

# **About the NGMN Alliance - Status and 5G Work-Programme**

Klaus Moschner 27<sup>th</sup> April 2016 GSC Delhi Delhi, India

### **History and Key Characteristics**



#### Founded by leading international mobile network operators in 2006

"Objective to ensure that functionality and performance of next generation mobile network infrastructure, service platforms and devices will meet the requirements of operators and, ultimately, will satisfy end user demand and expectations."

- Well-established global partnership Operators, Telco & IT vendors, Research Institutes, Co-operations with International Industry Associations
- Open to new Players Internet & Media, Vertical Industries, Service Providers
- Business driven focus on customer and end-user demand
- Global alignment objective to avoid fragmentation and to guarantee industry scale
- Focus on innovation covering end-to-end system aspects
- Working on requirements level standards are being developed by SDOs
- Based on Partner contributions projects are staffed by NGMN Partner companies
- Comprehensive Communication White Papers, Liaison Statements, NGMN Industry Conferences to publish results, requirements, solutions, and guidelines
- Decision-oriented governance and lean organisation structure operator-driven approach, project-oriented approach and efficient processes

### The Global Partnership of the NGMN Alliance



#### 28 Worldwide Leading Mobile Operators



























































#### 38 Worldwide Leading Technology Vendors











































































#### 25 Universities / Research Institutes























































### What is 5G: Business Context Beyond 2020



#### **Customer Context**

#### Consumer

Massive Traffic Growth
High Density Demand
Seamless User Experience



#### **Enterprises**

Security and Privacy
Cloud Based Services
Increased Productivity

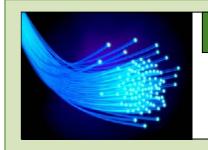


#### **Verticals, IoT, MTC**

Security Reliability Latency Throughput



#### **Operator Context**



#### Infrastructure / Technology

Virtualization
Access Enhancements
Automation



#### **Services**

Variety and Variability
Quality, Consistency
New Markets, Use Cases



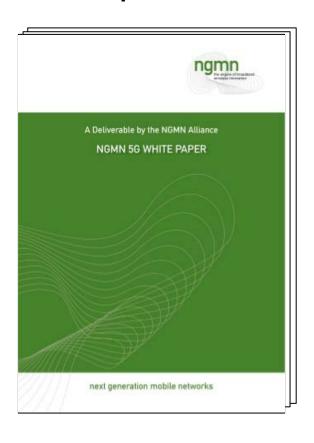
#### **Partnerships**

3<sup>rd</sup> Party Integration Reduced Time-to-Market QoS, Location, Authentication

## NGMN 5G White Paper (Feb. 2015)



## 5G End-to-end Operator Requirements



- Internationally recognized and appreciated as guidance
- Referenced in Vendor publications, by SDOs and Industry Associations, as well as by Press and Analysts
- Presented and discussed at the NGMN Industry Conference & Exhibition 2015
- Basis for our 5G Work-Programme
   Global and joint activity of
   Operators, Vendors, Researchers

## 5G Work-Programme Launched to Ensure Industry Impact for the Coming Years



#### White Paper: 5G VISION

"5G is an **end-to-end ecosystem** 

to enable a **fully mobile and connected society**.

It empowers value creation towards customers and partners,

through existing and emerging use cases,

delivered with consistent experience.

and enabled by sustainable business models."

#### **5G WORK-PROGRAMME**



End-to-End Architecture and Requirements



**Spectrum** 



**Business Principles** 



**Verticals** 



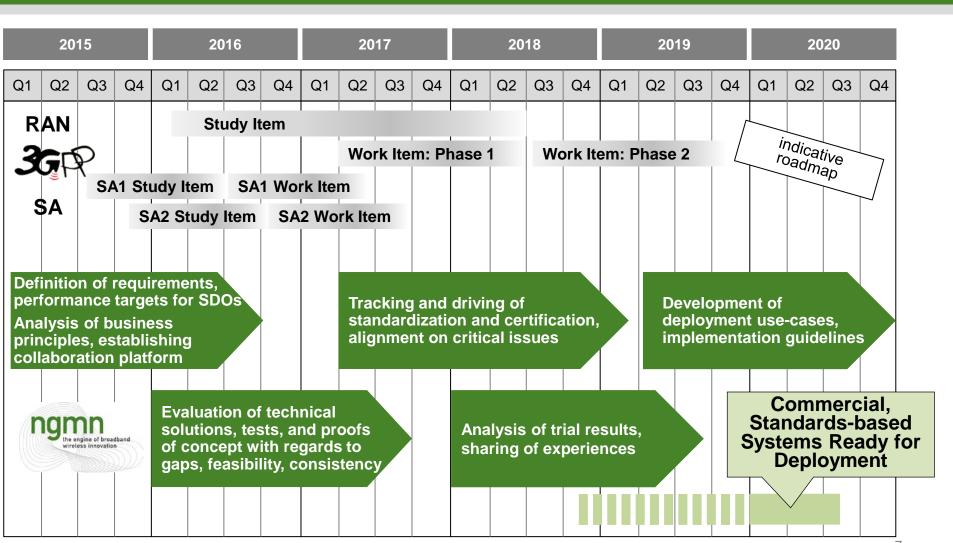
Operations, Orchestration, Automation, Security



**IPR** 

## **3GPP 5G Roadmap** and **NGMN Role** and **Work-Programme**





Source: NGMN, 5GPPP, 3GPP

## 5G Roadmap (NGMN 5G White Paper)



2015				2016				2017				2018				2019				2020			
Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
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				M <sup>2</sup>	1: De	tailed	requi	reme	nts, te	echno	logy	feasik	ility										
										M2	2: Init	ial R&	D an	d sys	tem d	esign	, star	dard	isatio	n star	ts		
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									,laun	ches	<b>,</b>	1							М	<b>5</b> : Re	ady f	or Io7	ests
									pre-commercial ,launches								M6: IoTests						
																					CO	mple <sup>.</sup>	
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																						ue	picy

M0: First release (v1.0) NGMN 5G White Paper, NGMN Industry Conference: Vision, use cases, requirements, architecture, spectrum, IPR

M1: Detailed requirements available, technology feasibility and options explored

M2: Initial R&D and system design done, first prototypes ready, study and recommendation for standardisation available, standardisation starts

M3: Trials of basic functionality starts

**M4:** Standards finalised (1<sup>st</sup> release)

M5: Infrastructure and terminals ready for interoperability tests and Certification. Start of friendly customer trials

M6: Infrastructure and terminals interoperability tests completed

M7: First commercial infrastructure. Services and terminals ready for deployment

### **5G Work-Programme Deliverables/Activities**



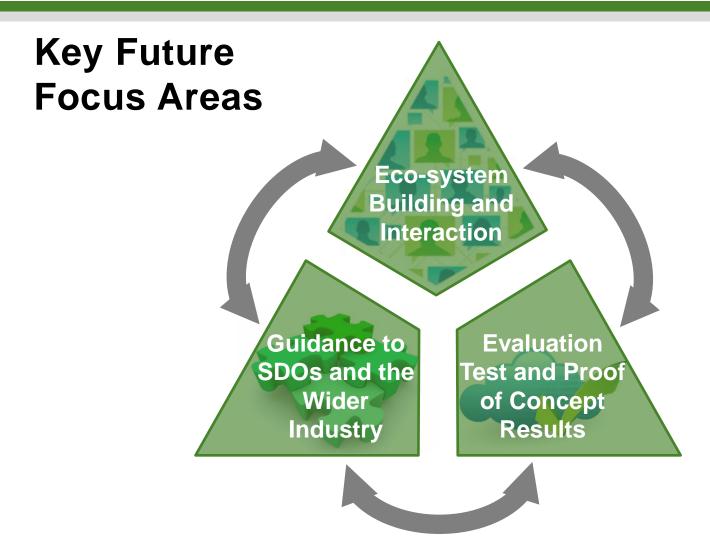
#### "Verticals":

- Interaction with vertical industry representatives via interviews (2015/2016)
- Regional face-to-face meetings
- "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)
  - Input to ITU-R WP5D (February 2016) for ITU-R General Technical Performance Requirements and Evaluation Criteria/Methods.
- Liaison to 3GPP 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)

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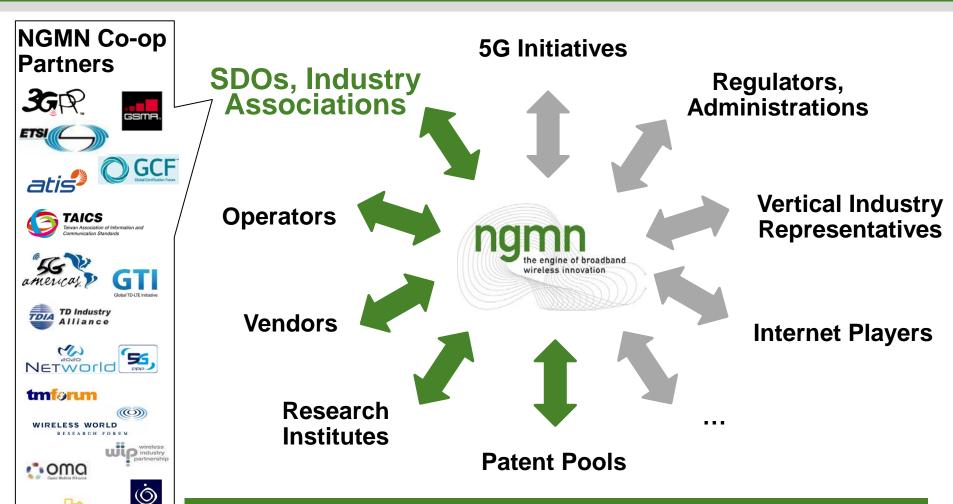
## Significant Tasks Ahead for NGMN to Enable Successful 5G Development





## NGMN to Reach Out to All Ecosystem Stakeholders Relevant for 5G





Orchestrated Effort for Global & Aligned 5G Development

### **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
- Be prepared for WRC 2019: low & high frequencies, sufficient bandwidth
- Don't forget the importance of IPR, especially Patent Pools
- Alignment and sharing of testing, trial, research results on a global scale One global standard regardless of early launches



- 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

Register now!

Book your exhibition booth!