

REPORT FROM THE NEXT GENERATION MOBILE NETWORKS ALLIANCE

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NGMN HISTORY AND MILESTONES

The Next Generation Mobile Networks Alliance (NGMN) was founded by leading international mobile network operators in 2006 with the objective to ensure that functionality and performance of the next generation mobile network infrastructure, service platforms and devices will meet the requirements of operators and, ultimately, will satisfy end user demand and expectations.

NGMN actively drives the global alignment and convergence of technology standards and industry initiatives with the objective to avoid fragmentation and support industry scale. A global presence has been established that comprises a leadership network of more than 80 partners: operators, vendors, software and consultancy companies, vertical industry representatives and research institutions. In addition, several cooperation partners support the NGMN Alliance in projects and by two-way liaison.

NGMN has had a central role in the definition of operator requirements, which has contributed significantly to the overall success of LTE. LTE has become a true global and mainstream mobile technology.

NGMN published its first 5G White Paper in 2015, providing an operator vision of 5G and serving as a guideline for 5G definition and design. Since then, the white paper has been referenced by standards development and industry organizations when producing 5G specifications and promoting the 5G ecosystem.

Building on NGMN's first 5G White Paper, NGMN published its second 5G White Paper in 2020. The paper emphasizes key actions to support the continuing delivery of the 5G promise, in terms of enabling new business models and opportunities, and achieving the required agility to meet a myriad of requirements from existing and new users.

The NGMN 5G White Papers serve as a guideline for 5G definition and design, and also provide insight into areas of further exploration by NGMN and other industry stakeholders.

NGMN ADDRESSES THREE MAJOR INDUSTRY CHALLENGES

With its new strategy, decided beginning 2021, NGMN focuses on three topics that are of major importance to mobile operators as well as to the industry's whole ecosystem: Mastering the Route to Disaggregation, Sustainability and Green Future Networks, and 6G as well as supporting 5G's full implementation.

Operators are facing challenges on their Route to Disaggregation, Cloudification and Softwarization. One burning topic in this area is the design and execution of effective new E2E Operating Models. Green Future Networks is another highly important topic the industry ecosystem needs to jointly approach. In addition, early work on 6G has started.

Therefore, NGMN has streamlined its Work Programme to focus on these three extremely relevant topics to deliver significant impact in 2021 and beyond. At the same time, the alliance remains committed to further support 5G's full implementation.

THE NGMN 6G VISION

NGMN believes that the continuing evolution of the mobile industry, and the underlying technologies, must be guided by the imperative to safeguard the three fundamental needs facing the society at large, and the telecoms industry in specific, namely:

- **Societal Goals:** Future technologies should contribute further to the success of a number of United Nations Sustainable Development Goals (SDG) such as: environmental sustainability, efficient delivery of health care, reduction in poverty and inequality, improvements in public safety and privacy, support for ageing populations, and managing expanding urbanization.

- **Operational Necessities:** There is a strong need to enhance efficiency in planning, deployment, operations, management, and performance of the mobile operators' networks.

- **Market Expectations:** Customer requirements need to be satisfied by offering new services and capabilities, supported by evolving technologies in a cost-effective manner.

WHAT RESEARCH NEEDS TO ADDRESS AND PRIORITIZE

For a healthy and vibrant ecosystem, interdisciplinary research and innovations play an essential role. Therefore, NGMN recommends that research, and the development of future ecosystems, should prioritize the following key challenges:

- Address societal and environmental needs, including well-being, prosperity, sustainability, trust, safety, affordability, resilience and inclusion. Advance enablement of digital transformation and automated industries to address future market needs, with expanded and differentiated opportunities, operational efficiency, productivity, sustainable business and return on investment. Some examples of attributes and design considerations are indicated below more specifically.

- Introduce new human machine interfaces that extend the user experience across multiple physical and virtual platforms, sensing, and immersive mixed realities for a variety of use cases, including the use of large bandwidths in existing and new spectrum bands.

- Advance enablement of seamless multi-access service continuity, using terrestrial and non-terrestrial networks, and provide coverage across land, sea, and sky, efficiently addressing any traffic and connection density.

- Ensure cost and energy efficient delivery of heterogeneous services that have extremely diverse requirements, under the stringent constraints of energy consumption and carbon emission limits and toward achieving the goals of sustainability and carbon neutrality.

- Advance and build from design the forward-looking capabilities introduced with 5G such as disaggregation and software-based agile, cognitive and autonomous networks, to ensure the introduction of new technology plug-ins in both the network and the user terminal/interaction mechanisms, that are market driven, support innovation, and create new value opportunities;

- In support of AI by design, develop an energy and cost-efficient structure that is highly scalable, flexible, and portable, allowing abstraction and distribution of complexities, development of digital twin representation, and embedded intelligence. Identify appropriate AI-based frameworks, with the objective of supporting value creation and delivery, resource allocation optimization, and sustainable deployment and operation, among others.

- Address future demands through the support of regulatory systems and harmonized and coordinated global standards and ecosystem, in accordance with developmental considerations outlined above, that ensures interoperability, sustainability, and massive economies of scale supporting value creation and delivery by MNOs and their partners, in a broad ecosystem.

NGMN has a track record in substantially paving the way for 4G and 5G being adopted by the mass market and end-consumers globally and is best positioned to have the same impact for 6G to the whole ecosystem. Therefore, NGMN establishes and maintains an ongoing and continuous dialogue with its representatives at all times. NGMN will actively drive the global alignment of technology standards and industry initiatives with the objective to avoid fragmentation and support industry scale, for the benefit of the global society benefit and the global ecosystem's stakeholders.

BIOGRAPHY

ANITA DÖHLER has more than 25 years of experience in various telecommunication fields including more than 16 years of senior management responsibilities with operators of mobile communication networks. In addition, she has extensive experience in new business development and innovation, ecosystem- and partner management, standardization, technology strategy and product management, digital transformation. From 2016 until 2020, she held senior management positions at Accenture, including one of their Industry X.0 Innovation Centers. Prior to joining Accenture, she was with Vodafone Group for 16 years as Senior Manager in Technology and Commercial. She also worked at E-Plus Mobilfunk and Philips. She holds a Dipl.-Ing. degree in Telecommunication Engineering (Novosibirsk, Russia) and an executive MBA degree from the Henley Business School (UK). She is also a systemic business coach. She is passionate to support the world's leading operators, vendors and research institutes as CEO of the Next Generation Mobile Network (NGMN) Alliance.