Proposed Agenda

8:30 – 9:00	**Registration**
9:00 – 9:25	**Welcome and EC Introduction on Smart Networks and Services Partnership** ***Focus**: next MFF, partnership approach, main timing, stakeholder contributions needed, preparatory work on Smart Networks and Services, objectives and scope, envisaged main deliverables.* ***Speakers:** Bernard Barani (European Commission), Werner Mohr (Networld2020/Smart Networks Task Force)*
9:25 – 9:50	**EC Introduction on Key Digital Technologies Partnership** ***Focus**: partnership approach, main timing and stakeholder contributions needed regarding to components and devices for smart network.* ***Speakers:** TBD (European Commission) and Yves Gigase (ECSEL)*
9:50 – 11:30 *Technical Session*	**European Strategy — Reviving Component and Device Value Chain for Future Networks** ***Focus:** During the past 10 years, European industry has gradually lost its leadership in the areas of components and devices for network.* *With ever-growing global competition as well as the increasing possibility of global supply chain disruption, it is strategically important for Europe to revive and rebuild a complete component and device value chain. This session will focus on reflecting these issues at a strategic level for contributing to both Smart Networks and Services Partnership and Key Digital Technologies Partnership.* ***Speakers:** Björn Ekelund (Ericsson), Colin Willcock (5G-IA)*
11:30 – 12:15	**Lunch + Coffee Break**
12:15 – 14:15 *Technical Session*	**Technology Deep Dive I — Energy Efficient Computing for Future Networks** ***Focus:** Energy consumption of future networks must be sustainable. This will be extremely challenging to achieve within the coming age of network virtualization and network/device intelligence. Meanwhile, despite of its leadership position in the area of network infrastructure, European industry has so far developed very limited competence, know-hows and skills on the key computing components that will empower "brains" of future networks, e.g., (micro-)processors. In this context, it is of high interest and high priority of Europe to build such critical yet missing competence. This lies at the very core of achieving European strategic autonomy in the domain of future networks.* *In this session, the focus will be then placed on discussing key enabling technology building blocks, the related software technologies and the required ecosystems for supporting energy efficient computing at the both infrastructure and device sides. Considering the fact that the required hardware and software technologies as well as their connections to legacy technologies differ largely at the infrastructure side and at the device side, this session will be divided into two parts:*

	Part I: Advanced Processors for Edge Computing **Part II:** A**dvanced Processor Platforms for Devices** ***Speakers:*** *Jörg-Peter Elbers (ADVA Optical), Chris Schläger (Amazon), Gerd Teepe (T3-Technologies), Carlo Reita (CEA-Leti)*
14:15 – 14:30	**Coffee Break**
14:30 – 15:30 *Technical Session*	**Technology Deep Dive II — Hardware Security for Future Networks** ***Focus:*** *Security of future networks will be the foundation of its success. Associated with its increasing impact on economy and society, future network is expected to face more frequent and more sophisticated cyber-attack and security breach. This session will focus on identifying* *a) major security challenges on the hardware side of network, including both infrastructure and devices, as well as,* *b) the required R&I areas for secured network, with respect to hardware security approach and joint hardware-software security approach.* ***Speakers:*** *Hervé Debar (Telecom SudParis), Werner Haas (Cyberus)*
15:30 – 16:45 *Technical Session*	**Technology Deep Dive III — Radio Technologies and Novel Devices for Future Networks** ***Focus:*** *Capacity of future networks is expected to be perceived as infinite by its users. From radio access point of view, this requires further development of efficient, flexible and agile spectrum usage techniques/mechanisms as well as efficient exploitation of mmWave and THz frequencies, both of which must be supported by enabling radio technologies (including RF, baseband and I/O designs and integration) and potentially optic technology. In addition, the use of mmWave and THz frequencies will pave the way to integrate sensing and imaging into the service portfolios of future network. New devices that enable novel human-machine/machine-machine/AI-AI network will emerge, which will potentially impose currently unknown yet very stringent requirements to the network infrastructure. This session will identify major technology building blocks for enabling commercially viable and energy efficient radio implementations that support seemly infinite capacity at the both infrastructure and device sides. Meanwhile, it will discuss and envision some emerging new devices and applications that future network/infrastructure/ /will support as well as perspective new challenges imposed on network design. The associated value chain and ecosystem will also be analysed.* ***Speakers:*** *Hugo Tullberg (Ericsson), Stefan Schinder (Infineon), Michael Peeters (IMEC)*
16:45 – 17:00	**Wrap up, way forward** ***Speakers:*** *EC representative(s) and Networld2020*

Format in Technical Sessions: 20 minute presentation for each speaker + Open Panel discussion with speakers of this session and all workshop participants.

Biographies of Confirmed Speakers

(more coming soon)

After 11 years as communication engineer in industry and with the European Space Agency, **Bernard Barani** joined the European Commission in 1994 as responsible for implementation of research and policy issues in wireless communication. He is currently Deputy head of unit in the CONNECT Directorate General of the European Commission where he is responsible for the definition and implementation of the 5G Public Private Partnership launched in 2013, as the flagship EC initiative to support 5G European R&D.

His field of activities covers strategic R&D planning and negotiations with stakeholders, standardisation, international cooperation, demonstration and pilot programmes. He is also involved in the implementation of the 5G Action Plan adopted by the Commission in 2016 to support early 5G deployment in Europe. He is also vice chairman of the Steering committee of the EUCNC conference, the main showcasing event for telecom research sponsored by the EU programmes.

In view of future R&D supported by the Commission under the next Horizon Europe programme proposed by the Commission (2021-2027), he is currently coordinating the setting up of a successor to the current 5G PPP.

He has an engineering degree from the ”Ecole Nationale Supérieure des Télécommunications de Bretagne”.

Werner Mohr was graduated from the University of Hannover, Germany, with the Master Degree and Ph.D. in electrical engineering in 1981/87.

Dr. Werner Mohr joined Siemens AG, Germany in 1991. He was involved in ETSI standardization on UMTS and systems beyond 3G and coordinated several EU and Eureka Celtic funded projects on 3G, LTE and IMT-Advanced radio interface, which developed the basic concepts for future radio standards. Since April 2007 he is with Nokia in Munich Germany, where he is Head of Research Alliances. He was chairperson of the NetWorld2020 European Technology Platform and Chair of the Board of the 5G Infrastructure Association in 5G PPP of the EU Commission until December 2016. He was founding chair of the "Wireless World Research Forum – WWRF". He is co-author of a several books. In December 2016 Werner Mohr received the IEEE Communications Society Award for Public Service in the Field of Telecommunications, in November 2018 the VDE ITG Fellowship 2018 and in May 2019 the WWRF Fellowship.

Dr. Yves Gigase is the Head of Programmes of the ECSEL Joint Undertaking. With a background in nuclear engineering and electronical engineering he worked as researcher, consultant, production manager, project engineer in various companies: Philips, IBM-Ruschlikon, Alcatel, Aixtron, Belgoprocess, Agfa. He joined the European Commission in 2006 where he worked on radioactive waste and decommissioning projects in Russia and Kazakhstan. In 2009 he moved to ENIAC as Head of Programmes, a function he continued under ECSEL Joint Undertaking.

As corporate director at Ericsson, **Björn Ekelund** is responsible for research activities in electronics, antennas, and connected devices across the Ericsson group. Having M.Sc. and Lic.Eng. degrees from Lund University, he has developed technology and products for all major wireless standards, from DECT to satellite systems and 5G NR, during his career.

Mr. Ekelund is an advisor to several industry associations, the Swedish government, the Swedish national innovation agency, and the European Commission. He is the chairman of the largest ICT cluster organization in Sweden and serves on the board of a number of companies, non-profit organizations, and two national innovation programs in industrial digitalization and AI.

Colin Willcock is the chairman of the board of the 5G Infrastructure Association. Colin Willcock graduated from the University of Sheffield, UK, with a B.Sc in Phyiscs in 1986, an MSc. In Astronomical Technology from the University of Edinburgh in 1987 and a Ph.D. in Parallel Computation from the University of Kent at Canterbury in 1992. Dr. Willcock joined Nokia in 1999, and is currently Head of Radio Network Standardization. He has participated extensively in standardization activities at ETSI, ITU-T and 3GPP, and also has extensive experience of European research having led a number of European projects.

Jörg-Peter Elbers is Senior Vice President Advanced Technology, Standards & IPR at ADVA Optical Networking and has more than 20 years of experience in the optical networking industry. At ADVA, he is responsible for technology strategy, applied research, standardization and intellectual property management. Before joining ADVA, Jörg was Director of Technology in the Optical Product Unit of Marconi which was later acquired by Ericsson. Prior to that, he worked at Siemens AG, last as Director of Network Architecture in the Optical Networks Business Unit. Jörg holds a Dipl.-Ing. and Dr.-Ing. degree in electrical engineering from TU Dortmund University, Germany. He is board member of European Technology Platforms on Photonics (Photonics21) and Networks (Networld2020) and chair of German VDE ITG expert committee for communications.

Chris Schläger is Managing Director of the Amazon Development Center Germany GmbH and also Director of Kernel and Operating Systems at Amazon. Chris and his teams are responsible for the operating systems and hypervisors that power Amazon's servers and EC2 instance types. Before joining Amazon he ran the AMD Operating System Research Center (OSRC) and was responsible for supporting AMD CPUs in the Linux Kernel, KVM and Xen. Prior to AMD, he was VP of Linux Distributions at Novell and SUSE. He is still an avid Open Source developer in his spare time.

Gerd Teepe holds an Ms.-degree of electrical engineering from the University of Aachen, Germany (RWTH-Aachen) and also a Phd in microelectronics from the same university. During 35 years of his his professional career, Dr. Teepe worked for NEC in Tokyo, Japan, MOTOROLA in Geneva, Toulouse and Munich, for AMD in Dresden, Germany and for GLOBALFOUNDRIES also in Dresden.

Until today, Dr. Teepe has continuously focused on microelectronics business development, creating new business with the help of microelectronics-technology. Through his career he contributed to this charter as R&D-engineer, engineering manager, product manager and through diverse marketing roles.

In 2018 Dr. Teepe has started his own management consulting company called “T3-Technologies” for microchip design, project management and business development.

Dr. **Carlo Reita** is currently Director of Strategic Partnerships and Planning in the CTO Office of CEA-Leti, (Grenoble, France), in charge of the relations with major RTOs and

of the actions for the support of nanoelectronics in the future EU R&D plans. In the last few years he has been acting as "Sherpa" of the LETI Director for EU documents, discussions, events preparation, and representing LETI representative to Japanese and Chinese authorities as well as constructing the overall materials, devices, integration and design enablement roadmap for computing.
Born in Rome (Italy) in 1960, he holds a Laurea di Dottore in Fisica from Rome University "La Sapienza". After two years as Second Lieutenant in the Italian Air Force, he carried out research in electronic devices and circuits at at Istituto di Elettronica dello Stato Solido of the CNR (Italy), GEC-Marconi Hirst Research Centre in Wembley (UK), Laboratoire Centrale des Recherches of Thomson-CSF in Orsay (France). He spent two years at Cambridge University Engineering Department as Royal Society Industrial Fellow. He held various management positions at Photronics finally becoming European R&D Director. In 2005 he joined CEA-Leti as CMOS Advanced Devices Program Manager. His major scientific interests have been thin film materials for large area electronics, lithography, advanced devices for computation and neuromorphic circuits and architectures. Between 2016 and 2019 he has been the initiator and coordinator of the EU H2020 project NeuRAM3 aiming at using novel technologies like FDSOI, Resistive RAMs, 3D integration and TFT to fabricate bioinspired circuits for embedded artificial intelligence applications.
He is author or co-author of over 80 refereed papers, several invited and review papers, two books chapters in the fields of electronic devices and lithography, participated in a number of panels (IEDM, SSDM, …). He served as member of national and international reviews and advisory committees.

Werner Haas is the Chief Technology Officer of Cyberus Technology, devising leading solutions to secure our digital era. He reported the Meltdown processor vulnerability to Intel and co-authored the most widely cited publication on hardware-level security issues rooted in CPU microarchitecture. Since the disclosure, educating people on the basic principles of operation and mitigation options has become a regular occupation, be it at international conferences, workshops, or in dedicated training courses, e.g., for German Federal Office for Information Security (BSI).
His expertise stems from working 10+ years at Intel in the Germany Microprocessor Lab and the Systems Architecture Lab in Hillsboro, USA. The memory subsystem has been a common theme of his research activities with innovative ideas finding their way up to Intel board level and memory protection keys (MPK) becoming an official feature of the x86 architecture. Between leaving Intel in 2014 and co-founding Cyberus Technology in 2017, he briefly worked as external consultant and specialist for hardware-level programming at FireEye, a US-American cyber-security company.
Werner graduated in Electrical Engineering in 1997 at the University of Erlangen-Nuremberg. He began his professional career at its Institute for Computer Aided Circuit Design, working closely together with Lucent Technologies on next generation networking equipment.

Stefan Schinder is Senior Marketing Manager of Infineon's RF product group for mobile communication. In this role, he is responsible for the strategy, portfolio, product planning and roadmap of the cellular 5G product line. He held various positions in marketing for RF Test & Measurements at Rohde & Schwarz, for Passive Filter solutions at EPCOS/TDK (now Qualcomm) and worked for Mobile Network Operator Vodafone. With 13+ years of experience in RF Stefan contributed as speaker at numerous conferences.
He studied Electrical Engineering and Communication Technologies in DTU Copenhagen and received it's Master Degree from Technical University Chemnitz.

As passionate leader with a background in both research and strategy, Dr. Ir. **Michael Peeters** is Program Director Connectivity at imec. Michael has been identifying and

implementing state-of-the art technology opportunities through a career that spans two decades. Both as head of the Nokia Incubator and the innovation portfolio at Nokia, and as CTO of the wireless division at Alcatel-Lucent, his role required him to make the continuous trade-off between the potential of technology and business case realities. Prior to his role as CTO of the wireless division, he was also CTO of Alcatel-Lucent's wireline division. Michael has authored more than 100 peer-reviewed publications, many white papers and holds patents in the access and photonics domains. Michael earned a Ph.D. in Applied Physics and Photonics from