

# NGMN Alliance Update

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# Overview



- Update on NGMN Partnership and Co-operations
- 5G Work Programme Status & Board feedback
- NGMN Workshops and Events

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# The Global Partnership of the NGMN Alliance



## 28 Worldwide Leading Mobile Operators



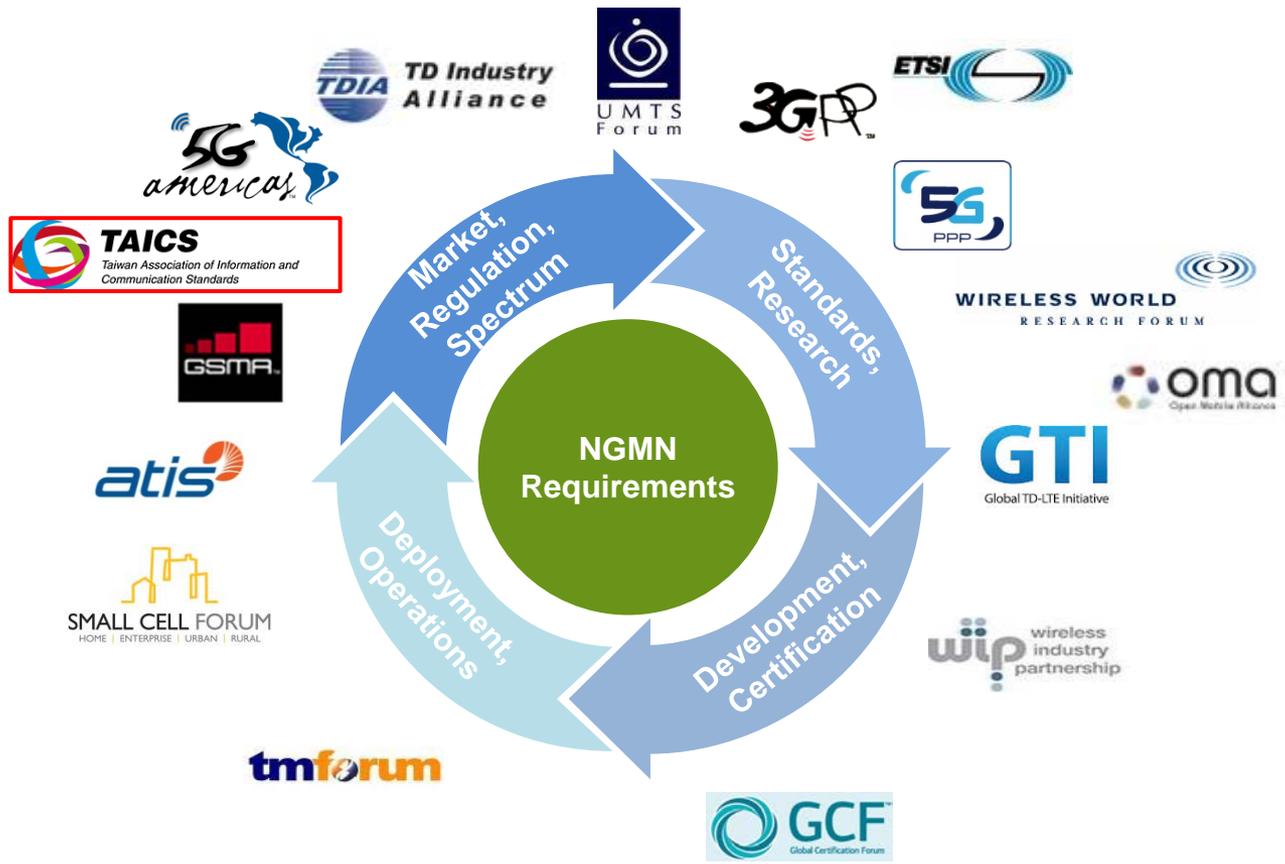
## 38 Worldwide Leading Technology Vendors



## 25 Universities / Research Institutes



# Close Cooperation with Key Industry Organisations and Research Initiatives



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# Work-Programme: Overview



## Requirements & Architecture



### Architecture



### End-to-end Architecture



### NW Managmnt & Orchestration



### Security



## Verticals



US

Europe

Asia



## Better Broadband & Telco Services



## SDO Alignment



## Business Principles Group



### Verticals



### Business Architecture



### Capabilities / Value Drivers



## Spectrum



### Spectrum Requirements

Evaluation on New Frequency Bands for 5G  
NGMN “5G Spectrum White Paper”

## IPR Forum



### SEP Declaration and Assessment

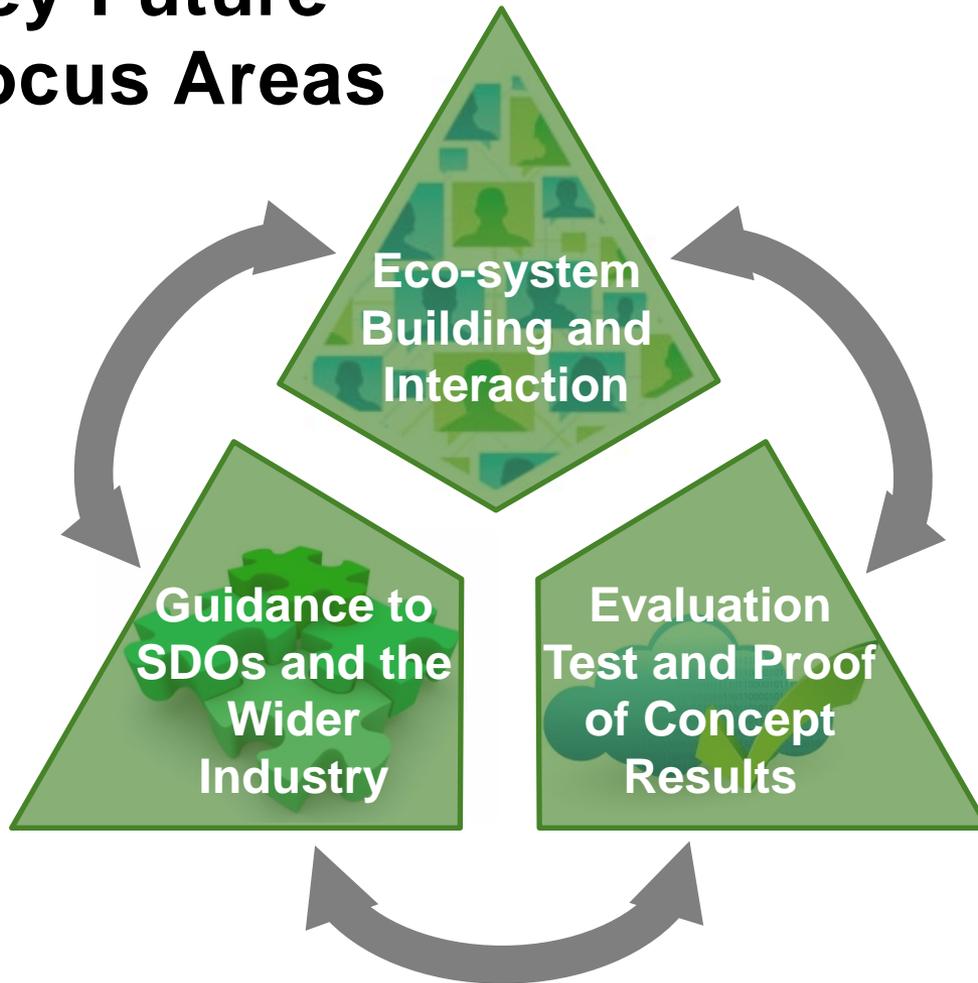
### Patent Pool Licensing

### Open Source

### NGMN “IPR White Paper”

# Significant Tasks Ahead for NGMN to Enable Successful 5G Development

## Key Future Focus Areas



- Establishing and nurturing platforms for collaboration with representatives from vertical industries, IPR experts and other business communities;
- Recommendation of technical requirements and performance targets as well as recommendation of enabling conditions;
- Analysis of initial, internationally proposed 5G technical solutions with regards to gaps, feasibility, consistency.
- **Next Step: Launch of an NGMN Test & Trial Initiative**

# Requirements & Architecture: Workstream Tasks



1

## ARCHITECTURE

- **E2E Arch.:** Working on deliverable on “Mobile Edge Computing” and relevant use-cases;
- **Operations:** Focus on requirements for 5G “Network Management and Orchestration”, covering fixed, mobile, cloud, and virtualized technologies from an NWMO point of view.
- **Security:** Focus on security implications of Network Slicing, DoS attacks, overall 5G Security (improvements in the access network, virtualization, signaling, interconnection, network capabilities to support security, ...).

2

## REQUIREMENTS New industry verticals

- Identify and validate technology requirements of **vertical industries** – 5G to enable countless future business models and use cases and hence, needs to fulfill requirements beyond mobile broadband
  - Engagement with verticals in different regions, vertical industry assessment (business requirements)
  - Analysis of communication service requirements, mobility requirements, traffic characteristics etc.

3

## REQUIREMENTS Future technology platform

- Definition of requirements for **mobile broadband / core telco services:**
  - Deployment scenarios, KPI's, requirement metrics and framework

4

## SDO ALIGNMENT

- Ensuring delivery of **end-to-end requirements to SDOs** and other relevant organizations:
  - Impact on **3GPP RAN** (Deployment scenarios and KPIs captured in TR 38.913), **3GPP SA** (Definitions and terminology for network slicing included in Annex to SA2 TR), influence of deliverables on assumptions in ongoing 5GPPP Projects (e.g., METIS II, FANTASTIC 5G)
  - Built masterplan and incorporated NGMN project milestones related to 3GPP, ITU and ETSI.

# 5G Work-Programme Deliverables/Activities



- **“Better Broadband & Telco Services”:**
  - Input to 3GPP 5G RAN meetings and workshops on deployment scenarios, requirements metrics values and definition: ***RAN 5G Workshop (September 2015), TSG RAN#70 (December 2015), TSG RAN ad-hoc (January 2016), TSG RAN#71 (March 2016), and planned for TSG RAN#72 (June 2016)***
  - Input to **ITU-R WP5D (February 2016)** for ITU-R General Technical Performance Requirements and Evaluation Criteria/Methods.
- **Liaison to 3GPP (December 2015)** on “NGMN view of 5G as an end-to-end ecosystem - Alignment of **3GPP SA and RAN**”
- **“End-to-End Architecture”:** Input to **3GPP SA** on Network Slicing (**January 2016**)
- **“Spectrum”:** NGMN Press Release for WRC-15 and briefing paper on “Future IMT mobile spectrum goals for **ITU WRC-15**” (both **October 2015**)
- **“IPR Forum”:** Analysis of Standards Essential Patents assessment and declaration, 5G patent pool framework (2015/2016) – **ETSI** contribution to the IPR Forum (**May 2015**)
- **Security** deliverable on Network Slicing planned for **3GPP SA3 (May 2016)** and **ETSI NFV**
- **“Verticals”:** Deliverable for **3GPP** planned (**June 2016**)

## Summary and Key Messages

- Eco-system: Truly global, free of fragmentation, open for innovations
- Strong co-operation of global Eco-system players
- E2E 5G Requirements aligned with new use cases and business relevance
- Beyond mobile broadband, beyond connectivity, focus on vertical industries
- Preparation of WRC 2019: low & high frequencies, sufficient bandwidth
- Importance of IPR, especially Patent Pools
- Alignment and sharing of testing and trial results on a global scale
- **Key objective is One Global 5G Standard regardless of early launches**

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# NGMN/ITU Workshop on „Open Source and Standards for 5G“

25th May, 2016, San Diego, USA



- Workshop jointly developed and hosted by NGMN and ITU
- Interactive sessions with short statements and panels for discussion
- Technology Session on 5G and Open Source
  - Focus on technical issues
- Legal Issues & Way Forward
  - Legal Issues of Open Source and Standards.
  - How to interwork and move forward?

1	8.30	Welcome and Registration
2	8.45	Opening Remarks by ITU and NGMN; Introduction of Moderators
<b>Morning Session – Technology</b>		
This three-segment session will focus on technical issues and will have contributions from various speakers including standards and open source experts.		
3	9.00	<b>Segment 1: Introduction to 5G Technology – What technical challenges need to be addressed en route to 2020?</b>
4	10.00	<b>Segment 2: Open Source Perspective – Is open source one of the building blocks of 5G?</b>
5	11.00	Coffee & Tea
6	11.30	<b>Segment 3: Interactive Session with Event Participants</b> The morning session moderator will present an overview of the opinions expressed during Segments 1 and 2 and will invite event participants to actively discuss and exchange ideas on issues that have emerged in Segments 1 and 2.
7	12.30	Lunch
<b>Afternoon Session – Legal Issues and Way Forward</b>		
This session will focus on legal issues (segments 1 and 2) and will have contributions from various speakers including standards and open source experts. This session will close with a third segment on the way forward.		
8	13.30	<b>Segment 1: Legal Issues of Open Source and Standards – Main Issues from Open Source Community and Stakeholders</b>
9	14.30	<b>Segment 2: Interactive Session with Event Participants</b> The afternoon session moderator will present an overview of the opinions expressed during Segment 1 and will invite event participants to actively discuss and exchange ideas on issues that have emerged in Segment 1.
10	15.30	Coffee & Tea
11	16.00	<b>Segment 3: Interactive Session with Event Participants – Way Forward</b> The two event moderators will invite event participants to actively engage in a discussion around the following questions: How can we all interwork? How do we move forward?
12	17.00	Conclusions from the Moderators and Closing Remarks by NGMN and ITU

NGMN

10 years

# Industry Conference & Exhibition

5G

Frankfurt, 12–13 October 2016

- Gathering of world's top industry leaders to gain a perspective on the future of mobile broadband
- Latest updates, presentation and discussion of NGMN Work Programme deliverables: Business Principles, Architecture, Technology, Spectrum and IPR
- Viewpoints, insights and an outlook from telco and industry vertical Executives and Thought-leaders
- Exhibition: Leading international partners with demonstrations of 5G concepts and solutions
- Networking opportunities and entertainment
- **Steigenberger Airport Hotel, Frankfurt, Germany**
- **10 Years Anniversary**

# Annex



# Major Challenges & Opportunities Addressed

## Revised Articles of Association to Ensure Broad Eco-system Representation

Manufacturers & vendors of mobile technology: infrastructure, devices, services & solutions, applications, etc.

Internet and IT-Players

Vertical Industry Representatives – from sectors such as automotive, health, media or transport

Start-ups, SMEs, Service Providers

## 5G Board Committee

Efficient work-programme guidance and alignment

## Platforms for Co-operation and Information Exchange

Workshops with Vertical Industries, IPR Forum

## Result Dissemination

Efficient Document Approval, Pro-active input to ITU/3GPP (liaison statements)

## Trial & Testing Initiative

Evaluation of Test and Proof of Concept Results