

5G Briefing Istanbul

8-9 May 2018

www.5Gbriefing.com



SUMMARY

The 5G Briefing series differentiates itself from a crowded telecoms conference market by not only providing a comprehensive understanding of the future of mobile networks but also determining the business, economic and technical needs for 5G, its supporting technologies and spectrum needs. It ensures that new technology developments are seen in the true context of users, services, and the stakeholder ecosystem.

5G Briefing 2018 was launched in Istanbul May 8-9 as a one-day workshop followed by the main conference. Turkey was chosen for this inaugural event due to its vibrant, fast-growing and highly competitive mobile market, where all three network operators were amongst the world's first to launch the latest 4.5G LTE-Advanced Pro technologies with each now preparing their respective roadmaps to introduce 5G.

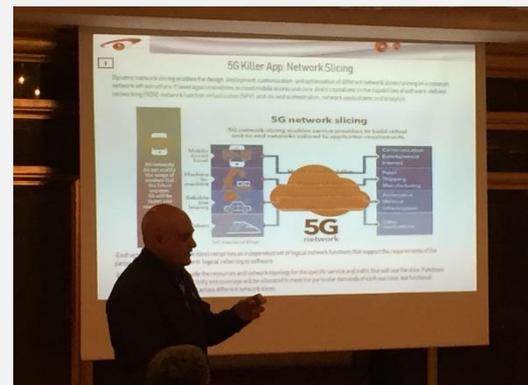
WORKSHOP

The conference brought together senior representatives from across the 4G/5G ecosystem and built on the previous day's **Workshop** (chaired by Sadiq Malik) which explored views on what is 5G, its differentiation from 4G, the players, and why 5G is so important. 5G, the next generation of mobile technology, is expected to completely reshape entire industries, and cause a rethink regarding how we run our cities and manage critical national infrastructures. It will be far more capable and efficient than previous generations and will enable the real Internet of Things to emerge.

5G is generally considered as a technology, a business, and a social phenomenon which will have the potential to transform our lives and lifestyles and realise Industry 4.0. 5G will be an essential infrastructure upon which all industries will rely for connectivity.



Sadiq Malik, author of 5 books on Telco strategy, specializes in the design and delivery of customized consulting solutions that balance the technical, commercial and financial imperatives to ensure breakthrough performance for Telco's in EMEA



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CONFERENCE

So, on to the one-day main conference (chaired by Alan Hadden), which opened with 5G put into context as the next essential step in the development of mobile communications, for which developments are progressing worldwide. Around 134 operators in 62 countries were reported to be engaged in demonstrations, tests or trials of 5G technologies and this figure increases every week. Most stakeholders considered that eMBB (Enhanced Mobile Broadband) is the priority use case for initial 5G deployments, for which smartphones and other devices are anticipated in the market during 1H 2019.



[Alan Hadden](#)

developed, researched and wrote many of the mobile industry key reports becoming standard industry references including, for example, the Evolution to LTE and Status of the LTE Ecosystem reports

However, 5G is seen in a broader sense than just 5G NR and eMBB. The next generation will herald integration of multiple industries, not just telecommunications. Today's networks allow for a step-by-step introduction of emerging use cases including those requiring ultra-low latency (URLLC, around 1 Ms latency) and mMTC (1 million users per sq. km) technologies, which will be covered in later 3GPP specification phases for the full standalone 5G system. However, it was stressed that while many operators mainly focus on eMBB, the deployment of 5G key capabilities needs to start immediately within a clear "5G Migration Plan".

Networking Slicing – the Killer App?

In technology terms 5G's "killer app" arguably is network slicing. Network slicing is a key differentiating feature and a foundational technology of 5G which will enable a wide range of new use cases. However, challenges remain regarding standardisation; the number of slices an operator may offer; and assuring the required QoE and integrity between multiple services for which slices are allocated.

In Turkey, the regulator (BTK) is working with the network operators and industry for the introduction of 5G supported by national allocations of technology neutral spectrum. Its draft mobile broadband spectrum strategy is currently at the public consultation phase and supports the bands identified in the CEPT Roadmap for 5G for the short-term (694-790 MHz and 3400-3800 MHz), as well as for the medium-term (26 GHz and above).



Turkcell said it has moved to be an “experience provider” and highlighted the importance of 5G to support new business models and capacity needs, with information about its various demonstrations and trials activities and its participation in, and contributions to the work of the NGMN Alliance. Turkcell indicated its likely commercial 5G services launch date of early 2021.



Vodafone Turkey is also getting ready for 5G which it believes encompasses 4.5G evolution with Non-Stand Alone 5G NR. Several 5G-related technology trials have been successfully completed. Radio sites have been prepared for future 5G service, massive MIMO is being deployed on 4.5G network to support a smooth migration to 5G, and the transport is similarly being prepared with 5G in mind. Network slicing can start with 4G/NB-IoT. All functions can be virtualised and use their existing core for initial 5G deployments.



Türk Telekom is migrating to a single multi-purpose network working closely with its subsidiary vendor Argela/Netsia, aiming to reconcile conflicting requirements of low latency use cases and eMBB by using cloud computing technologies.



Operators who have deployed 4G systems, particularly those to have done so most recently, need to recover their investments before committing to significant further outlays for 5G, a point clearly made by **Tambora Systems**, who also urged operators to try out new service ideas and business models as soon as possible using 4G and not delay until 5G. Simply start with something that can already be done – even network slicing can be offered today, echoing Vodafone’s call. The opportunity to reduce costs and build scale should be taken at the earliest juncture. Operators should think about using network components and ingredients in different ways to sweat 4G investments as far as possible.



Telefónica Germany provided key insights into future spectrum assignments by ITU for 5G, which is a key goal for the forthcoming WRC-19 spectrum conference, as well as the working procedures and related expert studies. WRC-19 will have to conclude discussion on the new 5G spectrum bands, which needs both higher and lower frequencies bands to meet multiple use case scenarios. Detailed information was provided at the global and European level for necessary spectrum below and above 6 GHz. Below 6GHz there is strong potential for harmonization in the C-band, while considerations above 6 GHz should focus on 24.5-27.5 GHz, 40,5-43.5 GHz and 66-71 GHz. 28 GHz is pre-set by USA, Korea and Japan. A global eco-system is possible as the upper part of 26 GHz (26.5-27.5 GHz) will overlap with 28 GHz.



Telecom Italia (TIM) considers 5G as a platform for new business scenarios and reported on their 5G initiatives including trials, and new partnerships including laboratories and focus on the ecosystem to facilitate introduction of 5G, targeting 2020 service launch. 5G technology trials are in progress in Torino, Bari, Matera and San Marino using spectrum in the bands 3400-3800 MHz and/or 26-28 GHz depending on location. Use cases being explored include personal guides (VR), public safety (drones), environmental monitoring, smart cities, and connected factory in the Cloud.



3 UK continued the theme of network transformation from 4G to 5G. The existing mobile technologies are getting closer to the theoretical limits. Therefore, operators need to find different ways to increase the cell capacity, by deploying multiple antennae, more spectrum and increased site density. 3 UK is already embracing virtualisation in the 4G network and deploying 4x4 MIMO. Backhaul is crucial. Three is partnering with connectivity supplier SSE Enterprise Telecoms to begin putting in infrastructure for the future 5G network.



3GPP @ 5G Briefing

Progress and roadmap of the 5G standards work was presented by **3GPP**. The key 5G Core technologies are:

- Virtualisation (NFV) – de-couple logical function from hardware
- Slicing – logical end-to-end networks tailored to customer needs
- Edge Computing (MEC) – resources where they needed (URLLC)
- Orchestration – programmable flexibility (SON)
- Exposure (API) – 3rd party access to 5G services
- Service Based Architecture (SBA) – stateless, open, flexible
- Harmonised Protocols & Access Agnostic – generic solutions



Each was discussed. Together with IoT, Cloud, satellites, VR and AI, a vast array of new services are enabled, as highlighted by many other speakers. The 5G 3GPP standards releases and key dates are:

Release 15	Release 16
Stage 1 freeze: June 2017	Stage 1 freeze: Dec 2018
Stage 2 freeze: December 2017	Stage 2 freeze: June 2019
Stage 3 freeze: June 2018	Stage 3 freeze: Dec 2019

This is a clear roadmap and offers clear deliverables. There's no doubt that, while early use cases are taking shape, there is industry commitment to a full realisation of 5G – which is essential to enable stakeholders to capitalise on the opportunities it affords.



The final presentation, given by NEC, discussed the enhanced security capabilities of 5G and their importance for the initial eMBB use case anticipated by most operators for 1st phase deployments, and features in the pipeline for the subsequent URLLC and mMTC applications/use cases.



Interactive Panel Sessions

Two panels were conducted during the conference.

The first panel was moderated by **Guy Redmill** on the topic “**From 4G to 5G**” discussing how and when will 5G services launch and markets develop together with 4G/LTE - LTE Advanced Pro systems. O2 Czech provides FWA to around 10% of its customer base and anticipates growth to 50% by year 2020, all enabled using LTE. Vodafone Turkey stated that 5G will make it easier to guarantee service for its customers. Ericsson said FWA can be delivered with massive MIMO using LTE-Advanced Pro. Ericsson also noted that in Turkey all three mobile operators have NB-IoT capabilities today. 3GPP urged stakeholders to go with technology that is guaranteed to be updated i.e. 5G, but cautioned although network slicing is a key feature it represents a big commitment. Tambora Systems said that slicing, importantly, can attract new stakeholders and create new business models – and, crucially, deliver new value.



Guy Redmill, Managing Director of Redmill Marketing Associates, a specialised strategic marketing consultancy, RMA provides expert marketing and analysis services for emerging technology, software, IT and telecommunications companies.

The second panel (moderated by **Alan Hadden**) considered **5G performance expectations**, in particular, what are realistic expectations for ultra-reliable and low-latency communications. The point was made that utility companies will rely on 5G to be available everywhere at all times. This would be extremely challenging and not realistic in the early years and therefore there is a huge action point on all to involve, inform and educate verticals about what should be expected and when.

Similarly, with respect to the automotive industry, the telecoms players need to forge close partnerships and improve the cross-industry flow of information. Initial low latency use cases may be found in factory environments, where a key driver is the high cost of site cabling and for which 5G can provide a cost efficient low-latency solution.

All the presentations from the conference are available for purchase at <https://www.tickettailor.com/events/hansecommediacommunication/169179> for 190 Euros

The next 5G Briefing will be held in Germany in December 2018

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