10th FOKUS FUSECO Forum

TO BE CONTINUED!

Nov. 7–8, 2019 – Berlin, Germany

DAY 1 - THURSDAY, NOV 07, 2019

08.00 - 09.00 REGISTRATION

09.00-18.00 TRACK 1 - TUTORIAL & WORKSHOP

5G Technologies & Enablers – Core Networks, Edge Computing, Management & Slicing

Morning: Tutorial "5G Technologies"

Afternoon: Half-Day Workshop "5G Technologies – From Standards to Products and Solutions"
Paul Wilson, TM Forum, UK

09.00-18.00 TRACK 2 - WORKSHOP

5G Testbeds, Trials, and Best Practices Workshop

Morning: European 5G Testbeds, Trials, and Best Practices

Afternoon: International 5G Testbeds, Trials, and Best Practices

09.00-18.00 TRACK 3 - WORKSHOP

Vertical Use Cases, Rollouts and Migration Towards 5G

National Operator 5G Deployment Options & 5G Business Cases

Opening: Prof. Thomas Magedanz, Fraunhofer FOKUS/ TU Berlin, Germany

Stimulation Talk:
Current Status Of 5G Rollouts In Regard To 4G Evolution
Georg Kopf, Detecon International GmbH, Germany

Stimulation Talk:
5G: Evolution Or Revolution?

09.30-10.45 TRACK 1 | SESSION 1 | TUTORIAL

5G Technologies

Chair: Dr. Marius Corici, Fraunhofer FOKUS, Germany

The tutorial will cover a comprehensive number of telecommunication technologies from the perspective of the 5G system as the basis for a highly flexible, customizable, and automatic network infrastructure. Aiming to become a mirror on the path towards reaching the full potential of the 5G networks, this tutorial covers, from the perspective of software networks, the following topics: Local network requirements, core network architecture and edge-central split models, radio advancements and their impact on the core network, opportunities of AI, automation and management interfaces.

09.30-10.45 TRACK 3 | SESSION 1 | PRESENTATION

European 5G Rollouts: Challenges and Opportunities

Chairs: Prof. Thomas Magedanz, Fraunhofer FOKUS/TU

Berlin, Germany, and Guy Redmill, Redmill Marketing Associates, UK

The Future Of TV And Why 5G Can Help
Dr. Stefan Lietsch, Zattoo International Ltd., Switzerland

Automotive As Key Driver For 5G
Dr. Johannes Springer, Deutsche Telekom AG, Germany, on behalf of 5GAA

5G in Vodafone
Dr. Ralf Irmer, Vodafone, Germany

The Journey From 4G EPC To 5G Core
Tilo Heckmann, Telefónica Germany GmbH & Co. OHG, Germany

5G in A1 Austria and A1 Group
Dr. Wolfgang Fleischer, A1 Telekom Austria, Austria

5G in the UK
Ruth Brown, British Telecom, UK

5G in Italy
Giovanni Romano, TIM, Italy

09.00-13.00 TRACK 2 | SESSION 1 | WORKSHOP 1

From 5GINFIRE Towards Large-Scale European Testbeds

Chairs: Dr. Halid Hrasnica, Eurescom GmbH, & Marc Emmelmann, Fraunhofer FOKUS, Germany

This session pitches from a 5GinFIRE perspective a handover of the experience to the ongoing 5G PPP testbed projects. For that Session 1a provides a few experience report presentations from 5GinFIRE, followed by Session 1b presentations summarizing the current deployment status of the 5G PPP ICT-17 testbed projects.

09.00-10.45 TRACK 2 | SESSION 1 | WORKSHOP 1

Chair: Dr. Halid Hrasnica, Eurescom GmbH, Germany

Welcome
Dr. Halid Hrasnica, Eurescom GmbH, Germany

5GINFIRE Project Achievements
Christos Tranoris, University of Patras, Greece

University Of Bristol 5G Testbed Overview And Capabilities. A Fully Fledged Smart City Experimental Testbed
Alex Mavromatis, University of Bristol, UK

PRESENTATIONS FROM 5GINFIRE EXPERIMENTS:

Offloading Virtual OBU As A 5G Service For C-ITS Solutions
Prof. Antonio Skarmeta, Odin Solutions and Universidad de Murcia, Spain

Service Function Chaining For Low-Latency Guarantees
Prof. Federica Paganelli, University of Pisa, Italy

CONCLUDING PRESENTATION:

5G Experimentation – Business Opportunities
Xavier Priem, University of Bristol, UK

10.45 - 11.15 COFFEE BREAK & DEMOS

11.15-13.00 TRACK 1 | SESSION 2 | TUTORIAL
5G Technologies

Part 2 of the tutorial will include a set of slides from previous tutorials, especially concentrating on how the technologies have realistically evolved, giving the audience a deep understanding on the R&D processes and expectations. Furthermore, part 2 will concentrate on the impact of data-driven management and AI on end-to-end telecom infrastructure and best practice developments of 5G networks and trials.

11.15-12.30 TRACK 3 | SESSION 2 | PRESENTATION
International Rollout Challenges and Opportunities

Chairs: Prof. Thomas Magedanz, Fraunhofer FOKUS/TU Berlin, Germany, and Guy Redmill, Redmill Marketing Associates, UK

5G: Now And Tomorrow
Dr. Eric Hardouin, Orange, France

11.15-12.30 TRACK 2 | SESSION 2 | WORKSHOP 2
European 5G Testbeds

Chair: Anastasius Gavras, Eurescom GmbH, Germany

5G-EVE
Michel Corriou, b<>com, France

5G-VINNI
Dr. Pål Grønsund, Telenor, Norway

5Genesis
Dr. Harilaos Koumaras, NCSR Demokritos, Greece

ORCA
Martin Danneberg, TU Dresden, Germany

EuWireless
Prof. Pedro Merino, University of Málaga, Spain

5G in the US
Michael Loushine, AT&T, USA

5G in Taiwan
Dr. Li Fung Chang, 5G Program Office, DoIT/MoEA, Taiwan

5G in Japan
Eisuke Endo, NTT DoCoMo, Japan

Practical Considerations For 5G
Hugo van Zyl, Openserve, South Africa

Manufacturing As Key Driver For 5G
Dr. Afif Osseiran, Ericsson, Sweden, on behalf of 5G-ACIA

12.30-13.00 TRACK 2 | SESSION 2 | PANEL

5G Experimentation For Vertical Industries

Chair: Anastasius Gavras, Eurescom GmbH/5GINFIRE, Germany

Michel Corriou, b<>com, France
Dr. Pål Grønsund, Telenor, Norway
Dr. Harilaos Koumaras, NCSR Demokritos, Greece
Martin Danneberg, Technical University Dresden, Germany
Prof. Pedro Merino, University of Málaga, Spain
Xavier Priem, University of Bristol, UK

12.30-13.00 TRACK 3 | SESSION 2 | PANEL

Challenges & Opportunities In Rolling Out 5G Networks

Chairs: Prof. Thomas Magedanz, Fraunhofer FOKUS/TU Berlin, Germany, and Guy Redmill, Redmill Marketing Associates, UK

Georg Kopf, Detecon International GmbH, Germany
Paul Wilson, TM Forum, UK
Dr. Stefan Lietsch, Zattoo International Ltd., Switzerland
Dr. Johannes Springer, Deutsche Telekom AG, Germany, on behalf of 5GAA
Dr. Afif Osseiran, Ericsson, Sweden, on behalf of 5G-ACIA
Dr. Ralf Irmer, Vodafone, Germany
Tilo Heckmann, Telefónica Germany GmbH & Co. OHG, Germany
Dr. Wolfgang Fleischer, A1 Telekom Austria, Austria
Dr. Eric Hardouin, Orange, France
Ruth Brown, British Telecom, UK
Giovanni Romano, TIM, Italy
Michael Loushine, AT&T, USA
Dr. Li Fung Chang, 5G Program Office, DoIT/MoEA, Taiwan
Michael Ashdown, Telecom26, Switzerland
Hugo van Zyl, Openserve, South Africa
Eisuke Endo, NTT DoCoMo, Japan

13.00 - 14.00 LUNCH BREAK & DEMOS

14.00-15.30 TRACK 1 | SESSION 3 | WORKSHOP 1

Radio And Network Technologies

Chair: Dr. Marius Corici, Fraunhofer FOKUS, Germany

mmWave Technologies – Where Do They Make Sense
Prof. Eckhard Grass, Humboldt University Berlin/IHP, Germany

Research And Development On Coordinated Management And Flexible Spectrum Utilization Toward 5G Era
Homare Murakami, NICT, Japan

Direct Access Of 5G New Radio Over Satellite - Status In 3GPP
Thomas Heyn and Thomas Schlichter, Fraunhofer IIS, Germany

Optimizing RAN on Intel Architecture
Dr. Clare Somerville, Intel, UK

How To Bring A 5G Core In The Cloud To Fly?
Hans Joachim Einsiedler, Deutsche Telekom AG, Germany

AT&T Perspective On 5G Core
Michael Loushine, AT&T, USA

14.00-15.30 TRACK 2 | SESSION 3 | WORKSHOP 3

Global Testbeds and Initiatives

This session complements the European testbed perspective of the previous session by summarizing corresponding testbed activities and their interaction with European deployments.

Chair: Marc Emmelmann, Fraunhofer FOKUS, Germany

NGIAtlantic.eu Initiative - An Opportunity For EU- And US-based Teams Working Together On NGI Experimental Platforms
James Clarke, Waterford Institute of Technology, Ireland

Overview Of The ESA Initiatives
Maria Guta, ESA, The Netherlands

Results of SATis5 ESA Project
Adam Kapovits, Eurescom, Germany

Experimenting Along The Road To 5G Network Slicing In Brazil
Prof. Edmundo R.M. Madeira, University of Campinas, Brazil

14.00-14.20 TRACK 3 | SESSION 3 | KEYNOTE

Private 5G Networking - Challenges & Opportunities

Local Edge Servers As Prerequisites
Dr. Sebastian Ritz, GEC, Germany

14.20-15.30 TRACK 3 | SESSION 3 | PRESENTATION

Application Domains Driving Local 5G Network Deployments

Chairs: Prof. Thomas Magedanz, Fraunhofer FOKUS/TU Berlin, Germany, and Guy Redmill, Redmill Marketing Associates, UK

Local Licences For 5G In 3700-3800 MHz In Germany
Josch Luxa, Federal Network Agency, Germany

Local 5G Factory Networks
Dr. Andreas Müller, Robert Bosch GmbH, Germany, and 5G-ACIA

Smart Factories
Linus Thrybom, ABB, Sweden

From An Exhibition Center Towards A "Smart Venue"
Marcus Eibach, Deutsche Messe AG, Germany

15.30 - 16.00 COFFEE BREAK & DEMOS

16.00-18.00 TRACK 1 | SESSION 4 | WORKSHOP 2
Testing, Network Management, and ML

Chair: Dr. Marius Corici, Fraunhofer FOKUS, Germany

Performance Validation Of 5G Core Networks With Keysight Test Tool
Ciprian Matei, Keysight, Romania

Bringing Actionable Reporting To Testing Environments
Prof. Francisco Gortázar, Project ElasTest/Universidad Rey Juan Carlos, Spain

Advancements In Network Management - Implementation Of The In-Slice Management Concept
Dr. Lechosław Tomaszewski, Orange Labs, Poland

Slice And Expose - Enhancing Network Slice Applications By Means Of Capability Exposure
José A. Ordóñez-Lucena, Telefónica I+D, Spain

Satellite Integration With 5G And Edge Computing
Dr. Christos Politis, SES S.A., Luxembourg, and Joe Cahill, ST Engineering iDirect, Ireland

Cognitive Slice Management: It Takes A Village
Joanna Balcerzak, Orange Labs, France

Opportunities/Challenges For 5G+AI/ML
Vishnu Ram OV, India, on behalf of ITU-T FG ML5G

The Challenges And Opportunities Of Open Source In Telecom - The Story Of The Past 20 Years
Daniel-Constantin Mierla, Kamailio, Germany
Dr. Ralf Irmer, Vodafone, Germany

5G For Enterprise In Switzerland: From Campus To Mission Critical
Dr. Ruben Merz, Swisscom, Switzerland

16.00-17.30 TRACK 2 | SESSION 4 | PRESENTATION
From Testbed To Trials And Products

This session looks at various verticals as deployed and evaluated within the new ICT-19 projects, as well as the commercial perspective towards future, 5G-based telecommunication.

Chairs: Dr. Halid Hrasnica, Eurescom GmbH, Germany, & Marc Emmelmann, Fraunhofer FOKUS, Germany

The 5G-VICTORI Project – A Closer Look To The Berlin Platform And Use Cases
Dr. Jesús Gutiérrez Terán, IHP, Germany

UK's 5G Testbeds and Trial Program
Mohammad Lari, Government of the United Kingdom

In Search Of Value And Synergies With 5G-SOLUTIONS
Håkon Lønsethagen, Telenor, Norway

5G-TOURS: An Overview Of 5G-TOURS & Prioritised Challenges In Touristic, Safe & Mobile Efficient Cities
Anthony Dunne, Real Wireless, UK

5G!Drones Trials - How To Match UAV Business Cases, Drone Capabilities, and 5G Test Facilities
Dr. Lechosław Tomaszewski, Orange Labs, Poland, and Tanel Järvet, CAFA Tech OU, Estonia

16.00-17.30 TRACK 3 | SESSION 4 | PRESENTATION
Campus Network Options: Network Slicing Vs. Private Networking

Chairs: Prof. Thomas Magedanz, Fraunhofer FOKUS/TU Berlin, Germany, and Guy Redmill, Redmill Marketing Associates, UK

Drivers From GSMA Perspective
Marina Solin for Michele Zarri, GSMA, UK

Use Case Experiences Empowered By 5G Network Slicing
Dr. Luigi Licciardi, Chairman of 5GSA, Italy

5G Campus Networks: Tailored Solutions For A Smarter Production
Ernst-Joachim Steffens, Ernst-Joachim Steffens Industrie 4.0, Germany

5G - Chances & Challenges For Operators
Dr. Helge Lüders, Telefónica, Germany

Vodafone Activities For Local Networks

17.30 - 18.00 TRACK 3 PANEL DISCUSSION

17.30-18.00 | TRACK 3 | PANEL DISCUSSION

Challenges & Opportunities In Local 5G Networks

Chairs: Prof. Thomas Magedanz, Fraunhofer FOKUS/TU Berlin, Germany, and Guy Redmill, Redmill Marketing Associates, UK

Dr. Sebastian Ritz, GEC, Germany
Paul Wilson
Josch Luxa, Federal Network Agency, Germany
Dr. Andreas Müller, Robert Bosch GmbH, Germany, and 5G-ACIA
Linus Thrybom, ABB, Sweden
Marcus Eibach, Deutsche Messe AG, Germany
Marina Solin for Michele Zarri, GSMA, UK
Dr. Luigi Licciardi, Chairman of 5GSA, Italy
Ernst-Joachim Steffens, Ernst-Joachim Steffens Industrie 4.0, Germany
Dr. Helge Lüders
Dr. Ralf Irmer, Vodafone, Germany
Dr. Ruben Merz, Swisscom, Switzerland
Dr. Wolfgang Fleischer, A1 Telekom Austria, Austria

19.00 EVENING NETWORKING GET-TOGETHER

08.00 - 09.00 REGISTRATION

09.00-17.30 CONFERENCE

From 5G-Ready To Real 5G – Challenges & Opportunities

There is no doubt that 5G technology is a key enabler for the digital transformation and will unify communications in the next decade. After 2025 5G will be a mainstream technology connecting everyone with everything everywhere. However, the initial deployment of every new communication technology represents a huge economic challenge, particularly when existing technologies, such as 4G/LTE, are already doing a very good job. So looking at 5G we have to look at it from two opposite angles that illustrate the complexity and current dilemma; 5G evolution vs. revolution. On the one hand 5G has to interoperate seamlessly with existing 4G and NB-IOT networks in order to benefit from 4G coverage, but to extend capacities where needed in the so-called Non-Standalone Architecture (NSA). However, the full potential of low-latency communications with 5G could only be exploited in the Standalone Architecture (SA) mode where 5G New Radio (NR) is combined with a "clean slate" Service-Based Network Architecture (SBA), exploiting the amazing customization features of software-based networks. In addition, global 5G standardization is in full swing and only 3GPP Release 16 and later releases will be able to fulfill the various requirements from the different 5G vertical domains. So the key question is "when and how to start with 5G?"

09.00-09.30 WELCOME

Welcome To FOKUS FUSECO Forum
Prof. Manfred Hauswirth, Fraunhofer FOKUS, Germany

Opening
Prof. Thomas Magedanz, Fraunhofer FOKUS, Germany

Welcome 5G In Germany
Friedhelm Bertelsmeier, Federal Ministry of Transport and Digital Infrastructure, Germany

09.30-11.00 SESSION 1 | PRESENTATION

5G Technologies – Evolution From 4G Vs. Disruption By Means Of 5G

Chair: Prof. Noël Crespi, Institut Mines-Télécom, France

5G in Vodafone
Dr. Ralf Irmer, Vodafone, Germany

3GPP Work In 5G - An Overview
José Almodóvar, 3GPP/TNO, The Netherlands

KEYNOTE: How FlexRAN Is Enabling The 5G RAN
Declan O'Boyle, Intel, Ireland

KEYNOTE: Edge Computing As An Enabler
Robert Dimond, ARM, UK

Satellites In 5G
Maria Guta, ESA European Space Agency, The Netherlands

Updates On International Network Slicing
Hans Joachim Einsiedler for Michele Zarri, GSMA, UK

Q&A

11.00 - 11.30 COFFEE BREAK & DEMOS

11.30-12.40 SESSION 2 | PRESENTATION
5G Applications – Experiences From Trials: Challenges & Opportunities

Chair: Prof. Luca Foschini, University of Bologna, Italy

5G Transformation Challenges And New Applications
Georg Kopf, Detecon International GmbH, Germany

Lessons Learned From European Trials – Perspectives From 5G-IA
Håkon Lønsethagen, Telenor, Norway

Automotive As Key Driver For Global 5G
Dr. Johannes Springer, Deutsche Telekom AG, Germany, on behalf of 5GAA

5G-ACIA - Driving The Industrial 5G Revolution
Dr. Andreas Müller, Robert Bosch GmbH, Germany, and 5G-ACIA

From An Exhibition Center Towards A "Smart Venue"
Marcus Eibach, Deutsche Messe AG, Germany

Unicast Video Delivery Using 5G - A Wishlist
Dr. Stefan Lietsch, Zattoo International Ltd., Switzerland

Q&A

12.40-13.00 SESSION 2 | KEYNOTE
Global Approaches For Monetizing 5G

Dr. Christoph Bach, Ericsson GmbH, Germany

13.00 - 14.00 LUNCH & DEMOS

14.00-15.30 SESSION 3 | PRESENTATION
5G Rollout Plans And First Experiences

Chair: Prof. Akihiro Nakao, Tokyo University/5GMF, Japan

The Journey From 4G EPC To 5G Core
Tilo Heckmann, Telefónica Germany GmbH & Co. OHG, Germany

5G in A1 Austria and A1 Group
Dr. Wolfgang Fleischer, A1 Telekom Austria, Austria

5G: Now And Tomorrow
Dr. Eric Hardouin, Orange, France

5G in Italy
Giovanni Romano, TIM, Italy

5G in the UK
Ruth Brown, British Telecom, UK

5G in the US
Michael Loushine, AT&T, USA

5G in Japan - Commercialization and Democratization
Prof. Akihiro Nakao, Tokyo University/5GMF, Japan

15.30-16.00 SESSION 3 | PANEL
Where Is The 5G Business Case – When And How To Start?

Chair: Guy Redmill, Redmill Marketing Associates, UK

Declan O'Boyle, Intel, Ireland
Robert Dimond, ARM, UK
Dr. Christoph Bach, Ericsson GmbH, Germany
Prof. Akihiro Nakao, Tokyo University/5GMF, Japan
Tilo Heckmann, Telefónica Germany GmbH & Co. OHG, Germany
Dr. Wolfgang Fleischer, A1 Telekom Austria, Austria
Dr. Eric Hardouin, Orange, France
Giovanni Romano, TIM, Italy
Ruth Brown, British Telecom, UK
Michael Loushine, AT&T, USA
Dr. Ruben Merz, Swisscom, Switzerland
Michael Ashdown, Telecom26, Switzerland

16.00 - 16.30 COFFEE BREAK & DEMOS

16.30-17.15 SESSION 4 | PANEL
Do We Already Know Something About What 6G Will Be?

Chair: Prof. Thomas Magedanz, Fraunhofer FOKUS, Germany

Dr. Young-Jo Ko, ETRI, Korea
Dr. Afif Osseiran, Ericsson, Sweden
Dr. Eric Hardouin, Orange, France
Prof. Slawomir Stanczak, Fraunhofer HHI, Germany