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Panel session: Delivering digital equality - Meeting the target of 5G connectivity for all by 2030

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5G network deployment around the world progresses fast. The number of operators offering 5G services increased by 40% by December 2021 and it is expected that in the first quarter of 2022 more than 200 operators will have launched 5G services worldwide.

To meet European Commission's ambitious Digital Compass coverage target, asking all populated areas across Europe to offer 5G access by 2030, an efficient set of interventions, both on the technology as well as on the policy/regulatory side, need to be planned and executed in a timely manner.

5G is much more than 'just' our next generation mobile communications technology. In fact, 5G is less about our mobile phones and more about everything that surrounds them. 5G Fixed Wireless Access is an important example of such a 5G 'surrounding ecosystem' technology, offering reliable, high-speed connectivity; Instead of having to deploy fiber cables across each household or business, 5G based Fixed Wireless Access can offer a cost-efficient alternative that is particularly attractive for rural and semi-rural areas, and needs to be seriously considered as a complementary service to mobile 5G communications.

In Greece for example, with the country's morphology introducing many challenges in deploying fiber, such as a very large number of islands (more 170 of them inhabited) and large, sparsely populated areas in the mainland, 5G Fixed Wireless Access technologies can greatly help the country to meet its Digital Compass goals, delivering at 1Gbps access on each household and small business by 2030.

According to GSMA, by December 2021 there were 81 operators worldwide offering residential and small business 5G Fixed Wireless Access broadband services, an increase by 84% (from 44) since December 2020.

5G is also expected to contribute significantly to the reduction of the energy dissipation in several socio-economic activities, as well as the network's own power consumption, helping us to reduce our environmental footprint and contribute toward building sustainable and environmentally friendly telecommunication networks.

A prerequisite to meet this goal is to exploit the novel capabilities 5G brings in network design, abandoning the traditional radio deployment architectures of 3G and 4G networks. More specifically, big macro cells, that used to cover hundreds of users at the same time need to

progressively become ‘a thing of the past’. The focus should now shift to Microcells (serving 200 users) and Picocells (serving 50-60 users) that will be deployed densely in residential areas and will enable operating very low power RANs, since their signals will not have to travel for long distances or cross buildings/other physical obstacles to reach receivers at road level.

This will allow us to reduce the transmitted power (at radio level) by four times, and network overall power consumption by 80 - 90%, enabling the development of 'green' cells/base stations, which could even operate on renewable power collected at the point of use - with the help of a small power storage system. Working on a reference design for such ‘Green 5G micro/pico-cells’ with all interested parties, I believe would be a good idea in order to promote the development and availability of relevant equipment, setting an ambitious target for Europe to become the region with the greenest 5G network in the world.

Additionally, and equally importantly to 5G infrastructure, we also need real 5G applications in our economies. After all, the European Commission’s Digital Compass define infrastructures as a means to the goals of promoting citizens digital skills, digital business and digital governance and not as a goal of its own.

We need 5G in transportations, in logistics, in tourism, in industrial applications. We need ‘revenues’ from 5G in our economies. We need 5G to enable the manufacturing and offering of more competitive products and services. We need the 'economically contributing part' of the technology in our economies and not only the consumption related one.

If we wanted a KPI for that, we could say that for every GB a subscriber consumes watching her favorite TV series on mobile, there must be (at least) one/another GB that produces value that is eventually integrated in a product or a service. One GB on a 5G corridor, one GB that communicates the history, culture and artistic wealth of a country to its visitors. One GB for ‘smart city’ lighting and parking management applications that save energy, fuel, man-hours.

5G has still a long way to go before it reaches its full potential, but early initiatives on 6G are already on their way. Lessons that will be learned from 5G, especially in the use of millimeter-wave frequencies, will play, without a doubt, a key role in our wireless future, so it is critical to make sure today that, when deploying 5G networks we will tend to utilize their full potential and will accept the challenge to move beyond the traditional ‘high mast’ antenna RANs/our comfort zone.

We need to start thinking in ‘hyper-dense’ network terms, consider small-cells as the most important paradigm-shift of our decade in radio network planning and embrace it as such. We are approaching a point where our most important network performance metric (speed) will become irrelevant.

Information will eventually become ‘instantly’ available so the key economic incentive that has been driving the market for at least two decades will soon cease to exist, so the real-life Applications mentioned earlier, are not a luxury, or even an option, but a necessity – we have to prove that we can put all this extra speed and functionalities in good use, if this industry is to stay as vibrant as it is today in the exciting decades to come.