BTG Response to consultation RSPG "6G Strategic Vision" Issued 15 November 2024.

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Introduction

BTG is an user interest association in the area of ICT and Telecommunications in the Netherlands. BTG represents the interests of Dutch enterprises and organizations dependant on communications services, since 1986. Amongst others, BTG organizes network meetings for sharing knowledge and experiences. BTG counts 180 members from business and governmental organizations and represents these organizations nationally and internationally. BTG is member of the INTUG. BTG interconnects organizations and is actively lobbying between governments, suppliers and members in the area of ICT and Telecommunications. BTG has recognized, and fully supports the strategic value of digital infrastructures for the development of the digital society. Within the BTG association, expert groups are in place where members are sharing interests, knowledge and experience.

Figure 1 provides an overview of BTG's interest groups, demonstrating the breadth of BTG's involvement.

Figure 1. Overview of BTG Expert Groups

The BTG response

This response to the EU Radio Spectrum Policy Group questionnaire on the 6G Strategic Vision has been drafted in close concert with the BTG members, from the perspective of the ICT user, the demand side of the market. BTG membership covers the demand and the supply sides of the market In this consultation response, in case there is a conflict of interest, specifically the demand side opinion has been expressed.

This BTG response is not on behalf of the telecom network operators in the Netherlands.

General opinion of BTG

In the present market situation, in relation to frequency spectrum, MNOs have been focusing on supplying enough capacity for the exponential growth in mobile data consumption of the mass market. 5G was expected to be the technology that has the capability to provide differentiated services that also match specific vertical user needs. We recognize that this technology capability is very slowly translated into specific services that match specific vertical user needs. We propose for

6G that RSPG evaluates the lessons learned of 5G not only for the frequency spectrum part, but also for the development of 5G services . User organizations will adopt new technology capabilities at the moment that they match with their business needs. When there is a mismatch between demand and supply, this adoption will be delayed until the match is there. A lack of knowledge of new technology capabilities in user organizations will also be a reason for that adoption to be delayed. This can be solved by providing training facilities on the 5G and 6G technology capabilities and help user organizations in translating technology capabilities into business opportunities.

The majority of 5G MNO services in Europe is still based on the 4G technology, enhanced with 5G NSA. The full 5G capabilities of 5G SA are still very scarce in terms of available services on the market, even 5 years after the commercial introduction of 5G.

BTG recognizes under their members the need for local/private spectrum to fulfill specific user needs, especially for mission and business critical environments. It is expected that also in 6G, vertical service specific needs will require the use of private spectrum.

Another subject important for BTG members is indoor mobile connectivity. Indoor mobile broadband coverage at adequate capacity is essential for end users. The experiences till now are that MNOs are focusing on the outdoor coverage obligations that regulators have posed in their spectrum licenses. Indoor connectivity is at the moment already a bottleneck, especially on indoor coverage solutions where the coverage of all MNOs is required to be available. Special attention in the RSPG 6G strategy to regulatory aspects ensuring indoor coverage would be welcomed by BTG.

In 6G the technology will bring new capabilities. The lessons learned of 5G are important in the introduction strategy of 6G. BTG requests in developing the strategy for 6G to not only take the spectrum lessons learned into account but also the current slow and limited development of 5G services.

Detailed remarks

BTG has responded in this consultation on text details by quoting the text of the RSPG document followed by the opinion or remark by BTG.

1. Page 3: "Researchers propose that spectrum sharing between MNOs and local/private networks needs to be incorporated into 6G spectrum discussions from the beginning of the technology development phase and not be a restriction posed afterwards."

   BTG views this as a highly interesting approach. Of key importance for such sharing cases is the available throughput capacity, and the impact on achievable service availability, reliability and quality of service.
   Regulatory mandates could be used to achieve minimum QoS and reliability standards for spectrum sharing scenarios with quality benchmarks and operational safeguards for critical applications (e.g., priority access for mission-critical use cases such as remote control for heavy-duty autonomous-vehicles). This approach can make spectrum sharing (e.g. using dynamic spectrum management tools or AI-driven sharing frameworks aligned with future 6G user needs) successful for specific vertical user needs.
   We recommend that standardization bodies like 3GPP, ETSI and European harmonized regulation policies increase their focus and responsiveness to the needs of specific vertical users and local/private networks when addressing spectrum sharing options.

2. Page 6: "Therefore, for the above reasons RSPG recalled that the adoption of 5G SA is occurring slowly and unevenly among European MNOs. However, the expectation is that in the coming few years Europe will catch up with the other major regions regarding 5G SA, motivated by improved technology maturity, a better developed device ecosystem and a growing demand among enterprises for more advanced use cases requiring genuine 5G."

   In order to increase the demand from enterprises, it seems necessary to better inform those of the potential benefits and capacities of 5G. In our view there is a gap in knowledge at the various market parties, that will need to be addressed.

3. Page 8: "The launch of 5G in Europe supported by 5G NSA radio components benefits from current network infrastructure in place supporting 4G and also fixed wireless access (FWA). Evolution towards 5G performance, including network slicing, is currently on going as mobile operators in some MSs are starting to migrate their core networks towards 5G SA."

   The meaning of this text is not understood in a section discussion locals and verticals.. BTG proposes to delete this text.

4. Page 15: "Networks to serve this usage scenario could be built in the low bands (preferably with carrier aggregation of networks < 1 GHz)."

   It is not clear why this is considered to be preferable. The current suggestion indicates the use of small frequency blocks in the <1GHz range. However, BTG proposes reallocating these small frequency blocks into wider blocks, as this would lead to higher available throughputs and lower implementation costs.

5. Page 16: "With its requirement for technology neutrality and the implementation of least restrictive technical conditions ECS spectrum policy supports the idea of sustainable spectrum use."

   BTG observes that CEPT/ECC coexistence studies tend to only address a single technology implementation when defining a new frequency band, (e.g. only 4G / 5G), usually based on the specific operator usage request. BTG would like to suggest that is such cases also other available technologies would be considered (e.g. 5G/6G, DECT2020, etc) to further technology neutrality and sustainability.

6. Page 28: "Serving the unconnected is still a challenge. Making spectrum available where and when it is not used by existing holders of spectrum usage rights is still not a reality widely"

   In the BTG view it would be advisable to stimulate such use of spectrum that is not actually used by the spectrum holder. The RSPG position on this may stimulate national regulators to improve on such usage options.

7. Page 29: "Neutral hosts: Build and operate (indoor) radio networks and rent capacity to network operators. Deployment choices affect spectrum use."

   It is not clear who those network operators are: public mobile network operators, or also operators of local private networks. BTG view both types of operator as potential users of neutral host networks.

8. Page 29: "Rights of use can be assigned by the NRA in spectrum bands that are cleared from incumbent use as well as in spectrum bands that are in use by MNOs or by other incumbent spectrum users where additional licenses can be awarded by the NRA locally."

   BTG is of the opinion that shared spectrum use should be made possible for local networks, dependent upon the usage characteristics of the primary spectrum user.

9. Page 30: "the stakeholder that acquires access to local spectrum and does not have personnel that is trained to build and operate a 5G/6G network must turn to an MNO or a third party with the appropriate expertise (could be a manufacturer or a systems integrator)."

   BTG views this text is too much MNO focused, and proposes to change the text to read : "turn to a third party with the appropriate expertise (could be a manufacturer, systems integrator or MNO).
   BTG believes that, in addition to the existence of an ecosystem of equipment vendors (network and mobile devices) as in earlier xG developments, an ecosystem of specific services related to user needs is required, where integrators and MNO's are working together in matching specific vertical user needs. This development was expected with 5G, but has been delayed, most likely due to the MNO focus on the capacity needs of the mass market. With 6G it is possible to benefit from the lessons learned with the 5G services development in the spectrum policy. Knowledge- and training programs for vertical user organizations can help to accelerate the adoption of new technology.

10. Page 30: "the stakeholder that acquires access to local spectrum and has personnel that is trained to build and operate a 5G/6G network can do so without the aid of an MNO or other third party."

    In line with the previous comment, BTG propose to delete "an MNO or other".

11. Page 30: "Coverage is crucial. Indoor coverage as well as remote and rural area coverage present challenges and should be a priority in the 6G era, as highlighted in ITU-R's IMT-2030 work. They benefit from different technology and regulatory solutions."

    BTG observes that in many, if not most, EU countries the MNOs only have an obligation to provide outdoor coverage with their networks. This is one of the reasons why thus far indoor coverage is not part of an MNOs service. Indoor coverage normally is created by indoor solutions owned by e.g. the building owner. If for 6G indoor is regarded as a priority, BTG

recommends RSPG and the national regulators to establish indoor coverage obligations in addition to the current outdoor coverage obligations for MNOs.

12. Page 32: "Principles of license-exempt spectrum use are open to different technologies, including 5G/6G."

    To avoid the perception of any technology preference, BTG proposes to not only mention 5G/6G but also WiFi, Bluetooth, Zigbee, DECT, etc.

13. Page 33: "It is importance of understand different sustainability perspectives, which are interrelated, and state the limitations when focusing on a specific perspective:"

    This text is not clear, possibly some words / text is missing here?

14. Page 38: "There will probably be a need for 6G to offer coverage and capacity in mid-bands noting that 6G is requiring larger bandwidths than 5G."

    BTG observes that spectrum blocks currently allocated for usages other than MNO / ECC may be too small to enable 6G services.. Introduction of 6G for such usages may require that on a European level and/or national regulator level make available wider spectrum blocks. This could lead to re-farming of spectrum ranges.