

# **The 15th International Conference on Quality and Dependability - CCF 2016**

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**The 15th International Conference on Quality and Dependability - CCF 2016\* was organized - between 14 and 16 September 2016 - by the Romanian Society for Quality Assurance (SRAC), under the aegis of several national and international organizations in the field, in the beautiful area of Carpathians mountains at Sinaia, Romania.**

The primary objective of **CCF 2016 - a jubilee edition** - was to provide an international forum for the dissemination of recent information and scientific results in the modern domains of quality and dependability (reliability, maintainability, availability, security/safety).

As in the previous editions, the conference **CCF 2016** was attended by personalities and well-known experts from Romania and abroad (from France, Germany, Israel, Serbia, Switzerland, and U.S.A.), representatives of business environment, the academia and scientific research field. Their points of view have been the subject of about 50 papers presented in the frame of six plenary sessions and a poster session.

The 15th International Conference in Quality and Dependability - **CCF 2016** covered major aspects of the field, including the following ones:

- Systems of Management: developments, evolution, standardization (ISO 9000, ISO 14000, ISO22000, ISO 27000, ISO 45000, a.o.);
- Service quality management (education, health care, tourism, banking system, etc.) and evaluation of customer satisfaction;
- Accreditation (certification bodies, laboratories, personnel) and certification (quality systems, products and services);
- Total Quality Management, Six Sigma, quality management tools;
- Modern approaches in dependability, safety, security and survivability;
- Quality, reliability and security in the IT&C field;
- Legislation and standardization in quality and dependability.

A special attention was given during **CCF 2016** to the recent evolutions in the certification of management systems. The main changes in the standards ISO 9001, ISO 9004 and ISO 14001, as well as their implications for companies were presented by renowned international experts such as **Isaac Sheps** (Israel), convener of ISO/TC 176/SC2/WG25 (group responsible for revision of the ISO 9004) and Professor **Vidosav Majstorović**, PhD (University of Belgrade, Serbia).

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\* <http://ccf-quality-conference.com/international-conference-quality-dependability-ccf-2016/>



Participants at the International Conference CCF 2016

### Reliability and Cybersecurity - Major Topics of the 15th International Conference on Quality and Dependability - CCF 2016

In line with the trend shown at other international scientific specialized meetings, the domain of dependability (and especially those of reliability and IT security) was well represented in the frame of **CCF 2016**.

Within **CCF 2016** two plenary sessions with these themes were organized, namely: **Risk and IT Security**, coordinated by Professor **Ioan Bacivarov**, PhD - Director of EUROQUALROM - ETTI - PUB and President of ARASEC/RAISA and Professor Emeritus **Alessandro Birolini**, PhD from ETH Zurich and **Reliability** - coordinators: Prof. **Angelica Bacivarov**, PhD (ETTI - PUB) and Prof. **Alexandru Stamatiu**, PhD (UTCB).

Opening the first session, the special guest of **CCF 2016**, Professor **Alessandro Birolini**, considered as a “guru” of the European reliability presented an exciting invited conference on *Risk Management in technical systems*.

Associate Professor **Ioan Cosmin Mihai**, PhD (Police Academy) and Professor **Ioan Bacivarov**, PhD (University “Politehnica” of Bucharest - PUB) presented the results of a recent study conducted within ARASEC concerning the structure of cyber-attacks, while PhD candidate **Gabriel Petrică** and Prof. **Ioan Bacivarov** (ETTI - PUB) analyzed the issue of using the digital signature in order to ensure information security.

Professor **Angelica Bacivarov**, PhD (ETTI - PUB) analyzed, in two interesting conferences, the implementation of resilient communication networks - tolerant to failures / errors (with **Luminița Copaci**, PhD), as well as the VoIP systems security issue (with PhD candidate **Cătălina Gherghina**).

A large group of works presented mainly by Professor **Ioan Bacivarov** and his collaborators - PhD candidates in cyber-security, addressed the important issue of the *security of information systems*. Thus, the PhD candidate **Michael Best** (Germany) analyzed the problem of bank security, proposing an approach based on graph theory to prevent data loss.



Professors **Alessandro Birolini** and **Ioan Bacivarov** were the coordinators of the plenary session "Risk and IT Security" during CCF 2016

Entered in the sphere of research carried out at European level on *Internet of Things (IoT)*, the conference presented by the PhD candidate **Radu Boncea** (INCDI) and prof. **Ioan Bacivarov** (PUB) proposed a procedure to monitor the reliability of IoT. The PhD candidates **Daniel Barbu** and **Cristian Pascariu** presented, together with Prof. **Ioan Bacivarov**, the information security implications of smart urban areas. The same authors analyzed, in another paper, the advantages of transition from the classical "Security Operations Centers" to the modern "Security Intelligence Centers" and how can be solved the technical issues related to these essential developments in the sphere of cyber-security.

Given that the web has become a major vector for the propagation of viruses and of malware, **Eugenie Stăicuț**, PhD (INCDI) and collaborators have proposed a proactive solution for scanning the web to allow identifying potential vulnerabilities and notifying opinion before the attackers exploit these security vulnerabilities. Starting from the analysis of European projects developed under the title "Cloud for Europe", **Radu Boncea** and **Elena Cîrnu** (INCDI) explored new approaches aimed to assure cloud computing security solutions.

Professor **Ioan Bacivarov** and PhD candidate **Marian Firoiu** (EUROQUALROM - ETTI - PUB) approached the topic of physical and logical security risk management in the context of convergent security; in another paper, they proposed a procedure for estimating risk based on the standards ISO 31000:2009 and ISO/IEC 27005:2011, suitable to SMEs.

In the section "**Reliability**", Professors **Angelica Bacivarov** and **Ioan Bacivarov** analyzed the online platform implemented within EUROQUALROM - PUB for the computer-aided training of students in reliability field. Professor **Adrian Paris**, PhD (PUB) and collaborators presented a study - based on sophisticated mathematical developments - concerning the maintenance of mechanical systems. Prof. **Ioan Bacivarov** addressed also the issue of maintenance of software testing with PhD candidate **Sabina Axinte** (PUB) and of the computer-aided evaluation of Fault Trees (together with **J. Gadsaues** - ISTIA Angers, France). Finally, Professor **Alexandru Stamatiu** addressed the problem of the quantum theory of system reliability.

The conference “45 years of education in reliability field in higher technical education in Romania” presented by Professors **Ioan Bacivarov** and **Angelica Bacivarov** occasioned an exciting debate on the evolution of the education/training for reliability in Romania (primarily, in the electronics and telecommunications domain) in the last five decades. Occasioned by the celebration of 45 years since the establishment - under the management of Professor **Vasile Cătuneanu** - of the *Department of Electronics Technology and Reliability (ETR)* of PUB, the exposure mentioned the - undergraduate and postgraduate - educational programs, researches and conferences organized in almost half a century under the aegis of ETR.

In the ensuing debate, “pioneers” in the field of research in the field, including Dr. **Dan Stoichițoiu**, Prof. **Angelica Bacivarov** and Prof. **A. Paris**, mentioned - with pride and nostalgia - the achievements of those years and the good cooperation education - research - industry, essential to the success of quality-reliability programs. As a conclusion of the debates, Professor **Biolini** pointed out that one can speak of a “*Romanian school in reliability field*”, whose achievements and representatives are recognized abroad; and judging after the papers presented by the PhD candidates in the field of cyber-security during **CCF 2016**, the future of this domain is “in good hands”. A wide selection of papers presented in the frame of **CCF 2016** was included in the Proceedings of the conference, entitled “*Advances in Quality and Dependability*” \*.



*Professors **Angelica Bacivarov**, **Ioan Bacivarov** and **Alessandro Biolini** together with PhD candidates in cybersecurity during **CCF 2016***

The *International Conferences in Quality and Dependability – CCF* are now a well-established brand of excellence among the international scientific meetings in the inter-disciplinary field of quality and dependability (reliability, maintainability, safety/security a.o.). Quality and dependability have become today undeniable strengths contributing to the development of companies, small businesses or large multinational groups. Their application in different organizations must be the result of research and partnership among industry, academia and business. International scientific meetings, such as **CCF** conference is, can contribute to the dialogue between the main actors of the quality and dependability world, mentioned at the closing of conference Professor **Ioan Bacivarov**, the Scientific Chairman of **CCF 2016**.

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\* I. Bacivarov, D. Stoichitoiu, A. Biolini, V. Majstorović (Eds), *Advances in Quality and Dependability*, Proceedings of the 15th International Conference on Quality and Dependability CCF 2016, SRAC, 2016