Network of Excellence

NEWCOM#
Network of Excellence in Wireless Communications#

FP7 Contract Number: 318306

WP3.1 – NEWCOM# conferences, workshops and special sessions

D31.2
Second period workshops and conferences activity report and proceedings of the 2nd N# Annual Conference

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This document reports and lists the specific initiatives produced by the WP, including support to EC concertation/clustering activities within the second period of the NoE, special sessions and workshops organized by NEWCOM# partners as well as the second annual conference, organized in conjunction to EuCNC 2015.

Keywords: Special sessions, workshops, RAS cluster, annual conference

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Executive Summary

This document reports and lists the specific initiatives produced by the WP within the second period of the NoE (M22-M33), including support to EC concertation/clustering activities, workshops organized by NEWCOM# partners as well as the second annual conference, organized in conjunction to EuCNC 2015.

During the reporting period, a total of 4 workshops were organized by NEWCOM#:

- Second Workshop on Cognitive Radio Advances, Applications and Future Emerging Technologies (CRAFT) @ ISWCS 2014,
- Workshop on Advances in Network Localization and Navigation (ANLN) @ ICC 2015,
- Workshop on Dependable Vehicular Communications (DVC) @ ICC 2015,
- Third Workshop on Cognitive Radio Advances, Applications and Future Emerging Technologies (CRAFT) @ ISWCS 2015.

Simultaneously, NEWCOM# participated to the various RAS cluster activities.

Finally, the second NEWCOM# annual conference was successfully held in Paris (France) in conjunction with EuCNC. The NEWCOM# annual conference consisted of one tutorial, three technical sessions covering Tracks 1 and 2, and one exhibition.
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List of Acronyms

CoMP       Cooperative Multi-Point
CR         Cognitive Radio
CRAFT      Cognitive Radio Advances, Applications and Future Emerging Technologies
EuCNC      European Conference on Networking and Communications
FIA        Future Internet Assembly
HetNets    Heterogeneous Networks
ICC        International Conference on Communications
ISIT       International Symposium on Information Theory
NOE        Network of Excellence
RAS        Radio Access and Spectrum
SON        Self-Organizing Network
TPC        Technical Program Committee
WCNC       Wireless Communications and Networking Conference
1. Introduction

This document reports and lists the specific initiatives produced by WP 3.1 within the second period of the NoE (M22-M33). The main objectives of this work-package are as follows:

- Organize an annual NEWCOM# conference with peer review and proceedings.
- Interface with other EC projects and events and exploit possible synergies with EuCNC and concertation events, etc.
- Promote the involvement of NEWCOM# in the organization of major, already existing international conferences and workshops.
- Organize special sessions within the framework of NEWCOM# during major international conferences on the subject of wireless communications and related issues.

This report is organized into three main sections, in addition to this introduction and a conclusion.

Section 2 is dedicated to the NEWCOM# workshops, mostly organized in conjunction with well-known conferences, including rationale of the workshop, the TPC and the list of topics. The program of workshops can be found in Annex.

Section 3 deals with the various EC concertation activities, including NEWCOM# initiatives within the RAS cluster.

Finally, Section 4 provides an overview of the first NEWCOM# event organized in conjunction with EuCNC, whose full program and proceedings can be found on NEWCOM# website.
2. NEWCOM# Workshops

During the first period, NEWCOM# partners organized 4 scientific workshops, held in conjunction with well-known international conferences. These workshops are described in the present section, with more details available in Annexes.

2.1 Second Workshop on Cognitive Radio Advances, Applications and Future Emerging Technologies (CRAFT) @ ISWCS 2014

This event was organized on 26 August 2014, jointly with the workshop on the Spectrum Overlay through Aggregation of Heterogeneous Dispersed Bands (workshop organized by the FP7 SOLDER project), in conjunction with the 11th International Symposium on Wireless Communication Systems, ISWCS ‘14 (Barcelona, Spain) [1].

There has been a surge in wireless technologies over the last decade, which has led to the crowding of existing spectrum. In order to address the resulting congestion and shortage of capacity, the cognitive radio (CR) concept has been envisioned to increase the efficiency of spectrum utilization, and improve the management, performance and coexistence of heterogeneous networks with diverse radio access technologies. Several research efforts are currently on-going around the world to introduce CR-related mechanisms at various OSI layers. A primary challenge being addressed is the identification of technical enablers for CR, i.e., theories, concepts, and practical algorithms to implement these mechanisms at a reasonable operational cost on flexible radio platforms. There have been many advances in the field of CR in recent years with respect to enabling environmental (spectrum) awareness and designing robust and flexible transmission techniques for hostile CR communication environments with varying channel conditions. However, there are still a number of open issues and research challenges to be addressed before CR technology can become truly flexible and practical.

Issues with efficient spectrum management, real time implementation, CR security and applications, as well as regulatory and standardization aspects, all require significant attention for operation in cognitive networks. In response to the above, the CRAFT Workshop aims to gather researchers, engineers and practitioners both from academia and industry (universities, research centres, network operators, etc.), as well as end users which aim to inspire the analysis and development of new solutions and realizations of the cognitive radio concept, and to present advanced flexible transmission techniques, platforms, and CR applications. The main focus of this workshop is on the practical implementation of the CR concept and the “shift-to-market” activity, including legal and economic aspects. Therefore, the Workshop will welcome contributions presenting advances in various research areas of cognitive networking technologies and applications, specifically, but not exclusively related to the following topics:

- Signal processing for cognitive radio
- Advanced multicarrier schemes and carrier aggregation in cognitive radio
- Interference mitigation in shared spectrum environments
- Cognitive relaying and cooperative techniques
- Localization strategies for cognitive radios
- Machine learning, self-organization and pattern recognition tools for cognitive radio
- Cross-layer flexibility and optimization in cognitive radio
- MAC protocols for CR
- Hardware and software implementation issues, testbeds, and demonstrators
- Cooperative and non-cooperative spectrum sensing
- Decision making algorithms for cognitive radio
• Security aspects in cognitive radio
• Database-enabled CR
• Energy and bandwidth efficiency in cognitive radio
• Novel applications of cognitive radio technology
• Cognitive management systems in future internet
• Economic aspects of CR existence in TVWS and cellular systems
• Cognitive radio impact on regulations and standardization bodies
• Software Define Radio and Software Defined Networks
• TW White Spaces Applications
• Cognitive Small Cells and Heterogeneous Networks
• Cognitive M2M communications
• Information theory aspects of Cognitive Radio and Software Defined Networks
• Cognitive enhanced Cellular and Wi-Fi systems

The workshop gathered around 20 participants. More details, including the TPC as well as the full program, can be found in Annex 1.

2.2 Workshop on Advances in Network Localization and Navigation (ANLN) @ ICC 2015

Indoor localization, tracking, and navigation have been gaining relevance due to steadily expanding range of enabling devices and technologies, as well as the necessity for seamless solutions for location-based services. A current trend in the design of solutions for indoor localization, tracking and navigation is to use standard, low-cost, and already deployed technologies. These technologies are highly heterogeneous, encompassing, to name a few examples, inertial measurement units, sonar, laser, IR, visual light communications, or radiofrequency signals. Radio signals typically include Wi-Fi, UWB, RFID, Bluetooth, NFC, 3GPP/LTE, 802.11x, digital TV, or, in general, so-called available signals of opportunity. All this entails that the latest challenge in indoor localization, tracking, and navigation is not only to design specialized sensors for these tasks but to design and implement methods exploiting the cooperation of the already available technologies. Therefore, data fusion in indoor localization, tracking, and navigation is a key element for further advances of the field and presents exciting challenges for signal processing practitioners and researchers.

The goal of the 3rd IEEE Workshop on Advances in Network Localization and Navigation (ANLN) held at IEEE ICC 2015 in London, on 8 June 2015 was to solicit the development of new positioning algorithms based on short-range wireless communications as well as new position-aware procedures to enhance the efficiency of communication networks [2]. This workshop was organized in part by the EU Network of Excellence NEWCOM#, the EU COST Action 1004 (Cooperative Radio Communications for Green Smart Environments), the Italian National Project GRETA, and the Austrian National Research Network SISe.

Topics of interest included:
• Simultaneous localization, tracking, and mapping (SLAM)
• Data fusion schemes for heterogeneous technologies
• Cooperative localization and cloud SLAM
• Cooperative navigation
• Multi-agent control
• Fundamental limits
• Online Bayesian filtering
• Methods with robust performance
• Position-dependent parameter estimation techniques
• Learning algorithms for environmental mapping
• Localization via signals of opportunity
• Hybrid IMU and magnetic pedestrian navigation
• Ultra-wideband technology
• Passive and active RFID
• Energy efficient positioning systems
• Wireless sensor radar
• Localization methods for the Internet of Things
• Security and privacy issues
• Mobility models for tracking
• Radio channel models
• Testbeds and experimentation.

The workshop was organized by a team out of which numerous NEWCOM# partners:
• Davide Dardari (Univ. of Bologna, Cesena, Italy)
• Klaus Witrisal (Graz Univ. of Technology, Graz, Austria)
• Andrea Conti (Univ. of Ferrara, Ferrara, Italy)
• Alberto Rabbachin (European Commission, Brussels, Belgium)
• Bernard Fleury (Aalborg University, Aalborg, Denmark)

The workshop features 16 oral presentations and 6 interactive presentations. The workshop also comprised two keynote speeches, one “academic” keynote by Prof. Vincent Poor (Princeton University, NJ, USA), and one industry keynote by Frank Schubert (Airbus Defence and Space, Germany). All presentations generated a great interest and active participation of the audience through questions and discussions with the authors.

More details, including the TPC as well as the full program, can be found in Annex 2.

2.3 Workshop on Dependable Vehicular Communications (DVC) @ ICC 2015

This workshop was co-located with IEEE ICC 2015, the International Conference on Communications (http://www.ieee-icc.org/), in London, UK. It was a one-day event, taking place on 12 June 2015 [3].

Wireless vehicular communication systems constitute the backbone of intelligent transportations systems (ITS). Currently, wireless communications informs the human driver. In the future wireless communications will influence the movement of vehicles. Automated driving and driver assistance systems require the exchange of kinematic information in distributed control algorithms with very short latency. Future ITS that network automated vehicles with the goal of zero accidents have the potential to save more than 1 Mio. human lives and avoid 8 Mio. serious injuries worldwide every year.

Dependable wireless communications with short-latency, low outage probability over non-stationary vehicular communication channels are a challenging task. It involves a multi disciplinary effort including vehicular channel measurements, characterization and modelling; cooperative communications; and low-latency protocol design. A dependable wireless communication framework will be essential for vehicular ad-hoc networks, device-to-device communication links in future 5G systems, and cyber physical systems in general.

The goal of the workshop [3] was to foster the development of dependable vehicular communication systems. Topics of interest included:
• Vehicular channel measurements
• Channel characterization and modelling
• Channel estimation algorithms
• Cooperative communications for vehicular scenarios
• Signal processing techniques
• Protocols for cooperative communications
• Integration of vehicular networks in 5G systems
• Dependability aspects of channel access
• Fault tolerant protocols and error recovery
• System level simulation concepts
• Key requirements (latency, reliability) and conformance tests for DVC
• Performance bounds and optimization
• Field tests of vehicular communications

The workshop was organized by a team out of which numerous NEWCOM# partners and associate partners:
• Thomas Zemen (AIT Austrian Institute of Technology, Austria)
• Jerome Härri (EURECOM, France)
• Christoph Mecklenbräucker (TU Wien, Austria)
• Claude Oestges (UCL, Belgium)
• Stefan Rührup (FTW, Austria)
• Christoph Sommer (Universität Paderborn, Germany)
• Erik Ström (Chalmers University, Sweden)
• Fredrik Tufvesson (Lund Univ., Sweden).

More details, including the TPC as well as the full program, can be found in Annex 3.

2.4 Third Workshop on Cognitive Radio Advances, Applications and Future Emerging Technologies (CRAFT) @ ISWCS 2015

This event was organized on 25 August 2015, in conjunction with the 12th International Symposium on Wireless Communication Systems, ISWCS '15 (Brussels, Belgium) [4]. There were some changes in this edition comparing to the previous two editions resulting mainly from the different rules applied by IEEE to the workshops. Thus, the workshop consisted of mainly invited talks, however two papers from open call have been also accepted.

It is expected that novel emerging techniques applied in 5G networks will require realization of many new services in order for 5G to be beneficial and economically viable. To achieve this goal, advanced solutions have to be identified in both technical and legislative areas. Given this, CRAFT 2015 aims to gather and promote discussion among researchers, engineers and practitioners, as well as end users, the purpose being to inspire the analysis and development of cognitive radio solutions for fifth generation networks and spectrum. These include, e.g., cognitive radio and spectrum sharing concepts for 5G networks and spectrum, advanced flexible transmission techniques, platforms, and applications, cognitive carrier aggregation aspects and advanced management of coexisting networks, and regulatory aspects of efficient spectrum sharing. The main focus of this workshop is on the practical implementation of the above concepts and the "shift-to-market" activity, including legal and economic aspects.

The topics of this workshop included:
• Signal processing for cognitive applications
• Advanced multicarrier schemes and carrier aggregation
• Interference mitigation in shared spectrum environments
• Flexible relaying and cooperative techniques
• Cognitive radio and its application in 5G networks and spectrum
• Software Defined Radio and Networking
• Machine learning, self-organization and pattern recognition tools future networks
• Cross-layer flexibility and optimization in the context of next generation networks
• Hardware implementation issues, testbeds, and demonstrators
• Cooperative and non-cooperative spectrum sensing and REM databases
• Security aspects of cognitive techniques in 5G networks
• Energy efficiency of cognitive applications
• Database-driven white space and LSA-like solutions for 5G
• Economic aspects of 5G networks impact on regulations and standardization bodies
• Cognitive Small Cells and Heterogeneous Networks
• Information theory aspects of Future Technologies for Next Generation Networks
• Cognitive enhanced Cellular and Wi-Fi systems
• Spectrum regulation and management aspects for cognitive 5G networks.

This workshop was supported by the following European projects: NEWCOM#, SOLDER, ACROPOLIS, and ARTEMIS. More details, including the TPC as well as the full program, can be found in Annex 4.
3. EC Concertation Activities

3.1 Activities within the RAS Cluster

NEWCOM# was represented in the NetTech Future Concertation Meeting by CTTC. Two upcoming training and dissemination events, namely, the Emerging Topic Workshop on “Device-to-Device (D2D) and millimetre wave Communications” (Vienna University of Technology, 27-28 October 2014) and the Training School on “Mathematical Foundations of Future Wireless Networks” (Politecnico di Torino, 19-21 November 2014) were properly announced to the audience. A number of NEWCOM# activities in the field of cognitive radio were brought to the attention of the keynote speaker, this including the involvement of project researchers in activities related with the ACROPOLIS measurement campaign in downtown London. NEWCOM#’s EUWIN lab was also introduced in a presentation of the Networld2020’s White Paper entitled “Towards 5G: an Experimental Perspective”.

Finally, Jossy Sayir (UCAM) and Luis Correia (INOV) attended the concertation meeting scheduled Wednesday, 25 March from 9 to 12 on the fringes of the “NetFutures 2015” event in Brussels (http://netfutures2015.eu).

3.2 Concertation with EuCNC

NEWCOM# was also involved in the organization of EuCNC 2015. Besides the fact that NEWCOM# held its annual conference in conjunction with EuCNC, many of its members were part of the conference committees (Steering Committee and Technical Program Committee).
4. **NEWCOM# Annual Conference**

4.1 **Overview**

The NEWCOM# Annual Conference was held in Paris, France, on June 29-July 1, 2015, in conjunction with the EuCNC Conference.

![NEWCOM Events @ EuCNC Paris 2015](image)

**Table 1  **NEWCOM# Annual Conference schedule

As summarized in Table 1, it included [5]:

- one tutorial (on June 29) on "Emerging topics in small-cell networks: evolution towards 5G solutions", organized by Adrian Kliks (PUT, Poland) and Jordi Perez-Romero (UPC, Spain).  
- three technical sessions (June 30-July 1) covering Tracks 1 and 2:
  - "European platforms and facilities for experimentation towards 5G", organized by Miquel Payaró (CTTC, Spain),
  - "Performance analysis of multi-user communication systems", organized by Michel Kieffer (L2S, CNRS– CentraleSupelec – Univ ParisSud, France),
  - "Opportunistic and cooperative communications", organized by Sergio Palazzo (CNIT/UniCT, Italy),
- one exhibition on "EuWIn experimentation", organized by Roberto Verdone (CNIT/UniBo, Italy).
4.2 Detailed program

4.2.1 Technical session on "Fundamental limits of wireless networks"

On Interference channels with generalized and intermittent feedback
Abdellatif Zaidi (CNRS, France)

Stochastic Geometry Modelling and Analysis of the Error Probability of Two-tier Cellular Networks
Wei Lu, Marco Di Renzo (CNRS, France)

Effects of randomness on power optimization in wireless networks
Anthony Mays (Supelec, CNRS, France), Aris Moustakas (University of Athens, Greece), Merouane Debbah (Supelec, CNRS, France)

Decoding Options for the Symmetric and Asymmetric Turbo-Coded Two-Way Relay Channel
Stephan Pfletschinger (CTTC, Spain), Carmine Vitiello (University of Pisa, Italy) Monica Navarro (CTTC, Spain)

Erasure channel decoding and density evolution for a class of non-linear codes with local constraints
Jossy Sayir and Caroline Atkins (University of Cambridge, UK)

4.2.2 Technical session on "Advanced techniques for energy- and bandwidth-efficient communications"

Low complexity distributed outlier identification for wireless sensor networks
Wenjie Li, Francesca Bassi (CNRS – SUPELEC, Univ. Paris-Sud, France), Davide Dardari (CNIT, DEI, University of Bologna, Italy), Michel Kieffer (CNRS - SUPELEC, Univ. Paris-Sud, France), Gianni Pasolini (CNIT, DEI, University of Bologna, Italy)

Interference management in HetNets based on the use of Radio Environmental Maps
Jordi Pérez-Romero (UPC, Spain), Andreas Zalonis (IASA, Greece), Adrian Kliks (PUT, Poland), Lila Boukhatem (CNRS – UniPS, France)

Optimal Design of Energy-Efficient Multi-User MIMO Systems
Emil Bjornson (CNRS – Supelec, France), Luca Sanguinetti (CNIT-Pisa, Italy), Jakob Hoydis (Alcatel-Lucent, France), Mérouane Debbah (CNRS – Supelec, France)

Mixed-Integer Linear Programming approaches for the LTE Uplink Radio Resource Assignment model
Melchiorre Danilo Abrignani (DEI, University of Bologna, Italy), Lorenza Giupponi (CTTC - Centre Tecnològic Telecomunicacions Catalunya, Spain), Andrea Lodi, Roberto Verdone (DEI, University of Bologna, Italy)

Radio resource allocation algorithms in cognitive radio networks with outdated CSI
Paolo Del Fiorentino, Riccardo Andreotti, Filippo Giannetti, Vincenzo Lottici (CNIT/Pisa, Italy), Jeroen Van Hecke, Marc Moeneclaey (UGent, Belgium)
4.2.3 Technical session on "Opportunistic and cooperative communications"

In-network reconstruction of jointly sparse signals with ADMM
Javier Matamoros (CTTC, Spain), Sophie Fosson (Politecnico di Torino, Italy), Enrico Magli (Politecnico di Torino, Italy), Carles Antón-Haro (CTTC, Spain)

Cramer Rao Lower Bound for Multi-Source Localization in Spatial Correlated Environment
George Arvanitakis (Eurecom, France), Ioannis DAgres (University of Athens, Greece), Florian Kaltenberger (Eurecom, France), Andreas Polydoros (University of Athens, Greece)

Epidemic information dissemination in opportunistic scenarios: a realistic model
Laura Galluccio (DIEEI, Italy), Beatriz Lorenzo (University of Vigo, Spain), Savo Glisic (University of Oulu, Finland), Chiara Buratti (University of Bologna, Italy), Colian Giannini (University of Bologna, Italy), Roberto Verdone (University of Bologna, Italy)

Cost-Efficient Power Allocation in OFDMA Cognitive Radio Networks
Salvatore D’Oro (CNIT Research Unit at University of Catania/CNIT - UdR Catania, Italy), Panayotis Mertikopoulos (French National Centre for Scientific Research (CNRS)/Laboratoire d'Informatique de Grenoble, France), Aris Moustakas (University of Athens, Greece), Sergio Palazzo (University of Catania, Italy)

Experimental Study on Cyclostationary Feature and Eigenvalue based Algorithms for Spectrum Sensing
Amor Nafkha (CentraleSupélec, France), Babar Aziz (IFSTTAR, LEOST, Villeneuve D'Ascq, France), Malek Naoues (CentraleSupelec, France), Adrian Kliks (Poznan University of Technology, Poland)

4.2.4 Exhibition stand: EuWIN

EuWin @ Eurecom "OpenAirInterface"
Raymond Knopp (EURECOM, France)
EURECOM booth is centered around recent advances in the OpenAirInterface.org (OAI) platform. We will show an example of the use of OpenAir4G as a fully compliant 4G base station using commercial terminals. We will also demonstrate how the OAI platform can be used to create so-called Cloud-RAN centralized processing for virtualizing base stations in a server platform.

EuWin @ UniBO "DataSens Social Mobility Experiment"
Chiara Buratti (CNIT/UniBO, Italy), Colian Giannini (CNIT/UniBO, Italy)
During the conference, around 50 Wireless devices will be given to conference attendees in order to monitor the contacts among them. The data will be collected and elaborated in real time in order to show social characteristics of people carrying devices. Moreover, after a further post processing the data will be published, to be used for several possible application involving study of mobility (e.g., Delay Tolerant Networks application).

The full conference proceedings including all presented material can be found on NEWCOM# website [5]. Note that this solution was chosen over a CD-ROM, as it enables a better dissemination both inside and outside the network.
5. Conclusions

This deliverable reports about the activities conducted by WP 3.1 during the reporting period.

- A total of 4 workshops were organized, in conjunction with international conferences:
  - Second Workshop on Cognitive Radio Advances, Applications and Future Emerging Technologies (CRAFT) @ ISWCS 2014,
  - Workshop on Advances in Network Localization and Navigation (ANLN) @ ICC 2015,
  - Workshop on Dependable Vehicular Communications (DVC) @ ICC 2015,
  - Third Workshop on Cognitive Radio Advances, Applications and Future Emerging Technologies (CRAFT) @ ISWCS 2015.
- NEWCOM# successfully participated to the RAS cluster activities.
- The second NEWCOM# annual conference was successfully held in Paris (France) in conjunction with EuCNC 2015, with one tutorial, three technical sessions and one exhibition stand.

In this reporting period, all objectives have been successfully met. The annual event was held at EuCNC 2015 (at the same time, many NEWCOM# partners participated in the organization of EuCNC 2015 itself), consuming around 2 person-months. As far as workshops and special sessions are concerned, 4 events were organized over the reporting period, consuming approximately 9 person-months. The remaining manpower (approximately 1 person-month) was dedicated to RAS-related activities.
6. References

7. Annex 1: Second Workshop on Cognitive Radio Advances, Applications and Future Emerging Technologies (CRAFT) @ ISWCS 2014

7.1 Organizing Chairs

- Panagiotis Demestichas, University of Piraeus, Greece
- Adrian Kliks, Poznan University of Technology, Poland
- Kareem Baddour, Communications Research Centre Canada

7.2 Technical Program Committee

- David Allen, University of Leeds, UK
- Faouzi Bader, SUPELEC, Spain
- Mohamed Slim-Alouini, KAUST, Saudi Arabia
- Gianmarco Baldini, JRC, Italy
- Hanna Bogucka, Poznan University of Technology, Poland
- Maria-Gabriella Di Benedetto, University of Rome La Sapienza, Italy
- Mérouane Debbah, Supelec, France
- David Grace, University of York, UK
- Tao Jiang, University of York, UK
- Oliver Holland, KCL, UK
- Stan Karanasios, University of Leeds, UK
- Andre Kokkeler, University of Twente, Netherlands
- Paweł Kryszkiewicz, Poznan University of Technology, Poland
- Vincent Lau, Hong Kong University of Science and Technology, China
- Jonathan Rodriguez, Institute of Telecommunications, Aveiro, Portugal
- Berna Sayrac, Orange-FIT Group, France
- Berna Ozbek, Izmir Institute of Technology, Turkey
- Luiz DaSilva, Trinity College Dublin, Ireland
- Fernando Velez, University of Beira Interior, Portugal
- Alexander Wyglinski, Worcester Polytechnic Institute, USA
- Chau Yuen, Singapore University of Technology and Design, Singapore
- Bassem Zayen, EUROCOM, France
- Qing Zhao, University of California—Davis, USA
- Andreas Polydoros, IASA, Greece
- Andreas Zalonis, IASA, Greece
- Klaus Moessner, UoS, UK
- Dionysia Triantafyllopoulou, UoS, UK
- Linda Doyle, CTVR, UK
- Marco Luise, University of Pisa, Italy
- Jocelyn Fiorina, Supelec, France
- Andrea Fabio Cattoni, Aalborg University, Denmark.
- Aissa Aikhlef, University of British Columbia, Canada
- Didier Le Ruyet, CNAM, France.
- Josep Vidar, Universitat Politecnica de Catalunya, Spain
- Ronald Raulefs, DLR, Germany.
- Fengming Cao, Toshiba Research Europe, UK.
- Mehdi Bennis, University of Oulu, Norway.
- Eryk Dutkiewicz, Macquarie University, Australia
- Octavia Dobre, Memorial University, Canada

7.3 Scientific Program

- Scientific session

The Impact of Hardware Implementation on the Performance of Spectrum Sensing Algorithms
Krzysztof Cichor (Poznan University of Technology, Poland), Adrian Kliks (Poznan University of Technology, Poland)

MIMO channel analysis in the context of Body Area Networks
Adrian Kliks (Poznan University of Technology, Poland), Paweł Kryszkiewicz (Poznan University of Technology, Poland), Michal Mackowiak (INOV-INESC / IST - University of Lisbon, Portugal), Luis M. Correia (IST - University of Lisbon, Portugal)
SNR Wall Analysis of Multi-Sensor Energy Detection with Noise Variance Estimation
Daniel Rivello (Politecnico di Torino, Italy), Pawan Dhakal (Politecnico di Torino, Italy), Roberto Garello (Politecnico di Torino, Italy)

Smart energy management of wireless technologies and mobile applications
Dimitris Kelaidonis (University of Piraeus, Greece), Panagiotis Vlacheas (University of Piraeus, Greece), Vassilis Foteinos (University of Piraeus, Greece), Antonis Moustakos (University of Piraeus, Greece), Theodoros Michalareas (Velti, Greece), Zhiyong Feng (Beijing University of Posts and Telecommunications, P.R. China), Meng Dexiang (China Mobile Group Design Institute Co., Ltd., P.R. China), Panagiotis Domestichas (University of Piraeus, Greece)

Inter-band Carrier Aggregation in Heterogeneous Networks: Design and Assessment
Georgia D. Ntouni (Aristotle University of Thessaloniki, Greece), Alexandros-Apostolos A Boulogeorgos (Aristotle University of Thessaloniki, Greece), Dimitrios S. Karas (Aristotle University of Thessaloniki, Greece), Theodoros Tsiftsis Athena Research Innovation Centre, Greece, Fotis Foukalas (Aristotle University of Thessaloniki, Greece), Vasileios M. Kapinas (Aristotle University of Thessaloniki, Greece), George K. Karagiannidis (Aristotle University of Thessaloniki, Greece)

QoS-Aware Joint Uplink-Downlink Scheduling in FDD LTE-Advanced with Carrier Aggregation
Abdulaziz M. Ghaleb (Qatar Mobility Innovations Center (QMIC), Qatar), Elias Yaacoub (Qatar Mobility Innovations Centre (QMIC), Qatar), Ayad Atiyah Abdulkafi (Universiti Tenaga Nasional (UNITEN), Malaysia)

Cognitive radio results of ACROPOLIS NoE project
Adrian Kliks

- Panel
  - Spectrum Sharing and Inherent challenges for LTE Carrier Aggregation
  - Carrier Aggregation Schemes for typical Public Safety: Use Cases
  - Licensed Shared Access with Aggregation Capabilities
  - Practical Aspects of Carrier Aggregation Implementation
  - The future of carrier aggregation in 5G

8.1 Advisory Board

- Ian Opperman (CSIRO, Australia)
- Chris Rizos (University of New South Wales, Sydney, Australia)
- Moe Win (Massachusetts Institute of Techn. (MIT), Cambridge, MA, USA)
- Ronald Raulef (DLR, Germany)

8.2 Scientific Program

- 09:00 - 09:50 WS-15-01: Industry Keynote

From Space Receivers to Integrity on the Ground - Navigation Signal Processing at Airbus Defence and Space
Frank Schubert, Airbus Defence and Space, Germany

- 09:50 - 10:30 WS-15-02: Fundamental Limits 1

Tracking and positioning using phase information from estimated multi-path components
Meilang Zhu, Joao Vieira, Yubin Kuang and Karl Astrom (Lund University, Sweden); Andreas Molisch (University of Southern California, USA); Fredrik Tufvesson (Lund University, Sweden)

Robust Power Allocation for OFDM Wireless Network Localization
Arash Shahmansoori (Universitat Autonoma de Barcelona (UAB), Spain); Gonzalo Seco-Granados (Universitat Autonoma de Barcelona, Spain); Henk Wymeersch (Chalmers University of Technology, Sweden)

- 10:30 - 11:00 WS-15-11: Cooperative Localization and Testbeds

Cooperative hybrid localization using Gaussian processes and belief propagation
Samuel Van de Velde (Ghent University, Belgium); Gundeep Arora (Indian Institute of Technology, India); Luigi Vallozzi, Hendrik Rogier and Heidi Steendam (Ghent University, Belgium)

Frequentist Inference for WiFi Fingerprinting 3D Indoor Positioning
Giuseppe Cason (Sapienza University of Rome, Italy); Luca De Nardis (University of Rome La Sapienza, Italy); Maria Gabriella Di Benedetto (University of Rome La Sapienza Italy, Italy)

On the RSS biases in WLAN-based indoor positioning
Elina Laitinen, Jukka Talvitie and Elena Simona Lohan (Tampere University of Technology, Finland)

Localization Method for Device-to-Device through User Movement
The Dang Huynh (Alcatel-Lucent France, France); Chung Shue Chen (Alcatel-Lucent Bell Labs, France); Siu-Wai Ho (University of South Australia, Australia)

Web-based Platform for Evaluation of RF-based Indoor Localization Algorithms
Filip Lemic (Technical University of Berlin (TUB) & Telecommunication Network Group (TKN), Germany); Viladis Handziski (Technische Universitat Berlin, Germany); Niklas Johan Wirsström (SICS, Sweden); Tom Van Haute (Ghent University - iMinds, Germany); Eli De Poorter (Ghent University & iBBT, Belgium); Thiemo Voigt (Swedish Institute of Computer Science, Sweden); Adam Wolisz (TUB, Germany)

Nonparametric Belief Propagation based Positioning via Distributed Network Formation
Xiaopeng Li, Hui Gao and Tiejun Lv (Beijing University of Posts and Telecommunications, P.R. China); Xin Su (Tsinghua University, P.R. China)

- 11:00 - 12:15 WS-15-03: Robust Localization

Joint Scheduling and Localization in UWB Networks
Gabriel E. Garcia (Chalmers University of Technology, Sweden); Wuhua Hu and Wei Peng Tay (Nanyang Technological University, Singapore); Henk Wymeersch (Chalmers University of Technology, Sweden)

Bayesian Ranging for Radio Localization with and without Line-of-Sight Detection
Lishuai Jing (Aalborg University & Aalborg Universitet, Denmark); Troels Pedersen and Bernard Henri Fleury (Aalborg University, Denmark)
An Area State-Aided Indoor Localization Algorithm and Its Implementation
Kaiqing Zhang and Hong Hu (Tsinghua University, P.R. China); Wenhan Dai (Massachusetts Institute of Technology, USA); Yuan Shen (Tsinghua University & Massachusetts Institute of Technology, P.R. China); Moe Win (Massachusetts Institute of Technology, USA)

Sensor Localization in NLOS Environments with Anchor Uncertainty and Unknown Clock Parameters
Siamak Yousefi (McGill University, Ireland); Reza Monir Vaghefi (Virginia Tech, USA); Xiao-Wen Chang and Benoit Champagne (McGill University, Canada); Michael Buehrer (Virginia Tech, USA)

Privacy in Networks of Interacting Agents
Vincent Poor, Princeton University

Bayesian Multi-Target Localization using Blocking Statistics in Multipath Environments
Sundar Aditya and Andreas Molisch (University of Southern California, USA); Hatim Behairy (King Abdulaziz City for Science and Technology, Saudi Arabia)

Simultaneous Localization and Mapping using Multipath Channel Information
Erik Leitinger, Paul Meissner, Manuel Lafer and Klaus Witrisal (Graz University of Technology, Austria)

A Combined GP-State Space Method for Efficient Crowd Mapping
Davide Dardari, Alberto Arpino, Francesco Guidi and Roberto Naldi (University of Bologna, Italy)

Reduced-Complexity Techniques for Indoor Map-Aware Localization
Francesco Montorsi (University of Modena and Reggio Emilia, Italy); Fabrizio Pancaldi (University of Modena and Reggio Emilia & Consorzio Nazionale Interuniversitario per le Telecomunicazioni (CNIT), Italy); Giorgio M. Vitetta (University of Modena and Reggio Emilia, Italy)

An Empirical Ranging Error Model and Efficient Cooperative Positioning for Indoor Applications
Shenghong Li and Mark Hedley (CSIRO, Australia); Iain B. Collings (Macquarie University, Australia)

This session features the same interactive presentations as the interactive session WS-15-I1 at 10:30 - 11:00

Position and Orientation Error Bound for Wideband Massive Antenna Arrays
Anna Guerra (CNIT - University of Bologna, Italy); Francesco Guidi and Davide Dardari (University of Bologna, Italy)

Joint Power and Spectrum Optimization in Wireless Localization Networks
Chuan Qin, Liyuan Song and Tingting Zhang (Harbin Institute of Technology, Shenzhen Graduate School, P.R. China); Yuan Shen (Tsinghua University & Massachusetts Institute of Technology, P.R. China); Andreas Molisch (University of Southern California, USA); Qinyu Zhang (Shenzhen Graduate School, Harbin Institute of Technology, P.R. China)

Monostatic Indoor Localization: Bounds and Limits
Gregor Dumphart (ETH Zurich, Switzerland); Erik Leitinger, Paul Meissner and Klaus Witrisal (Graz University of Technology, Austria)

Localization Performance in Cellular Networks
Javier Schloemann, Harpreet S Dhillon and Michael Buehrer (Virginia Tech, USA)

Optimal Jamming of Wireless Localization Systems
Sinan Gezici (Bilkent University, Turkey); Mohammad Reza Gholami (KTH Royal Institute of Technology, Sweden); Suat Bayram (Turgut Ozal University, Turkey); Magnus Jansson (KTH Royal Institute of Technology, Sweden)
9. Annex 3: Workshop on Dependable Vehicular Communications (DVC) @ ICC 2015

9.1 Technical Program Committee

- O. Alintas (Toyota ITC)
- N. An (KIT)
- A. Bo (Beijing Jiaotong Univ.)
- N. Brahm (Ericsson)
- F. Brännström (Chalmers)
- C. Casetti (Polito Italy)
- R. Lo Cigno (Univ. Trento)
- W. Chen (China Mobile Research)
- F. Cuomo (Univ. Rome Sapienza)
- M. Döring (Robert Bosch GmbH)
- D. Eckhoff (Univ. Erlangen)
- L. Ekiz (BMW Research)
- G. Del Galdo (Fraunhofer IIS)
- A. Festag (TU Dresden)
- M. Fidler (Uni Hannover)
- M. Fiore (CNR/INRIA)
- R. Frank (Univ. Luxembourg)
- J. Gozalvez (Univ. M. Hernandez)
- K. Guan (Beijing Jiatong Univ.)
- F. Hofmann (Robert Bosch GmbH)
- F. Kaltenberger (Eurecom)
- K. Katsaros (Univ. College London)
- A. Khellil (Huawei European Research Centre)
- F. Malandrino (Trinity College Dublin)
- P. Manzoni (Univ. Pol. Valencia)
- G. Mart (Vienna Univ. Technology)
- A. Molinaro (Univ. M. Calabria)
- A. Paier (Kapsch TrafficCom)
- P. Papadimitratos (KTH)
- G. Pau (UPMC)
- J. Petit (Univ. College Cork)
- P. Priller (AVL)
- I. Radusch (Fraunhofer FOKUS)
- O. Renaudin (USC)
- S. Rührup (FTW)
- M. Schack (TU Braunschweig)
- B. Scheuermann (HU Berlin)
- B. Schünemann (TU Berlin)
- K. Sjoberg (Volvo Trucks)
- E. Uhlemann (Mälardalen Univ.)
- A. Vinel (Halmstad Univ.)
- K. Witrisal (TU Graz)

9.2 Scientific Program

- 09:00 - 10:30, WS-19-Keynote-1, Academic and industrial keynote

Vehicular communication and applications: who depends on whom?
Hannes Hartenstein (Karlsruhe Institute of Technology, Germany)

V2X Deployment: Safety and Beyond
John Kenney (Toyota InfoTechnology Center, USA)

- 10:30 - 11:00, WS-19-I1, Dependable Vehicular Communications (Poster Session)

An MAP ICI Equalizer with Variable-Width Trellis for Fast-Fading Channels
Tzu-Hsien Sang (National Chiao Tung University, Taiwan); Yun-Kai Lai (National Chiao Tung University, Taiwan); Hsin-De Lin (National Chiao Tung University, Taiwan)
Location-based Resource Allocation for Mobile D2D Communications in Multicell Deployments
Mladen Botsov (BMW Group Research and Technology & Technische Universität Berlin, Germany); Markus Klügel (Technische Universität München, Germany); Wolfgang Kellere (Technische Universität München, Germany); Peter Fertl (BMW Group Research and Technology, Germany)

Evaluation of an Awareness Control Algorithm for VANETs based on ETSI EN 302 637-2 V1.3.2
Torsten Lorenzen (Leibniz Universität Hannover & Institute of Communications Technology (IKT), Germany); Hugues Tchouankem (Leibniz Universität Hannover & Institute of Communications Technology (IKT), Germany)

A Framework for Reliable Exchange of Periodic and Event-Driven Messages in Platoons
Le-Nam Hoang (Halmstad University, Sweden); Elisabeth Uhlemann (Malardalen University, Sweden); Magnus Jonsson (Halmstad University, Sweden)

- 11:00 - 13:00, WS-19-01, Antenna - Channel - PHY - for Dependable Vehicular Communications

Curvature based Antenna Selection Method Evaluated Using the Data Age Metric and V2V Measurements
Marcus Larsson (Qamcom Research and Technology AB & Halmstad University, Sweden); Magnus Jonsson (Halmstad University, Sweden); Kristian Karlsson (SP Technical Research Institute of Sweden, Sweden); Carl Bergenheim (Qamcom Research And Technology, Sweden); Tony I Larsson (Halmstad University, Sweden)

Error characterization of multi-Access Point WSNs in an Aircraft Cabin
Johannes Blanckenstein (Airbus Group Innovations, Germany); Cristina Nardin (Airbus Group, Germany); Jirka Klaue (Airbus Group Innovations, Germany); Holger Karl (University of Paderborn, Germany)

Analytical approach for evaluating LTE communication errors in train control application
Thi Phuong Khanh Nguyen (IFSTTAR & ESTAS, University Lille Nord de France, France); Julie Beugin (IFSTTAR, ESTAS & University Lille Nord de France, France); Marion Berbione (IFSTTAR, LEOST & University Lille Nord de France, France); Mohamed Kassab (HANA Lab, ENSI & University of Monastir, Tunisia)

Structured Compressive Sensing Based Narrowband Interference Mitigation for Vehicular Communications
Sicong Liu (Tsinghua University & Research Institute of Information Technology, Tsinghua National Laboratory of Information Science an, P.R. China); Fang Yang (Tsinghua University, P.R. China); Wenbo Ding (Tsinghua University, P.R. China); Jian Song (Tsinghua University, P.R. China)

Measurement-based Evaluation of Interference in Vehicular Ad-Hoc Networks at Urban Intersections
Hugues Tchouankem (Leibniz Universität Hannover & Institute of Communications Technology (IKT), Germany); Torsten Lorenzen (Leibniz Universität Hannover & Institute of Communications Technology (IKT), Germany)

A Model for Vehicle-to-Infrastructure Communications in Urban Environments
Veronika Shivaldova (Vienna University of Technology, Austria); Miguel Sepulcre (University Miguel Hernandez of Elche, Spain); Andreas Winkelbauer (Vienna University of Technology, Austria); Javier Gozalvez (Universidad Miguel Hernandez de Elche, Spain); Christoph P Mecklenbräuker (Vienna University of Technology, Austria)

- 14:30 - 16:00, WS-19-02, Resource Sharing (MAC), Networking for Dependable Vehicular Communications

Does ETSI beaconing frequency control provide cooperative awareness?
Nikita Lyamin (Halmstad University, Sweden); Alexey Vinel (Halmstad University, Sweden); Magnus Jonsson (Halmstad University, Sweden)

Resource Sharing and Power Allocation for D2D-based Safety-Critical V2X Communications
Wanlu Sun (Chalmers University of Technology, Sweden); Di Yuan (Linköping University, Sweden); Erik G Ström (Chalmers University of Technology, Sweden); Fredrik Brännström (Chalmers University of Technology, Sweden)

Analytical Study of Self Organizing TDMA for V2X Communications
Laurent Gallo (EURECOM, France); Jérôme Häri (EURECOM, France)

Data age based retransmission scheme for reliable control data exchange in platooning applications
Annette Böhm (Halmstad University, Sweden); Kristina Kunert (Halmstad University, Sweden)

Distributed IP Mobility in a Real Vehicular Network
João Azevedo (Instituto de Telecomunicações, Universidade de Aveiro, Portugal); Tiago Silvestre Condeixa (Instituto de Telecomunicações, Portugal); Susana Sargento (Instituto de Telecomunicações, Universidade de Aveiro, Portugal)
16:00 - 16:30, WS-19-I2, Dependable Vehicular Communications (Poster Session)

An MAP ICI Equalizer with Variable-Width Trellis for Fast-Fading Channels
Tzu-Hsien Sang (National Chiao Tung University, Taiwan); Yun-Kai Lai (National Chiao Tung University, Taiwan); Hsin-De Lin (National Chiao Tung University, Taiwan)

Location-based Resource Allocation for Mobile D2D Communications in Multicell Deployments
Mladen Botsov (BMW Group Research and Technology & Technische Universität Berlin, Germany); Markus Klügel (Technische Universität München, Germany); Wolfgang Kellerer (Technische Universität München, Germany); Peter Ferti (BMW Group Research and Technology, Germany)

Evaluation of an Awareness Control Algorithm for VANETs based on ETSI EN 302 637-2 V1.3.2
Torsten Lorenzen (Leibniz Universität Hannover & Institute of Communications Technology (IKT), Germany); Hugues Tchouankem (Leibniz Universität Hannover & Institute of Communications Technology (IKT), Germany)

A Framework for Reliable Exchange of Periodic and Event-Driven Messages in Platoons
Le-Nam Hoang (Halmstad University, Sweden); Elisabeth Uhlemann (Malardalen University, Sweden); Magnus Jonsson (Halmstad University, Sweden)

Service Discovery and Access in Vehicle-to-Roadside Multi-Channel VANETs
Claudia Campolo (University Mediterranea of Reggio Calabria, Italy); Antonella Molinaro (University Mediterranea of Reggio Calabria, Italy); Alexey Vinel (Halmstad University, Sweden); Nikita Lyamin (Halmstad University, Sweden); Magnus Jonsson (Halmstad University, Sweden)

Optimal Caching of Encoded Data for Content Distribution in Vehicular Networks
Lilia Idir (Paris Descartes University, LIPADE & Université Paris Sorbonne Paris Cité, France); Stefano Paris (Huawei Technologies Co. Ltd. & Université Paris Descartes - Sorbonne Paris Cité, France); Farid Naït-Abdesselam (University Paris Descartes & University Sorbonne Paris Cité, France)

Lessons Learned from a Real Vehicular Network Deployment of Delay-Tolerant Networking
Romeu Monteiro (Universidade de Aveiro, Portugal); Luís Guedes (University of Aveiro, Instituto de Telecomunicações, Portugal); Tiago Silvestre Condeixa (Instituto de Telecomunicações, Portugal); Susana Sargento (Instituto de Telecomunicações, Universidade de Aveiro, Portugal); Filipe Neves (Veniam, Portugal); Lucas Guardalben (University of Aveiro & Instituto de Telecomunicações, Portugal); Peter Steenkiste (Carnegie Mellon University, USA)

Self-Healing Infotainment and Safety Application for VANET dissemination
Mario De Felice (Sapienza University of Rome, Italy); Ian Victor Calcagni (Sapienza University of Rome, Italy); Francesca Pesci (Sapienza University of Rome, Italy); Francesca Cuomo (University of Rome Sapienza, Italy); Andrea Baiocchi (University of Roma Sapienza, Italy)
10. Annex 4: Third Workshop on Cognitive Radio Advances, Applications and Future Emerging Technologies (CRAFT) @ ISWCS 2015

10.1 Organizing Chairs

- Panagiotis Demestichas, University of Piraeus, Greece
- Adrian Kliks, Poznan University of Technology, Poland
- Kareem Baddour, Communications Research Centre Canada
- Oliver Holland, King’s College London, UK
- Markus Mueck, Intel Mobile & Communications Group, Germany

10.2 Technical Program Committee

- David Allen, University of Leeds, UK
- Faouzi Bader, SUPELEC, Spain
- Mohamed Slim-Alouini, KAUST, Saudi Arabia
- Gianmarco Baldini, JRC, Italy
- Hanna Bogucka, Poznan University of Technology, Poland
- Maria-Gabriella Di Benedetto, University of Rome La Sapienza, Italy
- Mérouane Debbah, Supelec, France
- Mark Grace, University of York, UK
- Tao Jiand, University of York, UK
- Oliver Holland, KCL, UK
- Stan Karanasios, University of Leeds, UK
- Andre Kokkeler, University of Twente, Netherlands
- Pawel Kryszkiewicz, Poznan University of Technology, Poland
- Vincent Lau, Hong Kong University of Science and Technology, China
- Jonathan Rodriguez, Institute of Telecommunications, Aveiro, Portugal
- Berna Sayrac, Orange-FT Group, France
- Bernd Ozbek, Izmir Institute of Technology, Turkey
- Luiz DaSilva, Trinity College Dublin, Ireland
- Fernando Velez, University of Beira Interior, Portugal
- Alexander Wyglinski, Worcester Polytechnic Institute, USA
- Chau Yuen, Singapore University of Technology and Design, Singapore
- Bassem Zayen, EUROCOM, France
- Qing Zhao, University of California—Davis, USA
- Andreas Polydoros, IASA, Greece
- Andreas Zalonis, IASA, Greece
- Klaus Moessner, UoS, UK
- Dionysia Triantafyllopoulou, UoS, UK
- Linda Doyle, CTVR, UK
- Marco Luise, University of Pisa, Italy
- Jocelyn Fiorina, Supelec, France
- Andrea Fabio Cattoni, Aalborg University, Denmark
- Aissa Aikhlef, University of British Columbia, Canada
- Didier Le Ruyet, CNAM, France.
- Josep Vidar, Universitat Politecnica de Catalunya, Spain
- Ronald Rauels, DLR, Germany.
- Fengming Cao, Toshiba Research Europe, UK.
- Mehdi Benni, University of Oulu, Norway.
- Eryk Dutkiewicz, Macquarie University, Australia
- Octavia Dobre, Memorial University, Canada

10.3 Scientific Program

- Session 1: 14:00–15:15

Workshop Opening, Overview and Objectives
Adrian Kliks (Poznan University of Technology, Poland)

Why Look at Beyond-OFDM Waveforms in 5G Wireless Network Systems?
C. Faouzi Bader (CentraleSupélec, France)

Geolocation-Based Opportunistic Spectrum Sharing for 5G
Oliver Holland (King’s College London, UK)
On the Estimation of Unknown Resource Allocations by Exploiting Channel Sparsity
Dennis Wieruch (Fraunhofer-HHI, Germany); Peter Jung (TU-Berlin, Germany); Thomas Wirth (Fraunhofer-HHI, Germany); Armin Dekorsy (University of Bremen, Germany)

• Session 2: 15:45–17:30

On the use of Carrier Aggregation Towards 5G
Guillaume Vivier (Sequans Communications, France)

RF Prototype for Dynamic Cognitive Carrier Aggregation of Heterogeneous Dispersed Bands
Emmanouil-Aris Antonopoulos, Fotis Plessas, Fotis Foukalas (Athena Research and Innovation Centre, Greece)

Neighbour-Aware Cooperative Interference Management in Future Wireless Networks
Pawel Sroka (Poznan University of Technology, Poland)

Workshop Observations, Round Table Discussion Towards Workshop Conclusions, and Closing
Oliver Holland (King's College London, UK)
Comments and suggestions for the improvement of this document are most welcome and should be sent to:

project_office@newcom-project.eu

http://www.newcom-project.eu