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Transcription
of the event

>> Good afternoon, everyone. My name is Philippe Defraigne, Director with Cullen International. I'll be your moderator for this afternoon. I'm joined by Annemarie Sipkes, who is BEREC Chair 2022, and also a Director of the Telecommunications, Transport and Postal Services Department at the ACM in the Netherlands. Annemarie Sipkes, good afternoon. Together we'd like to welcome everyone to this BEREC stakeholder forum. This time we have to hold this meeting again online, which is a bit unfortunate, especially since we're missing the networking around a glass of wine later today, sadly. But you are planning something more interesting for later this year I understand.

>> **Annemarie Sipkes:** Yes, Philippe, thank you. Although it's from a distance, I'm very happy to be here. Because of Covid, we cannot meet in Brussels in person so we decided to have two stakeholder forums this year. The first one today to mark the launch of our call for input for the work program 2021 2022, and later this year when we hopefully can meet in Brussels to deepen our dialogue with the stakeholders on the one hand, and members of BEREC on the other.

>> **Philippe Defraigne:** Fingers crossed. I hope this will happen. Back to meeting today, many people in the audience are familiar with the functioning of BEREC, but perhaps some not so much. You will be the BEREC Chair 2022 next year. Can you tell us why you're in charge of the organisation of the forum this afternoon. A year ahead of your chairmanship.

>> **Annemarie Sipkes:** I'm already very hard at work. Yes.

>> **Philippe Defraigne:** Already hard at work.

>> **Annemarie Sipkes:** The thing is, we all share, I think, stakeholders and BEREC members alike, the importance of contributing to a well-functioning European market for electronic communication services. And the dialogue between all parties concerned is very important. I think one of the major events on which we actively seek input from our stakeholders is when it comes to our work programme for next year. So that is the agenda that I am responsible to make sure that it is executed to standard. So, today marks a very important step in the dialogue that we have on different occasions and with different questions, but today focuses on what should be the priorities that BEREC has and the work we should carry out next year.

>> **Philippe Defraigne:** Absolutely. Later on this afternoon, we'll have a Q&A, questions from the audience to discuss input for the work programme 2021 2022. If we look at the agenda for the afternoon, we have important topics such as 5G or technological innovation and user rights. But I have noticed we have at least two sessions on sustainability. And I'm not mistaken, BEREC has no mandate. Sorry to be direct but BEREC has no mandate in that field. Is that an overkill? Two sessions on sustainability?

>> **Annemarie Sipkes:** I think sustainability is a very important topic for Europe at large. I think we should all think about: are we and the work that we do, and within the mandates that we have, are we helping consumers and companies to be as sustainable as they can be? Are we perceived to be a hindrance or can we actually help or stimulate? That is work we're exploring at the moment at BEREC. I think it's very important because I think it's very important for all of us to keep in mind the public goals that we all try to achieve here. So a good functioning market of electronic communication services is not a goal in itself, it is a means to make sure we have a proper functioning Europe that helps companies and people alike. And sustainability is part of that challenge, in my view.

>> **Philippe Defraigne:** Absolutely and more on this later this afternoon. Thank you very much Annemarie Sipkes. We'll see you again a bit later in the afternoon. Now, if we have perhaps a video, Simon. I'm delighted to welcome our next speaker, Stefan Schweinfest. Stefan, it's really wonderful to have you. You are the Director of the Statistics Division in the United Nations. I read that you were recently awarded, sorry, you were granted an award for making a difference in science and public policy. I'm telling you, there are a lot of people in this room who would love to get such an award. (Laughing) I watched you online for a few interviews that you gave. You're passionate about statistics and unleashing the power of data, the ability of mixing numerical data and data close to the heart of telcos which is just special data. You're passionate about data stewardship and how statistical offices can beat fake news. I like this one. It will perhaps not be your topic for today, but if you allow me, and I mean this as a compliment Stefan, I think you make statistics rock (laughing). Over to you.

>> **Stefan Schweinfest:** Thank you very much for the invitation. I don't know, I think there was supposed to be an introduction video to give you a little bit of a flavour of the United Nations Sustainable Development Goals.

>> Absolutely. Simon, can you launch the video?

>> **Stefan Schweinfest:** So thank you very much for inviting me and thank you for the video. Now I feel a little bit more at home because these are all images I feel comfortable with. I have to confess that when I was first asked to speak at this forum, I was of course honoured. And I asked my staff should I really do that? There are a lot of scary people in that room because they are all very tech savvy, and communication companies and regulators, and they will definitely push me out of my comfortable bureaucratic comfort zone. My colleagues said the invitation comes from the Netherlands, the Dutch are nice people, they speak many languages, they are internationally engaged. We've had wonderful cooperation with the Netherlands, both in the areas of statistics and geospatial information management. My motto is always, if different professional groups start talking to each other, there's a real danger that we'll start understanding each other. I was a little bit intimidated by the title. I said, how can 5G contribute

to the Sustainable Development Goals? And I thought who am I, a Director sometimes known for disconnecting entire meetings by pushing the wrong button, to answer that complicated question. But then I thought, I don't have to answer it alone. That's what we want to do together here today. That's how I understand it. It's a big question. I mean, we have the biggest technological breakthrough and development of this moment, of this time, the 5G technology coming to us. And we have on the other side, perhaps one of the biggest development human agendas in the history of mankind, the Sustainable Development Goals.

How are these two related? How can they be related? I know the Sustainable Development Goals, you all know 5G. I think, if we start talking to each other, then I think we'll figure out the answer to that question. I mean, how 5G can actually contribute. Let me then talk a little bit about the United Nations Sustainable Development Agenda. Perhaps we can show my first and second slide for this. This is just my complicated last name and my title. Then the next slide has a little bit of an image. The Sustainable Development Goals cover three big pillars: the social area, the environmental area, and the economic area. And they are perhaps the most ambitious and universal development agenda from 2015 to 2030. Where I come in, as a Director of Statistics, I need to help provide the information systems, the data, and I'm talking very broadly here. I did not say statistics; I said information systems and data deliberately. What is the measurement background to support the goals? To know where we are, how we are navigating towards the goals, where we are falling behind, who is falling behind. Because the Sustainable Development Goals were also an accountability framework. The idea was through the United Nations we hold each other accountable to reach the goals. So, I mean, one of the important jobs of my office is to present an annual report to the General Assembly on where we are with the Sustainable Development Goal indicators... where we are on that journey. So, my life has dramatically changed. I used to be a very comfortable Director of Statistics. I was worrying about issues like census-taking and national accounts. Now suddenly I'm talking about data ecosystems and data stewardship. People are even starting to say data is sexy. That was not something I was told when I started my profession. But I think the development agenda and evidence based decision-making have really thrown the importance of data into the limelight. We just had a funny exchange the other day with another colleague who has worked for 30 years in statistics. He said it used to be that when we got into the media that was bad news. As a statistical officer, you try to stay out of the front page news because it was usually bad news. Nowadays it's good news because statistics and data are enablers to help reach Sustainable Development Goals, especially now with the Covid-19 crisis. I think the Covid 19 crisis in particular has highlighted the power of information and communication technology. Just imagine we had lockdowns fifteen years ago. How would we have communicated? How would we have had these types of meetings we're having now around the world? I'm talking to you early morning from New York, and very happy to do so. I'm perennially optimistic; a crisis is always an opportunity. So, it has highlighted the importance of data. It's a real data moment. As I'm

responsible not only for statistics, but geospatial information also, I was very happy that during the crisis one of the things we saw a lot were maps with data. That's exactly the integration of different data types that we are talking about. And the crisis has also led to many innovations at national statistical level. Data collection has changed because our classical tools used to be censuses and surveys, but during the crisis, it's really a bad idea to knock on someone's door with a questionnaire in your hand and ask questions. So we used telephone surveys. We started to use innovative data sources. Data from telephone companies has become very important input into the management of the data of the Covid 19 crisis. With telephone records, you can keep an eye on the movements of people. And there have been many agreements between national statistic officers and telephone companies to get access to information. So private information has been converted into a public good. That is exactly what we are talking about. In my office, we have two, perhaps not so well-known programmes. This one is about Big Data. So these are not the traditional official statistics of centres of national accounts and environment statistics and these kinds of things we know, education statistics, etc. We're asking ourselves how Big Data, data that is accidentally produced and generated can be used for official statistics. We have a whole programme asking ourselves how satellite data, scanner data in supermarkets, telephone records and mobile phone data can be used for the purposes of official statistics to generate statistics. And we have made quite some progress in the area of tourism statistics and migration statistics.

But perhaps the biggest change in my office, ten years ago, is when we fully integrated the geospatial information programme. And I can say everything happens somewhere, so geospatial information - and perhaps we can go to the next slide, my slides are mostly to whet your appetite and put things that I say visually into context - and so geospatial data, in particular geospatial data and mobile phone data together are very important. Because geospatial data bring the community together, they are the integrators. Everything happens somewhere, so economics, social, and environmental information, these are the three pillars of the FDGs. Remember the three circles at the beginning. They can be brought together by geospatial information. And, data flow is also interesting. I always think about a little data item being born at the micro level, at the local level. Then it flows to the municipality, it flows to the regional level, the national level, the continental level and the global level. At each level, decisions are being taken. It's part of my job, our job at the United Nations, to organise that dataflow so all the data from the micro level to the macro level are coherent, that there is a data architecture. We do that in the traditional statistical areas by way of norms and global definitions and training.

We're doing this also in geospatial information now. The connection with the mobile phone is obvious. I mean, 5G will really unleash geospatial information because it is an opportunity. Geospatial information is heavy, but with 5G technology, we will be able to bring geospatial information really to the fingertips of everybody. And I think, just of myself, how I use the phone,

and geospatial information, how my usage has changed. Just a week ago, I was looking for a vaccination centre and Covid 19 test centre on my phone. I found it and how to get there, and I found my city bike to go to that location. I'm using my telephone and geospatial information every minute of the day to find a restaurant, to look out the window in the morning and beef up my own impression of the local meteorological situation and find the local weather forecast, which is so refined I can literally find out if it's going to rain in my street or not.

Next slide. One of the big areas where geospatial information and 5G can help us a lot - just to give you one area and also to relate it to two of our Development Goals - is urban growth management. Think of city planning. What geospatial information and communication can help us there? City is where urban and rural intersects. We have different ecosystems: we have the urban area, the rural area around it, the forest area, the agriculture area and the recreational area. We can describe the economic infrastructure, the social infrastructure, the schools and hospitals, the physical infrastructure, the buildings and even the plumbing underneath the city. I've seen 3D images. All of this is very much tied to the SDGs. The Sustainable Development Goals assume that everything is connected. Everything is connected: the social, the environmental, and the economic. Always remember the three circles that I showed at the very beginning. The basic philosophy of the Sustainable Development Goals is one of connection. And this is, of course, where also 5G technology comes in.

I move from the cities in my next slide to the opportunities of precision agriculture. You can see with the technologies that we have right now, we can help in the rural areas. We can help guide the positioning of seeds, fertilisers and the use of water, making sure that economic management and environmental management coincide. So these are all the new tools that give us the power to do that. This is of course something that is very important.

In my next slide, I want to make the argument that 5G is basically not only about connectedness, but it's really about connections - connections between humans. But we do have a big challenge. The challenge is that of the digital divide. We have some that have access to this technology, and some that don't. But 5G technology is precisely the tool that can help us to bridge that divide. It can help developing countries to be connected to the rest of the world. And at the United Nations, we are all about the connectedness between countries.

So just finishing with my last two slides, the visuals to give you a little flavour of where we are going and where we can go. What does this gentleman, the farmer in a developing country have to do with 5G and geospatial information? Well, if he has access to weather information, then he can do a better job at what exactly he is doing. And if he has access to a system of market prices and digital economy, he will be able to connect to the local and global markets. So the technology will help us overcome the digital divide. The divide exists. I like this last image. I want to leave you with this because even in the urban areas, we sometimes have next to each other

the rich and the poor, the haves and the have-nots. But the technology and 5G technology can give people access to critical information, life-saving information and access to data on services. And let's not forget that the motto of the Sustainable Development Goals is to leave no-one behind. That is true at the individual level as well as the country level. So any tool that helps to increase our connectedness, I think is certainly welcome. But it has to be managed, as a process, a process of digital transformation. It is challenging; we will have to address complicated issues such as data management, data privacy, versus data access, etc. But that's exactly where many stakeholders have to come together: governments, private sector, civil society, academia, in order to manage all of these challenges together. I'll leave it here. I've thrown out a lot of seeds, a lot of ideas. I'm happy to take questions and follow up as you like.

>> **Philippe Defraigne:** Thank you Stefan. We'll continue the conversation in a few minutes. I'm delighted to introduce our next speaker Dan Sjöblom. You know him very well. He used to be BEREC Chair last year, and he is of course still Director General of PTS in Sweden. I'm delighted to discuss with you 5G, the same topic from another perspective, and the 5G radar that BEREC launched last year. So the goal of this radar is really to anticipate regulatory changes that are necessary to cope with technological developments. I don't recall that we needed a radar to cope with 4G Dan, so why does BEREC feel the need of a radar for 5G?

>> **Dan Sjöblom:** Thanks Philippe and good afternoon from me to everyone. I'm not sure how familiar everyone is with the 5G radar, so I thought I would say a few introductory words about the 5G radar that was produced by BEREC last year. It's exactly as you said, a document that tries in an official way to point out some of the challenges and things that we need to be aware of in terms of 5G. 5G is of course a strategic priority of BEREC. It was in the previous strategy period and continues to be for the period up until 2025 because a lot of things are happening. What needs to be said also is maybe the idea behind the document is for us, for NRAs, for BEREC, for stakeholders, it's a document that points out some of the many aspects that come into play when you talk about the development of 5G: standards, interoperability issues, business models, spectrum, quality of service, security, many, many things that we all need to be aware of. We cannot work on everything at the same time, so the radar also tries to set out a bit of priority, timing issue management, for all of us. It's also useful to underline that the radar is of course a snapshot of a moment in time when it was produced and adopted by us. That was essentially prior to the pandemic. So of course a lot of things have been learned by everyone in terms of the timing. So I think it's of course a document that would be useful to update at some periodical intervals. We are starting with everyone's ideas for the work programme 2022 and that might indeed be one of them. To your question, Philippe, why didn't we do the same kind of document for 4G? I think essentially the answer is that the 5G ecosystem impacts so much more on lives and businesses and everything. It's much more complex for many reasons, and the role

of the NRAs is therefore also going to be more complex. It's useful to have this document that keeps us sort of aware of all these occupations and the need for prioritisation.

>> **Philippe Defraigne:** Usually when operators hear the need for regulatory change to cope with technological innovation, they translate it into more regulation on the way. Is this what they should fear or not?

>> **Dan Sjöblom:** I can understand the fear. This is an area where so much is happening, where so many new regulations are coming all the time. I cannot sit here and say there will be no more regulations. It doesn't necessarily have to be so. It can also be smarter regulations. I think that's what we are all intending to do and I think the radar should help both NRAs and stakeholders to anticipate the issues involved and be aware of the pace and type of innovation that we are looking towards.

>> **Philippe Defraigne:** And as you said, the radar associates to each regulatory issue a ranking, whether it's a high, medium or low priority, and timing, whether it's an issue for this year or next year and so on. I was a little bit surprised to see that network slicing was medium important for next year. If you remember a couple of years ago, the debate was raging that net neutrality was going to kill optimised services. Now I see on the radar that this is of medium importance for next year. How do you square that?

>> **Dan Sjöblom:** I think you gave part of the answer yourself. We did have a few years back or some time back, I can't exactly recall when it was, a good discussion with many stakeholders. There were the concerns that you mentioned. Network slicing and net neutrality regulation. We produced in 2018 an opinion evaluating the functioning of the regulation and the conclusion at that time was that we didn't really see this fear. We had really been canvassing knowledgeable, resourceful persons and organisations for concrete examples of how the network neutrality regulation would impede 5G technology. It really was very vague and we couldn't come up with any firm conclusions. We are of the opinion that the two work together. That's why we have not prioritised it at the very highest and most immediate level.

>> **Philippe Defraigne:** Let's talk about security now. We had, a couple of years ago, the Commission recommendation on 5G security. In 2020, we had the 5G security toolbox. We just saw that ENISA was given a mandate to develop a 5G cybersecurity scheme. Security is also on BEREC's radar with high relevance for this year. What should we expect from BEREC on this important topic?

>> **Dan Sjöblom:** As I mentioned and as everyone on the programme today knows, 5G is going to touch on so much of our essential cyber services and our daily lives, and integrity. This is going to continue to be one of the highest priorities, not only for this year, but presumably also going

forward, developing the 5G. As you say, BEREC is focusing a lot on cooperating with others in this area. We don't have the biggest mandate in terms of network security. We have cooperated with ENISA, the NIS council group and of course the European Commission. Last year we had a focus on providing input to some of the objectives in the 5G toolbox. This year, we continue to support the work that is ongoing in the NIS council group, and I think that's going to stay. Presumably, as I said also, a very important task for us is to assist and bring together the market people and security people that are not perhaps as used to meeting each other. So we are a little bit the go-between sometimes.

>> Philippe Defraigne: Let's talk about rural coverage. We've seen the new digital decade document. We will discuss it with Rita later this afternoon. There the Commission is saying one hundred percent 5G coverage by the end of the decade. I see on the BEREC radar that this is of low importance with a time horizon of 2022. So high priority for the Commission and not so high for BEREC - is that a fair summary?

>> Dan Sjöblom: I would say 2022 comes a long time before 2030, right (laughing)?

>> Philippe Defraigne: I forgot if it's low or medium priority. But it's not a top priority for BEREC.

>> Dan Sjöblom: Coming back to the lessons learned during the pandemic, I think we have seen the necessity of being connected. And I heard also what Stefan said in his discussion about the digital divide. We talked a lot about the digital divide over the last months. Whenever I'm at a conference we discuss the importance of using the recovery funds well. Smart used to connect the unconnected and make sure the connections are workable for families and work. There are still many parts in Europe that have a long way to go. There are many parts in a connected country like Sweden that have a long way to go. It's a question of degree. There are those with much bigger challenges in Sub-Saharan Africa, for example. There are many who don't have the luxury of being able to connect as we do through secure and robust landlines. They connect through mobile phones, and mobile phones are going to become very important. But then affordability is also going to be very important in many parts of the world. I think we certainly are aware of this. And coming to the recovery fund and the use of public money to support connectedness, of course we come to the issue of state aid where again BEREC is not a key player, of course it's the European Commission that is the key player. We have views about definitions and we feel it's very important that you get the new definitions of what is a good connection to be at a much higher speed than the current regulation indicates.

>> Philippe Defraigne: Thank you. Let's discuss a little bit capital expenditure. The digital decade document I think has quite a big figure, an investment gap of 65 billion per year, if I remember correctly. We all know that European telcos, fixed and mobile, invest roughly 50

billion a year. So to achieve the digital decade targets, the telecom operators would have to literally double their capex. When we compare the US and Europe, the good news is that European telecom services look incredibly cheap. The European ARPU stands at 50% of the US ARPU. The other side of the coin is that our capex also stands at 50% of the US capex per capita. So I'm wondering, is there any concern in the BEREC community regarding the long term capability of our industry to continue to invest? It's not going down actually, the capex, so no reason to change?

>> Dan Sjöblom: No, this is very important and good question. It's interesting to compare Europe to the US as you do in that question. It's useful to make this comparison but you need to be very aware that Europe is not a unified market. There are big variations inside Europe; there are also big variations inside a market like the US. And the discussion about the ARPUs and capex and so on, it is true that the ARPUs in the US seem to be higher. They might be twice as high as you mentioned there. Do we see more investment in the US than in Europe? I think that's the really important issue. And I think we certainly don't see twice as much investment. I'm not even sure the figures tell us that we see more investment overall, at all. We see higher profitability. That's something that we, as regulators, don't necessarily have objections to. But it's not what we are here to ensure. So for me, it very much comes back to having worked in markets, providing predictable market situations, which are conducive to investments, and I think having different kinds of competitors out there fighting for customers. I think that's really what's driving investments in Europe. I think we're doing fairly well.

>> Philippe Defraigne: Thank you. Many other topics you could have discussed around the 5G radar, but I suggest we join Stefan to look at some questions that stakeholders sent regarding 5G and 5G sustainability. There was one from Vodafone that perhaps you could tackle Stefan. Do you see 5G as an enabler of green digital technologies and does that add more urgency to 5G deployment?

>> Stefan Schweinfest: I definitely see 5G as an enabler of green digital technologies. I gave some examples from agricultural management, climate change management. The World Bank has just published a world development report and the key example that they start with in terms of the importance of data was the climate change example. They were comparing two tsunamis that hit Japan. In the earlier one, there was no advance information available and so the number of victims was quite elevated. And then in the second physically similar and comparable natural catastrophe, there were advance warning systems in place, communication reached the population, evacuations took place. And the number of victims was minimal compared to the similar situation. There are so many situations where fast data management and getting the right data to the right people is so critically important. And ecosystem management is also

difficult in the sense that it also doesn't stop at borders. It does require international cooperation. It does require us to speak in the same language. When I hear Dan talk about standards and interoperability, that's music to my years. That's exactly what I'm doing. As a UN statistics officer, I tell everyone those are the standards, those are the rules of the game. But they are not perceived as straitjackets, but as enablers. That's how we can talk to each other. We can collect our data together, learn from each other, put them together and address global problems, like the management of the environment that doesn't stop at national borders.

>> **Philippe Defraigne:** Thank you Stefan. And you Dan, on the same question. If 5G is an enabler of green digital technologies, is it a good reason to speed up the role of 5G?

>> **Dan Sjöblom:** Definitely. We're happy that BEREC is for the first time taking its first baby steps in finding out what our role in terms of sustainability is, how we can contribute and how we can perhaps coordinate a little bit the way many of us are already participating in the development. And certainly the stakeholders, there are many examples of stakeholders taking voluntary initiatives. There are of course initiatives by governments. There are so many things going on. Of course 5G can help more of us be connected to what is going on in this field, and use these new smart technologies. One thing I want you to remember is if we go back to when 4G was introduced, nobody could really foresee exactly what it was going to be used for. I'm sure very much the same applies now in terms of 5G. We enable new services, new smarter technologies, but none of us can really foresee. We can look at agriculture, we can look at industry, we can believe that they are the areas that will be first up. But what it will mean and how it will be possible to do things better and smarter, none of us knows. But connecting everyone is the key to unlocking that power.

>> **Philippe Defraigne:** And then enable those ecosystems to emerge and blossom. Back to hard-core telecom regulations, we've got two questions, but they're a bit similar for ECTA and Vodafone on spectrum assignments. What they're saying is that on the fixed side, if a national regulator dreams of regulating a fixed market, there is market and procedure, all sorts of transparency procedures, check and balances. But when we move to the spectrum assignment front, it all happens in a dark room, and the peer review process among regulators is not a great success. So could BEREC help or not?

>> **Stefan Schweinfest:** I think there's a lot of storytelling here. Among BEREC members, I would guess that one third or half of us have dual competence. We do both things: we allocate frequencies and we regulate the markets. But in many other Member States it's separate agencies. I think most of the participants here today know this. That was the reason why we had this new provision coming into the regulation so there would be these peer reviews, which is something that the RSPG, the spectrum allocating agencies had already introduced. And BEREC could participate in those peer reviews. Essentially a peer review is country "A" intends to

regulate or auction frequencies in a particular way, have specific rules, show it to your peers, you get input. It's a way of learning from best practice and spreading best practices. The fear was that if that was done in a dark room with only spectrum allocating people, you don't really take into account the knowledge and the views of the markets or to the BEREC [Inaudible] report. That's what we contribute. And what we do contribute in those discussions is that we are close to the operators. We do understand that having - I think I mentioned earlier on – predictability, and in the regulation that's likely to come in the foreseeable future. It's very important to have an investment-friendly market situation. That is key to getting competition moving and working, and therefore enable companies to do their best in providing goods and services to consumers. It all fits together. I think it's not a big mystery.

>> **Philippe Defraigne**: Thank you. We have another question from Beltec, the Association of professional telecom users in Belgium. And you know that in Belgium, we are experiencing some delay in the auctioning of 5G spectrum. Basically, Beltec is asking if BEREC could help. They make the question a little less Belgian than I do, but I'm translating for you. Can BEREC help when government is dragging its feet to auction 5G spectrum?

>> **Dan Sjöblom**: Yes and no. I think Belgium is certainly not alone in being a little bit late with the 5G spectrum auctions. We saw quite recently the European Commission starting to ask questions about the infringement of the deadline for the 5G frequency auctions. I think they were asked to essentially all countries except a handful maybe. I think Sweden certainly got those questions too. I think it's not unique. What we can do in terms of sharing experiences, collaborating with each other, that's essentially what we do in BEREC. We share experiences. But at the end of the day, to go ahead and start issuing new frequency bands is a national power and this is not something that we in BEREC have any power to influence. That would be more for the European Commission, if you want to push things.

>> **Philippe Defraigne**: A quick final question for you Dan from the Hungarian governmental IT development agency. We all know that 5G will require a robust backbone to function. They asked about the alignment of fibre deployment to basically power those 5G base stations.

>> **Dan Sjöblom**: Yes, that is of course a very good observation. There will be no real effect with large cover 5G unless you have a robust backbone, fibre to power the system. You cannot simply invest in 5G mobile services and believe that it's a shortcut to connect everyone. You need to have both. So the investment opportunities and the market functionality need to be there, both for fixed line investments and for mobile base stations and all the other equipment.

>> **Philippe Defraigne**: Thank you Dan, thank you Stefan. Thank you for being with us, this morning for you and this afternoon for us. I know you've got a busy schedule. I hope this is not the last time that BEREC has the opportunity to cooperate with you and with the UN statistical

department that you are heading. And congratulations again on your award. Now without further ado we'll move to the next session with Rita Wezenbeek.

>> Bye bye.

>> **Philippe Defraigne:** Rita good afternoon. I'm delighted to introduce Rita Wezenbeek. She is Director of Connectivity at DG Connect, but many of you remember her, of course, as Head of Unit of Anti-Trust and Telecom in DG Comp. Probably some people in the audience have been your clients in the previous year. Rita? Sorry, sorry guys.

>> **Rita Wezenbeek:** Can you see me?

>> **Philippe Defraigne:** Yes. I hope you heard the kind introduction I made.

>> **Rita Wezenbeek:** No I didn't!

>> **Philippe Defraigne:** I was just explaining that you had just moved to DG Connect recently as the Director for Connectivity. But many people in the audience remember you as the Head of Unit in charge of Anti-Trust and Telecom for the last few years. I was saying perhaps, you probably have a few former clients in the room. Did they make you take leave when you switched from Comm to Connect or did you do that over the weekend with a few boxes?

>> **Rita Wezenbeek:** Anyway I stayed within the same team in the sense that I stayed with the von der Leyen team. I can tell you in every respect that the transition was seamless including with respect to holidays, so there were no real holidays.

>> **Philippe Defraigne:** (Laughing) I'm really sorry to hear that. Rita, let's move to the topic of the month in Connect, which is of course the 2030 digital compass. I remember a year ago the Commission, at the beginning of Ms von der Leyen's presidency, issued a communication on Europe's digital future - great document. The compass covers more or less the same broad topics as the digital future communication. What's different? What's new?

>> **Rita Wezenbeek:** Yeah, we think it's not really a change of orientation. It's just a new impetus to accelerate the process that was already going on. The reason for coming up with compass was already underlined by Ms von der Leyen in her State of the Union speech. During the Covid 19 period, we could see the indispensability of the digital transition. The Covid 19 crisis underlines that. So as the president said, it was really necessary to come up with a plan to identify targets for where we wanted to be in 2030, and also identify what you could call a trajectory. What the president said was only underlined by the European Council that also asked for literally a digital compass to move together to the targets to be identified. In between, there were several groups of Member States also urging the Commission to come up with such a plan.

So this is basically what the digital compass is; it's a plan in which we identify a vision. We identify targets around what we have called four cardinal points. We identify a compass in terms of a governance structure on the basis of which Member States will move collectively with the European Commission to those targets. There will be a monitoring system based on the DESI index that would allow the Commission based on what we have called the traffic light system to signal when we are going in the wrong direction or when things are not going fast enough. And in such situations the Commission could formulate recommendations and work with the Member States to take the measures that would be necessary. Then there are maybe still two important elements to signal from this digital decade. One is also that we would see the need for what we call multi-country projects. If you look at the targets and areas in which we want to move, there are many areas that underline that only joint actions could produce results. The Member States would need to pool resources. We feel we need an easy-to-mobilise vehicle to allow such cooperation with a proper governance structure that would invite the Member States to sit together and come up with those joint plans. That's a very important element. Also a key element with a top priority is our conclusion that it would be good to formulate what we have called digital principles. These are rights and principles of citizens, consumers, businesses, which would apply in the online world and also define their position with respect to the digital transition. We see that very much as a possibility to identify or define the European digital transition in the European way, so based on European values and convictions.

>> **Philippe Defraigne:** The other priority of Ms von der Leyen's presidency is of course the Green Deal and sustainability. I don't know if you looked at the agenda for this afternoon, but there are two sessions on sustainability. I didn't see a word on sustainability in the Code that was adopted only two years ago; maybe not, maybe I'm wrong. What does the Commission think about BEREC going full speed into sustainability? Is that something you welcome?

>> **Rita Wezenbeek:** Sustainability is a top priority for the Commission. You have seen that the two priorities for the recovery fund are the digital and green transitions. And we of course have the targets to be climate-neutral in 2050 and to increase the greenhouse gas emissions reduction target up to 55% in 2030. We see very much that those goals are linked. I'm not sure, I would have to check the Code for sustainability.

>> **Philippe Defraigne:** Maybe I'm wrong, don't take my word.

>> **Rita Wezenbeek:** Let's both do that. But certainly it's in the digital decade. It's clearly signalled, the links between the digital transition and the green transmission. We feel the digital transition requires high-capacity networks to improve connectivity and to move towards the 2030 targets, but also to underline the green transition. We see that high-capacity networks, in particular fibre and 5G, are much more energy-efficient. So these are reasons underpinning the need for the digital transition to move to the high-capacity networks. Also in order to further the

case for climate neutrality. So, I can elaborate if you want... there are many examples for the green transition.

>> Philippe Defraigne: No. No. I take it as a word of encouragement for BEREC to pursue.

>> Rita Wezenbeek: You can safely do that. We would certainly encourage you and would also like to cooperate with BEREC in these goals.

>> Philippe Defraigne: Rita let's completely change the subject and talk about a touchy political subject: European technological sovereignty. Here I'm reading my notes because I don't want to shoot from the hip and I want to use the right words. The EU ambition is to be digitally sovereign in an open and interconnected world, so sovereign but open. And European technological sovereignty starts with ensuring the integrity and resilience of our data infrastructures, networks and communications. So could you explain how we are going to achieve that?

>> Rita Wezenbeek: Yes, that is also [Inaudible] digital compass, we feel Europe should be master of its own digital transition and master of its own fate in 2030. When we talk about digital principles and digital rights, we feel that it is necessary to own our own future. That means to a large extent, we also need to own our own tools in order to get there. It's important in Europe for instance where I think 80% of European data are processed outside of Europe. Also with respect to the use of [Inaudible] (Video froze 1:29:38).

>> Philippe Defraigne: Sorry, I think we have an issue with Rita's connection.

>> Rita Wezenbeek: Can you hear me?

>> Philippe Defraigne: Yes. There was a hiccup for a few seconds, but we hear you loud and clear again. No problem, you're back.

>> Rita Wezenbeek: What I was saying is that in order to be master of its own (Video froze). I would not confuse this with protectionism. This is Europe carrying its own weight. It also doesn't mean (Video froze).

>> Philippe Defraigne: I had a few more questions for you but the connection is not great. I suggest we see you later this afternoon for a Q&A, so I suggest moving a couple of questions we had for you to that part. We hand over now to Michel Van Bellinghen, who is BEREC Chair 2021, so the current BEREC Chair, and also President of the Belgium regulator. Over to you for a session on technological innovation and the impact on end user rights.

>> Michel Van Bellinghen: Thank you very much Philippe and good afternoon everyone. Today I would like to take the opportunity to highlight [Inaudible] BEREC's work plan 20 21, the new workflow we've been mandated with by the European Electronic Communications Code, a co-

legislator. This is something that appears on BEREC's agenda from time to time. So I don't need to explain to you the dynamics of the technology we use to communicate with family, friends and colleagues. Technology has changed the way we interact with each other. We are getting used to sending messages via apps instead of SMS, parents using video calls, and our children communicate via apps that didn't exist a year ago. So, quick questions for BEREC we want to address. How do the developments impact the application of end user rights under the Code? Is there a regulatory framework in sync with the developing technology? Does the way in which our online communications develop require an update of consumer protection? This is exactly what BEREC will do in our opinion: monitor the developments in markets with a specific focus on end user rights. Indeed, for the first time we will publish an opinion on markets and technological developments about different types of electronic communication services. In this Opinion, we will also assess the impact of the application of the rights of end users in the Code. This is the first time but it will not be the last time because we will do this at least every three years to have a good picture of the development and the impact of the application of end user rights. You probably know that end user rights cover a broad range of different topics, such as information about services, about prices and contracts on the websites of providers, quality of services, emergency communications, [Inaudible] contracts and provider switching but also equivalent access and choices for end users with disabilities. And sometimes the Code gives rights to end users of all types of electronic communication services. So this is the case, for instance, with equivalent access for end users with disabilities.

Sometimes the Code will leave some of the providers out of the scope of some end use rights. This is the case for instance for providers of NI-ICS or providers of machine-to-machine services. So, as you can see on the slides, BEREC's main task for this year, in this Opinion, is to assess to what extent this regulatory framework still meets the four core objectives of the Code: promoting connectivity, promoting competition, contributing to the development of the internal market, and promoting the interests of the citizens in the Union. Based on the outcome of this exercise, the UN and the Commission will also publish reports on the applications of end user rights. And the Commission may submit a legislative proposal if it comes to the conclusion that this is necessary to ensure the core objectives of the Code. So this being said, of course, we plan to engage with stakeholders in this project. And how shall we do that? We think it is very important to have very variable thoughts and we want to know what you think. How do you see the dynamics on the way we communicate impact the way consumers' rights must be protected. And some of you have already received a letter addressed to several stakeholder organisations at European level with a list of questions, but I will come back to this later on.

And, maybe back on the slides, let's look on the bottom left at a series of questions the Code asks BEREC to address. For this session, I would like to focus briefly on this subset of questions. Is there sufficient information for end users to make informed choices, and are end users able

to easily switch their providers of electronic communication services? To give us food for thought, we invited two distinguished speakers. The first speaker is Monique Goyens, Director General of BEUC, the European Consumer Organisation representing 45 national consumer associations in 32 European countries, if I'm correct, and acting as a strong consumer voice in Brussels. The second speaker is Alberto Di Felice, Director of Policy at DIGITALEUROPE, the trade association representing digital technology industry in Europe. So, without further ado, I will give the floor to Monique for five minutes. Monique, the floor is yours.

>> **Monique Goyens:** (No audio).

>> **Michel Van Bellinghen:** You are still muted.

>> **Monique Goyens:** I thought the technician was going to unmute me. What I would like to say is that contrary to Stefan Schweinfest who said that he was stressed to speak in front of a tech-savvy audience,

I'm not stressed at all because it's my job to represent tech-"unsavvy" people. I'm very happy that BEREC reaches out to end users and consumers in particular to share with you our concerns and observations of what's going on in the market. I'm going to dive into that right now. Thank you very much for the opportunity. First of all this Code is expected to improve consumer rights. We were very happy when it was adopted. Currently, it is too early to say whether that has been achieved because there has been quite a delay in the implementation and transposition of the Code. We need a few more months to see where this is heading. What we can already see now, and that would be a suggestion or an invitation to BEREC, is how the full harmonisation status of the Code impacts consumers in the EU. There is a risk that in some countries the application of the full harmonisation rule under the Code might lead to consumers being less protected than before. This is something that might be monitored and might be food for thought for improving the next version of the Code. On the other hand, it would be important to monitor how the open-ended clauses of the Code that allow for an interpretation of our options by Member States, how they have been used by Member States and whether they really improve consumer rights at the end of the day.

Concerning your questions, I would like to make three remarks. First of all, are consumers better informed and can they make better informed choices? There we see worrying developments in terms of transparency and information requirements. For example, the Code refers to contract summary. We believe that this is a very important tool because on the basis of a very short instrument, document, the consumer can easily choose between different operators. On the basis of that summary, they can, depending on the price that they are ready to pay, see the different quality of services that different providers offer. There seems to be, for example in Greece, a proposal on the table where the contract summary is nothing more than

the first page of the contract. Now this is not anymore pre-contractor information, it becomes contractor information, and the consumer is not really in a position of mobility where they can shore out. This is the type of initiative we hope will not be maintained in the end, in the legislation increase and our members are working to do that. But it would certainly not be reproduced in any other Member States.

When it comes to provider switching, we see a double problem at the moment. First of all, there are provisions in the Code to allow consumers to be compensated if the provider switch takes too long or if there are delays in switching. However, this is only applicable to Internet providers and not to other telecommunication services. We would encourage BEREC to also monitor the switching delays and sometimes really abuses in any other telecommunication services.

The second point is in the area of switching providers and concerns termination fees. We see also, for example in Portugal, on the one hand, very long term contracts, like more than two years, combined with very high termination fees if the consumer wants to get out of the contract before two years or even more than two years. If you impose such high penalties to the consumer they won't switch. The whole purpose of having switching and mobility of consumers to make the market more competitive is totally off the table. So people, in the end, are locked into a contract that they're not happy with. This is something we think would be food for analysis and observation across the EU.

The last point I would like to make is about competition and high capacity networks. This has been flagged by our Danish member where it seems that the regulated price of fibre and cable is much above the agreed market price. And it seems in Denmark that cable and fibre owners have already announced price increases to Internet providers. Our Danish members expect consumer prices to increase by 20% or even more. This is not what we would like to see happening in a digital civilisation. So those are just a few concerns because you have me five minutes. If you gave me an hour, I could fill the hour. We would be happy to continue to engage with you before the Opinion is adopted or even afterwards. Thank you.

>> **Michel Van Bellinghen:** Thank you so much. The floor Alberto is yours.

>> **Alberto Di Felice:** Thank you. I hope you can see the slides as well as me. Thank you for giving me the opportunity to present to the BEREC Stakeholder Forum today. I think the questions you asked were effectively asking us to see what changes we have seen since the Code was finalised in 2018 and now. This is the question that I will try to answer during my presentation. I think a very frank and direct answer is that frankly not much has probably changed. I think, certainly not anything that would require a change of the Code. First of all, Monique correctly stated that the Code has practically just come into effect. We've seen delays that were highlighted in previous sessions during the forum. So effectively we need to

understand first how the rules that were set in the Code function in real life. But most importantly, we have seen no fundamental changes in tech trends in the market. As a matter of fact a major reason for the reform was a well-established trend in the market that was effectively a shift to IP-based, OTT-based communications. I think 2012 is usually mentioned as the year that OTT messaging surpassed traditional SMS. This was well before the Code was conceived and negotiated. I'm showing the latest stats that show a very specific segment of the market, the application-to-person messaging market, so a very specific segment. But it's reflective of the broader trends we've known for years now. Traditional text messages are remaining stable and, as a matter of fact, also increasing somewhat during the pandemic years. But, overall, as a percentage of the whole volume of messages exchanged being reduced compared to IP-based messaging. And in this particular market you see an interesting development that it's not only OTT and IP-based messaging but also operator-based IP messaging, which is an interesting development. I think this is exactly the discussion we had with the Code. The Code stems largely from the need to reform the rules to make sure they reflect this shift in the consumption of communication services. Effectively this was reflected in the rules by adopting the functional approach to defining what an electronic communication service is. The two categories are number-based and number-independent interpersonal communications. Also by looking at what type of service you're looking at, the various subcategories, and applying the relevant rules. What is interesting is that most rules apply to all services and that includes the end user provisions, and the relevant exceptions are those related to number-independent ICS for very good reasons that are still valid. That is that those rules apply only when there's a direct link with numbers, portability, access to emergency services, so the ability to interoperate with emergency services. And also the switching provisions are not relevant for a lot of these services. Quite objectively, the barriers to switching or rather using multiple apps at the same time to reach the person that you want to communicate with are simply not the same as with the traditional services. Therefore those rules are not adapted to those services.

In the next slide, I can sum up by saying, so far there's no evidence that the market has been changing in the two and half years since the Code was published in the Official Journal, particularly when it comes to letter (d) in Article 3(2) of the Code, which is the part that relates to end user rights more directly, particularly in terms of the choice, price and quality of electronic communication services. BEREC has done quite a lot of work in the draft work programme for next year and also this year on issues related to data and digital platforms, which are often interlinked with discussions about electronic communication services. This is a trend where we've seen BEREC very eager to be involved in those discussions. It's important to keep in mind that the objectives of telecoms regulation and also end user rights that we've seen in the Code are very specific. And it's dangerous to conflate those objectives with the broader discussions around data and digital platforms. There are no directly applicable rules that we can simply copy

and paste on platform-related issues. These are being looked at as you know, and there's broader discussion around competition enforcement, legislative proposals around digital market apps, where BEREC is very eager to participate, and data protection and privacy as well as other legislative areas. On the other hand, the other objectives - the general objectives of the Code that have an impact on end users ability to access innovative services - those are still lagging behind, as was highlighted, notably in terms of investment, in new networks and the associated services, but also as was said by previous speakers in terms of speeding up the implementation and harmonisation of the Code, which is a key precondition for users, both consumers and businesses, in accessing new services and networks. Think about the many IoT use cases we expect to see emerging in the market in the coming years. That's my contribution. Thank you very much for the opportunity to contribute now. Of course we'll also reply to the questionnaire and the following consultations that BEREC will hold. Thanks a lot.

>> **Michel Van Bellinghen:** (No audio for a while 1:51:04) We will make all the practical arrangements to get all the questions addressed to different stakeholder organisations I mentioned before. This input will be very important and valuable to assist the discussions within BEREC on the direction of future work until the end of this year because we will adopt this Opinion during the last Plenary of this year, in December. And of course we are considering all inputs and contributions which are introduced as well. We also plan to use BEREC studies and reports to start with today on consumer behaviours towards digital platforms as a means for communications. This study will explore whether consumers are experiencing kind of symmetries in information or if they're feeling locked in or restricted in terms of switching among platforms or if they are able to switch between the traditional electronic communication services and the digital platforms as a means of communication. We will look to see if we can factor in some of the preliminary results of our BEREC reports on Covid 19 crisis and lessons learned. For that we will adopt in Plenary two a draft report We will adopt a final version also at the Plenary forum by the end of the year. As we heard there are different angles we could answer the question BEREC has addressed in this Opinion. This Opinion will be evidence based. This Opinion will be also taking into account all relevant views and lead up to Europe's ambition to ensure a high and common level of protection of the end user. With that Philippe, I conclude my part. I'm very happy that we have Rita back again with us for a Q&A session.

>> **Philippe Defraigne:** Welcome back Rita. Thank you, Michel. Let's look at some questions we received from stakeholders ahead of this meeting. The first one is from Orange, which says – and I'm paraphrasing - mobile operators have to cover 98 99% of the population because of the spectrum licenses. The connectivity toolbox says go ahead guys, share your network. There is a feeling that the Commission has suddenly become a bit more reluctant to give its blessing to sharing agreement among mobile operators. Rita perhaps it's a question for you. Is that a correct feeling or is it a wrong impression?

>> **Rita Wezenbeek:** Well, maybe Philippe, just because we had a bit of a wobbly start, I wanted to still thank you for the invitation and also underline that the BEREC Stakeholder Forum is a very relevant forum, and it is very good to have these discussions; they are very relevant to understanding the issues that BEREC has identified as priorities for the coming period. So thanks.

And then on this question. I'm not sure I share the assessment. If you look at the connectivity toolbox: first of all, the recommendation on connectivity, which was issued in September last year, and the connectivity toolbox which was adopted only last week, it also addresses network sharing. I think there, there is a very balanced approach, which I would feel applies from every perspective within the Commission, also from the competition perspective, which essentially says that network sharing is a good thing, even for sustainability reasons, but certainly also to enable the rollouts of very high-capacity networks. Also, in particular, in the area in which this is commercially less attractive, it is clearly explained. This is something that's always been advocated from the different corners of the Commission. I think there the policy is undisputed. Of course we know there is a case that is being examined, which has been examined for quite some time now. And I am very familiar with that case, but it has been taken over by my successors. I would certainly leave it up to them to comment on the state of play with it now. Consistently, we welcome network sharing, even active sharing, in particular in the areas where this is difficult to rollout. And there may be exceptions, which are right now being examined.

>> **Philippe Defraigne:** Irrespective of the specificities of a specific case, the policy hasn't changed.

>> **Rita Wezenbeek:** No.

>> **Philippe Defraigne:** Thank you Rita for these comforting words. Let's move to the next question from Vodafone. They are really asking whether next to the broadband cost reduction directive, and the radio spectrum policy programme, you can see all the measures that could help meet the targets set in the digital decade documents. What are the other policy tools that could help achieve these ambitious objectives?

>> **Rita Wezenbeek:** Well there is one thing that may be interesting to highlight, which was read with interest, and that is the ETNO report that was published two weeks ago by ETNO [inaudible 1:58:10] Consultancy Group. I must say I really welcome the constructive approach taken in that report. Also the wider approach where the report is looking at many more market developments than only those in the area of strict connectivity. So it's highlighting also a number of possibilities and opportunities for the telecoms market. Part of those opportunities are also signalled in the digital decade compass. Where the Commission identifies policy goals, where we want to be in 2030: this concerns the cloud, it concerns the use of data, it concerns data

capacity. So, I think it is very positive of ETNO to identify those elements as opportunities for the telecommunications industry. And, I would say, in a way the industry is at a crossroads. I'm not sure. We are not the entrepreneurs at the Commission. I'm not sure that going forward the networks will only be finalised on the basis of the consumer model. There will be many more models that will be applicable to the business case of rolling out networks, and part of those models have been identified. One thing I find positive and also significant in the report by ETNO is that they say policymakers can help by identifying priorities and setting goals. I think that's what the Commission is doing in the digital decade compass. I think the concept as such is really trying to be helpful to the operators in the industry.

>> **Philippe Defraigne:** Thank you very much, Rita. Let's move to the next question and perhaps it's more a question for you Michel. It's a bit related to the previous topic. It's a question from DT. It's really a question about the massive volume of summaries and reminders that telecom operators have to provide to consumers while consumers like you and me are increasingly searching on the web for the best offers. So is there really a need for operators to do all that work? Shouldn't we simplify the rules?

>> **Michel Van Bellinghen:** Thank you for the question. Unfortunately it's a little early for us. We have not yet mapped the volume of summaries and reminders as put in the question. It's too early to state what our suggestion would be. But if is any research on how consumers inform themselves nowadays, on how they would like to be informed, this is something that can be shared with us and we can look into it in the future. Over to you.

>> **Philippe Defraigne:** Be a little patient and we will hear more in a few months. Next question is from Facebook. Really, Michel, it's a question that again ties in to the previous session on Article 123, so this business of what is the impact of technical innovation on user rights, one that Monique is probably interested in. Facebook is really focusing on number-independent interpersonal communication services, and it is asking BEREC about the work in that space, of interpersonal communication services, and also the link with Article 61. The article that talks about interoperability is something that would be imposed in the future by regulators if need be.

>> **Michel Van Bellinghen:** Thank you very much, Philippe. I see two questions, actually. On the first one, yes, we plan a review on the market reports and material published, and will be engaging with stakeholders and collecting data from Member States in respect of national experiences in the market. As I mentioned at the beginning of this session, we will publish in June a study on consumer behaviour towards digital platforms and ICS as well. This will give us a kind of empirical insight on the trends, markets and technological developments that we will be assessing.

The second question is the link or difference between the two provisions of the Code regarding NI-ICS and interoperability, so Article 123 and Article 61. So, this is, of course, a totally different scope. The first one, Article 61, is about additional powers and competencies for NRAs to impose interoperability measures on NI-ICS. So this is about these powers and duties, and the other provision, Article 123, is about the revision procedure. I explained that this is to be conducted every three years and will conclude with a report by the European Commission. So, of course, we will make use of this competence as well. In the past, we've focused on traditional operators, we've received new competencies and we will monitor this in light of our new competencies as well. Just to remind you that we published a new draft report on the way to define and identify harmonised metrics on OTT services. So this is something to look at. More specifically on interoperability, in this Article 123, the way we assess operability, the way to verify access to emergency services, this is another scope beyond Article 61. But of course, this being said, if a number of countries that impose obligations on NI-ICS providers for the lack of interoperability increases; this is something that we will look at in the near future. Over to you, Philippe.

>> **Philippe Defraigne:** Thank you, Michel for this comprehensive response. Rita, Michel, thank you so much for addressing those questions from the stakeholders. We will now move to the next item on the agenda: a discussion on the call for input for work programme 2022 with Annemarie. Annemarie welcome back to discuss the work programme 2022. You will launch a call for input, I understand.

>> **Annemarie Sipkes:** Yes, I will Philippe. I have thoroughly enjoyed the discussion so far. This call for input is a gentle reminder that what we started out with, all this dialogue is meant to inspire us and give us food for thought to make an ambitious, very relevant, but also balanced working programme for 2022. So to help remind you all of the things we would like you to do, and to tell you where we are at the moment, I have prepared some slides. I hope we will present them. So this is my call for input, just to remind you of the process, of where we are. Next slide, please. Thank you. So the work programme 2022 is of course within the strategic priorities that BEREC has defined for 2021, which are valid until '25. All the work we're doing will have to have a relationship with these three strategic priorities. To remind us all, that is promoting full connectivity. I think we have already discussed the importance of the rollout of 5G in the presentations and discussions with Stefan and Dan earlier this afternoon. And also to support sustainable and open digital markets. And Philippe, just to reassure you, the sustainable in this strategic priority refers to competition. That means competition with a view not only of giving choice to end users and affordable prices, but also enough innovation to help us underline the open digital markets in Europe. And our third strategic priority is empowering end users. As you are probably aware, these are our longer-term strategic priorities and our work programme every year relates to these priorities.

Having said that, maybe on the next slide, at BEREC of course there are several elements within our work programme. The first element consists of our mandatory projects, which largely stem from the European Code for example that asks us to monitor certain things, or as Michel has just explained to us, asks us to provide input and make analysis for example on Article 123. So at present, this element consists of 11 projects, but this list will grow because some of the mandatory projects are of course dependent on requests that we may receive from the European Commission. It's still early in 2021, demands from the agenda within Brussels may give rise to further questions. These are 11 mandatory projects that we have found so far. Then there are projects of course that carry over from our work this year. Analyses that have started, but where we expect that the public consultation will take us to the end of the year and projects will be finalised in the year after. Then there is the element, which we deem quality and efficiency. These are the projects we undertake to further the harmonisation of the regulation in Europe, to contribute to the quality of our work. This is the learning part of the NRAs, the exchange of best practices, but also the way in which we consult one another and try to harmonise, the way we put regulation into practice. That leaves us with the part on the optional work programme, which is of course where we are eagerly awaiting your input.

That is on the next slide. The optional is now an X but history has shown us about 30% of our work can consist of these optional projects. Just to remind you, suggestions in this field can be on all different topics as long as they relate to our strategic priorities. They can also ask for different kinds of work. For example, on some topics it is more appropriate to have a workshop. Sometimes one might ask for a monitor or a specific tool to measure development in a certain field. All these, of course, should help us design better regulations and conditions in European telecom markets to explore new themes or create new instruments that enable us to do our work better. That's on the additional projects.

Then on our next slide, maybe to help remind you how proposals can be submitted, there is the one e mail address that I hope you will use and that you will be able to find. It helps us enormously if you submit a proposal that is quite free format. Otherwise, please take into account four dimensions that will help us to make sense of all the ideas that we get in the most efficient way. That is: include a title related to the strategic priorities that BEREC has formulated, give us a brief description please, and give us your details so we can get in touch in case we need any clarification. I think this is all rather standard procedure, just to remind you of that.

The final slide will present a timeline. So the first part of the work that we already saw coming, we published at the end of January. Then the call for input already started at the public debrief of our first Plenary, so that was at the end of March. At the moment we're at the 1st of April. Please take note of the deadline. We have put a deadline for your input at the 19th of April. It

gives you a little under three weeks. We feel this is very important to make sure that at the second CN of this year we have enough time to discuss and collate all the proposals that we have received so that we can formulate a proper draft working programme that we can present to the third Plenary in autumn. That brings me to the event that we already touched upon, at the end of October, the second Stakeholder Forum that we are organising this year because of the special Covid-19 circumstances. So this second Stakeholder Forum will be towards the end of period that we have for the public consultation of the complete draft work programme. This would be the one thing that we would like to do during the Stakeholder Forum. The other thing is an ambition we have had at BEREC for some time now. We would like to use the 28th of October to meet, not just in this setting, but also to organise the meet-and-greet with the co-chairs who are the people really responsible for the work done within BEREC. This is something we intended to do much earlier but the circumstances did not permit us. That will be on the 28th of October and that will give us time to present a full working programme for the fourth Plenary in December so that we can finalise the programme just in time to start 2022. That is all for me, Philippe.

>> **Philippe Defraigne:** Thank you very much Annemarie for this exciting programme, and this meeting on the 28th of October looks really interesting and innovative. I think the meeting with the co-chairs will be something that stakeholders will probably be looking forward to having. I think we should move to the next item on the agenda. And actually talking about co chairs, I'm delighted to invite one of the BEREC co chairs. That's a perfect transition Annemarie. You were just talking about stakeholders meeting co chairs and we have one on the screen. I'm delighted to introduce Anaïs Aubert, who is co-chair of the BEREC working group on sustainability. Anaïs welcome. Good afternoon. The audience is very familiar with the objectives of the Green Deal. There is no need to remind them. But for myself, could you remind me of the role that the ICT sector plays in the big picture of carbon emissions?

>> **Anaïs Aubert:** It's tiny, it depends. I'm not an expert on the subject. I'm trying to be, but it's a huge subject, very important and according to different studies, the ICT sector accounts for around 4% of total global CO_2 emissions. And within this 4%, the communication networks represent 24% of the total.

>> **Philippe Defraigne:** 24% of the 4%?

>> **Anaïs Aubert:** Yes, 24% of this 4%. And it's only regarding CO_2 emissions. What we can say today is that Internet traffic is increasing significantly because you know that there are more and more services, more and more connections, more and more connected devices. And this rise has an impact on energy consumption. And, even if data centres and operators are making a lot of effort and taking a lot of initiatives to try to reduce this impact, because there is a rise in usage, it's difficult that the efficiency gains keep track with this rapid growth of the sector.

>> **Philippe Defraigne:** But I have seen a number of operators, I'm not sure all, but all the major European operators plan to become carbon neutral by 2050, 2040, even some by 2030. That's good, that's encouraging.

>> **Anaïs Aubert:** Yes, completely, that's great. There are lots of initiatives. That's why BEREC wants to take a closer look at this subject, not to be left behind and to be able to understand what the problem is and what the operators are doing and what BEREC can do on the issue. It's underlined that operators are doing something on the issue and that we need to collaborate together to be able to find solutions together.

>> **Philippe Defraigne:** We discussed CO2 emission and carbon footprint. Are they all the dimensions on sustainability that should be looked at?

>> **Anaïs Aubert:** Yeah, of course, CO2 emissions are only a tiny dimension of the problem. There is also a problem of consumption of resources. As a matter of fact, the most significant impact of ICT on the environment comes from the consumption of raw materials, so this is particularly due to the consumption of devices. But what I can say is that, for now, there are no standardised data collection and methodologies to precisely measure the impact of ICT on the environment. There is a lot of work ongoing on this question of methodologies. There are lots of ideas and various stakeholders are trying to develop some data collection and methodologies, but there are also many different parameters, different scopes for methodologies, different assumptions for these methods, and it makes it very difficult to take decisions and to be able to limit the impact. It's important to work on this.

>> **Philippe Defraigne:** The manufacturing of devices requires mining activities to get rare earth and other materials and this causes erosion of soil, pollution of soil, deforestation and other negative consequences, which are rather difficult to assess and capture. I can imagine there are many ways of trying to assess that and it will cause a lot of debate.

I put myself in the shoes of a telco. I'm doing my best to cut my carbon footprint. At the same time, the Internet traffic on my network is growing, but it's for the greater good. We heard this morning Stefan from the United Nations saying how 5G was going to help sustainability. Yes, our traffic is increasing, but it's for the greater good. How do you capture that? Do you just look at the carbon footprint of the sector or do you look at the bright side of the equation and seeing what the sector brings to the economy?

>> **Anaïs Aubert:** I will talk about me, as a co chair, as myself. This question comes up when we talk about the environmental impact of the sector, about this positive impact of digital technology on all the sectors. Our group is just focusing on the impact of ICT on the environment by itself. And I would like to just stress something, insist on a point. We are a network regulator

at BEREC, so our mission is really to contribute to the development of networks and the better functioning of the market of electronic communication in order to bring all the benefits of networks to the consumers. So our mission is really to develop networks because we are convinced of all the benefits of technology networks, 5G and so on. But just because we are convinced of all this positive impact does not mean that we should not look at the negative impact and try to do our own homework, if I may say so, and try to reduce this negative part in order to try to do something on what we can do.

>> **Philippe Defraigne:** Thank you Anaïs. Now changing tack and moving back to BEREC. The Code and other pieces of EU law give a lot of mission to BEREC. When you look at the work programme, you have a heavy workload. We discussed it with Rita earlier, and maybe I didn't look close enough, but I don't have the impression that BEREC has been given any mandate to work on sustainability. So what sort of room for manoeuver do you have without a mandate from the EU legislator?

>> **Anaïs Aubert:** So for now, we are not taking any policy or anything like that. We are just an ad hoc working group and trying to understand the issues. Now we are trying to develop BEREC expertise on the environmental impact of ICT. We are trying to understand the different work ongoing in the EU, what is ongoing in other international bodies, other European bodies, NGOs, private actors, just to be informed and understand the sector we regulate. For instance, the European Commission is part of our working group so it's very interesting to exchange with them, to understand what they are doing, and more importantly to see what could be our role and to not duplicate what is done elsewhere.

>> **Philippe Defraigne:** So you are on the learning curve both in terms of learning about sustainability in ICT and in terms of mapping out all the other institutional players in that space in Brussels and elsewhere. So, you think BEREC is positioning itself to play a future role, which today is not entirely defined perhaps?

>> **Anaïs Aubert:** No, we are really gaining expertise on the issue. Our group is very new. We were created last year and we launched different initiatives. But we are developing maturity on this subject. On this issue, everything is going very quickly. For example, at the end of 2020 and the beginning of 2021, the European Commission, within the Opinion of BEREC for the revision of BCRD, were asking us to provide information about sustainability regarding the networks. So actually we are trying to develop expertise because we are asked to do so.

>> **Philippe Defraigne:** Thank you. The work you're doing in sustainability is not limited to networks. Are you looking more broadly at the ICT sector, like the cloud? I heard you mentioning the cloud earlier. It's not just the telcos, it's the broad ICT ecosystem, is it?

>> Anaïs Aubert: Actually it's true that BEREC has co expertise on networks. For now we're trying to understand the problem. For this, we need to look at the sector as a whole, because, I will take the example of a study from France, from the French [inaudible 2:26:30] who stated that the networks would represent 5% of the environmental impact of the digital sector, so it's a small part. But the impact of the digital sector is also on data centres and devices. We have to understand all the links and all the interconnections and indirect effects of the networks on other parts of the ecosystem to be able to really understand the problem and be able to take the appropriate measures to try to tackle the issue. So, yes, we're looking at data centres and devices, just to be able to understand the problem.

>> Philippe Defraigne: Now, digging deeper into what has been done, I'm sure people in the audience find it fascinating. So what has been done in practice? What is the work that BEREC has accomplished so far? I understand you have a working group?

>> Anaïs Aubert: At the beginning, we were a networking group, so just a group to discuss what we can do as a group. So we became an ad hoc working group. So we will exist for two years, at least for now. We organised two workshops in October where we invited a lot of different stakeholders to be able to have a bigger picture on the problem and be able to develop the knowledge of BEREC on the subject. We also took examples of our counterparts, for example RSBG, the Commission, the energy regulators, and also private operators. And all the details will be on the website of today's event. It was mainly this, we organised this workshop and we launched a study also. A very broad study on the impact of the telecommunication networks on the environment, with a literature review, to be able to have the main information. This study is now ongoing and will be finished, I think, next fall.

>> Philippe Defraigne: Are you planning to engage with stakeholders or are you doing it already?

>> Anaïs Aubert: Actually, it was one of the points of our proposition last year. We launched bilateral meetings with stakeholders. It's ongoing right now. We are trying to meet with a lot of different stakeholders, mainly European bodies, NGOs, the European Commission and the European Parliament. Also we're trying to discuss with everyone within BEREC in order to be able to be fully aware of what are the ongoing studies on this subject because there are a lot of initiatives. But also to be able to establish links with these other stakeholders because we believe that we need to work in close collaboration with everyone and share our expertise as we cannot do anything alone on this issue of sustainability. It's important for us to be identified as a consulting capacity when it comes to the environmental impact of networks because we are experts of networks. We are not experts on environment or devices but we are experts of networks. It's very important that if anyone is trying to develop knowledge on the impact of networks on the environment that they can consult BEREC.

>> **Philippe Defraigne:** Thank you. And final question. So we heard the working group is working hard: bilateral contact with stakeholders and this big study of which we will see the results in the autumn. What is the next big step for BEREC in addition to these three things?

>> **Anaïs Aubert:** So as a working group, of course we think about the future. We propose a few ideas for the next work programme for 2022 and we will propose other ideas for the next years. But for now nothing has been decided and it will be discussed in Plenary. But we think it's important to contribute to this topic and it's important to collaborate, as I said, and not duplicate what has already been done. But I believe that Annemarie can probably tell you more.

>> **Philippe Defraigne:** Thank you so much Anaïs for sharing part of the afternoon with us and sharing the progress of your working group on sustainability.

>> **Anaïs Aubert:** Thank you very much Philippe.

>> **Philippe Defraigne:** I will be joined now by the three chairs for another go at answering the questions we received from stakeholders. Welcome back Annemarie, Michel and Dan.

This is a question from MVNO Europe and they are asking the question

about whether your report, which you discussed this afternoon, will be a bit too late in 2022?

>> **Michel Van Bellinghen:** I can answer that. Thank you very much for the question. On the first part, the impact of the markets the technological developments on end user rights, we had this in the previous session and we've foreseen this in mid December of this year, as I explained. That's according to the duty that was foreseen in the Code. So, no, it's not too late. We are on time since the Code is not yet in effect in Member States as you have mentioned as well. Second part of the question is the internet value chain. I think we received a question last year when we had a decision on the draft programme 2021. The Internet value chain is something for which we are planning a very profound assessment and this will be delivered in 2022, but discussions between our experts have already started this year. Moreover, BEREC will organise a workshop with all stakeholders and also a think-tank in 2021 to provide the views on different parts of the value chain. This will be taken into account in preparation of BEREC's report later on. So, indeed, you also know that we are involved in following the legislative process of the DMA proposal. It's not totally the same, but there is a close link. And for the time being, we are monitoring very closely the legislative discussion on this initiative as well. We will provide an assessment in light of the dynamics of the negotiations with the legislators.

>> **Philippe Defraigne:** You're saying 2022 is not too late. Thank you Michel.

Let's go to the next question, which is also from MVNO Europe. It's on roaming. Could BEREC share its view on the recent proposal to modify the roaming regulation. Michel do you want to answer?

>> **Michel Van Bellinghen:** I can take that as well. Thank you. We welcome the review of the continuation of the regulation. This is a very good initiative. We very much agree with the principles set out by the Commission including the new features regarding emergency services, quality of services, and value added services as well. So in these new topics destined to allow end users to have more qualitative and informed use on their mobile phones in roaming, which is a very good thing. So we consider therefore that they represent an important improvement of the regulation, but it is just a preliminary view. We are currently assessing this proposal in more detail in order to provide input on practical aspects. We are also assessing whether some of the Commission's proposal should have further details either in the regulation or in BEREC's guidelines. We'll have a BEREC opinion, normally speaking within one month, at the beginning of next month, in May.

>> **Philippe Defraigne:** Thank you, Michel. Next question please. It's again on roaming. Maybe Dan you can answer. Will BEREC have a public consultation on its input to the new roaming regulation?

>> **Dan Sjöblom:** I can certainly have a start. This is a recurring theme for discussions with stakeholders. Of course, at BEREC, opinion is something that will be formed after having discussions within the group. And the way the different NRAs form their views can of course include discussing with stakeholders. Normally speaking we do not, as a rule, consult on our draft public opinions. It has happened that we have chosen to do so in the past. I'm not up to speed on whether this is one of those rare occasions where we believe there's a need for it, and where there is time for us to do so. Michel, maybe you can say something that has been discussed.

>> **Michel Van Bellinghen:** (shakes his head, no)

>> **Philippe Defraigne:** Ok, thank you Michel. Next question please. This is for you Annemarie as it's on the work programme 2022. Would you consider adding a point on roaming outside the EU? So this is a question from BEUC, the consumers. We had Monique earlier this afternoon, so BEUC is still with us. Should BEREC do something next year on protecting European consumers when they roam outside the EU, or the EEA I should say for our Norwegian friends and others.

>> **Annemarie Sipkes:** It is an interesting point that BEUC has made. I do think this is something we could consider. At the same time, we have to realistic about the capabilities that we have. At present, the European Commission is in the process of reviewing the roaming

regulations. So we seriously have to look at the capacity we may or may not have given the fact that if we have a change in implementing new rules, then that will take up a lot of our capacity. I think it's a very interesting point. I would be happy to consider it and discuss further. We do have a capacity constraint given the fact that the European Commission is at present reviewing the regulations and that will keep us busy.

>> Philippe Defraigne: Next question, please Simon.

>> Annemarie Sipkes: He may have too many to choose from, Philippe.

I noticed that we have received so many questions.

>> Philippe Defraigne: This is another question from BEUC asking how can BEREC help to improve comparison tools for bundled contracts. So BEUC is saying when you have to compare between two services, that's fine. But to compare two bundled contracts, it's more challenging. Can you help?

>> Annemarie Sipkes: Yeah, maybe I can take this as well because this is something that is also a suggestion for new work.

>> Philippe Defraigne: You are also working for ACM so you have more interest even than other regulators in protecting consumers.

>> Annemarie Sipkes: Yes, but as you can imagine, as incoming BEREC chair, I have to have a well-balanced working programme, so there is what I can do for ACM and what we can do in BEREC.

>> Philippe Defraigne: Behind your back, there is the Authority for Consumers and Markets, so you remind us all the time that...

>> Annemarie Sipkes: Well, this is basically to hide all the mess behind us. That's what you use a backdrop for (laughing).

Anyway, on bundled contracts, we've had a report in 2016 - that's quite a while ago - where BEREC has taken the point that the bundling can hinder transparency. 2016 is quite some time ago. I know that several NRAs have developed tools to increase transparency and I also know that regulators in other fields such as energy for example have done similar. We may consider discussing this as a possibility for next year, where we can for example exchange these best practices and see what we can learn. If individual NRAs would be interested to take some action then, of course, we should take the opportunity to learn from one another. This is again a suggestion I'm happy to take on board and review. Because the work from 2016 can probably do with an update.

>> Philippe Defraigne: Thank you, absolutely. Simon, next question, please. How can BEREC make the peer review effective and transparent? Who wishes to handle this? I don't know the context of this question whether it is the peer review in the context of the spectrum auction? Dan, you've touched upon that in the introduction, in your initial presentation.

>> Dan Sjöblom: I think I have essentially addressed the BEREC role in the RSPG peer review process and we contribute with the market knowledge and feel that we may add to that process. I don't really have much more to add.

>> Philippe Defraigne: Okay. Thank you. I'm sorry, I cannot see the context of that question. Sorry for the person who asked.

Next question. This is a question from ECTA. Essentially the context of this question is about too much focus on B2C markets. It's about BEREC taking more action to improve competition in B2B markets. And by the way, they say that 5G is by and large a B2B market. Do you want to have a go, Dan?

>> Dan Sjöblom: I can have a go. My colleagues can come in of course. Promoting competition is a core competence. It is really at the centre of BEREC's actions, and that's both B2B and B2C of course. I spoke about that in my earlier statements. I think there are many things we do, monitoring, reporting on developments, and I think by and large much of that works fairly well. You had a question for me about the profitability in Europe compared to the US for example. I think we are happy to have lower costs for electronic communications in that comparison. We're happy to see that there are still plenty of investments going in, not least into 5G, which is developing very quickly across Europe. Should we do more for B2B markets in particular? I'm not sure. I think we need to look equally at B2B and B2C, and that's in the programme we have.

>> Philippe Defraigne: Thank you very much. Next question please Simon. This is a very interesting question, which we got from Open Fibre during the afternoon. And, Stefan from the UN Statistics Office should have stayed with us. Open Fibre is asking whether the collection of data for monitoring progress against the digital decade targets - will all the figures come from DESI or will the Commission and BEREC have a separate collection of data? Essentially that's the question. Full coverage of 5G and available to all households by the end of the decade, these are the targets. Open Fibre asks how will the Commission or BEREC go about collecting the data. Will it be the normal way it's done for DESI or will there be a separate exercise? It's a question that just came now. I'm not sure whether you will be able to answer straight away.

>> Michel Van Bellinghen: I can start if you like, Philippe. I cannot speak on behalf of the Commission. I guess that Rita is not with us anymore. Of course we're not so involved in the DESI exercise and we have our own [inaudible 2:48:46] as described in our work programme. So,

if I remember the question correctly: do separate workflows remain or not? I think this is the case for the time being.

>> **Philippe Defraigne:** So it would be a different effort of collecting data, different from what is done for DESI?

>> **Michel Van Bellinghen:** Yes, there are different workflows.

>> **Philippe Defraigne:** Thank you very much. Especially after having Stefan with us for this afternoon, I now take statistics even more seriously than in the past.

Simon, next question please. What is BEREC's view on the final connectivity toolbox? Do you see it as fully utilised? Do you think that the connectivity toolbox is fully utilised or could you see other measures that could be leveraged to reach the ambitious target of the digital compass? It's a question from DT.

>> **Michel Van Bellinghen:** I can take this as well, Philippe. We very much welcome this initiative by the Commission. I would like to be in 2030 already to see what happens by then. Of course you will remember that we adopted last year a new strategy 2021 2025, and I will come back to that in a moment. In this strategy, we have one of the priorities regarding promoting full connectivity. And in this toolbox, the policies or priorities set out that digital cases are governed by the vision that connectivity is the most fundamental building block of the digital transformation towards the gigabit society. This is something we need for all parts of society in order to transition to a healthy plan and Europe's strategy for the digital decade. And looking back to the strategy 2021 2025, this reflects an identical conviction as well. And if I can just speak for one minute at national level in Belgium, this is also something we really welcome. In a previous session, a question was addressed to Dan regarding 5G in Belgium. Remember we also try as regulators to talk with different policymakers and to help speed up the rollouts because of the importance of connectivity objectives as a whole. We know there are different elements to connectivity. I'm pretty optimistic that for the telco operators, this toolbox will improve the rollouts in place. There are other initiatives that are very much welcome like, of course, the review of the Cost Reduction Directive. This is still underway. And the upcoming 5G plan as well. And mainly as a priority for BEREC, the correct and timely implementation of the Code. That's the reality; many Member States still have to transpose this Code into their national legislation. Back to you Philippe.

>> **Philippe Defraigne:** Thank you Michel. Simon, could you show the next question please. That's a question from Telefónica. Telefónica is asking will BEREC, as an input to the DMA proposal, elaborate on its view of the open Internet. And the fuller question that we received

reminds BEREC that the full Internet is not only telecom networks, that's an important part, but also other elements of the ICT ecosystem. Do you want to have a go with that Annemarie?

>> Annemarie Sipkes: Yes, please, thank you. We put out our opinion on the DMA proposal already, but we're still working on a report that we will finish at P4, we will finalise at P4. It contains several ideas and one of the things that we are thinking about is the relationship between the DMA proposal on the one hand and other acts or pieces of regulation that we are enforcing. And the open Internet is one of them. This is an issue that we are still currently considering as our work on the DMA proposal and our input are still very much underway. We will be finished only at the end of the year. We will take aspects of the open Internet on board. I am not sure whether we will go to the full extent of the question of Telefónica. As I said, one of the things we have to look into is the interplay between the DMA on the one hand and, for example, the Code and open Internet. So the acts that are within our remit are very much part of the thinking we are now undertaking and the conversations we are having with co legislators.

>> Philippe Defraigne: Thank you Annemarie. Next question please. It's again a question on BEREC transparency. We are now talking about market analysis - so phase 2 cases where BEREC or the Commission disagrees with one of your members and BEREC is called in to give an opinion. The question comes from ECTA. ECTA is asking if we could make this process or these phase 2 cases more transparent?

>> Annemarie Sipkes: Maybe I can start there because it was also part of the elements of our work programme that we have every year. So Dan and Michel will have similar experience. We explicitly mentioned the phase 2 cases under efficiency because, of course, the procedure here regards the goal we all have to harmonise the way we regulate the telco markets throughout the European Union and the European single market. These phase 2 cases are decisions we take on national decisions. These national decisions have already had the national involvement of the relevant stakeholders as well as, very often, public consultations. So in the process of these phase 2 cases, this is a whole different process on which the Commission has just published new guidelines. But the relevant involvement of stakeholders has already taken place beforehand at the national level. We do not foresee broad European consultation at that particular stage.

>> Philippe Defraigne: Thank you Annemarie. That's a very clear answer. Simon, I think there is one more question and then our time is up. We should probably stop there. I think it's a question from an analyst, Dean Bubley. I'm translating or paraphrasing... he's saying, is BEREC doing enough to cultivate all the 5G environment, but also alternative technologies that may emerge around unlicensed spectrum ecosystems? That's a way of translating this. Dan do you think BEREC is too 5G focused? Or is it doing enough to develop other ecosystems around WiFi 6 I think? It would be the contender.

>> **Dan Sjöblom:** Look, I think we are very much aware of the value of biodiversity, if we can say this. We want competition to take place between competitors that are not aligned in their interests, in their structures, in their capital availability, and so on. Smaller, bigger, newer, different technologies, I think we're very much attuned to that argument. Now, as it is, getting 5G implemented and up and running in Europe is a huge task. It's natural that we devote a lot of focus to that. We have it as a priority for this period up until 2025. It doesn't mean we're not interested in alternative technologies. I think we pride ourselves in trying to be technology neutral. If there are good inventions coming up, seeking access to markets where we can be helpful, I'm sure we will be [Inaudible].

>> **Philippe Defraigne:** Thank you for that contribution. Michel and Dan thank you very much for these answers. Annemarie you have a short transition video now and we'll see you in a minute for the closing remarks.

Congratulations for a great Stakeholder Forum. I'm not in the best position to comment because I was part of it, but I enjoyed it. Of course the parts on sustainability were a bit different from the other topics that are more classic, but overall I thought it was a very nice event. Over to you.

>> **Annemarie Sipkes:** Thank you Philippe for steering us through the tricky canal of managing everything on time. I think what we have tried to do today is to start the dialogue or continue the dialogue that we have. And I personally have gained a lot of insights and inspiration for the work programme 2022. So I want to thank all the participants, be they presenters, discussants or people who have asked questions, for their contributions because it helps us a lot. I also want to reassure everyone who has asked questions and who did not make it to this digital stage, that we will take them on board. And where appropriate we will forward them to the working groups that will take them on board, consider them and use them to their advantage. This again leaves me to thank everyone for having such an insightful discussion. I am really looking forward to our real-life Stakeholder Forum at the end of October where I hope to meet you again Philippe. So I hope that have you have already blocked your agenda for Brussels for the 28th of October of this year.

>> **Philippe Defraigne:** To meet in person hopefully.

>> **Annemarie Sipkes:** To meet in person.

>> **Philippe Defraigne:** Thank you very much Annemarie. Good evening everyone and we hope to see you on the 28th of October in person in Brussels.