second one: what in the proposition of the Commission about BEREC may change the situation of Ofcom after the Brexit? I mean, what will be your position in this agency or not agency?

SHARON WHITE: I can just be grateful that Brexit did not come up until 2.30.

The first question I think is for Xavier and for Eelco. I think the question is: what concretely specifically in the proposals from the Commission, I think particularly on the question of frequencies or on spectrum, is going to change your life commercially, operationally?

XAVIER NIEL: So I think you wanted to talk about Italy. It's one case.

In Italy you have one case. It's that if you ask the country, they don't want to give you the new spectrum, the 700-megahertz, before 2023, 2024, 2025, 2026, 2027, or maybe never, and it's an issue for a new entrant like us in Italy. So we were hoping that the new framework would give us access to this spectrum before 2020, but it seems that it maybe will not happen like we thought it should have been.

But when we look at spectrum, we are always scared that at one part some -- you know, in the market usually the incumbent is the richest operator. He has a lot of money, and very often he doesn't want to have a lot of competition in his own market, which means he's ready to pay a high amount of money to protect his own business. And as I told you, the politicians in

a country, they always need more money. So it's always a complicated discussion between having competition and, for the country, having more money.

So I'm not sure in this case the new framework give us a lot of new things, and we have already the exception of Italy for the 700-megahertz and it's an issue for us.

SHARON WHITE: Thank you, Xavier.

EELCO BLOK: Well, the intention of the new regulation is very positive, but as I said earlier, it's all about the details. I would have expected more details on harmonisation of timing when the spectrum comes available for operators, and I would have expected also harmonisation on auction overall so there's a more fair way of distributing the available spectrum.

Now it's still all sort of open. On a high level it's a step in the right direction, but we are looking at, well, facts and details. It still will be huge uncertainty going forward.

SHARON WHITE: Helpful. I'll take the question for me on Brexit and BEREC as an agency. Obviously BEREC becoming an agency is obviously a proposal. It's not a decision. I think certainly my perspective in Ofcom is that BEREC works very effectively in its current constitution as a network rather than an agency. However its status is at the end of these discussions, Ofcom will continue to be as involved in Europe as we are today, and that's incredibly crucial because the companies that we regulate operate in Europe or have European ownership. So regardless of the status of BEREC, we will be very involved. I happen to believe personally that it works very well as a network.

I wanted to move on, and I wanted to take the liberty of asking a question myself that hasn't come up yet in the discussion over the last hour or so, which is the communities who are potentially left behind.

Now, this is probably less of an issue in the Netherlands where you're at 99 per cent prospectively on 4G, but also on connectivity.

For many of our countries, connectivity really is about how do you ensure that actually still a significant proportion of the population get any sort of access to a decent broadband or decent mobile service.

Sam, obviously you will have surveyed this in great detail.

I wonder whether the panel has a view or observations about how we use these discussions to ensure that we do get universal high quality future-proofed services.

I thought perhaps I might start with Pilar on this.

PILAR DEL CASTILLO: Well, I think it is a matter -- it has a double dimension. One is inside each Member State, inside each country, and then comparatively among different Member States.

So let's say integration and to be inclusive in terms of the digital single market has to be with the units of Member States compared among them. On the other hand we have this specific problem inside each Member State.

For the first, you know, for the more European dimension, I think has much to be with the promotion of a common set of -- let's say, at minimum high co-ordinated, you know, approaches. So when we're dealing with spectrum, it has to be with that. I mean, it has to be

also with the vision to integrate, to be inclusive with all Member States, not -- you know, given the differences we have.

We are dealing with the Member States per se. I think at some States it's quite a matter of all Member States, you know, and their own national regulators and the policies, you know, government develop in so many different aspects from skills to infrastructure and so on.

Those two dimension has different regulatory approach or semi sovereign regulation approaches.

SHARON WHITE: So do you see very much -- what's interesting from the proposals is that they set a very high bar in terms of how one might see a universal service obligation in terms of the very, very high speeds. But you see the implementation of that being very much up to the responsibility of the Member States?

PILAR DEL CASTILLO: Well, I think in terms of the people less included in all this digitalisation situation and phenomenon and development. Then you have to call attention. But in most aspects you have to really deal with at a national level. So you have this set of goals and then pushing investment for networks, and then spectrum management are highly co-ordinated and so on. Then you have a huge room and the most important one at that level inside the Member States.

EELCO BLOK: I believe that it's all about local markets because the differences are that huge that you can't design a regulatory framework that fulfils the needs of all the different customer groups in rural areas. That's one.

Secondly, I believe that technology will support the opportunity to offer also in rural areas higher speed broadband in one, two, three, four years from now than today.

So the problem will become smaller, but at the end we will end up with some groups of customers that, well, in that case it will be very, very expensive to offer them high-speed broadband.

SHARON WHITE: And do you see the government filling in the last bit of the gap?

EELCO BLOK: Well, I think that's the only way to meet EU target of having for everybody high-speed broadband available, because private companies, large or small, will not be able to fund the investment to offer that particular group of customers high-speed broadband.

SHARON WHITE: Xavier, do you agree?

XAVIER NIEL: Yes. I think you have to think the universal coverage. I think you have three levels. The first level is competition. When you have competition, competition can earn money. You have a business. You have network. So it's very easy.

The second layer. If you don't have enough -- if the competition is not possible, which means everybody has its own network, I think the market and all the competitors and all the operators on the market, they have to share their network to create something together. It's what we have

in France for mobile in the non-dense area, in the rural areas. We are sharing our network, and I think it's something good because you divide the cost of the network, but by the number of operators.

It allows to have networks somewhere where it's not possible, and at the end, the last point, of course, if you cannot have these two case because it's not profitable, you need to have state aid to create and to found the creation of network in this kind of place.

But you have another way which is a universal service, which means giving access to everybody, whichever their revenue, whichever the money they have. Give access to the telecom and to the data and to the Internet.

I think -- and it's what I saw, for example, in France -- that the universal service was very inefficient in Europe. I can give you only an example. When we entered as a mobile market in France in 2012, our prices were five times less expensive than the price of the universal service for mobile. So usually the market is more efficient than the universal service.

SHARON WHITE: Very helpful, thank you.

Sam, do you have any reflections?

SAM CRAWFORD: Just briefly to echo the two previous comments, particularly around the technology playing catch up. Well, not catch up, but technology being able to help with this.

As Eelco talked about earlier, years ago services like DSL, 2 meg to the home, something like this. Nowadays, as you say, with G.fast hitting 300, 400 meg, it's incredible, and I certainly don't doubt it will go beyond that.

Equally, at the other end of the spectrum -- pun not intended -- we have satellite services which have also improved massively in recent years. When we first started measuring satellite services in the US a few years ago, latency was north of a second. Nowadays the generation that we have are down to 500, 600 milliseconds, and it's actually almost -- well, you can use it for many interactive services and it performs quite well. So I think technology will play a big, big, big part in this as well.

SHARON WHITE: Let's keep optimistic.

I want to go back to a question that's been sent this, and perhaps this is a question on which we ought to vote.

The question is whether the panel believes that competition, investment, regulation go hand-in-hand as happy bedfellows or are in conflict with one another. Remember, you've got a roomful of regulators here today.

Maybe I can ask whether anybody would like to challenge the idea that competition and investment and regulation can co-exist happily or perhaps are even necessary for each other.

EELCO BLOK: It depends. Looking at the Netherlands, and specifically the consumer market, there competition, investment and regulation go hand-in-hand. But looking at the business market, where we, as KPN, had to take the decision a few years ago to stop investing in fibre to the offices in business parks because of regulation, there it didn't go hand-in-hand. That has recently changed, but for a few years we had to stop investing in fibre in business parks.

SHARON WHITE: Eelco, can you be more specific about the regulation that was the blockage?

EELCO BLOK: It was a combination of wholesale and retail regulation. So as part of the wholesale regulation, when we took the decision to invest in a business park in fibre, we had to make the announcement a few months before the investment, and a few months before the services would be available prices were known because it was wholesale regulated, and on the same hand the end user services were retail regulated. So competition exactly knew our price levels and they knew the wholesale price levels.

So we invested in business parks and competition used the wholesale services, designed their retail services 5, 10 per cent below KPN prices, and everybody would buy the fibre services of competition, using our investment, and the hit rate of our sales force was almost zero in business parks where we had invested in fibre. So we said we will not continue to invest fibre in business parks anymore.

SHARON WHITE: What happened then? The retail price regulation was then dropped?

EELCO BLOK: Yes.

SHARON WHITE: Very good. Xavier, are you going to be nice to regulators?

XAVIER NIEL: I think the most important thing is regulation. If you don't have regulation, you don't have competition. It's your case. But you had a bad regulation, then you didn't want to invest.

So first thing, you need to have regulation. If you have regulation, you can have competition, and when you have competition, you have investment.

I'm not sure they are going hand-in-hand, but you need regulation. Then you have competition. Then you have investment. For me it's one behind the other.

SHARON WHITE: Great, fantastic.

I'm going to take another question that's just come in from Magnus Franklin from MLex.

Most Member States have still not implemented the broadband cost reduction directive, although it did come in this summer. Does anyone care?

I guess maybe it's tautological. If you cared about it, you would have implemented it.

When you think about your commercial strategy, again perhaps thinking particularly for KPN and Free and Iliad, does it feature in terms of helping to take out some of the cost for network investment, or actually is your passive access already, particularly for Free, so good?

XAVIER NIEL: I'm completely sorry, I don't know this directive.

SHARON WHITE: Well, I think that's a good answer.

XAVIER NIEL: So I have to work more.

SHARON WHITE: So this is a new directive which gives investors access to

telecommunications infrastructure, but also the infrastructure of utilities. So the purpose is obviously to try to take out some of the cost for new investments, new network investment. I think the very fact that the chief executive and founder of Free hasn't heard of the directive, there's probably some lessons for us today.

XAVIER NIEL: If it's pro-competition, we are very happy with it. So I think it's pro-competition. I think it will happen fast and quick.

SHARON WHITE: Thank you. Does it feature for KPN?

EELCO BLOK: I'm having exactly the same view. So if it supports competition, then it will improve services, investments, et cetera.

SHARON WHITE: But I think it's fascinating for those of us who are policy makers or helping to be law makers actually that the operators with the money in the bank, that this is not a well-known directive. So I think that is quite an interesting lesson for us today.

Next question also that's been sent in by email, again on spectrum, lots of interest today, is: how can we ensure that the negotiation on spectrum doesn't become a dead end? This question about subsidiarity seems to be very much at the heart of the proposals and discussions around frequency and spectrum.

Pilar, how do we make sure that there's a conclusion?

PILAR DEL CASTILLO: I think the question was: how can negotiation on spectrum not become a dead end?

SHARON WHITE: Exactly.

PILAR DEL CASTILLO: Well, that's a key question and so I try to approach a bit. But I think we have to consider, as I said at the very beginning of my speech, that, I mean, we are in another absolutely different moment of the digital development economy and society, and we face the debate on spectrum in terms of better co-ordination on, say, trading, sharing, licensing and many other aspects. With the same mentality that it was done previously, then it's going to be a disaster. Then there will be a failure at the end.

I think it's crucial, if we want to really get the step forward we need, that not only, let's say, regulators, European Parliament, the Commission, a number of the stakeholders of the electronic communication sector are involved, but as well the other sectors that are going through a process of digitisation, they can also, let's say, play a role in demanding such a high level of co-ordination in spectrum.

I'm thinking in so many industry, from the car industry to, let's say, energy sector in many different aspects, from engine efficiency to others, from the health sector to research, education and other.

I think there's a need for all these to really in some way or another try to be pushing for get this jump in step in this occasion.

So that will create a more comprehensive, let's say, attention to this aspect of the spectrum

management at European level up to some extent, and keeping of course ownership and money.

SHARON WHITE: Thank you very much. We are in the last few minutes. Probably time for one or two questions, and I just wanted to check with colleagues in the room whether there are -- I'm just going to pause because I think you have asked one at the beginning. There's one up to my left and I'll take that with one of the questions that's also come through by email. Thank you.

STEPHEN HOWARD: Thank you for taking my question. I'm Stephen Howard of HSBC. I'd be very curious to learn what the panellists think of the proposals on voluntary separation that are contained in the framework review text and whether panellists think that separation, either of the voluntary variety or that of a more coercive form, is actually likely to encourage investment. Thank you.

SHARON WHITE: Great. So I'm going to take the question about reflections on the voluntary separation proposals with a final question that's been sent to us by email, which is around: if regulators take a tech neutral view, doesn't that just favour the incumbents? Actually it segues quite nicely into the voluntary separation issue. Who would like to --

XAVIER NIEL: I'm not sure we will have the same point of view.

SHARON WHITE: I hope we don't.

XAVIER NIEL: We know that the endgame will be the FTTH. Okay, we know that we will have fibre everywhere. It's the endgame for the next 50 years. The bandwidth we can have on the fibre is so high that we can think, and when we see the way consumers are hitting better and the way they are increasing the (inaudible), we know that for the next 50, 60, 70 years, FTTH will win.

So it means that the regulator will be not tech neutral because it will be FTTH. So we have only one technology which will be used.

So the question we can ask: is it useful to have -- for example, in Paris we have four FTTH networks. I think it will have been more useful to all invest in only one network in Paris and to use our money to create network in other parts of France, in more rural areas. But it wasn't the case.

So I think it's more clever to try to do that, but now we can understand that incumbents, they think that they have an advantage, and they want to keep this advantage, but it's not for a country a good point of view. I think it's not a good point of view.

SHARON WHITE: Xavier, do you have a view about the way in which the Commission is thinking about voluntary separation proposals in the sector?

XAVIER NIEL: We wanted to separate network from these activities. Let's talk --

SHARON WHITE: It's an interesting live question in the UK at the moment.

XAVIER NIEL: Yes. But I think if you ask to British Telecom, they don't have the same point of view that you have. But you can always make better the (inaudible), but at the end it's a political or a company point of view, and the company point of view, they have no -- I think they don't have to do it, but I think on the political point of view it will be the best thing for any country.

SHARON WHITE: Very interesting. Any other comments from the panel?

EELCO BLOK: In my view it depends on the local situation. Looking at the Netherlands, where we have 95 per cent coverage of cable, we were forced to invest in new technology being in a part of the country Fibre-to-the-Home and with the latest corporate technologies available, Fibre-to-the-Curb.

I fully agree that at the end everything will be Fibre-to-the-Home, but for the time being Fibre-to-the-Curb and, well, Bondet(?), VPlus, with G.fast, it's enough to offer customers high-speed broadband they need today.

If there is no infrastructure competition, then in my view regulation is needed to speed up the investment in fixed access.

SHARON WHITE: Do you share Xavier's views on voluntary separation?

EELCO BLOK: I really don't see why that makes a difference, both from an investment point of view and also from an altnet point of view because, well, it makes no difference.

SHARON WHITE: Thank you very much. Can I just ask then Sam and Pilar, final comments for this afternoon?

SAM CRAWFORD: On this particular topic?

SHARON WHITE: Yes, please.

SAM CRAWFORD: Sure. So the only danger here, if you lose the neutrality, is new services that come along. If there are new services which require extremely high bandwidth or extremely low latency realtime services, you create an even greater divide than we have at the moment. But I agree, we have to be pragmatic. The endgame is always going to be Fibre-to-the-Home, and until then basically there'll be a patchwork quilt of media cell, G.fast, DOCSIS, satellite, 5G here and there, but eventually it will be Fibre-to-the-Home everywhere.

SHARON WHITE: Thank you. Pilar, you have the very last word.

PILAR DEL CASTILLO: Yes. Well, I think they are one and the same issue. On each item, we have a specific opinion. I think on the one hand there is the possibility those new services is something to be seen. This

is not -- we are not -- in terms that recommend the function on separation or this.

I think you can find it simple or different kind. You mentioned your country. I have to say that in a country like Spain, which is my home country, competition and deployment of fibre in this case and infrastructure were hand-in-hand. So this is an example.

I don't think that it is a situation which requires some kind of decision at all right now. The framework review, this one goes in another direction. It's covering other items.

So I don't think to enter into debate, you know, will help so much to really get an end successful debate on a decision on this, frankly, because it is not we contaminate again with something like that, and I don't think it's the case now.

SHARON WHITE: Great. Thank you very much indeed. We are out of time and at time.

Can I just end by giving a huge thank you to everybody on the panel for such terrific insightful contributions this afternoon.

I also wanted to give a huge thanks particularly to those who have asked questions, but actually just for being here and being part of the debate this afternoon. That's going to run for some months onwards as the next 18 months of the DSM is going to be a very, very fruitful and important time for all of us.

Thank you so much indeed.

(3.00 pm)

(A short break)

(3.40 pm)

Session II. A fast-changing digital environment: new services, new challenges, new opportunities for innovation?

JOHANNES GUNGL: Welcome back to the second session of this afternoon. Sharon said in the previous panel she has a fantastic panel. Now we have an even more fantastic panel.

I'm happy you are here again. We will touch on the topic of the interaction of traditional telecom players and their contact to the new digital world.

My name, for those who don't know me, is Johannes Gungl. I'm head of the Austrian regulator RTR.

We as regulators are struggling a little bit with our role in this new digital world. We are coming from an old world with a traditional business model of regulating voice telephony and now we see this world breaking apart, moving into a new digital world. We see new players emerging, and I want to use the picture that we are standing on this side of a fence, looking across the fence, seeing a new world, new players, and we are standing here and wondering what's going on.

We are struggling for our role, how we can combine this new world of traditional telecom regulation with a new digital world. And as we can observe, also telecom operators are struggling a little bit with their role in this new world.

We can see co-operation models. We can see telecom operators who reduce their business

model to provide best in class connectivity. There are others who provide infrastructure and support to these new players, to start-ups, creating Internet campuses. We see models that networks are opened up via their application programming interface to get into touch with the new players.

So there is a whole variety of possibilities. We want to have a closer look at this afternoon on this interaction.

We have, as I said, a fantastic panel, and I want to introduce to you first Annina Koskiola. She's from Finland. She's the founder of a start-up called Proximi. They try to unify the indoor positioning. So she will give us a little bit information about that later.

On my far right side, Gavin Patterson, CEO of BT Group. Welcome to this panel. Hopefully he will give us a little bit of insight in the thinking of BT and their strategy, how to tackle the new challenges.

To my left side, Winston Maxwell from Logan --

WINSTON MAXWELL: Hogan Lovells.

JOHANNES GUNGL: Sorry for that. From a law firm. Four names in one introduction, that's a little bit too much for me. Sorry for that.

He will touch the topic of net neutrality. Net neutrality is to a certain extent organising the role or organising the roles of traditional players and new players, and he will touch on some business practices on that.

Mr Martin Kaiser, he is coming from Hager Group. For those who are not familiar with Hager Group, please take a look at your light switches and your electricity outlets at home. There is a good chance that Hager Group is providing these products.

To dive into the topic now, I would like to ask Annina for her opening statement.

ANNINA KOSKIOLA: So hello, good afternoon. As already said, my name is Annina Koskiola and I'm the co-founder and CEO of a Finnish start-up called Proximi.io.

I think there's a very high chance you've never heard about us. So to summarise what we do, we are a unified positioning platform. We want to bring order, first of all, to the chaotic field of indoor positioning. Right now there's multiple different companies, standards and manufacturers, all trying to achieve the best position fix indoors through creating their own solutions. It's quite a complicated field for developers or app owners who want to utilise indoor positions in their own products. Therefore, we've compiled all of these technologies together under one umbrella so that through one API you can get access to all of them and use them in combination in your project.

I'm here to represent start-ups and start-up opinion on how the collaboration with telcos could function. I think that's for a number of reasons.

First of all, we are still a start-up. The company was founded two and a half years ago. A lot of our customers are also start-ups. Some small companies who are trying to create, for example, tours for museums that you can do with your own mobile phone, or one of the companies is actually doing a social networking app that allows you to see who is in the same room with you, just to give some examples.

Also, I meet a lot of start-ups and investors in my daily life through different networks. For

example, we were the first start-up to be funded through the Nordic BAN, Nordic Business Angel Network that was founded last year, and our office is in Helsinki, in the biggest Nordic start-up hub, called Maria 0-1.

So I meet a lot of start-ups and discuss with them on their issues.

When we start talking about the collaboration between telcos and start-ups, the first key issue or aspect that needs to be discussed is the geographic variation. What I've noticed is that there's two very different models of collaboration happening in the western world and in the developing world.

In Africa and Asia, in particular, GSMA has produced a very nice summary about the situation there. To be more specific, in countries like Pakistan, Sri Lanka, Malawi, Kenya and Zambia, different telcos have started collaborating with start-ups through opening up their APIs. More specifically, APIs for SMS messages, UUID, messages location and billing APIs.

In there, that approach, that offer a technology provider approach has been pretty successful. A lot of start-ups have gotten excited about this opportunity and started incorporating those into their own solutions.

One of the biggest factors for why that model functions there is because there's still so low smartphone penetration rate in the developing markets, around 25 per cent, and mobile Internet access is only reaching around 30 per cent of the population.

So it's clear that in order to reach the end users of the application that you're creating, for example, you need to have other means of communication than online-based communication. There around 80 per cent of the start-ups say that the messaging APIs are the most important ones for them.

This model for the telcos is quite low effort, maybe low risk because it allows them to build on top of their existing offering.

But when we come to Europe, this model is not so relevant anymore.

First of all, SMS-based messaging becomes less and less relevant for us. If I would be planning to build a service and I was thinking how to reach my end customers, I wouldn't maybe go for SMS messaging because, first of all, services like WhatsApp are a good indication about how online-based messages like push messages or email are becoming the number one most natural means of reaching your end users, and also cheaper.

The second reason is because there's a lot of third party operators such as Twilio, which is a good example about a company that has already built into all the different telcos' APIs so that a start-up doesn't have to go through the telcos directly, but can just use the Twilio offering.

That's why the model that I could see functioning better in Europe is that of a deeper collaboration. Maybe I could call it innovation partnership, where the telcos and the start-ups are actually together trying to come up with new services, marketing them together, building distribution channels together, and also sharing the risk in terms of the start-up receiving an investment from the telco.

This is a model that you don't see so much happening in the end products, even though there's a lot of bus and a lot of initiatives taking place, such as the Hubraum in Germany, Telefonía Zuera(?) programme in Spain and Vodafone's xone programme in the UK.

One example that I could find of this type of collaboration is from Finland, a start-up called Oura, which is producing a wellbeing ring that measures how much you sleep, how much you exercise and how much you rest. And they have just this summer started collaboration with the Finnish

telco operator Elisa in that Elisa is actually starting to sell the Oura rings in their Elisa shops.

I do think that this sort of partnership could be really beneficial for both parties, the start-ups and the telcos. The start-ups could get access to existing customer bases and get the credibility of the already well-established telco behind themselves, and the telcos could get the first row seat in seeing what new technologies bring upon and get to benefit from them before operators like Google and Facebook do.

I think I'll end my little summary here, before I take the whole time that is given to us. So thank you very much.

JOHANNES GUNGL: Thank you very much, Annina, for this insight from the view of a start-up. Now to balance this a little bit, Gavin, may I ask you for your statement.

GAVIN PATTERSON: Thank you very much, and thank you for inviting me to address you this afternoon.

I'm Gavin Patterson. I'm the CEO of the BT Group. I thought I'd just start by reminding you of the BT strategy, and then I've got a statement around digitising industry that I'll talk to in a second.

BT is or was the incumbent in the UK. It's now in all markets, including fixed and wireless, and I'll talk about that in a second. But it also serves multinationals outside of the UK, in fact in over 190 countries around the world. So it is a global business in that respect.

In terms of the business in the UK, we are focused on driving top line growth, profitable sustainable top line growth, and the business is growing at about 2 per cent a year, which in telecoms that's quite good indeed.

What we've been focused on is going to be familiar to you. Number 1 is rolling out fibre. So since 2009 we've been rolling out fibre. We've now passed almost 26 million homes and businesses across the UK. For context, there are about 30 million across the whole of the UK, including all the islands around the mainland.

That's at speeds of up to 100 megabits per second, and we're currently, as I say, about 90 per cent covered, and we have a plan to get to 95 per cent by the end of 2017.

The take-up is pretty strong. We've offered it on an EOI basis, even though it is not regulated and it's amongst some of the lowest prices across Europe. So the take-up is about 26 per cent, and even in the oldest cohorts there's no signs of that beginning to slow down.

We are about to enter, I think, a new phase that has two elements to it. One is: how do we finish the last 4 or 5 per cent of the UK? We've made a proposal to government in terms of how BT can help deliver that. I think that's going to be a theme across the whole of the EU 28 over the next ten years.

Then the second is: how do we get to ultra fast speeds to deliver the gigabit society that I think everybody really wants?

We have put forward a vision that will get to around 12 million homes and premises by 2020. We won't stop there, but that's the interim goal, and that will be with speeds of between half a gigabit and a gigabit per home passed or per premise passed.

That's the focus on fibre.

The second thing is to do with wireless, and particularly convergence. BT used to be in the mobile industry back in the 1990s, but then floated its wireless division 02 off and was largely

a fixed player for the next 15 years.

Last year we re-entered the mobile market with the acquisition of EE, Everything Everywhere, which is the biggest mobile provider in the UK, and now we are in the process of creating a converged network, bringing the best of fixed and wireless together.

Just to contextualise this in terms of market share, we're about a third of the market in broadband and about a third of the market in wireless. So there's still significant competition across the UK.

So we're focused on driving convergence, and behind convergence is this explosion in data usage across fixed and wireless. We believe the key to being able to deliver against that customer need is by combining the best of both types of networks together for solutions for customers.

I guess the third area we're investing in to drive growth is around content and applications that sit on the network. That can be things like security. We have a rapidly growing security business, providing security solutions for major corporates and governments around the world over the network itself. But it's also things like investing in content.

In the last few years we've invested in sport as a way of differentiating our broadband offering and providing some choice and alternative to the broadcasting market in the UK which had one player that was dominating all sports broadcasting. I think in entering that market it was a challenging decision, but it's ultimately been a very successful one for us, as that is one of the ways we differentiate ourselves versus our competitors and an example of the other form of convergence that I think is happening in the market between networks and content.

So that is just an update on the BT strategy. I wanted to talk a little bit about digitising industry and I prepared some notes that I'll talk to now.

There's a huge potential for industrial transformation from digital technologies. This is not the first time, remember, that digital technologies have transformed industry. The process has been going on since the first computers. What is unique about the current transformation is that it is all about digital communications. It is about making all parts of industrial processes connected by communication technology, so that the time, location and status of objects can be known and controlled in realtime on an end-to-end basis.

To think about how to accelerate this transformation in Europe, we need to think about it in three parts: the demand side, the supply side, and the implications of each on the policy framework.

On the demand side, not all industry sectors will move at the same time and not all businesses in those sectors at the same speed. We should focus on the ones that are moving fastest and use their experience to identify barriers to progress.

For example, the automotive sector has been moving quickly and some companies within that sector more than others. We should use the leadership of innovators to develop new techniques for applying communications technologies to the business processes and customer in-life use.

That is how to identify the policy barriers that get in the way. We can track objects throughout the supply chain, not just within a factory, but through the logistic supply chain and in their in-use and their use in-life by customers.

The key policy barriers are (a) data ownership and privacy; (b) liability for autonomous systems have been identified and need to be resolved. Data ownership in particular needs a global agreement, particularly with the US, not just a national or European solution.

This is just one example. Communications-enabled business processes will apply to all parts of the economy, from primary extraction technologies, for example drones in agriculture, secondary manufacturing sectors, for example BT Trace, which is a solution we provide for logistics in supply chain, and tertiary service sectors such as e-healthcare, and of course in end user environments as well.

On the supply side we need to think about three levels of the supply chain: connectivity, data platform and vertical applications.

The key question concerns the extent to which mobile networks can develop through 5G standards to be the mass industry wireless connectivity solution.

We see three priority use cases for 5G standards: low power, wide coverage for object sensors, very low latency for autonomous vehicles and systems, and very large data stream capacity for broadcasting. This is a policy issue largely for the standards bodies and for the whole industry to rally around.

At the platform level, we believe there are already data platform capabilities developing the market. The policy issue is not the platforms themselves, but the rights to use the data. This is a general policy issue which needs to be addressed. The question is: who has the right to use what data in what circumstances?

The well functioning of a digital single market depends on a set of well-defined property rights and well-defined rights to digital data in particular. The EU digital single market process in Europe needs to accelerate the broadening of the scope of its policy interests to industry transformation issues.

Then the third level concerns the vertical applications. How does the supply industry respond to the demand side most effectively? Here the policy issue is one of co-ordination on the demand side industries with the supply side communication sector.

The European Commission and national governments can play a useful active role in finding the barriers to engage and progress in this dialogue.

Ultimately, however, none of these developments will take off unless the policy environment favours investment, innovation and risk taking. If the only or the main concern of national regulatory authorities in communication is to drive returns on capital to the cost of capital, they will markedly hinder investment and innovation, not just by the incumbents, but by infrastructure competitors to incumbents and potentially service providers as well.

It is essential that the European Commission and NRAs move from a focus just on every cheaper infrastructure towards wider, better infrastructure as an urgent priority.

Thank you.

JOHANNES GUNGL: Thank you, Gavin, for your statement. You have touched on a number of issues like data ownership and data protection issues, and also the needs for networks and connectivities. We will come to that later.

When it comes to connectivity, then Martin Kaiser is the right one to follow Gavin with his statement. He's representing the world of the IoT providers and has special demands on connectivity. Please, Martin.

MARTIN KAISER: Good afternoon. Thank you for inviting me and letting me address to this audience. I'm going to present to you three parts.

First, I'm going to tell you who Hager Group is because even though you know your sockets and light switches you might not really understand what Hager Group is doing.

Secondly, why are we concerned by connectivity? If you look at your light switches and sockets today, you might not understand even why that's a subject to us.

Third, what are our issues, our concerns, our demands when we look at you, regulators of the connectivity industry, operators and other platform aggregators that we meet.

For the first part, Hager Group is a family owned and still directed by a family member company that generates 2 billion euros of revenue. They were founded 60 years ago in, at the time, an independent country called the Saarland region. Two years later there was a referendum and they became German.

At the same time they had created a second industry stand in France, in the Alsace region, and until today those are the two countries that are most influential, let's say, in our company development, although Hager Group is now exporting to 95 countries. We have 22 industrial sites worldwide, two in India, two in China now, one in Brazil. Almost every country in the world is receiving our equipment and solutions. Only the countries that are running on 110-voltage are not equipped with Hager Group's equipment. That would be Japan and the United States.

Other than that, the products that made our company grow in the 1950s were equipments that you have in your basement. That's why we often say Hager Group was based and born in the basement of houses. It's the distribution board. For 20 years Hager Group has almost essentially and exclusively sold distribution boards that were installed by electricians in homes and in some smaller commercial buildings.

It's only in the 1990s that we started to move up and distribute electricity through distribution channels that would be wholesalers, electricians, and then touched to light switches, sockets, and almost every little box that you have in your home. If you look at your walls, you will have heating control systems, thermostats. You will have door access control systems. All these equipments now Hager Group is providing through electricians, mostly through acquisitions we acceded in the 1990s and in the year 2000 and beyond.

So Hager Group today is capable of equipping your home with almost every electrical switch that you can imagine, but as I already said, we do this in a three-tier distribution way. So that way we don't know the end consumer, and that is something that is very important when I come back.

Some more information about Hager Group. We will make more than 50 per cent of our turnover outside of Germany and France, which is a true success for a family owned company. We are still growing strong by almost 5 to 6 per cent annually, which is surprising for an industry group, but again much of this is through acquisitions.

What brought me here, the second part of my little speech. Today we see that our existing model is being disrupted, and it's being disrupted especially in the distribution area because connectivity is moving into our industry. You might have seen commercials for Google nests, thermostat or smoke detectors, equipment that is more on the periphery of our product portfolio, but still. And these equipments are moving in not through electricities and wholesalers, but through consumer do-it-yourself channels that you might know, through Amazon Direct digital sales, e-commerce, and that is something that is quite new to you an actor like Hager Group.

It's also new to our competitors, competitors like Legrand in France or, to a certain extent, Schneider Electric or ABB. They are more on the industrial side, but they are all living the same

disruption of their distribution model and it's due to connectivity, because once you have equipped such an essential part of your home with a connectivity component, then the end user will ask: who is going to respond to me? Who will maintain this equipment? Do I have a smartphone application that goes with it? It's neither the electrician nor the wholesaler who will assume this part. So it has to be the manufacturer.

So manufacturers like Hager Group, they are now saying we need to think about end consumers, things we didn't do for 60 years. Not only do we need to put some connectivity into our equipments, but we need to build service organisations, service organisations that will respond and interact with the end consumer, and that's something that is quite disruptive again for our distribution partners, for many of our salespeople. Even internally it's a whole new game.

So three-tier distribution being interrupted by connectivity, that's a major issue.

What we also observe is that through the connectivity we accompany societal changes that we see in our customers. You might see them if you look at your cars. They are all becoming equipped, which is quite recent, and cars are now becoming more and more leased or rented. People don't want to buy this kind of equipment anymore. They prefer to just pay the usage, and to just pay the usage is something that becomes possible if your equipment is connected.

So the same evolution that you might have observed already with automobiles, you can now start to see them in your connected home with even essential parts like distribution boards.

So second big change for an industrial company like Hager is the change of the business model which goes hand-in-hand with the service division that I explained to you. Those organisations need to build systems that allow us to bill end consumers with re-occurring subscriptions. It's something that is totally normal for telecom operators -- and Gavin is not impressed by this -- but for an industrial company it's a big step. So for us, quite new environment and a new ecosystem that we need to integrate.

So for those younger generations that will be our customers tomorrow, we need to be able to respond to those kind of issues.

So what are now our demands? What are our issues that we need to handle when we say that all our equipments will be connected tomorrow, that many of those equipments will be sold as a service to the end consumer through direct channels? Of course we need to look at the life cycles of our products, which are very different than the life cycles of the technologies in your industry, in the telecom industry. If you buy a distribution board it is more or less for 30 or 40 years. If you buy light switches it's maybe five to ten. Even a smoke detector, a little smoke detector, you want to put it on your wall and you want to be thoughtless about it for at least five years. There's lots of regulation in our industry that obliges us to build products that last long.

In front of that, you have telecom technologies, new types of networks, low debit networks. We are working with SIGFOX, we are working with LoRa, we are working with Huawei. I mean, there are so many people coming up to us with new technologies that we are quite overwhelmed, and we cannot put those things in our equipment if we are not totally sure that they will last as long as at least the promise we will make to our customers. So that's a big issue.

Second issue is many of the that the telecom industry is proposing us today, we don't have really good coverage, let's say maps at least, to tell you where are they covering. Many, many promises are made on indoor, deep indoor coverage. Today those issues are not regulated.

So we don't have a central partner that can assure us that this coverage will last and that's a big issue for an industrial company that sells sensible -- again, sensible equipment. If we make a mistake, people get really hurt. Electrical shocks are not small issues.

So for us, those issues are important. Of course, if we say that we wanted some more regulation to consolidate and to stabilise some of the promises that the telecom industry is making us, we are also saying that consumers are not ready to pay a very high price for that connectivity component in the products. If you buy a five or ten-year-old smoke detector that will last for five to ten years, you don't want to pay 100 euros only to have it connected and to have a smartphone application. There are some customers that might be willing to do so, but not so many.

So for us, what really enables our products need to be a relatively low price solution. So what we are saying is that if there will be a lot of regulation and a lot of control, then we might drive prices up, and that's something we don't want either.

Last issue, and I will finish my presentation on that, of course we will know many, many things about our customers. When are they turning on their heating? When are they turning on their light switches? Many sensible data that we need to secure, and again industrial companies are not used to this type of issue.

So there's room, I think, for an ecosystem of many experts that can work on these type of issues. Again, the close relationship we might have between regulators in the telecom industry and industrial companies that work around the smarter home is something I'm really looking forward to. Thank you very much.

JOHANNES GUNGL: Thank you very much, Martin. You mentioned a keyword called "disruption". That's what we all are facing. Your business model and yours, Gavin, I guess, and also as a regulator, we are facing a disruption in our business model. We will come back to this later.

Now I want to ask Winston to have your statement. As you told me, you will touch on net neutrality, defining the roles between different players.

WINSTON MAXWELL: Thank you, Johannes. My name is Winston Maxwell. I'm with a law firm called Hogan Lovells.

I wanted to talk a little bit about the net neutrality regulation, both in the US and in Europe, and in particular, since our panel is about innovation, I wanted to speak a little bit about commercial innovation by ISPs, new innovative commercial practices such as zero rating, which is highly controversial right now in most continents. How do those practices line up with net neutrality rules? And how do you go about analysing those practices?

It so happens that the FCC and the BEREC guidelines come out to a very similar method for analysing these commercial practices.

Now, the principle is that commercial practices are permitted, retail practices of all kinds, as long as they do not unduly harm the end user's open Internet rights, the right to access any content, application or service of his or her choice.

So the question is: when do you cross the red line? Which is not easy.

Now, both the FCC and BEREC have recognised that there's no one-size-fits-all solution. The OECD came out in its digital economy outlook to say that zero-rating, for example, can have

pro-competitive effects in some cases or it can have anti-competitive effects in some cases. So it's very difficult to have a single rule.

So both the FCC and BEREC have come up with a multifactor test that they apply to any given commercial practice to see if it crosses the red line of violating net neutrality.

The content of the tests are very similar, in fact, which is very interesting because it permits comparison and experimentation on both sides of the Atlantic.

The first part of the test is to do a competition analysis. Now, most of you in this room, as regulators, are very accustomed to doing competition analysis. It's part of the 2002 regulatory framework as a telecom regulator to do that. You look at the market power of the ISP. You look at the market power of the content provider. You see whether there are perhaps capitalistic links between the two. You look at switching costs. You look at whether the consumer has all adequate information, whether the consumer is in control. All these things are relatively routine, I would say, in the context of a competition assessment that either an NRA or a national competition authority would conduct.

Where it gets more complicated is the second set of criteria. The second set of criteria are intended to evaluate the social aspects of the open Internet, whether the given practice harms things like freedom of expression or harms the Internet ecosystem and innovation in a broader sense, not just for competition analysis, but in a broad societal sense. Whether other fundamental rights are affected. Whether there's diversity in content.

These are things that I would submit you as NRAs are not really familiar with. It's new to telecom regulators to talk about fundamental rights and about societal values that go beyond a strict competition analysis.

Sebastien Soriano mentioned this afternoon that the open environment of the Internet is critical, and I think we all agree on that. But having said that, that really doesn't give us tools to analyse a case-by-case situation.

Now, WIC recently did a study for BEREC that I found extremely interesting where WIC tried to determine what net neutrality is worth to end users. They developed very sophisticated questionnaires and sample groups and found that end users actually do value an open Internet, and they were even able to give pricing indicators on how much it is worth.

But the more difficult question -- and this is the one that regulators have to actually face in this multi-criteria test -- is: what is the open Internet worth to society? And how should regulators try to measure the impact? Those are things that we're ill-equipped to address.

Now, I found an OECD paper in 2016 that attempts to put together a methodology for analysing these more fuzzy factors. The OECD puts all these factors of what's an open Internet into three big categories.

They first look at the technical aspects of Internet openness. Technical aspects are the open protocols, the end-to-end architecture, the addressing system, et cetera.

The second category is the economic aspects of Internet openness. And there we find the familiar concepts of innovation without permission, low barriers to entry, cross-border provision of data, information and services. These are all extremely important on the economic side.

The last category is the social aspects of Internet openness, which include fundamental rights, freedom of expression, freedom to access information, Internet as an enabler of education, harm to more general principles, and fundamental rights.

The OECD puts together a form of a scoring mechanism that can be used actually to measure

these different vectors or different aspects of Internet openness, so that when you're evaluating a given case you can attempt to measure the impacts on different parts of Internet openness.

Now, the OECD's method is meant in the first instance to evaluate government actions. Mr Patterson referred to data localisation rules or other government actions that hinder the free flow of data. Government surveillance can also hurt the open Internet.

But the OECD's method, I submit, could also be used by NRAs when they're evaluating these commercial practices of ISPs. Now, obviously when an ISP takes an action on a commercial basis, that has nowhere near the same effect as a government action on the open Internet. The action of a single private party is not going to change the ecosystem. A government action might.

Nevertheless, if you have all ISPs in the market agreeing to do the same thing, you could have almost the same effect as a government action.

So my conclusion is, first of all, that both the FCC and BEREC have a prudent watch-and-gather-information system for evaluating these commercial practices. The message is: don't rush to a conclusion, and I think that's the right approach in such a fast-moving market.

The second conclusion is that, as regulatory authorities, you are already well equipped to do the competition analysis of these commercial offers. Where you're less well equipped is to measure the social impact, the social aspects of the impact on Internet openness.

There there may be things to learn from broadcasting authorities. Broadcasting authorities are more used to dealing with content diversity, protection of children, social values. There may be lessons to learn from the case law of courts when dealing with fundamental rights, and there may even be lessons to learn from environmental protection agencies who attempt to evaluate impacts to an ecosystem or a biosphere in the environmental sense. They've developed extremely sophisticated methodology for doing that, and there may be lessons to draw from that.

So my suggestion in closing is perhaps that BEREC could put on one of its future work programmes to develop tools for helping regulators conduct impact assessments on the social aspects of Internet openness, because today there clearly lacks a methodology in that area.

Thank you.

JOHANNES GUNGL: Thank you very much, Winston, for this statement on net neutrality.

As a regulator, I can say that I'm not really looking forward to answering these questions you raised already because this is really an extremely tricky thing, and I think from a European perspective it's very important for us to have a broader look about net neutrality and what other regulators are doing because I think that net neutrality should be executed in a very harmonised way across Europe, if not the world.

So thank you very much for your statements. As the moderator, I will take the privilege to start with the first question and I would like to combine it with a question that came in via Twitter.

The question via Twitter was: could the panel discuss the following question: is the current state of connectivity inhibiting innovation?

I would like to pass this question on to my panel and introduce a second aspect: could you please also address the issue of net neutrality? Is this the current state of connectivity? And are the rules of net neutrality that are now in place from your opinion inhibiting or even fostering innovation?

Gavin, would you start?

GAVIN PATTERSON: Of course, yes. Well, let me have a crack at the current state of connectivity and inhibiting innovation, to start with then.

I would say the answer is: maybe. We're about to embark, I think, across the whole of Europe, all the EU 28, I think, on an ambitious vision to deliver a gigabyte society. In order to do that, undoubtedly we are going to have to step up investment, investment across fixed networks, investments across 5G, investments so that the whole of a country is covered. So USO type investments as well.

The scale of that investment is huge and the vast majority of it is going to have to come from the private sector. Certainly what we would observe is that in order for shareholders to back that sort of investment, we need more confidence that we are going to get a return, more certainty around the sort of investment case, because not only the scale, but the length of these investments means that the payback is often 15, 20 years, this sort of magnitude, certainly the ones that we are looking at. That's difficult to get support from if there isn't certainty from a regulatory perspective.

So in that respect I think we do need to find a way of providing the investment community with more certainty on the sort of regulatory environment that we're going to operate under in order for them to invest. I mean, the conversations I have with investors are that they understand the time frame and they understand that these types of investments have to be made. It's just that when there is the uncertainty of how they're going to be regulated hanging over them, that they understandably become more concerned about that. If you look at the sort of returns that telcos have generated over the last ten years, you can see ultimately that investors feel as though they haven't had a fair return, and that's why many of them have underperformed.

So I think in that respect we are at a crossroads. I think there is this very ambitious vision that I think many across the community and the single market really want to get behind, but we do need to find a way of ensuring that all stakeholders are considered in it and people recognise that actually private investment doesn't come for free. It does need to have a fair return.

JOHANNES GUNGL: You mentioned certainty for your investment. Do you think that this is more considered in the proposal of the EU Commission on the new framework?

GAVIN PATTERSON: Well, I think what I'm encouraged by with the revisions to the framework are, first of all, a pro-investment stance within that. The more technology neutral that is, the better, because I think the market does solve for the outcome ultimately, and that's what we ought to be focused on. But clearly fibre and Fibre-to-the-Premises is going to be very much central to that.

I also think it's positive in a sense that the time frames of reviews, moving from three years to five years, will be very helpful, because at the moment, across a 15-year payback, you've got five opportunities to take a haircut to the pricing, and that creates a lot of uncertainty. If it's reduced to three, maybe that's going to make life a little easier.

So I do think it will --

JOHANNES GUNGL: That's understood.

GAVIN PATTERSON: At the moment in the UK we just move from one review to another. They tend to last three years, and that can't be right. There must be a little bit more -- there must be better things to do with our time, I would think.

JOHANNES GUNGL: Okay. And on net neutrality?

GAVIN PATTERSON: Net neutrality --

JOHANNES GUNGL: Is it a game changer for you? Do you care about it?

GAVIN PATTERSON: I do care about it. We tend in the UK to be more on the liberal end of the telco spectrum, I would say, when it comes to net neutrality. We believe in the openness of the Internet. We believe ultimately that things like blocking have no role to play. But we also believe that there should be transparency on what the customer ultimately gets so that they can make choice. So any shaping technologies that are used ought to be completely transparent to the customer.

We also believe that there should be room for innovation between the content owner and the applications provider and the network owner as well, and certainly we found that if you engage in an open commercial discussion, that actually you do find solutions that provide good outcomes for customers.

So, for example, we have a commercial relationship with Netflix. We cache them deep in our network, which obviously improves the customer experience, but also reduces the peering costs. We also integrate them into our EPG on our TV platform, so we are able to work together to drive adoption of fibre, and that's just one example. We have a similar relationship with Google.

So I think in many ways-- I think we are in a good place on net neutrality in terms of where we've got to, and I wouldn't change it dramatically from what's in the current framework.

JOHANNES GUNGL: But the good news is, in case of Brexit, you can make your own rules on that, isn't it?

GAVIN PATTERSON: You know, we did not want Brexit. We find that actually in many ways a lot of what the Commission does in our sector is very, very good for the sector over the long term. They take a long-term view. They balance the needs of customers with investment. So the longer we can stay within the market, the better, I think. I still hope -- hope against hope in some ways -- that there is a solution to this that sees us continuing to have access to the market over the long term.

JOHANNES GUNGL: Thank you.

Annina, as far as I could understand your statement, you care about connectivity. Do you care about net neutrality?

ANNINA KOSKIOLA: I would say that for start-ups -- your original question was whether you

see it as restricting or fostering innovation. I could see that from a start-up perspective it's fostering innovation because all the initiatives that aim towards putting different companies or operators on the same line is giving us more chances towards getting into the end user's devices or offering services alongside with bigger players. So I see it only as a positive aspect.

JOHANNES GUNGL: How about connectivity?

ANNINA KOSKIOLA: Yes, the question was whether I can see connectivity issues being harmful for innovation, but the good thing about start-ups is that we are planning services for the future. So we don't maybe even think about connectivity problems when we start innovating on things. It's only when you start taking them to the market when you realise that the connection is actually not yet so good, like this is actually not functioning in real life. So I don't see it's actually harmful for innovation. It's more harmful for taking the innovations to the market.

There are some aspects where I definitely do see some room for improvement, such as WiFi connection underground, the offering of more affordable mobile connection or free WiFi at airports, for example, and IoT networks. So I think there are still some things to be worked on there.

JOHANNES GUNGL: Okay. Martin, what do you think about net neutrality and connectivity?

MARTIN KAISER: Net neutrality, I think it's not so much a subject for an industrial company who doesn't stream many, many gigabytes over the network. I think Netflix and Google is much more concerned about this than we are.

We will have many, many video cameras around our homes, but I don't think that those streaming private videos will be very much concerned.

What we are much more concerned about is ubiquitous connectivity and the way it travels across borders because, as an industrial company, we export our products into many, many countries and we cannot separate our distribution on connectivity issues like: this one will go to Germany and will be connected to Deutsche Telekom, this one will go to UK and be connected to British Telecom.

We need a very ubiquitous connectivity that goes across borders and it's not the case today, not so much on 2G and 3G networks, nor on IoT networks that we are working with, and that's an issue because if there is uncertainty about what these networks will become, then there is a lot of hesitation when it comes to our industrial roadmaps, and in that way it blocks innovation on our side definitely.

JOHANNES GUNGL: Okay. Winston, what are your clients saying on net neutrality and connectivity?

WINSTON MAXWELL: I think everybody agrees now that net neutrality is key to the success of the Internet and innovation in general. It's just unprecedented, the amount of innovation that's been permitted by the open Internet.

What we've seen though is the actions of ISPs and operators has not -- it's relatively rare to see blatant violations of net neutrality because I think the operators understand that their customers

want an open Internet too, and that was shown by the WIC study.

I think the bigger threat to net neutrality is coming from government actions. You know, there's a new wave of concerns about digital sovereignty around the world, China, Russia and other countries that really want to kind of re-balkanise the Internet, impose data localisation rules, tighter controls. The real threat to net neutrality comes from there, I think.

JOHANNES GUNGL: Okay. It's a new aspect.

So I would like to invite you if you have any questions on the topics we have touched so far. I see on the right side.

KANE MUMFORD: For Gavin Patterson, just on the subject of connectivity and innovation. Regarding the EE emergency service network, which I know is EE, but as CEO of BT hopefully you can comment on this, will the delay that the Home Office has acknowledged, the five-month delay from 12 September, is that affected by the connectivity issues around the Home Office and EE's roll-out of 97 per cent geographic coverage or is that due to other issues?

GAVIN PATTERSON: Sure. It was a very specific question. What is your name, out of interest?

KANE MUMFORD: Sorry, it's Kane Mumford from PolicyTracker.

GAVIN PATTERSON: I think you are referring to the emergency services network contract?

KANE MUMFORD: Yes.

GAVIN PATTERSON: Yes. Well, the emergency services network contract, for other people in the room, is, I think, the first time in the world that a blue light service is going to go over a commercial network. We are part of a group of companies that are providing this. Also included is Motorola, Nokia, Huawei and BT.

In terms of our part of the process, that is going to plan. We've already provisioned a number of the sites required.

There are some concerns, I think, about whether the whole programme is going to be ready on time, but those are probably best addressed to the government directly as we're only one component of it and we're not the system's integrator in it.

Ultimately I think it will be delivered. I'm confident of that.

I think it will be quite an interesting case study for other countries around the world because it will provide better geographical coverage across the UK. So at the moment, while the population coverage is in the high 90s, geographical coverage, even by EE which has the leading geographical coverage, is about 70 per cent.

So this --

KANE MUMFORD: Sorry, if I could just press on that point, is the delay that the Home Office just acknowledged, the five-month delay, is that down to the coverage that EE and the Home Office are trying to work out, the extended area of coverage?

GAVIN PATTERSON: No, it's nothing to do with that.

KANE MUMFORD: It's nothing to do with that? Okay.

GAVIN PATTERSON: Ultimately it will get to over 90 per cent, in fact 92 per cent, next year. And importantly, it will save the government a lot of money, in fact, over GBP 1 million a day, in providing these services. So I think it's a very interesting model. I think others are looking very closely at it.

KANE MUMFORD: Is there an argument that other countries can benefit from the EU taxpayer essentially funding the research and development of this project through Motorola and EE?

GAVIN PATTERSON: That's an extremely specific question.

KANE MUMFORD: I think it's a fairly concise one though.

GAVIN PATTERSON: I think it's something you may want to address to the British Government. It's not a particular question for me, I don't think.

KANE MUMFORD: Okay. Thank you anyway.

JOHANNES GUNGL: Thank you.
Any other question from the room? Yes, Sebastien.

SEBASTIEN SORIANO: Sorry. It's also a question for Mr Patterson.
You mentioned your media conversion strategy is very important to you in order to differentiate your service. But in the same time you asked for regulators to not only consider infrastructure at the level of the prices -- I guess you mentioned cheap infrastructure, that we should promote not only cheap infrastructure, but also quality of infrastructure, competitive infrastructure and coverage and so forth.
But actually in a convergence strategy where you differentiate with the contents, do you have still a strong incentive to invest in your network?

GAVIN PATTERSON: Absolutely. The point I was trying to make is that the historical divisions between content and networks and within networks between fixed and wireless are blurring. And not just BT, but many other companies are crossing from their historical basis into an adjacent area. So while BT is moving from networks into content, Sky has moved from content into providing networks.
The point I was trying to make is, from a regulatory point of view, we need to look at it as a single marketplace because that is the way the market is going. It's becoming homogeneous and we need to make sure that any regulation isn't tilted to one company more than another because of the history of where they've come from and the regulatory environment that was in place in that market.

In terms of our investments, our investments in sport are invested solely through the consumer division of the group. They don't have any impact on the capital that we invest in the network itself. Indeed, the capital has gone up 30 per cent in the last two years and will go up significantly from here.

The consumer business pays for its own investment in sport, and as a strategy it's worked for us. The consumer business is now more profitable than before it made the investment. So it's in no way detracting from investment in the network.

JOHANNES GUNGL: Thank you, Gavin.

Another question from the audience. Could you please state your name and the organisation you are speaking for.

JAMES PEARCE: James Pearce from Capacity Media, from the UK. It's just Annina mentioned start-ups working with telcos. I was just curious because obviously the OTT markets traditionally had a bit of friction with the wholesale carrier market in terms of it's often been looked at as the cutting into wholesale carriers' profits and stuff like that.

I was just wondering whether it would be interesting to get the view of both Gavin and Annina as to how they can work together and how they can really promote that without cutting into each other's business, and also get a regulator's point of view as to how they can support wholesale carriers in a situation where effectively they're being regulated a lot more than the OTT providers, especially messaging and voice as opposed to content.

JOHANNES GUNGL: Thank you for that question. We can combine it with a question we got via Twitter. How can wholesale carriers work with OTTs to mutually benefit both? Any examples?

Well, who of you -- maybe Gavin or Annina.

GAVIN PATTERSON: Annina, why don't you start? I'm taking a breather.

ANNINA KOSKIOLA: Well, I wouldn't want to see it so that start-ups and larger carriers working together are not -- they're not trying to eat the same cake, but their collaboration can just expand the market and help expand the telcos' traditional business into completely new aspects that they haven't thought of before. Like the example I mentioned about the Finnish start-up that is doing the health monitoring rings, that is a completely new product for the operator to start selling.

So I wouldn't want to see them as competing, but more like being able to support each other.

JOHANNES GUNGL: Annina, an additional question on that. Have you realised that telecom operators fear that their services are cannibalised by new actors, new start-ups and so on?

ANNINA KOSKIOLA: Yes. Well, it's nice to hear that they actually take start-ups so seriously, that they fear that.

But I do see that in order for them to be able to cope in the developing market, they need to start using new technologies and new approaches. And if they're not able to do it on their own,

then it's better to partner with start-ups than to stay on the side and watch the start-ups grow and take their business, like what is happening with WhatsApp. They could instead start collaborating with start-ups that are producing messaging services and start offering them.

JOHANNES GUNGL: Are traditional operators innovative enough to do so? Because you mentioned you would rather co-operate with WhatsApp because it's more convenient for the customer, everyone has it, and the messaging service of the telecom operators is maybe already kind of outdated, isn't it?

ANNINA KOSKIOLA: That's a really good question, if they are innovative enough. I would want to see them as being innovative enough.

But definitely what I've noticed with telcos and other big corporations is that even though they have these innovation departments and accelerators and incubators, it's very easy to be introduced to these corporations, but to get to the next level and meeting the actual business decision-makers and actually starting some business together, that's the hard step.

I think that's really something that the big corporations should start focusing on if they really want to be innovative, to not keep the innovation as a separate department, but to take it inside their core businesses as well.

JOHANNES GUNGL: Okay, interesting.

Martin, what is your experience with traditional operators?

MARTIN KAISER: We talked at lunch about the solution that you propose with your Finnish company. If I take the case of Hager Group, if we would include messaging in our smartphone applications, we most probably would not propose SMS messages because it's something over a 10 or 30-year period of a lifetime of a product. We cannot foresee the costs that will be generated by this if we want to include that.

So we would probably choose an over-the-top solution, and that's why I'm saying that I think all those new solutions, innovative solutions, they are newly generated usage scenarios. They are new usages that are adding on existing ones, but they are not cannibalising existing ones.

There will always be space for SMS messages. If I'm in the middle of the French mountains and I need to send a message, then I don't have enough data connectivity to do so and I need a back-up with an SMS. That's where new technologies can create usage scenarios that will indirectly generate old business to still grow.

So I think that's where they are nourishing each other and you don't need to oppose them. You can put them next to each other. I agree that you need to have a more integrated approach between telecom operators and start-ups, but it's a difficult subject. In the industry we are not exemplary for that either.

JOHANNES GUNGL: Gavin, how can you compete then with WhatsApp, given the statements of Annina and Martin?

GAVIN PATTERSON: I think Annina is absolutely spot on. There's no point being in denial that these trends are happening and that innovation is something that you can stop. I don't

believe there's any point in thinking that you can do it all for your customers.

What I think we as telcos and service providers have to do is create the right environment where the best of the Internet can be brought to our customers, and we have to adapt our business model if we're not at the forefront of that innovation.

So Annina is absolutely spot on. I think there's innovation that happens within a business, within a telco, but the best telcos also operate an open innovation strategy which tries to partner with companies around the world.

We operate this in a couple of ways in BT. Within our main R&D facility just outside Ipswich we have over 70 companies co-located and it's been a place where a number of successful start-ups have come out of over the years. Sometimes it's simply just sharing the same environment, not necessarily with an investment from BT.

The other is that we have a scouting capability that is based in Silicon Valley, but also scouts in Korea and Japan and India and Israel, that looks at the best new start-up businesses and tries to bring the ones that make most sense to us, where we can add some value and work together, and we try and do that.

You're also right that it is sometimes difficult to find your right way into big companies. Initial conversations can sometimes not go far, and I can imagine that's frustrating. It is something I feel as though we need to do better at, and I think we're probably more progressive than many others, but it is definitely an area that, you know, there's more to do at.

JOHANNES GUNGL: Okay. Any other question? Yes. My left side.

STEPHEN HOWARD: Thank you. It's Stephen Howard at HSBC.

Given this is a session about the fast changing digital environment, I have a question about the new framework and its seeming move away from technology neutrality and its favouring of platforms like FTTP.

What I'm wondering is: have we actually got the right emphasis here? Because if we want to get the maximum amount of innovation as quickly as possible, shouldn't we actually be promoting the quickest market solution, ie the quickest way of deploying really fast speeds, which I think might well be Fibre-to-the-Node or Fibre-to-the-Cabinet or Fibre-to-the-Curb or whatever you want to call it? Is that perhaps not preferable from the view of maximising innovation in the short to medium term, as opposed to FTTH, which may be a great technology, but could take many more years to deploy?

I'd be very interested in the panel's views. Thanks.

JOHANNES GUNGL: If I got it right, this is more on the connectivity issue and what technology and what approaches to promote.

Do you prefer anybody to answer your question or --

STEPHEN HOWARD: Well, it seems to me it's relevant to everybody on the panel, including your good self, sir.

MARTIN KAISER: On the industry side, we need to have very small proof of concepts when new technologies are coming out and reassure our engineering that these are really the right

technologies. Just presenting them great technologies that will be rolled out over the next 10 to 20 years will not be sufficient. We need to have hands-on experiences.

I think it's important also to test it with real life customers. You need to put it in their hands, have their feedback, and that way you reassure on the technical side the engineers and you reassure the marketing people that there will be a customer on the other side.

Once you have that proof of concept from a technical and a customer point of view, then you can roll out the technologies.

But waiting for the ideal technology to come out, I don't see that so much happening, at least in our market, in the smart home market.

JOHANNES GUNGL: In the previous session I think everybody was concluding on the fact that Fibre-to-the-Home will be the endgame. What are the preferred solutions until we get there, Gavin?

GAVIN PATTERSON: Fibre-to-the-Prem is going to be the endgame. It's just when is the end? That's the debate.

I agree with, I think, Stephen's hypothesis that ultimately the regulators ought to set outcomes as being the right thing to focus on, rather than particular bias to a technology, and let the industry innovate to try and deliver them.

In order to get ultrafast speeds deployed quickly, we believe it's going to be a mixed economy anyway. So yes, there'll be more FTTP, but FTTP is a relatively slow roll-out. The throughput you can put through the workforce is something that you've got to do some every year over a period of time, and if you only focus on that, you miss the benefits of having the network effect, if you like.

So if I look back on what we've done in the UK, predominantly through this first stage we've done FTTC. If we'd have only done FTTP, we would have covered about 10, 15 per cent of the UK at this point and we would be having a very different discussion here. As it was, we took the view that said actually the benefits of having the network effect and having better speed for everybody are more important than getting infinite speed or very, very fast speed for a few.

But over time I think that will change and we will upgrade via a number of technologies. More P(?). G.fast that gets speed of half a gigabit, and in fact we're getting 5 gigs in the lab over G.fast now. So we know it can go further.

But ultimately we will need to look at things like wireless in some areas as well, I think, and the new standards around 5G that I was referring to I think are quite important in that area.

JOHANNES GUNGL: We are touching on the point of the prerequisites of a network.

Maybe a question to Annina and Martin: what do you think should the ideal network for IoT services look like? You want to do indoor positioning. I think you need coverage even on the toilet, in the bathroom, and when I'm sitting on the toilet, trying to access the Internet, it's a little bit of a problem. So how do we have to design the networks?

Maybe then, as a conclusion, what can regulators do to promote that?

MARTIN KAISER: In the connected home, for us, what we call deep indoor coverage is a real subject because it will all start with smart sensing and those sensors are sometimes deep in

your basement. Water meters or gas meters, electricity meters, they are very often hidden in your home. So deep indoor coverage is a certain subject and there are not many people know how to measure it.

From that perspective, we need a stable and reliable partner that can reassure us that the rules of the game will not change over time, because once we have installed this type of equipment in our customers' homes it's done for the next 20 years.

So very much a necessity for us to have a reliable technology, reliable ecosystems and reliable regulators in that sense.

JOHANNES GUNGL: Is the network of the telecom operators the right network or do you rely on WiFi or other solutions for your products?

ANNINA KOSKIOLA: We use a combination of different networks and different technologies. I would agree with you that the in-house connectivity is a real issue of how you get connection also deep inside or deep underground, like subways and so forth.

Another aspect that is really important is that the service would be as unified as possible as widely as possible within Europe or even within the whole world.

JOHANNES GUNGL: Maybe I can add some experience we have in Austria. With the last multiband auction we have imposed a coverage obligation for indoor, not very high bandwidth obligations, but at least 2 megabit. What we have found out, it's extremely difficult to measure it and to find out whether or not the operators are complying with this obligation.

So deep indoor, I would agree this is of concern and then gets more and more important. But it's, from a regulatory point of view, an extremely difficult issue to monitor and in trying to promote it.

So I'm not quite sure whether the traditional regulatory work is fit for purpose in that sense. Maybe other technologies will have to play this role.

Okay. There are two quite controversial questions coming in from Twitter to Gavin.

You mentioned data protection and there is a question to Gavin: is it correct to interpret from your presentation that BT or telcos in general want to make end users' data their own and perhaps monetise that data? Gavin?

GAVIN PATTERSON: No.

JOHANNES GUNGL: We don't avoid this question.

GAVIN PATTERSON: Yes, exactly, hash e-privacy.

No, that is not what I said and I'm not sure how you could have drawn that conclusion from it.

The point I was trying to make is I think the privacy regulation has evolved and is actually pretty stable and well understood for people. During this next phase we need to think how it evolves for sensors. Who gets access to the data from sensors? Ultimately who owns it? And it's not necessarily the same as people.

So I think it's an ongoing debate. It is not great plan for BT and other telcos to take over the world in terms of data. I'm trying to make the point that ultimately we do need some regulation

around this, and there are going to be, not just millions, but there are going to be billions of these devices out there and we need to really think about privacy and protection through that lens.

JOHANNES GUNGL: Thank you.

Winston, you are advising on data protection. Gavin just mentioned there is a need for regulation. What kind of regulation? How much regulation?

WINSTON MAXWELL: Within the digital single market package there's this whole chapter on data flows which deal with the very issue of who should be deemed owning the data, what access rights. It's more economic debate because in any given Internet of Things scenario you have maybe five players, the car manufacturer, the device manufacture, the interface, the telco. You know, you can list five or six. Each of them have some legitimate claim to access the data and do their business around that data, and yet today, you're right, there are no clear rules about how that should be organised.

So it's true, it's moving a little bit away from -- the data protection aspect is clear, at least on the legislative side. The application is more complicated. But the sort of economic issues about how do you organise access, we're just starting.

JOHANNES GUNGL: Okay. Gavin, you are really popular tonight.

GAVIN PATTERSON: I am, yes.

JOHANNES GUNGL: Is BT ready -- I would say do you fear that that you are uberised, disintermediated and commoditised? Maybe is content the answer?

GAVIN PATTERSON: I think every company in the world is at risk in some ways of being disintermediated if ultimately they don't stay close to their customers and move as their customers' needs ultimately evolve. It's true in our space, but it's true in every business around the world. You've got to be able to adapt and change your business model as you see competitive alternatives come along.

So I don't see there's anything different about the situation that we face today as a company or any telco faces today. I think if you're open to innovation, if you're listening to your customers, if you provide a product that they value, ultimately you will be able to adapt as their tastes change and their needs change.

If I look back over the 150-plus years, in fact probably 170 years that BT has been a company, it's been at its most successful when it has adapted to changing environments. It's managed to do that most of the time, but not always. But it is spotting these technology transitions, these platform transitions, and figuring out what that actually means to our business model that ultimately is the key.

For us, if we invest in the network, if we invest in providing better customer experiences around that, and there is a way of getting a return on that investment, I think -- I don't see the likes of Uber investing in fibre and 5G per se, and those ultimately are going to be the networks that we need for the gigabit society that we've been talking about.

JOHANNES GUNGL: So you are just another industry that is facing the challenges of digitisation?

GAVIN PATTERSON: Competition, yes, and digitisation. I think it's all to do with being prepared to change and cannibalise yourself ultimately. I don't think anybody is safe and just having the right attitude doesn't make you safe either. It is a pretty dynamic environment, but, you know, being in denial that it is happening as a trend or as a theme is not going to help either. I think nine-tenths of any solution is recognising you've got a problem, and then it's about addressing it.

JOHANNES GUNGL: Okay. Coming to conclusions, I would like to ask my guests and my panellists: we are regulators expecting answers from the market and we are searching for answers from the market. What is your wish to regulators? What do you expect from regulators to foster innovation, to foster the co-operation, the collaboration between the new actors and the traditional companies?

Martin, maybe, make a wish.

MARTIN KAISER: If I would try to synthesise what we said, I get the impression that the scope of what a regulator has to cover today becomes larger. We talked about the telecom industry that becomes more and more merged with content and there the TV and the Internet industry are merging together, and I'm trying to explain how the digital and the connectivity is changing industry and where the connectivity becomes part of industrial products. There we think that regulators need to go beyond the scope that they have today, and at the same time become agile and cost-effective, because in the industry we don't have margins like the telecom industry might have had ten years ago to cover those kind of costs. We need again long life cycles, need very controlled costs on the component part.

That's our wish, that we will have sophisticated partners with the regulators, and they need to act on a European level because our products don't stay in one country. They go all over the place. That might be the third component that I see coming for regulators, that they cannot stay acting on national level as they might have had the delightment(?) in the past.

JOHANNES GUNGL: Thank you, Martin.

Winston, maybe you can convey a wish from your clients. In particular, what I would be interested in, you mentioned net neutrality. Is there already a wish or some kind of experience where you say, well, this rule is not that fit for purpose? Do you see any room for amendment or is there something we could do more?

WINSTON MAXWELL: No, I think your big job is to gather evidence and compare experiences with the FCC, for example, because you have the advantage of having almost the same regulation in place and you are looking at the same issues. So you have a huge experimental population of regulation to draw upon.

So I think the first job, before changing anything, is to observe how it's working, observe how the market works, which is what you're doing.

JOHANNES GUNGL: Okay. Annina, any wish to the regulators or policy makers in general?

ANNINA KOSKIOLA: I think regulation is a double-edged sword. It's really important for regulators to provide a platform that offers equal chances and stability in terms of what sort of services you can build on top of that, but not to take it to extremes so that there's too many laws and regulations that you have to follow in order to be able to produce something. Especially for start-ups, as we don't have our own legal departments or most of them have very little legal experience. So for them it's really laborious to make sure that all of the regulations are then being fulfilled, if they are not absolutely necessary like privacy-related issues and so forth.

JOHANNES GUNGL: Okay. Gavin?

GAVIN PATTERSON: A couple of thoughts.

First of all, I think, on connectivity, there's a huge investment required for this next stage of the development of the single market around the gigabit society. I think, as regulators, getting the right balance between competition, but also promoting investment, I think, is going to be key because the vast majority of that investment has to come out of the private sector and at the moment the private sector isn't seeing the sort of returns that make it attractive. So we've got to get that balance right.

I think, secondly, really recognising the markets are converging very, very quickly, and what used to be segregated as TV and used to be very distinct from communications, they are all blurring into one, and regulation needs to ideally catch up and look forward to ensure that it's not tilted to one old industry versus another. It needs to be a level playing field with the same rules applied to everybody.

Then the final thing is I think in seizing the opportunities around the digitisation of industries, the area of data in particular, as we just touched on, privacy and protection of sensors is a very difficult one and it could use some really strong leadership at this phase to ensure that we set it up in a way that works across the whole of the EU 28, it's consistent with the US in particular, and we simplify it and ensure that it's as open as we possibly can so that we can make the whole ecosystem really explode.

JOHANNES GUNGL: Okay. Thank you very much, Gavin. Thank you very much for your contributions, Annina. Thank you very much, Gavin, Martin and Winston.

Thank you very much to you for asking questions. Thank you to the Internet community for participating.

I have one last point to make. This stakeholder forum is also dedicated to introduce to you the work programme of BEREC in 2017 and I would like to invite you all to make the contributions to the open consultation on the work programme. We appreciate very much your comment on that, whether or not we are on the right path, we are addressing the right issues. So please contribute to the consultation.

Now it's up to me to finish this panel. Thank you very much again to my panellists. Thank you very much to you.

I would like to hand over now, maybe Sebastien, the next agenda point is I think we're expecting

the Commissioner Oettinger, and -- well, thank you very much for your contributions and a big applause for the panellists. Thank you very much.

SEBASTIEN SORIANO: So this is the best part. We are waiting for the Commissioner. I don't know. Does anybody have a joke to tell us? Or any quotes from Albert Einstein, for instance? What we know is that the Commissioner is coming in some seconds. So if you can just wait a little bit for him. I think that it's quite impressive we are not late.

Closing remarks by Commissioner Gunther Oettinger

COMMISSIONER OETTINGER: Dear President, Mr Eschweiler, the vice chairs, in particular Mr Soriano, since ARCEP has organised this event in Brussels, the BEREC members and observers, dear guests, ladies and gentlemen.

The quality of our telecoms sector for which you are co-responsible is decisive for the performance of all other sectors of our economy and society. That's the main difference to the past.

In the past a telecom company was relevant for people-to-people communication, from Mr Muller to Mr Mayer, from Brussels to London, from Berlin to Rome, or inside of Dublin.

In now more and more looking to the IoT, looking to digitised industries, looking to new services as e-health, m-health, as connected cars, or platooning and connected trucks, autonomous driving as a mid-term future is telecoms, this industry is responsible for data flow, to organise quality, capacity and speed of data transports, with latency, and BEREC and our national regulators are in the centre of this transformation, checking the market and enabling, via smart regulation or deregulation, investments being needed for future digital services.

The telecom sector must be fit so that it can deliver the investments needed for our vision of a gigabit society. Only with a strong telecoms sector will be able to use all the cutting edge technologies of the future such as 5G, Cloud computing, data analytics, robotics and IoT, with applications from connected and automated driving to e-health and m-health, smart grids, smart cities and smart buildings, and many other areas.

This is a central logic behind our proposals the Commission has adopted on 14 September. Conditions for strong telecoms sector able to deliver the investment in very high capacity networks and clear political orientation towards a gigabit society by 2025 as a basis for focused and rapid action.

You have seen what we have put on the table two weeks ago. And you, stakeholders from across this European telecoms sector, have overwhelmingly reacted with constructive or positively to that.

That's, I think, a good start. Now it's a time for us to do whatever we can to ensure that by the end of next year there will be political agreement between the co-legislators on the new electronic communications code.

We have to speed up the process. I'm sure if we would discuss it or even block it in the Council or Parliament, if we would have further delay, not being ready before the end of next year, we would lose our credibility and our level of authority. Time is money. In the digital sector more than in other sectors, to speed up the process is my ambition.

Ladies and gentlemen, before I expand on my vision for a gigabit society, let me stay a few

words on roaming. Sorry.

As promised by my president, in his State of the Union speech, the Commission has delivered a new proposal for the roaming fair use policy and sustainability mechanism. The new fair use policy proposal avoids any reference to time limits. Instead, it relies on the presence of residence or stable links entailing a frequent and substantial presence on the territory of a Member State. In this regard any end user with residence or stable links to a Member State will be able to enjoy roam like at home from an operator from that Member State.

My services are now looking at the BEREC opinion -- thank you, therefore -- on the new fair use policy and sustainability derogation proposal.

We hope to deliver the best outcome for European consumers and an acceptable outcome for our telecom companies in close co-operation with BEREC before end of the year.

Ladies and gentlemen, I would like to thank you all for the valuable exchange of views we have had over the last months in preparing our proposal for the telco review, and I would like to take this opportunity to present you the components of the connectivity package we developed a month ago.

First point. We propose new milestones for ubiquitous connectivity in the gigabit society by setting new broadband targets for 2025. As we all know, there are politically binding targets in our European Union for 2020 and many Member States are on track. A few Member States have some delay. Some Member States have additional national targets, maybe up to 2018 or 2019. But there was no outlook looking to the next decade. So what about 2025?

The new milestones are not just about speed of networks. It is overall quality and coverage that will enable a connected society and economy, and will open more and new opportunities.

Within the next ten years, up to 50 billion objects, from homes to cars and watches, devices, machines, are expected to be connected worldwide, the great majority of them wirelessly. But none of this will be possible without networks providing reliable, ubiquitous, very high capacity and low latency connectivity.

The digital single market will not release its full potential or will only happen for a privileged few if there is not state-of-the-art very high capacity in that connectivity across Europe.

Our strategic connectivity objectives for 2025 focus on extremely high connectivity, gigabit connectivity for those places that drive social economic development, such as schools, high schools and digitally intensive companies. 5G coverage for all urban areas and all linked major roads and railways with a commercial deployment in at least one city per Member State in 2020. And access for all European households to Internet connectivity offering at least 100 megabit per secondary networks that are upgradable to gigabit speeds.

My second point is our WiFi initiative. We want to encourage villages and cities to provide free WiFi in the centres of their local community life. This initiative has a potential to deliver connectivity to thousands of public spaces and millions of WiFi connections every day, and much more if Member States join the campaign with additional national funds. We will deliver it through a non-bureaucratic, efficient and quick to the ground system where all the steps from the application to the monitoring will be made online.

My third point, our 5G action plan. The fate of Europe's industry in the next decade depends on our ability to compete in a world where digital and physical are completely interdependent. This is why the Commission adopted the 5G action plan to deploy 5G by 2020.

Let me say, because South Korea is rolling out 5G in 2018, we, me and you, we are coming

under huge pressure. Our citizens will ask us why 5G is a reality in Seoul and not in Paris, Milan or Warsaw. There's no binding reason. We should have a coherent roll-out all over Europe. It's our 5G action plan which could be offered to EU 28 plus, to a pan-European dimension because Switzerland, Norway, West Balkan countries, even the Russian Federation, Turkey, Belorussia, Ukraine should be our partners because, as an example, connected trucks, this daily transport of goods from St Petersburg to Cologne, from Rotterdam to Moscow, is a daily operative reality.

So our transport sector will ask what is happening in Europe. Is it feasible? When and how the roll-out is starting? And again, when South Korea is operative, we have to have a clear common approach and no further delay.

This is a strategic initiative which concerns all stakeholders, private and public, small and large, in all Member States and beyond. The objective is to meet the formidable challenge of making 5G a reality for all citizens and businesses by the end of this decade.

The 5G action plan aims at establishing a clear roadmap for public and private investment on 5G infrastructure in the European Union. In order to achieve that we need to do the following.

We must align roadmaps and priorities for co-ordinated 5G deployment across all EU Member States. Spectrum bands should be made available for 5G ahead of the 2019 World Radiocommunication Conference, to be complemented by additional bands as quickly as possible.

Let me say this. The 2019 world Radiocommunication Conference is a very important one, and 2019 is tomorrow. What we need is a coherent and common European approach.

I'm not willing to fly to this conference if there are 29 voices and 29 different positions, because no position, even a position of France or Germany, standalone, not connected to European position, has no relevance. But looking to this global dimension at the end of the day, being there in a European team, having one voice and one common technological and economic approach, we can be the most relevant participant in this conference and the outcome could be a European one. This should be our ambition.

Industry should promote, with the support of the Member States, a common vision and shared priorities in the various 5G standardisation activities.

Last but not least, we want to promote early deployment in major urban areas and along major transport paths, and also promote pan-European multi-stakeholder trials as catalysts to turn technological innovation into full business solutions.

Before the end of the year I will meet several ministers because my idea is to organise and to co-ordinate a test field. As you know, connected cars, there are several test fields and test beds, but always in one Member State, in one region. But mobility is pan-European. So, as an example, we have to check it. To organise platooning, trucks being connected from the southern part of Germany, via Austria, via Slovakia, Hungary, up to Romania, maybe with a link to Serbia and to Czech Republic. Or platooning of trucks from Rotterdam and Antwerp via Brussels to Luxembourg and Metz and Strasbourg and Karlsruhe.

So four, five, six Member States, even candidates, as Serbia is, and their telecoms and their regulators in a coherent strategy, organising platooning, cross-border, this would be my ambition before end of next year.

Therefore I need your constructive partnership, and then it would be a clear industrial project with value added, working altogether on an European level, in the interests of our European

transport sector and our European automotive industries.

Fourth and finally, the new European Electronic Communications Code will strengthen competition, especially competition to invest. It will simplify regulation and also give more confidence to consumers by strengthening their rights.

High level consumer protection is a prerequisite for consumer confidence. The proposed code guarantees a continuous protection in light of market and technological advancements and ensures that equivalent services are treated in a similar manner.

Our new rules will also ensure that vulnerable end users have a right to an affordable connectivity contract so that no one should be excluded from access to basic connectivity. This is a centrepiece of a modernised approach to universal service.

An important factor to facilitating deployment of very high capacity connectivity networks is that where consumers agree to certain instalment payments for deployment of a physical connection, the maximum 24 months duration for the initial commitment will not apply. It is, however, important that contract conditions should not in any case constitute a disincentive to switch between providers.

With regards to access regulation, the new retail competition first principle will lead to less need for regulatory intervention. Legal certainty and predictability are key to support significant network investments. Under the new rules, market regulation must be closely aligned with solving a real competition problem for end users on retail markets.

Co-investment projects will be a sustainable route to be largely exempted from regulation. We are also proposing a simplification of regulation, for example as regards the setting of harmonised termination rates across at EU level or by establishing longer market review periods. We want to lengthen the maximum period between market analysis from three up to five years, but with the possibility to have shorter periods if there are developments that require a new analysis or a change in remedies sooner.

Ladies and gentlemen, as you well know, spectrum is a politically sensitive issue. But it is also crucial if we want to be serious about our gigabit ambition, in particular with regard to 5G.

We therefore propose principles for spectrum assignment conditions in the digital single market, in particular assignment deadlines and licence periods.

The new rules promote a consistent approach to coverage obligations, to small cell deployment and to network sharing, thereby stimulating 5G deployment and rural connectivity.

We have carefully calibrated the proposal with clear principles in the legislation, implementing rules only on key issues based on RSPG strategic advice.

Moreover, national regulators will be involved through BEREC in appeal review process, with the aim of ensuring consistent assignment practices on matters closely related to market regulation and market structure.

This set of instruments would contribute to greater regulatory consistency and predictability for operators, which would foster investment and innovation.

Dear colleagues, concerning BEREC, I agree that BEREC's work should remain rooted in the expertise of national regulators. In addition, we would like to see BEREC's area of competencies increased to cover areas with a cross-border dimension, and where BEREC can assist its members with new tasks.

To support the new rules, the proposal envisages an efficient institutional system of national electronic communications regulators and BEREC as a revamped EU agency for telecoms, with

common objectives of enhancing end user access to and take-up of very high capacity net connectivity, of promoting a competitive internal market and of safeguarding end users' overall interests.

We agree with BEREC that it is in the European interest that its member NRAs have a firm foundation of common competencies exercised in full independence from economic and political influence. We also believe that there is a European interest in those common NRAs' competencies being exercised consistently and a reformed BEREC could be the best guarantee of that.

But we are not stubbornly attached to a rigid model. Out of respect for the co-legislators, we have proposed a reform based on the common approach to EU agencies that they have agreed with the Commission. That we think is the right starting point, and from there we should discuss how the specific characteristics of the telecom regulatory model should be reflected in the final governance structure. This is essential to make the new package efficiently functioning and being timely implemented across the European Union.

Ladies and gentlemen, the telecom sector is the enabler for all other sectors of our economy and society. That is why we need the framework conditions, regulation and policies, for investments in very high capacity networks to thrive.

We have therefore called upon Member States to endorse the strategic targets for 2025 in their own national broadband plans, and we have called upon the European Parliament and the Council to adopt the WiFi for Europe initiative in fast-track to be able to start already in 2017.

Crucially, we all need to ensure that the legislators can proceed swiftly with a discussion on the modernised European Electronic Communications Code to reach a political agreement by the end of 2017 so that all companies can benefit well before 2020.

So all of us here should contribute to this ambition in the coming months. In digital issues a strong role for Europe is popular with almost all stakeholders and with consumers. Let's therefore get on with implementing our current vision for the sake of a strong telecom sector in order to give Europe another success story. Let's work together.

Thank you, Mr Eschweiler, inviting me. BEREC will be next month one of my main partners. Your advice ongoing is appreciated because our Commission's proposal is just a starting point. From now up to end of next year, with your ministers, with the Council as a whole, with rapporteurs and general rapporteurs, we need a smart and coherent discussion, and we need no further delay. I count on you, therefore. Thank you.

SEBASTIEN SORIANO: Thank you very much. We have reached the end of the meeting. Thank you very much, Mr Commissioner.

Before inviting you to have a cocktail, I just wanted to thank very much all the people that have participated to organise this stakeholder forum. People from the BEREC Office that are located in Riga, as you know. People from ARCEP and from all NRAs that have participated.

Thank you for coming and let's have a drink. Thank you very much.

(5.45 pm)

(The meeting concluded)