White Paper

2G and 3G Networks Sunset

Last call for comments on "Public consultation on the Draft BEREC Report on practices and challenges of the phasing out of 2G and 3G"

Just a few days more to send comments regarding concerns on new situation after old networks shut down. With no doubt 2G and 3G networks shut down will bring some issues, specially to MVNOs that are not in control of those networks, and are a passive player in the process, but need to adapt their networks, and offerings to this new situation.

Just a few weeks ago, during the 55th BEREC plenary meeting (8 June 2023), the Board of Regulators approved the draft "BEREC Report on practices and challenges of the phasing out of 2G and 3G" for public consultation. Do not miss the opportunity The deadline for submitting comments ends on August 14.

Berec's report analyses at high-level some of the main issues faced by different stakeholders, about such 2G and 3G networks phase out, with a main focus on the potential impacts on end-users.

This whitepaper aim is to catch MVNOs attention.

It is really illustrative the map depicted in executive summary of potential challenges with 2G and 3G phaseout:

Goals	Means	Challenges	Examples	Impacts
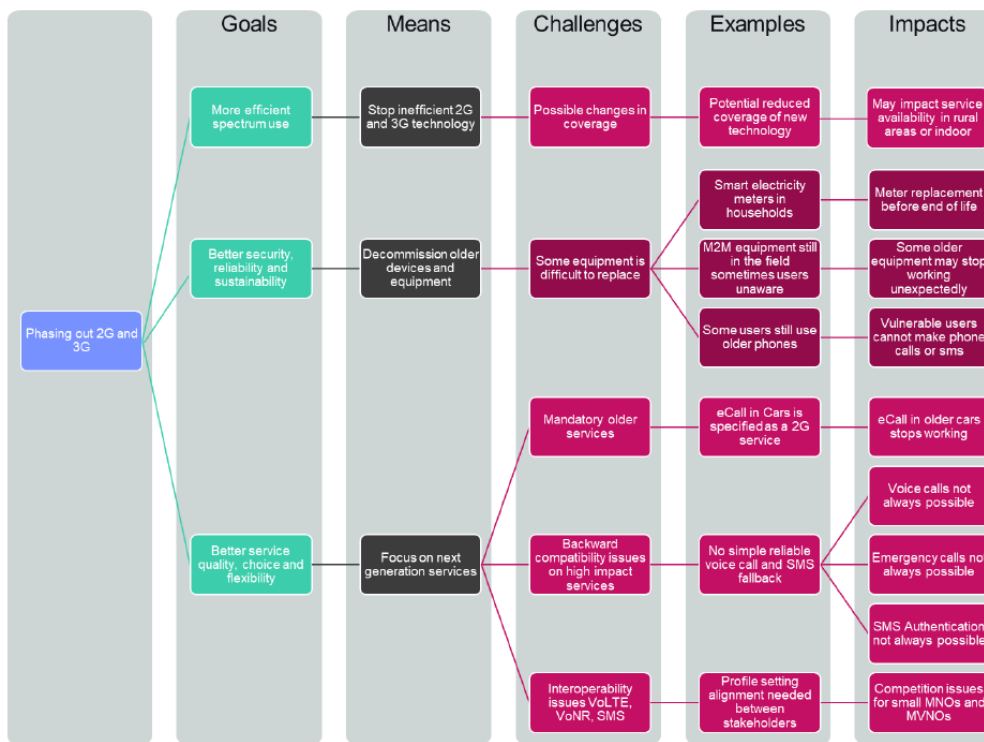
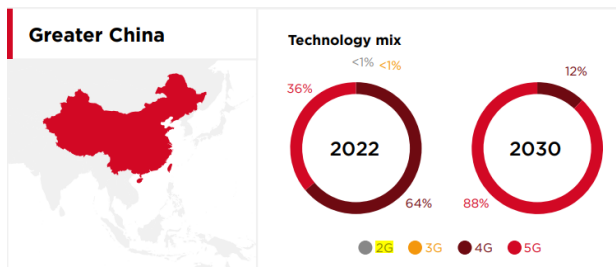Source: BEREC "Report on practices and challenges of the phasing out of 2G and 3G"

It is not the first time that a technology is phase out, but probably we can't find a previous calendar for a global shutdown so extense regarding such wide adopted technologies sunset as the case of 2G and 3G. After this phase out, in many cases, no fallback will be possible anymore. In prac-tical terms. this means that a number of older devices and services that do not support 4G and beyond will not be supported anymore.

To understand the impact, let's have a look to the current situation for 2G . 3G networks worldwide:
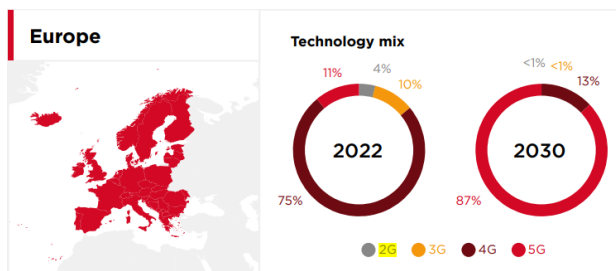
According to GSMA's "The Mobile Economy 2023" report:

To date, operators have announced plans to shut down 96 2G networks and 107 3G networks around the world.

But the speed on shutting down such networks and the consequent impact will vary from region to regions, as we can see in the report there's a huge penetration difference for 2G and 3G among such regions:
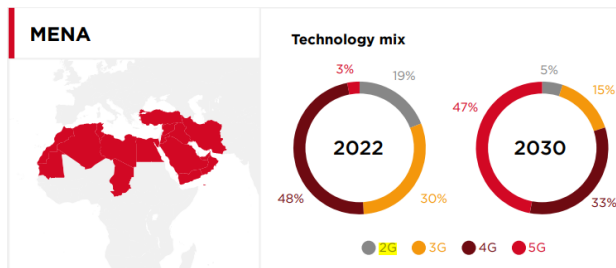
Greater China

Technology mix

2022: <1% 2G, <1% 3G, 64% 4G, 36% 5G

2030: <1% 3G, 88% 4G, 12% 5G

Legend: 2G, 3G, 4G, 5G

Source: GSMA "The Mobile Economy 2023"

Europe

Technology mix

2022: 4% 2G, 10% 3G, 75% 4G, 11% 5G

2030: <1% 2G, <1% 3G, 87% 4G, 13% 5G
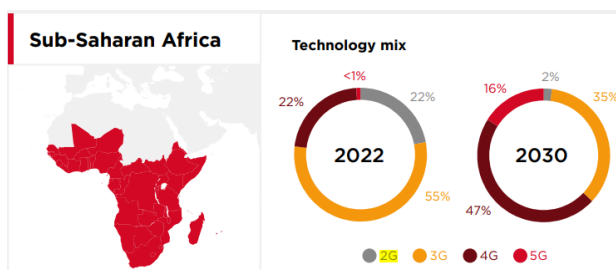
Legend: 2G, 3G, 4G, 5G

Source: GSMA "The Mobile Economy 2023"

Greater China and Europe 2G and 3G networks weight in technology mix is really low, as depicted in above, while in Middle East, and North Africa we can see a significant weight, an even much more in Sub-Saharan Africa.

MENA

Technology mix

2022: 19% 2G, 30% 3G, 48% 4G, 3% 5G

2030: 5% 2G, 15% 3G, 33% 4G, 47% 5G

Legend: 2G, 3G, 4G, 5G

Source: GSMA "The Mobile Economy 2023"

Sub-Saharan Africa

Technology mix

2022: 22% 2G, 55% 3G, 22% 4G, <1% 5G

2030: 2% 2G, 35% 3G, 47% 4G, 16% 5G

Legend: 2G, 3G, 4G, 5G

Source: GSMA "The Mobile Economy 2023"

These differences clear determine that handsets technology, aligned with such technology mix, will determine the services issues that subscribers in those regions could face when travelling abroad, to those countries where 2G – 3G networks will disappear in next coming years, and vice versa, as new handsets generation should maintain backwards compatibility to ensure a proper service when visiting such regions.

And what's the problem we are facing out?

There are several cases well described in Berec's document, we will call the attention on emergency calls, impacting any subscriber:

As stated in EENA (European Emergency Number Association) publication, current 4G standards do not ensure compatibility and interoperability between all devices and networks for VoLTE services. Consequently, users of these devices and networks are unable to make voice calls based on VoLTE (4G), including voice calls to emergency services. This becomes particularly problematic when 2G and 3G networks are phased out and there is no fallback solution to provide a legacy voice service.

Over the last months, several Europeans roaming in the United States have experienced this issue. In the future, this may also occur in Europe when 2G and 3G networks are phased out and if nothing is done to ensure a full interoperability of all devices and networks on 4G.

But what about MVNOs?

When an MNO phases out 2G/3G network technology, an MVNO operating over the MNO's network needs to adapt or otherwise move to an MNO still providing 2G or 3G. As set out in the Wik Study, consumer MVNOs have a higher proportion of their customers focus on in-store purchase and/or have handsets which do not support 4G or 5G, than in the case for traditional MNOs.

Nevertheless, we need to keep in mind, that 2G and 3G interoperability should be supported while networks on these technologies continue active.

MVNOs, depending on their selected business model, Light, Full, etc., own and control fewer key components than their hosts. Even in the Full MVNO model they fully depend on the information of MNOs about phase out schedule and standard compliance of their equipment.

MVNOs do not always have access to all features of MNO mobile technologies, and it is very dependent on their contracts the technologies available to them, that could become in the need to have to renegotiate with host MNOs to use.

Smaller MVNOs also struggle to bargain with large smartphone suppliers in relation to the necessary profile settings to ensure continuity of operation in case of 2G/3G phaseout.

Also in the WIK Study, IoT MVNOs reported that a non-negligible proportion of their devices are based on older technologies such as 2G and 3G. For example, applications such as telecare alarms or payment terminals run on 2G connectivity – sometimes retailed by an intermediatory so MNOs or MVNOs do not have precise numbers of active devices in operation.

While many MNOs report that the rollout of VoLTE is going well, for MVNOs one important problem is though the time-consuming process to verify terminals by manufacturers, in such cases that they have such capacity, or the cost associated through their technology suppliers. In many cases, when following MNO handset offering the process simplifies, but for any other handsets the task becomes very complex.

A handset by itself may have some limitations on which standards can be used, due to manufacturer choices of the hardware and firmware, and in many cases some handsets for low end subscriber come from manufacturers with a very limited support, and documentation.

A handset must also be configured and tested with the specific implementation of the VoLTE standard in the home network. If sold, we see in some European markets that this offering from MNOs is gaining some traction again, by the MNO/MVNO this process can precede the taking into use of the equipment. When equipment, not sold by the MNO/MVNOs, is used on their networks, the testing process may be complex and burdensome, and the network operators are dependent on the handset manufacturers for the present network profiles in their software to be compatible with their respectable networks. A possibility to update the equipment configuration is part of the solution, but because this requires user acceptance and installation, and also some technical knowledge, end-users may have varying abilities to satisfactorily complete such a process.

A good result from BEREC's comments is the view that resellers and MVNOs (and smaller MNOs) should not be discriminated against in relation to setting and implementing profile alignments in standards for VoLTE, VoWiFi and VoNR.

BEREC therefore, emphasises that device vendors and network operators (and standards bodies) should ensure that such cooperations align with non-discriminatory competition principles.

To close this white paper, do not miss the date… The public consultation will run from **14 June 2023 to 15 August 2023**.

All stakeholders are invited to submit their contributions to the following e-mail address: PC_2G3G_phaseout_Report@berec.europa.eu .