



Forum

Newsletter of the Federation of Telecommunications Engineers of the European Union
March 2017

Report on FITCE 2016 – Athens-Greece



Last year, in September 2016, the 55th annual FITCE Congress took place at the amphitheater of the Ministry of Transport in Athens, Greece. Athens is the capital and largest city of Greece, with population exceeding the 5 million people, and one of the oldest cities in the world. Therefore, the participants, in addition to the rich theme of topics and well organized event, had a chance to visit the nice ancient monument places like Acropolis, Parthenon and Lycabettus hill and learn about their significant history.

The Congress, which was attended by more than 400 people, was comprised of three days. On the

first day, there were five sessions and a workshop. On the second day, there were four sessions with a workshop. At the third day, there was a conclusion of the workshop that was followed by the General Assembly. At the beginning of the Congress, key-note talks were given by the Presidents of FITCE Europe and Greece and also from Executive Directors of different companies, who provided an insight to where the ICT industry is moving and what is expected in the near future.

The topics covered at the Congress encompassed the Internet of Things (IoT), the advanced copper technologies and antennas design,

the security of 5G & IoT, the fixed line broadband, the monitoring of the QoE and QoS to the end user, the importance of SDN in the backhaul technology, the economics brought by IP technology, the integration of satellite in 5G technologies, and finally the benefits of beamforming and smart steering by antennas. The technical programme consisted of a balanced group of presentations focused on the current trend of technologies in the ICT field, and key-note presentations on leading-edge technologies, including 5G architectures and services.

FITCE Greece Welcome Speech

Dear delegates, colleagues, and FITCE members. It is my pleasure to welcome you in Athens for the 55th FITCE Congress.

This congress is organized in a difficult period, during a strong economic recession, not only in Greece but also in Europe. The turnover in the telecoms industry is dropping, like in every other sector and is a challenge for the Hellenic Association of FITCE to prepare and organize a congress which will prove that the ICT sector is still alive. New ideas and applications are implemented and the telecom professionals are reacting positively to the recession. We all know how significant the ICT sector is for the growth and the development, and how much it is contributing to the European and the national GDP.

It is only a few days, since early July, when it was announced that the European Commission is reconsidering upwards the targets of the digital agenda, requiring a 100Mb/s speed for the 100% of the households for 2025.



Costas Sidiropoulos

We hope that the carefully selected papers to be presented to our distinguished delegates from 15 countries, during the 5 sessions and the 2 workshops of this congress, will have a positive

contribution to the telecoms future.

I have to thank not only our sponsors for their generous contribution, but also the Organizing Committee and the International Scientific Committee, along with my colleagues on the board, who volunteered to spend their valuable time for the success of the Congress.

Please, allow yourselves to enjoy both the exciting presentations of our colleagues, as well as the interesting and unique attractions of our historical city.

I wish you all, a successful and unforgettable congress.

*Costas Sidiropoulos
President of FITCE Greece*

FITCE 2016 Technical Programme

The FITCE Congress opened with welcome speeches from the President of FITCE Greece, Konstantinos Sidiropoulos, and the President of FITCE Europe, Andy Valdar. They were followed by various other speakers from the public and from companies, including the Executive Director from OTE, Mr. Christos Fouskoudis, and the Vice President from Intracom Telecom, Mr. Anastasios Dimopoulos. Sotirios Bithas considered transforming Smart into Genius, noting that IoT is here but there are challenges in technology, business and the market. Andreas Caracostas from Accenture looked at driving growth through the Internet of Things, asserting that customers want tailored services. George Heliotis from the OTE group looked at the evolution of the copper access network, noting that despite the many years of discussion that Fibre to the Home (FTTH) is widely considered to be the future, this has not happened yet and copper has got better in that time. Bogdan Hebean from Nexans covered the automatic configuration of Optical Distribution frames (ODM), using remote intelligence and robotics, to handle physical aspects of connection manipulation, a solution that can be used to build PON networks. Gregory Papaconstantinou from Mortek considered the demands that 5G imposes on antenna, with the need to support 5 frequency bands

across 3 technologies, with antenna size and location to be the prime considerations.

Marianna Goldhammer from 4GCelleX in Israel spoke about 3GPP standardisation and its relevance to the Radio Access Network. Ioannis Psallidas gave a regulator's perspective of communications security, highlighting that the goal is to protect content and data within an operational framework consisting of constitutions, laws and regulations. Peter Thermos of Palindrome Technologies in the UK looked at threats and security issues in emerging technologies. IoT is built on its own ecosystem, connected with a household. Michael Sharpe of ETSI considered using harmonised standards to address the single European market for radio equipment and he took the audience through ETSI's role and activities. The workshop on 5G Technologies and Smart Educational Platforms covered the results, challenges and architectures arising from research projects that are part of the Horizon 2020 initiative.

At the second day, Panos Karaminas considered the role of BEREC in the harmonisation of the European market for electronic communications. Nikolaos Toulatos from ZTE considered "Big Broadband", the development trends of fixed-line broadband (FBB), noting that a significant driver of growth was the number of

devices and users. Monitoring QoS and QoE System of Mobile and Fixed Networks in Greece was examined by Stavroula Bouzouki from the Greek National Regulatory Authority (NRA), focusing on the need to manage a balance between active and passive monitoring. In looking at the transformation of mobile backhaul with the use of SDN, Michalis Sidiropoulos considered the use of small cells for high intermediate mobile demand. Marios. A. Moysidis noted that radio had a significant role to play in the roll out of Smart Cities, when he discussed about Smart Wireless Connections. He majored in multipoint wireless and low latency LTE. George Agapiou, the technical chair of FITCE Europe provided an overview of the research projects VITAL and SANSA in which OTE participates.



George Agapiou

Andy Valdar looked at the economics of packet versus circuit voice switching, focusing on many of the misconceptions surrounding the economic assessment of these technologies. The topic "Business models for smart infrastructures using smart metering as a case study" was explored by Ed Smith. A

“Business game for offering IT solution for elderly care homes” by Jonathan Spruytte, looked at testing the business acumen of students, who were asked to design an IT solution for an elderly care home and understand the commercial impact of their designs. In examining surge protection practices for telecommunications infrastructure Fani Asimakopoulou considered

the requirements for protecting sensitive electronic equipment against power surges provoked primarily by lightning strikes. The Workshop on advanced backhauling technologies and NFV/SDN impact was focused on the output from the SANSa and VITAL projects and consisted of two overview papers followed by an examination of the results, challenges, architectures from

these research projects. Copies of all the presentations are available at <https://www.fitce2016.gr/congress-review/>

Friday’s Gala Dinner was held in a magnificent place at the roof of the Royal Olympic hotel that has a magnificent view of Parthenon.



General Assembly

The following day saw the FITCE Congress conclusions and the General Assembly. The FITCE

Europe President thanked for the thorough organization and quality of the Congress and wished that

this will be continued in the following years.

FITCE-EUROPE PRESIDENT'S MESSAGE

Dear members of FITCE,

First of all, I would like to congratulate our Greek colleagues for organising such a splendid Congress in Athens this year. Our thanks goes to Costas Sidiropoulos, Georges Agapiou, and Panagiotis Exarchos and all those that worked so hard with them to create a congress that was both enjoyable and informative. I certainly know much more about 5G mobile and NFV/SDN than I did before! It was also a pleasure to meet again our ex-President from Greece, Georgios Argyropoulos. Despite all the changes to our industry over the last 50 years, the annual FITCE hat we continue all continue to give it support.



Andy Valdar & Costas Sidiropoulos.

Congress is still the Federation's main product and it is important It is hard for me to believe that it is over a year since I last wrote my message for the Forum, and that I am already over 60% through my term in office! In my previous message I outlined the strategy options identified by the FITCE Management Board – 'CD' – given that we have to change the way of working and the offerings to members if we are to remain relevant in today's very different telecommunications and ICT society. Although we have made some progress towards this goal, there are still many challenges ahead. Therefore, in October, the Board held an one-day workshop in the Hilton Hotel at Brussels Airport, supported by a professional facilitator, to investigate what role should the Federation have in the future, and in particular what services should it offer to the National Associations (NAs) and their members. This focused activity gave the CD members a better understanding of the range of the different FITCE NAs in each of its countries. It is clear that the NAs are all active in providing services to their members, so the real question for the CD is what added value does a federation like FITCE EU need to offer? Although we managed to agree on the basic role of FITCE EU, we still need to

further refine the deliverables. The Board has also undertaken some FITCE's brand image and its communications. The CD is also committed to improving the efficiency of the way it works and reducing the costs of running FITCE EU. We now plan on holding only one face-to-face Board meeting once a year, collocated with the Congress – although, exceptionally we may need to have physical meetings, as with the workshop described above. Instead, we undertake as much of our work on-line as possible, using web-based virtual meetings and a dedicated discussion board. I look forward to continuing the work with the CD Board on the challenges ahead.

We are all look forward to supporting our Spanish colleagues in their preparations for the FITCE Congress in Madrid next September.

*Andy Valdar
President of FITCE Europe*

News from FITCE U.K.: Edward Smith and Luke Fuller

(Control Systems and the Internet of Things – Shrinking the Factory)

The Internet of Things is more than the proliferation of devices and information enabled by: the growth of the Internet, increased miniaturisation, prolonged battery lives and an IT literate user base. The real benefits may well be released by closed loop control systems and open loop monitoring systems. Early manifestations of these were factory control systems, such as the computer controlled production lines operated in the late 1970s by United Biscuits and Elida Gibbs' automated warehouse.

The United Biscuits systems were built on DEC PDP 11 computers and interfaced to factory plant via a GEC Media system, which allowed the status of factory plant to be monitored and controlled by directly reading from or writing to computer memory. Digital outputs were switches that set plant status to on or off, whilst digital inputs were indicators of plant. Product weights were typically obtained through analogue signals from check-weigher devices, converted to digital signals by the Media sub-

system and read as an "analogue input" by the PDP-11. One feedback control loop was to manage the filling of crisp packets to ensure that underweight packets were not produced but that bags were not excessively filled. Multiple production lines could be managed, with full production reporting, using a minicomputer with 64 Kilobytes of memory and 2.5 Megabytes of disc space.

The cost of computing has been reduced drastically, programming interfaces have been simplified, sensors are simpler and more cost effective and high performance communications across a wide area are readily available. Consider the Raspberry Pi, which is a small programmable networkable computer based on powerful ARM processor, which retails for about €35 and has a programmable I/O interface that can provide access to sensors (and other devices).

One of us has implemented a prototype application written in Python, running on a Raspberry Pi. This can sense the presence of a Human being, using inexpensive passive infrared detectors and can

be used to monitor the activity of vulnerable adults, logging the results to a central server using a domestic Internet solution over a Wireless LAN.

This simple prototype demonstrates the potential for the use of control/monitoring systems across the Internet. The Internet of Things, however, will demand solutions that are rolled out across thousands of sites making delivery more complex. The data processing and management demands on such solutions are considerably greater and the security concerns can be complex. Roll outs will meet the requirements for strong project management and balance the demands from a wide number of customer stakeholders.

Whilst these solutions are delivered through complex ecosystems (consider the UK Smart Metering solution, for instance), there is ample opportunity to extend the concepts of factory systems, low cost components and versatile networks to deliver a smart interconnected society.

56th FITCE CONGRESS Spain, 2017



There will be a focus on the needs and impacts to the digital transformation in business and society. The implications in the transversal sectors such as Logistics, Manufacturing, Tourism, Advanced sectors (e.g. aeronautics, automotive), and also in the Public Sector, will be covered as well.

The 56th FITCE Congress will be in a forum that brings together international researchers, Telecommunication engineers committed to basic and applied research, creators of innovation as well as professionals who develop their activity in the fields required in the "topics" of Congress.

In parallel, this forum will draw conclusions about the impact of

the transformation is taking place in the profession of telecommunications engineer, regarding his current situation both in Spain and in the EU, and get recommendations on the future of the qualifications, curriculum and content. The 56th Congress FITCE is structured in 3 main axes:

1. A high quality scientific stream, with support from the IEEE and aimed at the scientific and technological community. This will deliver technical presentations that are approved by the program Committee and will be presented during the Congress sessions. This scientific axis will be completed by industry-renown keynote speakers commenting on significant topics of relevance to the ICT and media fields.

2. An industrial and technological axis, based on a workshop format and exhibitions. This will be directed at companies and public administrations, with the objective of demonstrating innovative technological approaches.
3. A professional axis, directed at engineers of Telecom, through discussions on vocational guidance, its capabilities and the evolution from the curriculum of university degrees. This axis will be aligned with activities related to the 50th anniversary of the official College of Telecommunications Engineers (COIT) and will leverage the knowledge and experience of European visitors to FITCE.

Important Dates

Delivery of "papers":
April 30, 2017

Notification to authors:
May 15, 2017

Topics of Interest

The 56th FITCE Congress focuses its interest on those scientific and technological works related to the Digital transformation and its impact on the company and society, which includes but is not limited to the following "topics":

- Internet of things (IoT), especially sensor network and its deployment
- Impact on the competitiveness of the industry (industry 4.0) and logistics
- Involvement of the deployment of mobile networks 5G and new communications networks
- Impact on the use of the radio spectrum
- Grid Computing and Cloud-based applications
- "Smart" technologies applied to the major infrastructures (cities; Ports; Airports ;...)
- Big Data and Analytics applications
- Applications for environmental management and/or energy efficiency
- Applications for cyber security
- Applications for education

Organization

- **General Chairs:** Miguel Merino (AEIT) and Professor of the University of Vigo and Maria Nuno (AEIT) and Senior Management Associate in **PWC**.
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- **Chairs of programs:** Evaristo April (AEIT) and Professor, former rector of the University of Valladolid and Felix Perez, Director of the ETSIT, Madrid
- **Chairs of honour:** Andy Valdar, President of FITCE and Eugenio Fontán, President of the Spanish Association of Telecommunication engineers

Guide for the Presentation of Papers

Authors are invited to submit their works under PDF format. Submitted manuscripts must be

structured as technical documents and cannot exceed 10 pages size letter (8.5 x 11) including all

figures, tables and references using the IEEE format for the proceedings of the Congress.

View details:

- [Format to LaTeX ZIP](#)
- [Word Template DOC y PDF](#)
- Submissions that do not conform to these guidelines may be returned without review.

- The official language of the Congress is English. All manuscripts will be reviewed and judged by

their technical value, originality, significance, quality of presentation, and the interest and

relevance to the Conference.

- The "proceedings" will be published through the publication services of the Congress and/or of the Spanish section of the IEEE.
- Papers must represent original unpublished research and not being reviewed in any other conference or journal.

Documents that do not follow these guidelines will be rejected without review and may take measures, including (but not limited to) the notifications sent to managers of the institutions which come from the authors and sponsors of the Conference. Submissions received after the due date

and exceed the page limit or are not properly structured, cannot be considered. The authors can be contacted with the representatives of the Congress for more information.

- Online document delivery system is <https://easychair.org/account/signin.cgi>

