BEREC

12TH STAKEHOLDER FORUM

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Transcription of the event

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EUconnectivity

Philippe Defraigne: Good afternoon. Good afternoon. Thank you. Thank you very much. We will make a start in a couple of minutes. My name is Philippe Defraigne; I'll be your MC for this afternoon. Before we make a formal start with Robert Mourik, I've got to take you through a couple of housekeeping matters to warn you that this will be recorded.

Not just in video but also in text, thanks to Marina Portuguese stenographer, who is turning your speech into text. The text and the video will be available on the website in a few days. You will find these QR codes on your tables. On the one side, you have access to the live captions, so if you live captions to follow the conference, you can scan that side. The other side is really key. And I'm asking you, Michael, to reach for your phone. And to take a picture of this scan where it says, "Join the conversation". Please do. Carlos Rodriguez Cocina, you as well. Because I would like to find out who's in the room. BEREC is very strict about privacy. So no, it's not like the GSMA Barcelona where you can buy lists online. No way, I tried but no way. So I would like to know who's in the room. So if you could please scan this, and we'll find out in a minute who's in the room. While you have got this tool, I very much hope that you are not shy, and when you want to ask a question later this afternoon, you will raise your hand. If I'm not blinded by the light, I may be able to give you the floor. But if you are too shy, it's possible to ask questions using that app as well. If you ask your question online, state to whom you are addressing the question. Is it to the regulators, the operators, or the Commission? Let's wait a bit. It's still moving. Fixed operators are still catching up. I don't know what to do if you're fixed on mobile on this thing, but anyway that is another ... A word on the beautiful blue bulbs you find. You came for the blue bulbs on your table. BEREC's chief communicator is becoming more and more of a poet. He should get a prize for what I'm going to read. The light bulb symbolises the success of innovation, the power of expertise in shaping the future, and the limitless potential of creative thinking. Ladies and gentlemen, wonderful. Apparently, the more chocolates you eat, the more creative you become. That's the promise. I really hope that you are going to find this afternoon useful and that, at the end of the day, we all work for European citizens, for end users, and so I hope that these fruitful discussions will give rise to better policies for a greater Europe. Thank you. Thank you very much. On that, I would like to invite on stage Robert Mourik, incoming BEREC chair 2025 and chair of ComReg.

Robert Mourik: Well let's see if the technology holds up today. Thank you, Philippe Defraigne, for those nice words and to all here in the audience and to people online, can I welcome you most heartily to this 12th BEREC Stakeholder Forum. The 12th already. It's a very important event on the BEREC calendar. It's an event where BEREC gets to interact with all its stakeholders. I don't know whether you were here this morning and had meetings with the co-chairs upstairs? That perhaps for us is the most important part of the day. That is where we hear of new developments, where we hear what the market is doing. Where we get ideas, etc. I hope you were able to make use of that opportunity. The co-chairs in BEREC are the visual engine room of the organisation. They are the driving force of BEREC. Today is also an occasion where, and this big hall here is indicative of that, where we can discuss potential topics for the Work Programme next year. I'm the incoming chair and it is my responsibility to come up with a Work Programme for next year. And this gathering here is very important for us to gather ideas,

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to hear what you are thinking. To get inspiration. We have a call for inputs, of course, out there. You can check the BEREC website. We would hope that you send us all your ideas and suggestions but today is a kind of a first step to hear from you what you have to say. To repeat a Chinese proverb that everyone knows, we live in interesting times. Far too interesting. We have, unfortunately, the full-scale invasion in Ukraine still ongoing after all these years, and a new war has erupted in Gaza, and we have very important US elections later this year that could be of great influence in Europe too. And closer to home, we will have European elections with a new Commission, a new Parliament. And on top of that, we are closer again, we are looking at a white paper being published. We know that next year the code will be revised. We have a large number of digital pieces, regulation, being implemented. The BEREC regulation is going to be refined. So against this backdrop of change and uncertainty, we have to come up with our Work Programme for next year. And what I want to do today in a few minutes is explain to you how we are going to come up with that Work Programme. We started already back in January, when we sent the outline Work Programme to the EU institutions. To the Parliament, to the Commission, to the Council. And we are awaiting their feedback. In parallel now, we are seeking your inputs. Inputs from all our stakeholders, externally and internally in BEREC as well, to see what we need to do. The outcome of that process will be that in May, June, around that time, we will gather all of the inputs and weigh them up against each other and see how much capacity and time we have. We will collate them and evaluate them, then discuss them in BEREC at the various plenaries. Hopefully then, by October, we'll be able to have a public consultation. In December, we should be able to adopt the Work Programme for next year. You can give your inputs before close of business on the ninth of April. And really, it would be very much appreciated if you do. We are not starting from a blank sheet of paper when we draft our Work Programme. Tasks set out in the code, in the BEREC regulation, are of influence on the Work Programme. We are required to produce a set of guidelines from the Open Internet regulation, for example. That is part of the Work Programme. Similarly, in the Roaming regulation, we have to produce a set of guidelines for wholesale and retail Roaming that goes into the programme. We are part of the high-level group for the DMA and as we could see recently that the Commission asked for advice. That is part of the Work Programme. And then we have this kind-of, I call it the Donald Rumsfeld category of things that we know will come up, but we don't know-how big they are or how much work they will involve. The white paper, for example, will probably require us to comment next year on proposals. As I said, we will have the European communications code being revised. That is part of the Work Programme. But all we can do now is reserve some time. Then we have things that will pop out from left field. Things we don't know that we will need to deal with. They are the unknown unknowns.

As I said, we don't start with a blank piece of paper. So how is this Work Programme then built up? A number of mandatory projects that come out of the code, the Open Internet implementation report, the Article 82 update to the VHCN guidelines, which is kind of the first layer. The second layer are a number of recurring projects that we do that we think are very helpful. They are not obligatory, but they are helpful for the working of the internal market. For example, the regulatory accounting and practice report, the WAC parameters that we calculate.

Then we have a number of carry-over project. Our Work Programme is a multiannual Work Programme. So, projects that started in 2024 carry over into 2025. And we will have to deal with them. Then finally, we have spare capacity. That is the space in the Work Programme that we can start projects, one to two-year projects that we would like to talk to you today about and that we would like to hear about. So, once we get your comments, your suggestions in, we will put them in the big tumbler and see how we can judge them. And we use the 3 BEREC strategic objectives and priorities to evaluate them. And that is that they should promote either full connectivity, or support sustainable and open Digital Markets, or empower end users. They are the key objectives that are coming straight out of the communications goal. And if you send us your suggestions, please stick to the format that we have suggested on the BEREC website. So that you give us the title, what strategic priority it's linked to, a short description of the project so that we can assess it. The preferred output. Do you want a report? Do you suggest a workshop? Do you think guidelines are required, etc. And of course, who you are as well. So, as I said before, your ideas are valuable. Send them in before the end of April, the end of the ninth of April. We really value it because we would like to see what the future holds. What the forward-looking perspective is that BEREC needs to adopt. And even if you have suggestions for improvements rather than a project, they are welcome too. And we hope that you give us a clear idea of what your expectations are for that suggestion. And with that, I would like to thank you very much and I'll hand back to Philippe Defraigne.

Philippe Defraigne: Thank you very much, Robert Mourik. May I ask Tonko Obuljen to join us on stage? Thank you very much, Robert Mourik. Tonko Obuljen is joining us, and this is the moment for you to ask the questions that you never dared to ask. Particularly on the Work Programme. The draft Work Programme 2025. But broader questions are acceptable, I think. So who wants to start? Encourage us. Raise your hand. Ben from ETNO. Thank you for breaking the ice. Who else? Anton? Okay. Go ahead, Ben.

- Just with regard to the upcoming revision work, are there any work items that you anticipate for the BEREC Work Programme. You spoke a little bit about the updated guidelines, and I assume for criteria 3 but can you share your thoughts about that first? Robert Mourik, should I take that one. Yes.

-Robert Mourik: As I said before in my speech, we have reserved time and space and capacity of our working groups to deal with our revision of the code. The problem is that we don't quite know what the scope is going to be. How much work is going to be involved. So at the moment, we have this kind of catch-all piece of time that we have set aside. But it's very much on our Work Programme. It's very much something that we will have to deal with. We just don't know exactly what form it will take. If you have certain ideas about that, perhaps you have information that I don't have, then let us know.

Philippe Defraigne: Thank you, Ben. Thank you, Robert Mourik.

- Anton from Deutsche Telekom. My question is driven by a very visible and ever-increasing convergence between the services but also the networks provided by traditional telcos and also

by other players such as content providers, hyper scalers. We are facing as telcos we are facing an extremely broad range of obligations. The best example is consumer protection. We have to summarise the precontract information and then provide some other contract and God forbid you want to change anything in the contract. And then the customer can depart without any fees, penalties and so on. And then, and this is something that most of us have experienced personally. One of the major changes in the conditions of some digital services then it goes much easier and smoother. It's very often just a brief list of what's being changed and then there is, down below, a lonely button removing all uncertainty. Agree and proceed. So this is my question towards both chairs; whether you see the need to look deeper, compare and think about the changes in the level of burden upon the traditional telcos and the hyper scalers. And if yes, then which would be the priority areas for that? For you to look into in the coming years.

Philippe Defraigne: We are already late running. So may I ask the next people asking questions to keep it short. It was a good speech but let's try to keep it short.

Tonko Obuljen: I'll take this one. You are right. Markets do converge and this line between telecom services and digital services is blurred. Maybe we should think about introducing some kind of new obligations in the digital world for, possibly, some services of Big Tech. On the other hand, many of these classic telecom-related obligations emerged through the times as a result of some behaviours in the market. So in any case, we need to protect the consumers. I think we should discuss it, maybe with the review of the code.

Philippe Defraigne: Maria, Luke and then Claudio.

- So I have a question on the Data Act implementation, in particular the BEREC programme talks about cloud switching provisions, but could you give us more insights on how BEREC plans to implement other provisions of the Data Act, and also when personal data is included and involved, is BEREC maybe thinking about a collaboration with the European Data Protection board supervisor?

Tonko Obuljen: Yes, you are right. We talk a lot about switching. For the other part of your question, well, it doesn't come as naturally to us as to BEREC. And also, we have to see for the national designation of our membership. And yes, as BEREC we are deep into all digital files and so, we are into Data Act, and we will discuss it. Maybe it could be addressed in the next Work Programme. If you have some concrete ideas on what we could do, you can also contribute to this public consultation on the Work Programme.

- Good afternoon, everyone, Luke from ECTA and I have a recurring question for you. We ask it every year, there are very important files on the table. The experience that we have had with the last files and certainly the connectivity recommendation is not so good, as you say. Because the final Article 74 is not in line with the code. And how could BEREC improve the public debate and make sure that all of those topics can be largely debated in public. In a way that if somebody says something and another person disagrees, that those exchanges of views and contradictory

views can be discussed in public so that everybody understands what the positions are. Thank you.

Tonko Obuljen: Well, the stakeholder forum is a place where we do that. Currently this is the large public event which we organise. But we are open to any kind of discussion. We have a lot of workshops. Those workshops are external, are open to such a discussion. Okay, they are maybe not so public. They are public but we meet in a closed circle of persons. But of course, BEREC is open to discuss everything. But we are not the ones producing the recommendations really.

Philippe Defraigne: Okay, Donald go ahead and Claudio afterwards.

- Thank you, Philippe Defraigne. One of the questions we have is ...

Philippe Defraigne: Introduce yourself.

- I'm Donald Connor and I'm speaking on behalf of NBO Europe. And one of the questions that we have is that BEREC has decided today to publish a draft report on the evolution of public and private 5G networks. As part of that, will BEREC prioritise promoting wholesale access to new network technologies such as 5G, as a way to foster competition and efficient investment, and also ensure that in the spirit of promoting competition, that Article 52.2 of the code is adhered to.

Robert Mourik: Well, first of all, I want to say that we did draft that report and there will be a follow-up to that. We are still thinking about what that report should exactly say and there will be a workshop organised later on this year. I think the 24th of April if I'm not mistaken. So give us as much information as you have, to say what your issues are. And that will be taken on board. Whether we can do something as BEREC is a big question. As I said, it's an unregulated market. And perhaps we will have to take this to our DMA stream in order to do anything with that.

Philippe Defraigne: Claudio? We are a bit blinded by the light here, so raise your hand so I can see you.

- I'm from BEUC, the European consumer organisation, and I would like to apologise in advance to Anton for the burdens and obligations that you have to face. I'm quite we are responsible for some of them. We kindly disagree on how necessary they are. But on that note, I would like to thank you all for this from event. This is a great way to have stakeholders discuss and engage. But coming back to what has already been said, it's important to see, from a consumer perspective, a growing trend for market deregulation and consolidation starting to take hold across the board in Europe. Now, even more so when we see what is coming out of the white paper of the famous white paper. But also what we're seeing when it comes to concrete Commission decisions on national markets, and I would like to thank you in advance for the BEREC opinion on the significant developments in the Malta market on infrastructure access. We are apparently seeing the Commission saying that 2 operators are enough in some

circumstances. So given all this context and looking at the programme for 2025, we would like to ask if there will be scope for more discussion going on this specific - being more specific when it comes to more dedicated workshops and in particular, to be very open on this and have a joint workshop with consumers. To bring a discussion on what this trend is doing on the ground when it comes to the concrete effects on consumers, on end users, and to debate the negative consequences of that, which as far as we can see has been higher prices, lower quality of service, less transparency and everything that seems to be the reasons why you should want to further implement the code. Not possibly roll it back.

Philippe Defraigne: If I don't see any hands raised, I'll assume that you have no more questions. Okay? Thank you.

Tonko Obuljen: So on this one, the case is still pending. So I would not go into details. For us, BEREC, you know that we are, as regulators, always talking about competition. We would not like to see competition harmed, just as we would not like to see consumer protection and consumers' right of choice harmed. So for us, it's very important to keep that. On the other hand, the fact is that the world is changing. So I think we need to discuss really, we have to have some serious discussion about how to proceed and what to do with the legislation. How to manage our regulation and how to proceed to really achieve benefits for consumers but also for the European economy and for the whole ecosystem. I don't think we should rush into any fast decisions. We really need this discussion. And we are of course, open to BEUC, as in the past.

Philippe Defraigne: Thank you very much Tonko Obuljen. No more hand raised so thank you very much for your question. We need your input on a serious matter. Earlier we had a dry run. Now it's a serious question. Can you see the question? Tonko Obuljen and Robert Mourik stay put. We will visualise the result in a minute. Allow time to send the answers to the question. The results will appear ...

Okay. This vote will determine the future. Your future. The future of the telecom industry in Europe for the next 10 years. So have your voice heard. More external workshops. Are you voting with several phones? What do you think? Any lessons to be drawn?

Tonko Obuljen: I'm happy with the results actually. It shows that all that we currently do is relevant.

Philippe Defraigne: More common approach. Well it seems to be stabilised. Thank you. Thank you very much. Please join me in thanking the chairs for a great job.

I'm now delighted to welcome Roberto Viola, Director-General of DG CONNECT. Thank you, Roberto Viola, for being with us.

Roberto Viola: Good afternoon, everyone. Really many thanks for having invited me yet again. And so thank you. I think, as Robert Mourik said, we live in interesting times. Unfortunately, interesting is maybe not the right word. Because we live in dramatic times, and all my solidarity

and support to the colleagues in France from the Ukraine NRA, thank you very much for your work.

(applause).

I think as you said Robert Mourik, Europe faces elections faces changes all around the world and also faces big questions. Can we still rely on the energy supplied by a dictator that invaded a peaceful country? I don't think this is a possibility that we can consider. Can we still think that defending our citizens, our borders, should be done by somebody else? I don't think this is, frankly, an option. Can we see that the competitiveness of Europe, which went down and down, can be solved by somebody else? I don't think that this is an option. So, whatever the future is bringing us, and I hope a better future than the future of today, Europe will be faced with challenges in a stable world. A world that demands that Europe take its own responsibilities. And also that European institutions take responsibilities towards the citizens. As, I must say, the European institutions have done during the pandemic and have done after the brutal invasion of Ukraine.

- When I look at, ten years ago... This forum is 12 years old, I think. Something like this. So ten years ago. When I look at the first strategy for the single market produced by the Commission. I did this last night, and I could not find the word AI in the document. Then in 2020, I could find just a little paragraph. Sorry 2018. In 2020 there was a bit more, but it was just one week before the pandemic. So all of what we have experienced, of our society and our life being online and being so dependent on digital of course was not there. This is just to say that things happen so quickly. Things change so much, so clearly we are still trying to stabilise the new governance models and all that we need to do. If we look at the last 10 years, I see the competitiveness of Europe, we have lost 10 percentage points in the ICT market share. This gives us a clear indication that we are still struggling with the idea that we need to digitalise our society and economy quickly. So moving to the next Commission, of course there must be a thorough reflection on what it's going do and what are the priorities for Europe. But there is a solid basis that we have been laying on the ground during the last 5 years. So when now, we look at the European regulatory toolbox, I think it's quite a comprehensive and impressive one. We have the rules for online platforms in terms of services and having fair competition on the market. So the DSA and DMA. We have the first regulation in the world of AI, the AI Act. We have the comprehensive regulation on data, the Data Act, and we have the comprehensive regulation on identity and exchanges around citizens, which is the new EU wallet regulation. So these are the basis for a functioning modern society. Of course now we are very much building this kind of infrastructure around implementing those acts which, of course, entails having the full DSA and DMA teams up and running. Which we are doing. Now, we have just started to build up the AI office. If you notice, the vacancy notices are out. And of course, we also look now at how to build governance for the EU wallet and for the Data Act. One thing that is important, looking at all of these tasks, is that there is clearly also a scarcity of people that can actually do the work. First, because looking from the public governance side, of course, everyone has their own budget limitations; secondly, we don't want to create an army of regulators going everywhere and that

comes to the point that it's important to actually leverage the qualities that we have in Europe. And BEREC is quality for sure. With a capital "Q". That is why I want to publicly thank BEREC for all of the support that they gave us during the implementation of the DMA. BEREC, through its members, is largely involved in the DSA because many BEREC members are digital services coordinators. If they are not, they are working closely with the national digital services coordinator. Who knows how we can work together also in the area of artificial intelligence, and for sure in the case of the data acts. We see now the Data Act that we would like to have telecom regulators in charge, especially of the cloud regulation and cloud portability in particular. So there as well, BEREC comes in with responsibility and I'm pleased to see that the future Work Programme might reflect this point. So, looking, zooming in a bit more into the telecom sector, it's clear that the sector, faced with all that's going on, has to change. Because frankly - it's already changing. So that is why we are presenting a white paper where we clearly say what the Commission thinks are the elements of this change process and what we suggest as the potential remedies and potential new ideas that could contribute to this idea that, at the end everything converges into offering digital services and infrastructure to our citizens. So the first point of departure of the white paper is that the world of the day after tomorrow will actually be many many different forms of algorithms moving around, data moving around, people moving around. If you consider what a car will be like five years from now, ten years from now maybe, it will be a supercomputer on wheels. If you consider a building in a few years from now, it will be the most complicated robots that we have around, because we like to control many things, and optimise many things.

One of the elements that we must consider, and this is the starting point of our white paper, is that there is no modern society, there is no green society. There is no functioning society or secure society, if this society, in the year 2030 and beyond, cannot rely on a functioning telecom – telecom in the new meaning of telecom. As a number of network computers, exchanging data and algorithms, and a number of functions that are executing algorithms locally or remotely. This is the new age of connected algorithms. This is the way that society will function. Probably it will be, and that is what we hope will be a better outcome for everyone.

Because we will have better healthcare, and a sustainable path towards greening the world, and we will have a much more cost-efficient way of producing things and hopefully also trying to climb again into the path of more productivity and more competitiveness. So that is for us a very important starting point. We didn't start the reflection of the white paper on regulation. This is almost irrelevant compared to the real objective. For us the fundamental objective is to have a first class, resilient and well-functioning computing continuum. Our 3C's as you have seen in the white paper. That means that first of all we need to have all of our industries and service providers geared to this vision and make sure that we take the necessary steps. We have done the same with the chip act. It's very much how we built our resilience when it comes to the microchip industry, where we also need to be strong. We need to be a bit more autonomous than we are today. Never fully autonomous, this doesn't work. But a bit more resilient. We have, from the presentation chip act, we have 100 billion in investments lined up and we do hope that when it's the right time to present the new digital act, whatever its name, we hope to have a

similar effect. So to attract investments in the networks of the future. From this consideration we go to the pillar of the white paper, which is what is the consequence in terms of regulation. The first thing we would like to see is that the target of 2030, everyone connected to the fibre, is real. That means switch off of the copper. We are absolutely determined to do that. I have myself have handled, with relative success, the switch off from analogue to digital TV, and we know from that process that the last 10% is the difficult one. We see now, a number of markets where the fibre coverage is going to 50 and 60, though the average in Europe is 50, but it's moving up. For instance, things are very good in France, where we are nearly 80%. But then, everybody knows that the last 10% will be the difficult one. And this is where we need to have a good plan and support the users and especially the weaker users, and make sure that this can be done by the year 2030. But then, if everything will be fibre, the copper regulation should go. That is the natural consequence. And this is why what we will do, and that is for the Commission to do, we will not recommend any more markets be analysed, but rely on each market being analysed on its own merits, with the so-called [inaudible] test. Then regulators should be able to actually specify a market which is good for regulation but on a basis of new criteria. The other element which is very important is that it's very difficult from a national market analysis or a regional one to picture all possible occurrences. Because they could come, because a particular permit is not given in a given area, or because of a state decision about public subsidies that require access for everyone, and these are circumstances outside of the market analysis. That is why also, we would like to have the regulators equipped with a toolbox of possible standardised products at European level that can be utilised irrespective of the market analysis. That is for fixed networks. When you look at the way we would like to see the networks, in terms of how they are operated, from what I said before, there is no distinction between a cloud and telecom operator, there should be none. Because in the future they are the same. So there cannot be a regulatory difference, so it cannot be that a cloud operator can operate from country of origin and telecom operator has to seek 27 authorisations. That's why we propose a new way of authorising telecom operators, which is the so-called European network operator, which is basically exactly the same type of authorisation more or less that you have now, but valid all over Europe. Of course there are technical problems to be solved. But we think that this is quintessential that everyone plays the same type of game. And the game starts from 00. And then let's see who competes better for services for the customers. So this level playing field is very important. Then also, interconnection should be a level playing field. And the rules for interconnection apply for everyone. So that's the way we see it. Another important element is that if we want to have a real transition to 5G, because many of the 5Gs that you see in your phones are a bit like 4G tweaked to look like 5G. The real 5G is not implemented at large in Europe. We have been going into a painful exercise that took 12 years to assign the 5G frequencies in Europe. That is not good. This is not what a modern continent can afford. Looking at 5G and looking at 6G, we need to be much better. And to be much better, we have to do the same things we do with DMA, DSA and AI. We have to work together with a 2-layer approach like we do now, stabilising the regulatory order, being a bit more of a team together in Europe, and then implementing locally in a way that is coherent with what we decided together. That is the way we see frequency management in the future. The story that frequency is national

or ... this is ridiculous. First of all, because frequencies see no border, and secondly because Europeans are the only ones responsible for European frequencies, they cannot rely on a third-party organisation to decide their own future. The last and, in a way, the most important element, is that we need secure networks. We cannot rely in Europe on unsecure vendors, and we cannot rely on others to make sure that our networks are secured. We enjoy a good industrial position; we have 2 trusted vendors in Europe that do an excellent job. But of course we have to look in perspective at this much more complex network to make sure that we are able to be part of this transformation. Also, we must control what goes under water much better. There are only a few repair ships in Europe. As signalled in the white paper, the Commission is ready, if necessary, to finance repair ships as we are doing for firefighting. The Commission is ready to put money as we are putting money to support projects, and as you have seen there are a number of cable projects now we are supporting through the global gateway that we are also willing to support. The only thing that we cannot do is think that Europe can be isolated from the rest of the world or once again that others have to seek the connectivity of the future. If Europe wants to be a data hub and attract data and try to offer a model of a human-centred way of looking at the future, then we need connectivity with the rest of the world, and that is another important element in the white paper. Now, we have published and have been clear about our ideas. But of course, now we stop, and we are in listening mode. We are in consultation, I hope all of you will participate and then there will be a discussion. We will also discuss deeply and brainstorm with BEREC, we are BEREC friends because we really value their inputs and also, because what comes out of the consultation with the white paper. Then we'll discuss the revision of the BEREC regulation later. But first it's important to stabilise the idea on the overall ecosystem of communication and then together with BEREC, we will also think about the future of this very important and well-functioning organisation that is BEREC. Thank you very much for your attention.

Philippe Defraigne: Thank you very much, Roberto Viola. Thank you. May I ask Ingrid Malfait-Fuibaud, Kamila Kloc, Carlos Rodriguez Cocina and Richard Feasey to join me on stage ... the title of this session will be familiar to you: how to master Europe's digital infrastructure needs. Sounds like the title of an executive course at a business school, but of course this is the title of the much-awaited white paper and I'm sure this is a session that many of you have been awaiting. What I suggest, to put a bit of structure in this panel, is that we start with quick feedback from each of the panellists on what they think of the white paper, and then engage on a topic by topic debate. This is the day where the regulators listen to industries, so let's first ask the industry: Ingrid Malfait-Fuibaud, what is your reaction? Happy? Unhappy? Not understanding what's in it? You know, what is your mood?

Ingrid-Malfait-Guibaud: Good afternoon. Thank you very much first to BEREC for inviting me to represent Iliad today. I'm very honoured to be here. My first reaction was indeed that in fact the white paper, or the white book, raises many questions in fact. But this is not the point that I want to focus on now. The thing that really struck us at Iliad is the pessimistic view that the Commission appears to hold on the telecom sector, and on the effectiveness of the code. Just less than four years since it was due to be transposed. At Iliad we have maybe a more optimistic

view. We think that the EU telecom sector is a success story on many fronts. Thanks to competition, it has brought great benefits such as affordable prices, innovation, connectivity for all. Many operators have made this very significant investment in deploying networks. So for sure, there are challenges ahead. We don't minimise them but we want to really underline that Europe should also be proud of what has been accomplished so far. Europe is doing better than the U.S. on some points on fibre deployment and Europe has no digital divide based on pricing as you can see in the U.S., I mean, our kids don't need to go to public libraries to get internet access, they can have it at home. There are many positive points we should acknowledge and we can build on that of course. We strongly believe that this success is due to the action of you the regulators and the Commission in applying a framework with clear objectives, and the cornerstone of which competition drives investment. And reading the white paper we got the impression that the Commission is now questioning the principal a bit and suggesting that regulation actually hampers investment, and we need to go for further regulation, so this is worrying for us. What is true is that there are disparities among countries, some are doing better than others, I won't say names now that I know it's recorded. But in terms of fibre coverage, the figures are quite different. But, I think it's the Commission's job to dig into the reasons behind this and I don't believe the conclusion will be that countries that are regulated first or earlier or larger are doing better today. So I don't think that removing largely ex ante regulation will improve the performance of all. Quite the opposite. We think maintaining ex ante regulation is necessary in some situations, but let's be clear I'm not advocating for regulation indefinitely everywhere. There is a diversity of market situations, but we do have a framework that's well designed to tackle all of this diversity. And there may be things that need to be changed.

We have to look deeper, but let's do as it was planned and look into detail what is working and what is not working to see what has to be done.

Philippe Defraigne: Thank you very much, Ingrid Malfait-Fuibaud. Carlos Rodriguez Cocina does Telefónica share the optimism of Iliad?

Carlos Rodriguez Cocina: We share the optimism, but in a different way. Thank you for the invitation to be here with you representing Telefónica. We share the vision of the white paper and we welcome it because it's very much the same vision that we have of the European telecom sector on a number of fronts. First, there is strong language on the socioeconomic impact of our sector, and we take it for granted but we have very explicit references to this being a critical sector for EU competitiveness, for the whole industrial fabric in Europe. But also for citizens there is the reference to it being indispensable, especially for EU citizens in rural and remote areas, to have a secure, reliable high-quality connectivity. We fully agree with those statements and the technological revolution component of the paper. The analysis of the merged space between telecoms and cloud, and the opportunities and challenges associated with it. There is this reflection on computing and network as a service, all the new business models that may be associated with this development, and that's very welcome. But also a reflection of the challenges that may happen because there are positions of dominance in other spaces of the

value chain. Namely the cloud, which could expand to this virtualised network that we are creating. So those elements that were brought in and we share them as well. Especially in the financial aspect and the situation of the sector, I would disagree with Iliad and I would agree with the vision that the white paper is offering. Good enough or mission accomplished until now does not mean being ready for the future. What we are seeing is a trend that will get us far away from accomplishing the connectivity targets of 2030. Why? Because for a number of years, revenues have been decreasing and we have been underperforming in the stock market and our return on capital expenditure was low, and basically we are not constructing the story of growth for the telecom sector in Europe. I think this is a clear reality and also the reflection on a very fragmented market and a lack of scale on the telecom operators that is impeding them from reaching their full potential. We concur with this vision and we think there are two important reflections that come from it. Targets are very important, but especially the vulnerability of not achieving those targets and the point on economic security that Robert Mourik was referring to. We have the situation of dependency from China and the U.S. on technological capabilities. We have an inspiration to develop European technological capabilities to become strategically autonomous, or digitally sovereign, at least to have some capabilities that we don't have nowadays. The telecom sector can play a critical role. But to be there we need to be financially sound, financially sustainable; we need to be able to play our part. And here, I know that particularly for Robert Mourik and the BEREC colleagues, I may be a bit too provocative, but I think this element of economic security should inform the work of BEREC as well. BEREC is ultimately part of the EU institutional fabric, so if the Commission produces an analysis, develops an idea of industrial policy competitiveness in the EU industry and if the Member States concur, BEREC should concur as well. We cannot work in isolation from what we are seeing as a consequence of the broader dynamics in the geopolitical context. So it's food for thought.

Philippe Defraigne: Richard Feasey you worked in the industry for many years. What do you do you think of the white paper?

Richard Feasey: I think it starts off in the right place, in the sense that it tries to map out the fundamental technological changes and drivers, which in my experience will drive many of the other consequences of that. And I completely agree with Roberto Viola that we need to get away from thinking of a world where there are cables and poles and ducts to a world with computing platforms, basically. What the white paper might have done more on is think about the consequences of how those computing platforms will operate, and of which the traditional physical components of the network are a part. But actually we are moving to a world where software is more significant, and I mean software not only hosted by the traditional telecoms companies, but also software that is residing in cloud infrastructure and elsewhere. And for me, the challenge that is laid down by the white paper, but I'm not sure is answered, is what does a framework look like that ensures that in Europe we maximise the value created off those computing platforms and software platforms. So, not a world in which we are concerned with subsidising infrastructure or working out how to improve returns by those sorts of mechanisms. But how do we actually enable the owners of assets, both hardware and software to generate more value off those assets than they have been able to in the past? Because we are building

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very powerful computing platforms, but at the moment, I think we are - it's pretty clear, I think - we are not enabling in various ways, not only some owners of physical assets, but also other third parties, to generate enough value off the back of those and that is the challenge of the next era.

Philippe Defraigne: Thank you, Richard Feasey. We will come back to some of those points. Konstantinos Masselos what does BEREC make of this white paper - is it welcome?

Konstantinos Masselos: I'm always optimistic. And more or less I would agree with Richard. The way that I see the white paper is, on top of everything, a vision paper. We need to have, before discussing any details, a vision for the network of the future. So this is what the white paper does. Maybe when it comes to some specific proposals we may agree or disagree and have some debates. But we'll see. On top of everything, we need to define our vision: it's a connected collaborative computing network. The 3Cs network. And so if we see historically, connectivity and computing have been a kind of [inaudible]. It's computing shifting between centralised and distributed computing that post connectivity or connectivity, made possible from centralised to distributed computing. So these two are strongly connected and this is addressed in the white paper. This is one thing. And today what we see is cloud computing from the end of the 2000s to edge computing, where smart phones and IoT devices and SmartCity devices become part of the computing surface. So we see this shift. A shift from centralised to distributed computing. In the past we saw the from the main frames of the 1970s and the personal computers of the 1990s. Today we see the shift from cloud to edge. And the role of connectivity is very important because it's the tool that will allow us to make computing more efficient from a cost perspective and from an energy perspective, because connectivity will allow us to have the balance between centralised computing in the cloud and distributed computing in the edge. So this is the vision. Now, what we need to achieve this vision in Europe. In my opinion, first we need cutting edge technology and to have this, we need innovation. Pillar one of the white paper discusses the development of an innovation ecosystem. In my opinion, regulators play an important role also in this innovation ecosystem, because we need to be careful whether to regulate, overregulate or early regulate. Because such decisions may block innovation, so we need to be careful. And regulators have a role to play in this innovation ecosystem with collaborative regulation and regulatory sandboxes and different things. The right approach in my opinion is monitoring the evolution of technology, identifying potential issues and then deciding to regulate when there are real issues. So this is one thing. The second component is the Regulatory Framework. And this is covered in pillar 2 of the white paper. And different issues are discussed. Authorisation, the concept of a centralised core network, universal service; spectrum issues and copper switch-off, access framework for full fibre environment and transition ... but the core issue in the Regulatory Framework part of the paper is that we need to find the right balance between harmonisation that can create the scale required for investments and living space and flexibility for adaptation to specific, special conditions in the different Member States. This is component two. Thirdly, we want to deploy very high quality and very expensive digital infrastructure in Europe. So we cannot neglect security and resilience. This becomes an overriding issue in this discussion. So we need to address security, resilience, cybersecurity, and this is covered by

pillar 3 of the white paper. And if I would add one point in this security resilience, cybersecurity issue. I would say that as regards cybersecurity and given the trend of software defining networks in the future, we cannot talk about cybersecurity if we don't consider cybersecurity also at the semi-conductor level. We need traceability at this level to make sure that our very expensive and high-quality digital infrastructure is not compromised. So this is my take on the white paper.

Philippe Defraigne: Thank you very much, Konstantinos Masselos. Kamila Kloc I'm not asking you what you think about the white paper but please jump into the conversation whenever you would like, and otherwise we'll ask you for your impression at the end of the conversation. The first topic I'd like to discuss is - you mentioned scale Konstantinos Masselos, and there is a statement in the white paper that says one of the obstacles for investors to invest in telecoms project in Europe is the lack of sizeable assets. Our assets are too small and from there, the white paper draws consequences in terms, you heard Roberto, country of origin, pan-European regulation, etc. But let's put the regulatory consequences aside and talk a bit about the need for scale. We all know that there are many ways of achieving scale, horizontally, across countries and in a sector or across sectors, etc., so shall we change the order? Richard, what do you think about the Commission?

Richard Feasey: I don't know who the investors were who were saying that. I mean my short answer is, the market has spoken on the benefits of assets being held by large pan-European companies. And what the markets say is we cannot create sufficient additional value from those types of ownership structures, and that is why you see my former company, one of the leading pan-European asset holders, divesting itself of assets. If you could run them more efficiently and better by holding them in a pan-European structure, you would see the capital markets forming those structures. So, I'd love it to be economically true. But I think you cannot buck the market here. So to my mind there is quite a bit in the white paper on also on creating new pan-European scale cloud computing infrastructure. Again I think the markets have already spoken.

Philippe Defraigne: Thank you, Richard Feasey. Carlos Rodriguez Cocina, what do you think at Telefónica? What do you think - scale or no scale -how do you want to achieve it?

Carlos Rodriguez Cocina: We need it first in the market and it's clear that the divisions that come with the process of mergers and acquisitions are really related to the gains that you get at national level before thinking about cross-border or pan-European consolidation and it's becoming sort of a debate to reach a common understanding but we always believe there is no mantra in terms of the number of operators that you need in a given market. You need investment and innovation. There is an extreme concern about prices increasing for end users and there is not enough reflection on the benefits that bigger players can provide in terms of bigger capacity to invest and bring quality and networks to citizens. In June last year, in the barometer there was a consultation to EU citizens and 80% said secure, high-quality connectivity was essential to them. And so if that is essential to you and, after the pandemic I think that is a statement that we all agree with, then I guess you should be ready to provide more money for a

better quality network that provides the services that you want and need. I think those combinations of aesthetic dynamic and efficiencies, and the constant delay in ability to invest more and bring benefit to EU citizens by investing more is one of the issues that we have to work out.

Philippe Defraigne: Ingrid Malfait-Fuibaud, Iliad is present in many markets. Does your boss see any efficiencies from operating in many markets in Europe or not; does he buck the trend?

Ingrid Malfait-Fuibaud: yes, there are efficiencies and synergies but to a certain extent. I think there are some scales effects for sure. The bigger you are the easier it gets to maybe negotiate deals in roaming and with vendors and even content providers. So that is a reality. But mostly it's linked to scale effects, I would say. But we should not forget that telecoms markets remain mainly national. When we invest abroad, we try to team up with operators with the same entrepreneurial spirit, and so it's easier then to have a consistent marketing approach in our offers, like keeping things simple and transparent. But when it comes to marketing precisely, these offers and to offer them on the ground, it's pretty much done locally. So I think I would say yes, efficiency to a certain extent given the fact that telecom markets remain national.

Philippe Defraigne: Thank you, Konstantinos Masselos, on that?

Konstantinos Masselos: Well I think we all agree that the development of high-quality digital infrastructure requires investment, and I think we will all again agree those who invest rightly expect to have a return for their investment. On the other hand, we need to make sure that prices are kept competitive for the users. So we need to solve a difficult trade-off at this stage. But economies of scale have traditionally been a tool to address these kinds of trade-offs. As regards the idea of cross-border consolidation, the pan-European scale, I think this is interesting and we need to further work on it to identify the benefits on the economies of scale that these ideas can bring. Two conclusions of BEREC in its response in the public consultation last year have been that for fixed networks, economies of scale can still be achieved at subnational level, while for mobile networks economies of scale can be achieved at national level. So the idea of cross-border should be further analysed to see what kind of benefits we can expect from an idea like this. And as regards market consolidation and mergers at national level again, a conclusion from BEREC in our response to the public consultation last year is that, again, we need to be careful. Because on one hand, we cannot see the economies of scale through mergers but on the other hand, we need to evaluate the impact on competition and the further impact to end users.

Philippe Defraigne: Thank you Carlos Rodriguez. Camila, do you want to jump in on that one?
Camila Kloc:

- Yes, my role here is, especially after Roberto spoke about the white paper and the vision that we developed, is more to listen to feedback. What strikes me in the discussion and I have in several since the adoption of the white paper is everyone sees this white paper from different angles and to some extent sometimes I have an impression that yes, there is a cognition of the

long-term vision of the sector, both from the point of view of the technological changes affecting the sector, but also the consequences of this technological change with potential changes in the Regulatory Framework and governance, as Roberto Viola mentioned. But when you start to look into specific issues everybody interprets what is in the white paper in a different manner. This is fascinating and it's an indication that we did the right thing, because you can all express yourselves. But what is important, and you started with and you mentioned and Konstantinos Masselos and also, I'm thinking Carlos Rodriguez Cocina to some extent, we started from the technological changes, to some extent the technological revolution that is already happening. This is something that we really need to take into account when we look at the regulatory framework. Plus also of course pillar 3, which is based on resilience and I'm looking forward to what Oleksandr Zhyvotovskyi will say in the next panel. And then look at the regulatory framework. I have the impression that we are looking at what is proposed in the white paper from where we stand now. From the past, not from the future, and this is what I would like to encourage with this debate. Please open up when we discuss specific provisions and elements that we propose and there is a lot in the pillar that we propose. Including to address the technological changes and this revolution, to change to some extent and to keep the main objectives of the code and look into the competitiveness and industrial policy and sustainability provisions. But also look at the scope of what Roberto Viola also mentioned that we would like to ensure that all active now and who will be active in the telecom sector are operating on a level playing field, and that means changes in the Regulatory Framework. What I really encourage is indeed…

Philippe Defraigne: A place to broaden your horizon.

Kamila Kloc: Not to that extent, but I find it interesting that we look at it from our own perspective, but what we need to start looking at it is not from the current perspective of where we stand but where we will be in the near future.

Thank you, Kamila Kloc.

- Copper switch-off is another a topic that Roberto Viola alluded to. The switch off on the TV side the analogue switch-off as he knows from his days at the Italian telecom. And there is an idea in the white paper of a double deadline – 2030 - Carlos Rodriguez Cocina, good stuff on copper switch-off on the white paper?

- Carlos Rodriguez Cocina: in our marketing in Spain we are moving from copper to fibre. It's one of the landmarks of our 100-year anniversary and it's our commitment to do so at Telefónica. But in Germany we have a different position and we know the importance of having alternatives when the copper switch-off happens so there are no competitiveness issues.

Philippe Defraigne: The anticompetitive effect of copper switch-off.

- Ingrid Malfait-Fuibaud: We fully support the proactive approach of the Commission on that in the white paper and we think it's a good idea to set the target date and the choice of 2030 is good

news because it shows that the Commission still believes that we can reach the connectivity targets. At Iliad there is no copper.

Ingrid-Malfait-Guibaud: We do have copper in France, but not in Italy. But generally, we approve. I think it's also important that the NRA is properly involved in the process. Very important because it should not be left to the initiative of the incumbent alone and we also support what is written on that in fact.

Konstantinos Masselos: I think of copper switch-off as one part of our challenge to meet the policy programme objectives regarding fixed connectivity. We need to have one giga bit per second connectivity for all users in Europe by 2030. Copper cannot scale at this performance level and that is for sure. So our target is technological independence, of course, but on the other hand, we cannot neglect certain advantages of fibre. Speed, latency, cost, speed ratio, validated technology in the field, secure, energy efficient. This has to do with sustainability as well. So this is the target. One key point to have this transition to fibre access networks is copper switch-off. One thing is that copper cannot scale at the performance level, the quality of service that we want towards 2030, and the second thing is energy efficiency. Which is important as copper networks consumer much more compared to fibre networks because of the difference in active equipment used. And the third thing is that we need to make sure that copper networks don't compete against our own investments on fibre access networks and make sure that this never happens. So all of this means that we need to define simple, transparent procedures to switch off copper networks, otherwise we cannot achieve our fixed connectivity objectives for 2030. We also need to address the demand side on the transition. And one way to do this is to consider pricing or considering incentivising the take-up of fibre services through voucher schemes for example. And another key point is that we need to address how to transform homes with fibre to homes really connected to fibre. This means how we bring fibre to the room.

Philippe Defraigne: Copper switch-off is a good idea, a good starting point to switch on fibre.

- Can I take one point from Konstantinos Masselos. Copper switch off but also 2G and 3G as well.

We have problem there with quantified as 100 to 500 million euros in the sector and there is only a slight reference in the white paper and this is a topic also to address.

Philippe Defraigne: Do you want to speak on copper switch off, Richard Feasey?

Richard Feasey: I'm all in favour as running two networks is a dead weight cost. So I would say, we should focus on making sure the industry can then realise all of the efficiencies that follow from the switch-off. There will be a big labour force restructuring. It has big consequences for employment in the industry. If those persist for years following, we will not actually get the real benefit of it. The other thing I would say quickly is whenever people talk about it, it's envisaged that the owns fibre network is the same as the owner of the copper network being decommissioned. And we have to think about what happens in a world where they are not the

same organisations, and we are requiring the owner of a copper network to shut that down and migrate their customers to somebody else's fibre network. I can see that not being entirely straightforward in various ways, I don't know how significant that is, but I'd want to understand how significant that was.

Kamila Kloc: This is something that we addressed, the copper switch-off, because we think that alternative products could be offered by the fibre network operator, which is different than the copper network which is switched off. But it's indeed quite complex and a very important point that you mentioned. I don't have much to add, you said it all. I think there is an agreement here that this is a very important step for us. It's also another important element to take into account in the change of regulatory framework because if we are talking about a fibre only environment that again changes the Regulatory Framework that we would be applying. I note what Carlos Rodriguez Cocina is saying about 2G and 3G switch-off, which is important. We recognise this in the white paper. We do mention it, indeed we don't elaborate on it as we do on the copper switch-off. But indeed there are significant issues to be solved on the emergency calls that we are trying to figure out with the Member States, because as you know the ball is with Member States about ensuring the emergency calls and ensuring that the commissioning can surely start and be implemented so I don't have much to add to this one.

Philippe Defraigne: Now, it's time to talking about the D word. You know that word that brings tears in some quarters and smiles in others. Deregulation. So the future of market analysis. The future list or no list of relevant markets. The 3 criteria tests. Ingrid Malfait-Fuibaud, Iliad is the classical example that you give in training. What is the investment ladder? Well, look at France, it started … and climbed you up the value chain. So what is a company that has benefited from regulated access for a long time - what do you make of the Commission intention ever making the rules more flexible?

Ingrid-Malfait-Guibaud: Yeah, I think I answered that in my first answer but in France it's a bit different because it was symmetric regulation not regulation for fibre but another model that we would have very much liked to have explored elsewhere but it didn't work. It's not up to us to explore the model but we tried to replicate it.

Philippe Defraigne: Import it.

- There's specificity, but I think it also explains the success of France in fibre deployment. Why access regulation is also important is that our experience when we started to invest cross border by accruing mobile operators that in fact if you don't have regulated access to networks, to fixed networks, it's really impossible to build convergent offers. This is a mess to scale and stay in the market and so removing access regulation completely. I know that -- Kamila Kloc will tell me that is not the aim but --

Philippe Defraigne: The Italian or Polish regulator to go through the 3 criteria tests if necessary.

- It's very hard to prove that a 3 criteria test has been passed. So it can be for a few years but after that it's completely …

Philippe Defraigne: Kamila Kloc, do you want to reassure?

Ingrid-Malfait-Guibaud: Well I know it's not white paper proposal to put it in the list, good news, so the real bottlenecks are there and so it's important to keep it. As regards to so access at local level I think it's probably not mature enough in every market. But again the diversity of the situation in the country where we are it's completely 3 different situations so it's difficult to enter into too much detail. I think in France we could live with some list, in another one country, we can live with another list, but basically, I think it's a little bit early to now consider that those markets could be completed deleted from the list, as is apparently the plan.

Philippe Defraigne: Kamila Kloc, a quick word on this to reassure. When a market disappears from the list, good luck to the regulator to come up with the three criteria. So, a reassuring word or not?

Kamila Kloc: To some extent, yes, I think but Roberto Viola mentioned this as well. We are talking about the realities of the new environment on the environment and we believe the copper phase out is necessary. On recommendations back in 2020, we have been looking and considering the access to that. But as you also said Ingrid Malfait-Fuibaud there are really different conditions in different markets. So this is not so evident. Since the recommendation has been in place, since 2020, we have not seen many notifications from regulators regulating access to that. We have France and Ireland, those are the main ones, and France is specific with the symmetric access. And so that is why it's another reason for considering removal of the remaining markets that are listed in the recommendations, including local access but of course, it remains to be seen. We will do studies to look very closely into it. We should consider indeed potential access to civil engineering as one of the markets. But on the other hand, we are in a different situation now with gigabit infrastructure in symmetric regulation. This needs to be balanced as well. Is it necessary to recommend this market be given different conditions. But in short, I have seen many notifications from the NRAs notifying many years after the recommendation and listed markets, including some markets to us proving the certificate test. And so I think the test is mature for regulators to use and it also reflects what you are saying – there are absolutely different conditions in different markets. In some markets it's necessary to regulate local access and in others symmetric access may be sufficient. And by keeping the possibility of regulation, it gives a safety net in situations where the regulation would be necessary and allows us not to repeat market reviews that are very complex, which are burdensome if they consider such regulation in their circumstances. Thank you.

Philippe Defraigne: Telefónica – is it the same in Spain, are you celebrating yet or…?

Carlos Rodriguez Cocina: It's a sensitive approach by the Commission, we need to break up the mechanisms that have been created; for too long now, you have the market in the list and analyse it and define it and then impose the remedies and the stop the regulatory framework and apply competition law. And we have reached that situation and this should be the case, and therefore this approach combined with the safety note for the possibility when needed at national level is a perfect balance and it works for us.

Philippe Defraigne: Richard Feasey, a step towards more regulation - is it a way to restore the profitability of the sector?

Richard Feasey: This is where I think back to Kamila Kloc's point earlier on being a bit backward looking in the white papers. We are all talking about physical assets to vertically integrated telecoms companies. I don't think that is going to be the key question for this framework 2030 onwards. I think it's going to be about access to APIs and software platforms and we will get more inspiration from the digital market than we will from the communications cave right now. So what I think we should be thinking about; S&P is the threshold for intervention if you would like that as a separate discussion, you could have a good discussion, we need something flexible to different circumstances. But what is missing for me in the core of the white paper is in the virtualised network environment. What are access remedies and what does access look like? Because it's not access to ducts and poles, but to software capabilities. And I don't know where the bottlenecks are going to be or where the problematic areas are going to be; it might be downstream, it might be computing software run by a telecoms company, it might be upstream with some cloud computing compatibility that is owned by or operated by a hyper scaler, to which access is being denied or degraded in some way. But I think the next; the test of the next access regime, if you like, is more going to be how do you deal with virtualised network access more than how do you deal with the conventional forms of access.

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Philippe Defraigne: Konstantinos Masselos, is BEREC welcoming in the removal of list of relevant markets?

Konstantinos Masselos: I think we need to see the big picture. We have our connectivity objectives towards 2030, so we need the right policies and regulations that will help us to achieve these objectives when it comes to fixed and mobile networks deployment. Civil engineering costs are still important. We need to see how to optimise this. One way is physically from a structure or passive infrastructure act, which helps, and if we need more regulation depending on special conditions and locations and Member States, whatever we can do to optimise these kinds of costs is welcomed.

Philippe Defraigne: Thank you, Konstantinos Masselos. Last year, this panel got delayed by the fair share debate. And I do not want to happen again this year. So I'm going to have my watch and go quickly through that. So certainly there are, Kamila Kloc, a few elements. I read it twice, and tried to spot them – let's not call it "Fair share", let's call it "Broadening sources of revenues" to finance telecom networks and broadening ECS to include cloud, and having regulators more heavily involved into solving IP collection disputes. There is also a sentence pointing to the fact that number of independent ICS providers are not contributing to the universal service providers and you know what I mean, Kamila Kloc. But over to your side as the proponent of that debate, Carlos Rodriguez Cocina. So when you look at the white paper, are you happy?

Carlos Rodriguez Cocina: So the elements that you were citing are there and I would add another one which is critical one. The recognition that the way that internet traffic has changed these days is completely different from a decade ago.

We have large strategy and innovators and own civilians and get traffic closer to access the network and deliver to our access network and then terminate it with our individual customers, and in that element of connection there is no pricing signal or payment mechanism associated with what should be a commercially arduous arrangement between companies managing the traffic. So we recognise the issue and the expectation that in a certain timeframe there will be a commercial agreement, and if not there is arbitration to fix it. And so the basic policies that we made are contained in the whiter paper.

Philippe Defraigne: If you wish Kamila Kloc, or Konstantinos Masselos.

Konstantinos Masselos: I'm sorry, I think we see a convergence in traditional electronic communications and cloud computing. So we see new stakeholders in this field of the electronic communication services market. This is what our report recently approved for consultation on the entry of content providers and services and networks market tried to address. This is one piece of work of BEREC. This yes, and we will come back in June. When we publish for consultation the IP interconnection ecosystem and market report to evaluate the IP interconnection market because it has been quite underlined in this discussion right from the beginning.

Philippe Defraigne: Indeed. Your record has been read by all sides. Giving it a different - no?

Ingrid-Malfait-Guibaud: Maybe just a fair share, I'm not a specialist on the topic but what I see positively is the proposal related to Codex and the sustainability dimension of this debate.

Philippe Defraigne: The French contribution to the debate?

Ingrid-Malfait-Guibaud: I think it's positive and we should really look at any proposals creating incentives for content providers to deliver traffic in a more efficient way.

Philippe Defraigne: Excellent work on this. I recommend it. Richard Feasey?

Richard Feasey: I was going to link it back to the point that I made in the beginning. I think it's a shame that this debate has been a transfer of funds from one part of the ecosystem to the other but otherwise, nothing very much changes. I think it would be much better if we go back to creating more value of these platforms to enable the owners of the assets of those platforms to realise and monetise some of that. So I have no objection to the idea that a platform can raise revenue from several sides and from several participants and several users of the platform. But you should do that by generating value in the platform. Otherwise, it's simply a transfer of funds between various parties. We want to increase the size of the overall ecosystem and the value of the ecosystem. This doesn't do that, it's just a transfer.

Philippe Defraigne: I do not want to monopolise all of the questions. We don't have plenty of time but could we have a mic? So okay… Luke here … let's keep it short. Who else wants to ask a question?

- Yes, if I'm too long stop me.

Philippe Defraigne: No speech, just a question.

- Amid the argument before that there needs to be room for public debate, and I have heard and we have heard many things that many people agree and some disagree, and so please Stakeholder Forum don't say I need to be short because that is not my nature and I have a lot to say. My first is for Carlos, we have many discussions on displacement, now look at the position of Telefónica which is an influential member of GSMA. You are advocating for deregulation, and if you balance that it's more than 20 years that you have been in different Member States and still most of your revenue comes from Spain. If you balance the benefit of that, that you would get from Spain compared to the problems you have in Germany. Why do you think that the balance is positive? We got the question. Let's move to the next question. I would have loved to ask them to Roberto Viola but I'll ask Kamila Kloc. So there is a white paper that tends to go into an industrial policy with a vision. And when you have a vision, we hope that the people in the Commission can expect what is the desire and end point. So let's imagine now you come back in 10 years, can you describe to us what you see in the achievement of your visions? Who are the brands that are now active on the market, and what do you say to those that are no longer welcome to the table, and that test are part of the menu or need to be part of the menu because nobody wants to meet them. And now for the third question: it's very important. Respect opinion. The second question for Kamila Kloc there has been an article and interview with Commissioner Breton in the newspaper where Commissioner Breton justified his action when he was the AtoS CEO and you cannot make the parallel on cloud computing and all of that.

- That is more a statement.

Philippe Defraigne: That is more of a statement …

- Please Philippe … now if you look at AtoS with a share dropping down to €2, which lesson will the Commission or does the Commission take from the example of AtoS?

Philippe Defraigne: Thank you. And then let's take the gentlemen here and then at the back and then we sort of -- move forward.

Audience Member: I operate as a mobile player. I invest about €2 million for the activities but, the MNO is billing us higher than the national retail price, which we are offering. And also higher than the European regulation price. We expected as an investor, we expected that the regulator in the market, they can keep this kind of things in alignment. But in our country, our regulator doesn't have power to push them to minimum as a retail price what they are offering to wholesale, if the retail price that they are asking to the customer of €25 at the same capacity I must pay for €1,200. My question is --

Philippe Defraigne: I get it, but what we will do on your question is maybe, better to take it offline because it's not about the white paper. Look, let's - there is a lady here and then we stop.

- I have the mic in my hand.

Jaakko Wallenius: You talked about civil engineering and looking at this into relevant markets, can you say whether new, reinforced with the symmetric residential with access to infrastructure and upcoming guidelines, what is fair and reasonable? Does it offset or take? This has to be taken into account at the Commission when you look at civil engineering and if you look at it, how do you define a market there?

Philippe Defraigne: And the last one is the lady in red.

Audience Member: Just going back to an intervention. Copper phase out and deregulation and asking what the Commission envisions the market will be in 10 years. So a thousand years ago we would not expect to see so many towers, and now, do you think that in 10 years we will see fibre companies. Because we will have more wholesale operators operating the fibre networks and how do you think this will then impact the Regulatory Framework.

Philippe Defraigne: On Luke's, is Telefónica is a not winner or loser of regulation? Carlos Rodriguez Cocina it's becoming a classic but the response is the same: it's a matter of profile which is different in Spain than in Germany, and how much regulation has been hampering your business from one side and how much non-regulation there is on the other side. We have not spoken about the spectrum policy, for instance, and I would give you a number of policies that need to change on spectrum policy and we take everything into consideration. It's a matter of being balanced in your position as a group.

Philippe Defraigne: We'll take your question offline, and the Dutch regulator is there. So we can solve your problem on this and before the end of the coffee break. Kamila Kloc?

Kamila Kloc: You are always putting me in difficult situations. And I also think that this is why they are doing this broad consultation and feedback on the white paper and we gave you more time than we had for drafting this white paper, and it's to hear everyone and have a balanced discussion and input from everyone in the sector and outside of the sector. And so I would disagree that there is no possibility for discussion, and we are always open as you know. I would answer only the stemming question but the third conversion; I do not know the question that you are asking about Commissioner Breton. But what I would like to see in 10 or 20 years from now, as coming from the result and vision that we put into the white paper, and follow up as a Regulatory Framework. I would like very much to see a single market emerging with operators and European operators benefiting from a broad value chain that is already there. That it's starting to occur and so I would like to see strong operators, but I would also like to see a lot of competition happening locally. And all of the consumers and end users being able to benefit from the best class networks of the future. So that is my own view.

Philippe Defraigne: Thank you, Kamila Kloc.

Kamila Kloc: Jaakko Wallenius, the question was for me? I'll answer, but colleagues please intervene because it's not only for me to answer questions. So indeed this is an important part of the discussion and when we will assess the potential putting or not putting any markets into the recommendation with the indication that we would rather not put markets, we would have to take into account the systemic regulation that is coming to ask. This is what we have been doing when we assessed this in 2050. Because we take into consideration this reduction in the regulation and indeed what is very important because we have not discussed the regulation; it's one of the potential frameworks that could ensure access. And we are working on the second guidance that the Commission is entrusted with, and we will come back shortly with this one as well. And I think the last question is about the changes in the market. Indeed. This is a challenge with regulating any digital markets. But also telecoms in that context. We have a lot of new players and strong players emerging. The fact is that a strong player we had seen in particular when we discussed the gigabit infrastructure act, about how they should have been regulated and we cannot exclude that. And in the future we have all of the targets that we have at the Commission, and the copper and fibre companies and indeed we see the emergence of wholesale operators only and we think this trend will continue. That is it from my side, but over to my colleagues from the panel.

Philippe Defraigne: I'm afraid that we have used all of our time and I'm to blame for not discussing spectrum and we had an argument when we should have discussed it. I promise to do it. Next time.

Philippe Defraigne: Please join me in thanking the panellists and now we are moving to the coffee break. A short coffee break because we spoke too much.

Philippe Defraigne: One more session and then it's the cocktail. May I ask you to take a seat?

Philippe Defraigne: Welcome back. Thank you for interrupting your coffee break to join. Security resilience makes the front page of our newspapers far too often. Perhaps to kick-start this session, I'll ask you to reach for your phones once more. Last time today, I promise. Reach for your phone. BEREC has cooked up a question to hear your personal view on an important matter. Please, do you have it?

How secure do you think an account without multifactor authentication is? I'm looking at security experts here. Perhaps I should ask their opinion when they are on stage. I have got the right answer. I have it written on my paper here ... let's leave it for a minute. Who has not voted and wants to vote? Who's struggling with their phone? Vincent, can you manage? Yeah, that is right. With fibre you can do everything. Fibre to the table and you can vote in no time. This is the answer that I have got on my paper. Apparently, I don't know what the experts say, but it's 50%. So, you know, common sense. Good wisdom from the room. It's a real honour now for me to welcome me on stage the President of the Ukraine telecom regulator NCC, Oleksandr Zhyvotovskyi. Please join me on stage.

Oleksandr Zhyvotovskyi: Hello everyone.

Philippe Defraigne: Can I just say something important? Oleksandr Zhyvotovskyi will show us slides so please don't take pictures and, people following online, I'm sorry you will not have access to them. I really insist that you comply with this instruction. Thank you. Hello everyone, I'm Oleksandr Zhyvotovskyi and I'm Head of the Ukrainian telecom regulator for quite some time now, I am honoured to speak to a live audience today. It's not only regulators and the European Commission but also most importantly telecom operators and consumer groups. Because what we are going to discuss today resembles a problem that doesn't have a solution that involves the whole society as a whole. That is why it's symbolic and I'm grateful to have this audience today.

Oleksandr Zhyvotovskyi: So security, stability and integrity. Five years ago when we were discussing telecoms it was about fun, social networks, about being connected to your friends, new technologies and about industrial development, and all of the positive things. Today I think, and many would agree, we stand at a point where some bloomy times are ahead should I say so? And these items like security and stability become very important. It's very important to I believe everyone in this room and across the globe. Because it touches everyone, and I'll explain more. The first side is we have a war. For more than 2 years now. You see that the work is on 18% of the territory and that is the current picture. In 2022, the northern, eastern regions where the war just ended and in 2022, our main focus was on rebuilding infrastructure. And you might think about it like - if it's a war, well we don't have a war. But when we were discussing - I have this interesting conversation with the FCC Head of, Chairwoman of FCC, and we immediately struck a point that in all of our efforts in building infrastructure in war-torn areas it resembles what Americans do to mitigate and prepare for the hurricanes and natural disasters. Europe doesn't have hurricanes, but a lot of natural disasters occur and a lot of expertise. That was the first priority to deal with. The second priority was ... in my previous presentation for BEREC it

was in winter of 2022 when the Russian Federation decided to take out electricity in our country. We experienced blackouts and one of the solutions to that was alternative sources of energy. Which came as a shock to telecom operators because with the discussion that we were having at that point it was simple. Telecoms don't work without electricity. And we are not in the business of installing generators. And so we had to acquire generators and manage the flow of fuel and people, and people to make the generators work. And when we discussed with colleagues from Europe the point immediately arose about the cost of electricity in Europe and the source of electricity and mitigating the cost. This is the angle that you might want to experience and how you might want to look at it. And for example we introduced the electricality front. We introduced a regulation where we required telecom operators to maintain service more than 3 days of blackout. We spent the whole year sourcing generators and making sure that they were all installed in the right place and I can tell now, to the northeast there is 2 million and before the war that is now pounded by artillery and they went into blackout a couple of days ago. And I was glad to see that during the blackout about 50% - more than 60% - of mobile base stations were working. Partly because or mostly because they had alternative sources of energy, installed batteries in place, the people with the generators and the fuel supply in place. So it works. And these things happen and I think this is what we can all learn from. Today, we have - well I should say the third kind of - we experienced a case which isn't related to today's war as a whole. It can happen in any country. So to give you an update on what we are talking about, we have 3 mobile operators. The largest is 24 million subscribers, then 15 and then 9 million subscribers. One of those mobile operators on December 12, early in the morning, went down and there was no service. Well, then disturbances happened. By 12th of December it was clear that it was massive and the security service rolled in the operator and it was clear that it was a massive cyber-attack and everyone was aware that this is very serious. Access to main services was restored in one to four days but those were long days, I can tell you. In the middle of the second day, the mood was dire and we were exploring options around what do we do if it's not installed in if it doesn't come back? If the operator goes down? There again, these are kinds of stages of shock. But when you get out of it, you get solutions and you get stronger. And this is what I want to share with you. We are not experts in cyber. But what we were doing as a regulator is to mitigate the effect of a situation when the larger mobile company goes down. So what happened was, 24 million is the total number. Many people had 2 SIM cards but we estimate the total subscribers with no service was approximately 15 million people. And remember the other 2 operators was 15 million and the other 9 million. And so the idea of moving at least 15 million subscribers to the networks over to other operators, again brought additional red flags to us and counter-intuitive measures. We froze national roaming. We froze mobile number portability. Because of a fear that the network of 2 remaining will be overcrowded and have go down as well. Which brought another fear to us. At the shops of mobile operators. In a single day the police registered a thousand not criminal - but administrative offences when angry people went to the shops and demanded SIM cards and the operators didn't have SIM cards. When we spoke to the other 2 operators and discussed how many SIM cards do you have in store if we need to give out to the people out in store, and the answer was one million for the 2 of them as a normal business, and the mobile operators in this

room will agree that the operator in a business usually keeps a few weeks supply of sales of SIM cards. And the whole infrastructure is built around a number of subscribers and none of the management and operators and telecom operator organisations have ever encountered a situation where they would need to accommodate twice the number of subscribers. So, the discussions were difficult and we were in dire straits. And we were discussing all sorts of options. One immediate outcome or solution was an agreed plan between 3 operators to transfer frequencies to make sure that the other 2 operators will be able to absorb the influx of new subscribers. I'm proud to say that the operators agreed to the algorithm and they planned to redistribute frequencies in a couple of hours. And that was probably the easiest thing do and we made sure that we put it on paper and fixed it so that everyone knew what do. The more difficult item on the agenda was SIM cards there is no way that the operator can absorb the twice number of subscribers as normally required. One of the solutions, and we are still working on it honestly, is to require operators to maintain some kind of reserve of SIM cards and make sure that every system like a building system is capable of absorbing such shocks. The other terrible thought is how do we do operate if 2 operators go down. There is no way that the remaining one can support or maintain service. So the focus was to speak to fixed operators and start making sure that everyone was ready to open free Wi-Fi in the malls and shopping centres and make sure that people that lost connection knew where go to access and call their friends and family. These are 3 items that we are working on. And I think one of the different ones is the SIM cards and the capacity of mobile infrastructure to absorb the sudden influx of a lot of customers. On the fifth or sixth day it was solved and certain services were down and machine to machine, and so on. But we asked the operators when the fog cleared, we asked what do you think are the outcomes; what are the recommendations? Well of course, the first item is you might have guessed … it's about logins and passwords. This is where it all started with the cyber-attack and it was #1 on the replies from operators. Then it was the backups. The fear that the backups would not come back. The databases were not restored and they operated 24 million subscribers; chances of operators losing their customer base were high and now we have a whole set of discussions on the types of technologies for the back-ups. But this is one of the most important items. Then organising staff notifications. How do you manage staff when there is no connection? You run a mobile operator and suddenly there is no connection and you are in a situation where you cannot contact your 9,000 employees. So that is the backup system for management of the system. Different domains for adapting technology and subsistence in the network like layers in the distribution axis and rights, and all of this is related today to cyber defence. But the answer of the operators on what they perceive everyone must do to make sure that this doesn't happen again. Customers, consumers how do you go about this. The biggest outcome for that is to make sure that you have 2 SIM cards at least, both of them working. Sometimes you have a SIM card and it has a time and by the time you need it might not work. If you are a business, it makes sense to have backup plans with telecoms with 2 operators and the capacity of your customer service inner and human resources and the capacity of the whole infrastructure the operator. Because when the crisis comes it's no longer business as usual and you have to have some kind of reserve and cushion within your infrastructure to make sure if stuff happens again you will be able to absorb the influx of new subscribers and maintain your

network and make sure that you do your service right. So, the whole main conclusion from this incident, from this experience is that first, as I said, it's not about war, really. It can happen in any country. And it's rather foolish to assume that it won't come because cyber-attacks are experienced throughout the world and everyone can expect the enemy at the door. The main conclusion about it that there is no longer business as usual and the requirement to have for example a reserve of SIM cards. So a weeks of sales. That doesn't work. Especially if you want to keep communication working in your country. We realise this is an additional cost for the operators to make sure that the systems are - you know the billing system within the infrastructure is capable of managing significantly more data than the current subscriber list.

Coming back to where I started, we believe that security, resilience and stability is something that everyone needs to be aware of. Because it concerns all of us. Because it all concerns at the end of the day your relatives, your close ones. And the key to working in any crisis is to make sure that you interact with all of the stakeholders. This is where I started. Where I said that I'm honoured today talk to a large audience not about the actions of a regulator. The regulator by itself cannot do much, nor the government. You have to maintain and make sure that everyone is on-board. The governmental organisations, the regulators and the telecom operators and the telecom society as a whole, the consumer rights. Because only as a joint effort that can be mitigated. And then there is the quote about Ukrainians as a role model, but the essence of this is that we do experience things that everyone can learn from and we are open to share these experiences and to work out things that would benefit any country in this world. Because as I said, and I'll say it again, the security and resilience of the network is much more important today than it was a couple of years ago. This is it. I thank you.

Philippe Defraigne: Thank you Oleksandr Zhyvotovskyi for this testimony. Please join us on stage. May I ask Sheila Becker, Kate Labunets, Ian Levy and Jaakko Wallenius to join me on stage. Thank you.

Philippe Defraigne: What a presentation. We have a distinguished panel to continue the conversation on security. Perhaps in less dramatic circumstances. Although, if we start with you, Jaakko Wallenius, you are the chief security officer for Elisa, a well-known Finnish operator and you been featured in the pages of newspapers for several reasons. Can you explain what happened? Jaakko Wallenius yes, as we have heard quite many times during this event that the security situation has changed during the last 2 years.

Jaakko Wallenius: And we had our own part on that because Elisa is the owner of the submarine cable that was broken in the Baltic Sea. If I can elaborate in terms of cable operator, that was just an ordinary event. As we have anchors that tend to break cables and fishing and volcanic activities break cables as well. But during this time, we cannot rule out malicious actions. In this time, there is strong suspicion of malicious action. In terms of fixing the problem it was straightforward. Cable engineering takes the ship close to the table. Lifts it up, fixes it and gets away. Except there is a storm and that caused some delays. The other part that required cooperation with a criminal investigation and so on, it was a different story and there, I want to

emphasise the role of information and trusted information sharing. Because we had a really good recommendation with the Finnish and Estonian regulator.

Philippe Defraigne: How many days did it take for the repair?

Jaakko Wallenius: It was broken on October 8th and it was fixed on October 24th. If we had a different kind of weather conditions, what would have taken some days provided the ship had a better replacement available like it. Then I want to emphasis one thing, in that as a player who has been building international networks for a long time, that broken cable doesn't have any effect on any services because there is enough redundancy and capacity and otherwise, but in terms of service it was no use, but from other perspectives it was quite important and I understand the high media coverage on the case.

Philippe Defraigne: You mentioned when you draw my attention when we spoke that this was a cable linking two Member States - Finland and Estonia.

Jaakko Wallenius: Yes.

Philippe Defraigne: And it crosses international party waters, whatever that means, and there is no way to police. Can you elaborate on that? And I know that you can send Finnish for cutting your cable, but ...

Jaakko Wallenius: There is a maritime law that governs that. But the ship that was thought to be a reason for that break, it travelled from St. Petersburg to China and travelled on international waters and so that only means that the authorities were able to call with the radio. But apparently the captain was so busy that he didn't have time to respond to the calls.

Philippe Defraigne: Okay thank you Jaakko Wallenius. Now let's move to a completely different perspective on security. I would debate Kamila Kloc on a diverse subject. But now turning to you from the University of Utrecht, and what do you do to find out about the policy?

- It's very important to talk to people.

Kate Labunets: Today, I would like to talk about the most important thing in cybersecurity. There are a lot of people. We are talking about tools a lot but let's take a moment and think about how we as individuals; what kind of role we play in securing our digital systems. I often hear that people are seen as the weakest link in security systems. So what do you think about it - do you agree with this statement? Can you raise your hand if you support it?

Philippe Defraigne: Are humans weak links in the system, or do you agree and we are the problem? I see the board of BEREC agrees and so does connect. Thank you, Kamila Kloc, for voting. Same agreement on that.

Kate Labunets: I'm glad, I do not see a lot of hands in the air.

Philippe Defraigne: The ones that matter were raised, that is what I see.

Kate Labunets: I hope after this panel I hope to convert them and increase the core of supporters that humans are actually not a problem. They can be a part of the solution in cybersecurity. So, but let's first look into cybersecurity systems. So, then, in essence, there is technical system consistent with the several companies, people, technology and process. And if you look at a more detailed level, they also cue additional factors like governance, practices and regulatory perspective and how an organisation functions. They relate to each other. How they come into play. So, if we look then at what is the place of people in this sociotechnical system, there is a central use of technologies in order to get the things done that will work for organisations. And they are supported by the process basically put in place in order to restrict any possible problems or unwanted behaviour. So in essence if you look from the outside in, people in the centre doing something bad. And we need to have processes in order to limit the possible damage and to limit their work. But how it basically manifests in reality, so for example, if we look into - we hear a lot about data breaches and if we see that some hacker exploited software vulnerability, we tend to blame IT people for not getting systems up-to-date and secure. Or if somebody clicks a phishing link and you say oh, they were not so attentive. It's easy to blame people and point fingers and what part of malicious behaviour and we see people as a main roadblock for major cybersecurity protection. But what if take a different perspective on the people that do the work in the organisation. Well, in this sense, as a part of this perspective, they acknowledge that people tend to make errors but in many cases it's just part of the normal working process. So by putting these restrictions and limiting cases when they can make an error we limit the normal working process. And then, we are excluding them basically from securing our organisation. So what if we look at people as part of the solution. How they can be a part of our organisational security force and actually contribute to the improvement of organisational security protection. Normal working processes. Indeed we have some extraordinary conditions and crises. But if we leave with this feeling of constant crisis, we will not be able to do normal things.

Normal processes.

So how we can learn more about the people and their role in cybersecurity: speaking from my experience and from my research, I'm mostly interested in learning models of people that they have about security technologies and systems, so how they understand the technologies that they actually use. One of the projects recently published looked into how experts and experts in corporate environments. To see the VPN technology. The differences between these 2 groups can bring more understanding of how people in a finance department, for example, or in HR, how they understand people with completely no security experience; how they understand this technology. And what kind of perception and what concerns them about using this technology also for personal privacy. If a company, for example, is monitoring traffic, then what are the incentives for them to use a VPN more regularly? Sometimes they can switch it off and forgot about it. And by learning from this, security professionals and management can better understand how to adjust security measures and training and also how to improve risk in the organisation at a high-level in order to support employees in becoming more resilient and

participating in cybersecurity activities. And contribute to a normal functioning of the organisation.

Philippe Defraigne: Ian Levy I saw you disagree that human beings are a weak link, and we had a drink last night and he said a devastating statement about this industry. But I'll let you repeat it if you wish.

Ian Levy: One glass with him and then starts the audience participation. Imagine that you are at home and you are about to redo your fixed broadband at your home. Two ISPs turn up at your door. First one says we are secure, €10 more expensive than our competitors, but here's a beautiful Beige Book that explains how we secure the notes that serve the LLT in your house and here's how we protect your management so that you know that your stuff is secure with us. The second ISP says hi, Free Netflix. Hands up if you buy #1 and hands up if you buy number 2. Nobody pays for security. Nobody. We have said it for the last 6 hours. Yeah, well I just.

Philippe Defraigne: Would the answer be different in Kyiv?

Ian Levy: What would the answer have been 2 and-a-half years ago?

Oleksandr Zhyvotovskyi: I think in every country, the customer preferences are similar. And you know, most people would choose they don't understand. If it's a regular citizen, he doesn't understand security and so on. And the free Netflix is a killer in customer propositions. The difference is that people learn unfortunately only when it hurts. So …

Philippe Defraigne: Yeah, thank you. Back to you Ian Levy.

Ian Levy: Sorry, I'll get you a drink later. We have talked about secure networks but we have not defined those terms. How many you in the room before Oleksandr Zhyvotovskyi's talk were thinking about protecting yourself from the Russian state turning its entire might on you, to take down your telecoms network. Nobody. Okay, fair.

Neighbours. The point is, until something bad happens you don't know how to put this into context. I think your advice about how everybody should think about the worse possible case is absolutely right. The UK suffered an attack by the Russians in 2017 and 2018, it's still on the NCSC website what happened. That kicked off a huge piece of work in the UK that led to the telecom security act, which is a different way of regulating telecom security. The clue is in the name. But what do we mean by resilient?   Against what? Against somebody driving a truck into a metro node or the Russians coming after you? They are different things, and they have different cost. What do we mean by secure? Most people think about espionage. That is probably it. Things bombed yeah, that is what most people think about when you think about security. As we get more and more interesting communication paths and interesting uses of these things, you start to get interesting security things. So, for example, nobody would ever do this: But imagine your autonomous vehicles are all subject to control by roadside infrastructure. Right? Nobody is ever going to do this. Please nobody let this happen. Imagine then what happens if an attacker gets into your network and starts to delay packets. Like today, legitimate

ore around latency is not a security issue but how do we code for that and how do we understand the threat models today to build better networks, and in all of this incentives are what matter. Incentives really matter. Regulatory incentives. How do you build regulation that drives long-term adoption for that? Is it fair for a telco to defend themselves against the Russian military? How about for British telecom to defend itself against Russian missiles. That is an idiotic thing to say, how do I get them to defend these and make it commercially viable. We were talking about diversity of equipment supply when DG Viola was talking and technical trivial intellectual property rights are the problem. The thing holding us back is lawyers and patents, how do you wrest the patents from the incumbents to build a 5G component.

That is not a technical security thing, but it holds it back. And then SS7. Hold your hand up if you know what it is. SS7 is the international signalling system for telecoms. If we cared, we would have turned it off

Philippe Defraigne: It generates mobile termination rates.

Ian Levy: That is why we don't turn it off, because there is money behind it. From security it's structural - how do we build incentives - do the lightning and final lesion details matter? So when we are talking about secure, resilient, safe, high quality, we need to understand what that means. I take personal offence from the word "Trusted vendors" because I do not trust anybody. I admit I'm a paranoid lunatic, you shouldn't trust anybody in security. They are noteworthy but I can't trust them if I do not check them - that is when problems come. When you think about it, you get into thought experiments I used work in the British Government and run the NCSC technical department; that is where it all comes from and now I'm at Amazon I thought I understood scale with the telecom security act. Now user stories understand scale. If you try to build a resilient threat network, having multiple failure modes is a real positive. If you take traditional telcos and build all of the resilient models you can think about. I'm just talking about one. If you take that and extend it out into a hyper scalers cloud you can do genuinely impressive resilience stuff and that kind of statistical modelling behind that is what is going to make us safe in the future, without defining it.

Philippe Defraigne: Thank you Ian Levy. Sheila Becker, listening to Oleksandr Zhyvotovskyi and other speakers, when you work with your fellow telco operators in Luxembourg, what do you model to see if your operators are doing the right things. Are you imagining extreme cases like a Russian attack or is that too far-fetched? Or something to consider in the future, without revealing secrets of course.

Sheila Becker: I think there are many things that could be said here, and I find your example about Netflix and secure telcos very interesting. I think there are a lot of incentives out there already. We don't usually go there and tell them what scenarios to take into account. But one of the major steps is already within NIS2 and it's coming soon and there are the biggest changes between NIS1 and NIS2. And the changes need to be approved by the CEO and that implies that they need to have training in order to handle risks, and not on a technical level, but to understand what is going to be the impact if I take the decision to put money and human

resources in this level and field. And I have to assume then the consequences of what happens if I didn't put the efforts into the right spot. And I think that also makes the whole NIS2 the idea that you don't have to choose between the operators with Netflix and those without Netflix, but ones that will treat your information securely. And what was mentioned before from the keynote by Oleksandr Zhyvotovskyi, you have to basically take into account the worst-case scenario and hope for the best but be prepared. And it doesn't need to be like a Russian attack, but it can be just a flood like you said. There can be many scenarios but you have to try to be resilient. And you can never have 100% security. But put your efforts in the right spot and analyse and see where to invest in the future.

Philippe Defraigne: Thank you. Perhaps to pick up on one of your points Sheila, which is that putting the spotlight on the sea level, it's not the IT guys at the end of corridor that are guilty if something goes wrong, but the guy in the pin-stripe suit has to take responsibility. Kate Labunets, you are the human factor in all of this, you talked about the humble users. Dealing with security and double authentication and so on, but have you worked on the C-level guys? Do they have an attention span for unnecessary expenses that bring no returns? So how do deal with it.

Kate Labunets: I think the NIS change is good and I heard a lot from those who have struggled to get it involved in the cybersecurity and if you look at security budgets it's lower; it's a tiny part of the bigger IT budget. So I hope that this will change this situation or slightly improve it and help to get more room to security organisations. I'm looking forward to it.

Philippe Defraigne: Over to you, Jaakko Wallenius. Have you seen a change in telecom operators being ready to spend more money on security?

Jaakko Wallenius: Well at least in the major companies there has been a readiness to invest in security. If I labour that a bit more. Because in telecoms customer trust is one of the keys that you have, and one of the ways to protect your customer trust is to ensure that you are not involved in any incidents that go public. And not damages or sanctions, but if you have a sanction of 2% of your global revenue it hurts. But if I recall from the GDPR launch, it was discussed quite widely but then customer trust was actually gaining more traction, which I'm quite positive about in terms of security thinking. Naturally big companies are different. But in terms of larger telecoms, I see that the approach is quite similar.

Philippe Defraigne: Thank you. Oleksandr Zhyvotovskyi?

Oleksandr Zhyvotovskyi: In our view it might be an extreme angle but it's not even about the CEOs thinking about the examples of Netflix. It's not really about customers watching Netflix anymore. We are the country that prides itself on this digital transformation, and we have all things digital. We have your passport and driver ID on your smartphone and the government, and the smartphone is a theme. But what happens if the networks are not there, you know, so if you are a government or if you are a country, or even if you are a citizen that is voting for a government and that is pursuing a digital agenda, security, and this is an intrinsic element of

this. Because you cannot allow digital anything if you don't have security in place, so I'll take it a bit further. It's the responsibility of those who are running the country to make sure that the citizens in a crisis are capable of using key basic public services.

- That is exactly right. As you move from digital government, they are your critical backbone for your interactions with your citizens. Did you pay them, did you help them secure their network commercially before you did that, or was there no need do that.

Oleksandr Zhyvotovskyi: You don't have to pay if you create regulatory conditions.

Ian Levy: Same thing, but what I meant at the start with this Netflix example is that we expect telcos to do things that are not natural for any commercial entity. And I think the NIS2 stuff is either going to be exceptionally brilliant or a catastrophe, because it's hopefully, they are going to make decisions and hopefully aligned in the right way and spend the money and have regulatory positivity and everybody is happy. There are less happier paths for that, and we went through something similar in the UK a few years ago. I don't know if we got it right. Time will tell. But in terms of getting one throat to choke an operator, I think that is absolutely critical.

Philippe Defraigne: So what is the conclusion? Obviously with the Netflix story, we cannot trust consumers to vote with what they want for security. We have doubts on whether the sea level will voluntarily do it beyond a certain point, so what Oleksandr Zhyvotovskyi was saying is calling for a strong regulatory intervention. Is this where we are going?

Ian Levy: I'm going to say something unpopular. If I have not done it already, I think we, you, the regulators, need to be crystal clear on what you expect. Right in telling the operators exactly what you expect in detail. What scenarios do you expect them to cope with. How? What is the recovery time? Oleksandr Zhyvotovskyi's example of the SIM cards - what do you want, pick a number. At some point that is going to go beyond what is commercially viable in the framework today and then there is going to be a gap and identifying that gap and being honest about it, and saying how we are going to close that gap is the only way to make this sustainable.

Philippe Defraigne: Shall we first go to Sheila Becker and then to you Jaakko Wallenius. But for regulators across the EU this level of guidance that Ian Levy is calling for is delivered by regulators at this stage or is it something that will be delivered in the future.

Sheila Becker: I think it's a top-down approach and I do not like it. In my experience and in my view it's important to take them on-board and do this guidance together and that is exactly how we do it. At ILR we want to have a collaborative approach and engage operators in information exchange and create an environment where they feel they can share incidents, but they don't need to hide. Because hiding incidents could have a worse reputational impact afterwards. And so it's really about putting them... the operators have experience, they know their assets and experience and equipment, and they know what they can do, and so if you have them all together in one place, you get quite an honest...

Philippe Defraigne: But in terms of telling the operators for what catastrophic scenario they should be ready. And there may be a case that a meteorite falling on Luxembourg may not happen.

Sheila Becker: That is not what I meant; what I meant is that we are together defining the dictionary to create the input. It's not, of course, we can come up with ideas and tell them that we have to have x-x-number of SIMs in case something happens. But that is not protective. The operators need to understand why they are doing this. Putting them together and explaining to them and giving them guidelines, but that is going to be from a feedback perspective and not just a top-down approach.

Philippe Defraigne: Could you get enough guidance from security regulators in Finland?

Jaakko Wallenius: The collaborative approach is the way to go, especially when you are defining specific measures for securing things. And I can say that we have enough dialogue. We now have support, and we can also discuss difficult issues. I believe that is one of the ways to go. Because industry practitioners in there, they know their networks as you said. They know their boundaries and so what you can do and what you cannot do. While regulators also have a bit of a different viewpoint on that. And for example, in the Finnish case, powers have emerged - there are some powers that the government can order and some of those powers in a way if they are used wrongly, they can destroy your network. They are quite strong powers. And the other industries and customers of telecoms and NIS2 is good. There is a risk-based approach. And that also enables other industries to identify critical points. Where they want to invest because telecoms, for example, with backup connections it's quite straightforward topic. But there are places you don't need them and places where they can take whatever it takes to fix something and then in hospital you have to have ongoing connection to be sure that patients can be treated and a risk-based approach and collaboration with other industries is a key factor. And the last point. Exercise is good. It's a good way for fostering collaboration, testing your means, testing your ways of doing it.

Philippe Defraigne: Maybe you can explain about the blue and red team - what are you doing?

Jaakko Wallenius: Last week, we started a large major exercise in Finland. We have more than 650 participants from 180 companies and then in addition to that we have participants from the 2 different government ministries and authorities and also law enforcement. Now we are in a phase where we are building knowledge and common ideas but in October, we are having the definitive phase where we have the teams are organised as blue team that are simulated companies and then we have a red team that is attacking. And it consists of criminals and...

Philippe Defraigne: Which team did you play.

Jaakko Wallenius: The red team.

Philippe Defraigne: I knew you were a bad guy (joke).

Jaakko Wallenius: But there are ways to ensure that we speak in the same vocabulary and if something happens it's easier to call somebody if you know him or her.

Philippe Defraigne: Is this a practice that is common among your colleagues across Europe - the blue team red team games, Sheila Becker?

Sheila Becker: At different levels we have different types of exercises. At NATO level there is the typical red and blue teaming or every 2 years exercises, and tabletop exercises are important to check procedures, and so that is pretty common and we do that too with the operators.

Philippe Defraigne: Ian Levy, I was intrigued about something that you said earlier. You said technical trivial Intellectual Property rights are the problem. Did I get that right?

Ian Levy: For market diversification in regular circumstances.

Philippe Defraigne: Can you be clearer?

Ian Levy: Look at the 3G standards and ETSA standards; someone has contributed that piece of technology and with the requirement that they would license the underlying technology on a fair and non-discriminatory basis, and you have to defend how you license your patterns. Ninety percent of 5G patterns are between Nokia, Erikson and Qualcomm and ... 2 more companies. And they all trade and say you can use mine if I can use yours. And if I turn on a base station, how do I know who to license from if I have nothing to trade. So I have to invest huge amounts of money in an unknown set of risks to understand what he has to license to build this chip. So we need to open it up so if I need a Wi-Fi coder and I need this pattern and it should cost me this much because then you can start and build a sensible commercial model.

Philippe Defraigne: Thank you. Kate Labunets, I see the clock is running I hate to start this debate, but at some stage we need to hand it over to Robert. But Kate Labunets, many of us are wondering how to improve awareness among our colleagues. If we follow your theory that the human factor is the key. You have done a lot of face-to-face and interviews; what are the best practices that you have seen? Where are you saying this is the how do it and create awareness and make your colleagues security-aware and not clicking on stupid links? I'm sure you all know what I mean, we all face these sorts of problems on a weekly basis. Any silver bullets?

Kate Labunets: There is no silver bullet for this. I have bad news for you. In our university they have a lot of campaigns and only 8 or 9% of reach out to university employees. And so, not doing so great. You see security as a golden goose or cure for security problems but think of how you can help users with basics - like good security behaviour. So how can security professionals design security in a way that is more useable for people. So how we can think about more technical solutions. So don't see cyber violence as a part of securing 100% of your organisation. Also, security is not a part of what security is in place in an organisation. What are you making them alert for? What kind of reason do you have for this? So, we need to start earlier and educate people about security practices, and we need do something now at organisational level indeed, but we also need to think about the future. About how our kids will use security and

technology. What they will learn about security practices and good behaviours, and how do they build their habits? Now it's important.

Philippe Defraigne: Thank you. That is the word, I'm so sorry to cut such a nice, interesting debate. Please join me in thanking our panellists. And now I'm delighted to welcome back on-stage Robert Mourik for a few words of conclusion.

Robert Mourik: Well, we are nearly ready but not before I have said a few words of thanks. I think this was an excellent day. We had some excellent discussions. Thanks again to all of the panellists today. I learned a lot. And it was very good to get all of the input that they gave. I also want to thank you, the audience, we have almost 300 people here. And we have about the same amount of people watching online. Although that is a bit less clear. But I just want to say that we have participants from Zimbabwe and South Africa and so I think the word is spreading all over the world. And I want to thank Philippe Defraigne. That was had a Masterclass in moderating. He gives free classes in moderating if you are interested.

(applause).

I want to thank the Co-Chairs. Again, they did the big event this morning. Their efforts, their help, their explanations this morning. They are invaluable. So thanks to all of the Co-Chairs. Then I would love to - there is a lot of work that has gone into organising this event. Months of preparation in selecting the venue, in organising all of the tables, inviting you, the security, et cetera and I would like to my team and the BEREC office for helping to organise this. And one little special word to Laszlo the Head of BEREC office and this is his last stakeholder event, and he has done a fantastic job over the last 10 years and so thank you Laszlo. Then finally. Willhem, this is your last stakeholder event as well. He has gone. He was the - I'm a bit old fashioned here, this was his last event and I wanted to thank him and before I go, I'll hand it over to Philippe Defraigne once more for messages and thank you, very much. See you next year and I very much enjoyed it and don't forget to respond to our request for information on the Work Programme for next year.

Philippe Defraigne: Don't worry I'll be short. Only to make a plea for this. In a few days, you recall receive an e-mail. One more e-mail from BEREC. And it will ask your opinion on this event. How can we improve it. Please take a few minutes to reply and next yes, will be greater than it was today. Okay? And you heard Robert Mourik. See you for a drink in a minute. Bye.