



QUALITY and DEPENDABILITY

PROCEEDINGS

of the 14th International Conference

CCF 2014



Sinaia, Romania
September 17th-19th, 2014

Dan STOICHIȚOIU
Abdessamad KOBİ

Ioan BACIVAROV
Vidosav MAJSTOROVIĆ

Editors

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on
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SOCIETATEA ROMÂNĂ PENTRU ASIGURAREA CALITĂȚII
2014

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CCF 2014

THE 14th INTERNATIONAL CONFERENCE QUALITY AND DEPENDABILITY

WEDNESDAY, 17th of September 2014

PLENARY SESSION

EFQM Open Doors Day in Romania

THURSDAY, 18th of September 2014

PLENARY SESSION 1: *QUALITY MANAGEMENT*

Chairmen: Prof. dr. Abdessamad KOBİ – ISTIA, University of Angers, France
Prof. dr. Vidosav D. MAJSTOROVIĆ – University of Belgrade, Serbia

ISO 9001:2015 and ISO 14001:2015 – Advanced QMS and EMS versions
Vidosav D. MAJSTOROVIĆ – University of Belgrade, Serbia

ISO 9001:2015: Revision overview
Alex EZRAKHOVICH – AE Conformity Pty Ltd, Sidney, Australia

Lean and Six Sigma: a comparative study
Ibrahim ALHURAISH, Christian ROBLEDÓ, Abdessamad KOBİ – ISTIA, University of Angers, France

Nine decades of modern quality. Walter A. Shewhart – A life devoted to quality
Ioan C. BACIVAROV – University Politehnica Bucharest

Paradigms of “Quality university” and of academic rankings
Nicolae-George DRĂGULĂNESCU – University Politehnica Bucharest, Romania

PLENARY SESSION 2: *DEPENDABILITY, RISK, SECURITY*

***Chairmen: Prof. univ. dr. eng. Ioan BACIVAROV – University Politehnica Bucharest,
President of ARASEC***
***Lect. univ. dr. eng. Ioan-Cosmin MIHAI – Police Academy “Alexandru
Ioan Cuza”, Vice-president of ARASEC***

The Heartbleed Bug – a vulnerability in the OpenSSL cryptographic library
Ionuț-Daniel BARBU, Ioan BACIVAROV – University Politehnica Bucharest

Comparative study on cyber security assurance models

Ioan-Cosmin MIHAI – Police Academy, Bucharest, Ioan BACIVAROV, Gabriel PETRICĂ – EUROQUALROM, University Politehnica Bucharest

Analysis of the Cyber Attacker Profile

Ioan-Cosmin MIHAI, Ștefan PRUNĂ – Police Academy, Bucharest

Convergence of security risks in the physical security systems and IT infrastructures – a new approach in the risk management

Ioan BACIVAROV, Marian FIROIU – EUROQUALROM, University Politehnica Bucharest

Functional safety of medical devices: An improvement approach

Steli LOZNEN – I.T.L. (Product Testing) Ltd., Israel

PLENARY SESSION 3: RELIABILITY OF COMPONENTS AND SYSTEMS

Chairmen: *Prof. univ. PhD. eng. Angelica BACIVAROV – University Politehnica Bucharest*

PhD. eng. Marius BÂZU – National Institute for Research and Development in Micro technologies Bucharest (IMT)

Thermography as a tool in the development of microdevices

Virgil Emil Ilian, Marius Bâzu*, Virgil Liviu Mircea Ilian**, Lucian Gălățeanu*, Dragoș Vârșescu*, Niculae Dumbrăvescu*, Roxana Marinescu**

** National Institute for Research and Development in Microtechnologies Bucharest (IMT)*

** EUROQUALROM, University Politehnica Bucharest*

Failure modes and mechanisms of electrolytic capacitors

Titu-Marius I. BĂJENESCU – C.F.C., La Conversion, Switzerland, Marius BÂZU – IMT Bucharest

Failure risks for silicon and non-silicon transistors

Marius BÂZU – IMT Bucharest, Titu-Marius I. BĂJENESCU – C.F.C., La Conversion, Switzerland

Rethinking robotic arms for research: a reliable, high precision, low cost design

Virgil Liviu Mircea ILIAN, Ioan C. BACIVAROV – EUROQUALROM, University Politehnica Bucharest

Environmental performance indicators into maintenance activity of industrial equipments

Ovidiu ȚUȚUIANU – Nova Industrial S.A. Bucharest

POSTER SESSION

Chairman: *Prof. univ. PhD. eng. Ioan BACIVAROV – Director EUROQUALROM, University Politehnica Bucharest, President of ARASEC*

Investigating the relationship between downsizing and total quality management

Alan BROWN – Edith Cowan University, Churchlands, Australia, Ton van der WIELE – Erasmus University, Rotterdam, The Netherlands

A methodology for test and correction of software errors in complex software systems
R. GAUTIER, M. SIMBA – Ecole Nationale Supérieure d'Arts et Métiers, Paris, France,
B. MONTARON – Schlumberger – Clamart France

Quantitative modeling of user specifications and properties of the software delivered product
N.J. RAJARAM, A. K. VERMA – Reliability Engineering Group, Indian Institute of Technology, Bombay, Mumbai, India

On analysis of security and survivability of complex web systems
Costel CIUCHI – Secretariat-General of the Government, Bucharest, Angelica BACIVAROV, Ioan BACIVAROV – EUROQUALROM, University Politehnica Bucharest

Software fault tree reliability analysis using a Java-based reliability library
Constantin-Eugen CORNEL, Angelica BACIVAROV, Ioan BACIVAROV – EUROQUALROM, University Politehnica Bucharest

On security of mobile communication networks. A critical analysis of ZUC algorithm
Laura IANCU – Huawei Romania, Ioan BACIVAROV – EUROQUALROM, University Politehnica Bucharest

Interactive mobile telecommunications systems
Cătălina GHERGHINA, Angelica BACIVAROV – EUROQUALROM, University Politehnica Bucharest

Interoperability and security management for complex systems
Costel CIUCHI, Cătălina GHERGHINA, Gabriel PETRICĂ – EUROQUALROM, University Politehnica Bucharest

New framework for security risks management and asset protection in the context of ISO 31000:2009 standard
Ioan BACIVAROV, Marian FIROIU – EUROQUALROM, University Politehnica Bucharest

Implementation of quality management system using QFD analysis
Sabina-Daniela AXINTE, Ioan BACIVAROV – EUROQUALROM, University Politehnica Bucharest

Metrology in total productive maintenance
Alexandru GIURA, Petrișor GAGIU – ALRO S.A.

Systematic investigation of the types of failures and their causes in industrial processes
Alexandru GIURA, Mariana VASILE – ALRO S.A.

On design of resilient communication networks

Dorina Luminita COPACI, Prof. PhD. Angelica BACIVAROV – EUROQUALROM, University Politehnica Bucharest

FRIDAY, 19th of September 2014

PLENARY SESSION 4: ENVIRONMENT MANAGEMENT, EDUCATION

Chairman: *Elena ZINCA – Technical Manager, SRAC CERT S.R.L.*
 Prof. Michele CANO – Professor at University of West of Scotland, UK

Best practice environmental management for public administration sector – implemented through an environmental management system – EMAS
Elena ZINCA – SRAC CERT S.R.L.

Solutions to improve the quality of environment and life by implementing environmental management system
Violeta-Monica RADU, Andreea ANTOHE – The National Institute for Research-Development in Environmental Protection

Lean Manufacturing: Can it be applied successfully within the higher education sector?
Michele CANO, Eileen O'NEILL – University of the West of Scotland, Scotland U.K.

Standardization in education versus education about standardization. Paradigm shift in the education of XXI-th century?
Remus CHINĂ – Ministry of National Education

Institutional self – evaluation. Study case: Anadolu University, Eskişehir, Turkey
Manuela STOICA – University Anadolu, Turkey

PLENARY SESSION 5: DEPENDABILITY: THEORIES AND MODELS

Chairman: *Prof. PhD. eng. Alexandru STAMATIU – Technical University of Civil Engineering Bucharest*
 Prof. PhD. eng. Adrian Stere PARIS – University Politehnica Bucharest

Performance degradation and reliability
Adrian Stere PARIS, Constantin TÂRCOLEA – University Politehnica Bucharest

Considerations on the use of a three-dimension mathematical model probability-gravity-fault cost for improving equipments performance
Irina TIHAN – ICPE SAERP SA, Bucharest

New confirmations of the entropic models
Alexandru STAMATIU, Bogdan IVAN – Technical University of Civil Engineering Bucharest

Optimization of the structure of redundant schemes with the entropic risk criteria
Bogdan IVAN – Haintz Consulting S.R.L.

PLENARY SESSION 6: CERTIFICATION OF MANAGEMENT SYSTEMS

Chairmen: *M.Sc. Steli LOZNEN – Israel Testing Laboratories Ltd., Israel*
 PhD. Eng. Paul PENCIOIU – Manager ICPE IE S.R.L.

Management of electrical energy quality and energy efficiency
Nicolae GOLOVANOV, Paul PENCIOIU – ICPE IE S.R.L.

Cultural service quality management in the context of the global economic crisis
Aurica DVORACIC – University "Alexandru Ioan Cuza" Iași – SDEAA

Audit management systems in the context of economic development in the early decades of the XXI century
Cristinel RONCEA Darabont Doru Costin SRAC CERT S.R.L.

Particularities of occupational safety and health management in small and medium enterprises
Steluța NISIPEANU, Raluca STEPĂ, Doru Costin DARABONT – The National Institute for Research-Development in Environmental Protection, Bucharest

Audits from integrity program of business social compliance initiative
Romeo DENUNTZIO – SRAC CERT S.R.L.

Six Sigma project. Improvement of decision-making process in quality
Marius FLORESCU – CALITATE TOP 21 S.R.L.

Validation in food safety standards
Cornelia ȘULEA – SRAC CERT S.R.L.

Usability – a new challenge for quality of medical devices
Steli LOZNEN – I.T.L. (Product Testing) Ltd., Israel

CLOSING OF THE CCF 2014 CONFERENCE

Welcome Message

On behalf of the **Organising Committee** and of the **International Scientific Committee** of **CCF2014**, we would like to address a warm welcome to all the participants in this major event for the community of specialists in quality and dependability.

The primary objective of the **14th International Conference on Quality and Dependability – CCF2014** is to provide an international forum for the dissemination of recent information and scientific results in these modern domains.

As traditionally, **CCF2014** is organised by the **Romanian Society for Quality Assurance (SRAC)**, under the aegis of several important international organisations in the field. It is important to mention that this edition of **CCF** has the support of **EFQM**, the leading European organization in the field of **excellence** assurance.

We are proud to mention that this edition of the conference has the scientific endorsement of the **Institute of Electrical and Electronics Engineers – IEEE**, the world's leading professional association for the advancement of technology, too.

The **International Conference in Quality and Dependability – CCF** is now a well established **brand of excellence** among the international scientific meetings in the interdisciplinary field of **quality and dependability**.

That's why, we consider useful to remember the main moments that marked the evolution of **CCF** – from a national scientific meeting to an important international conference in the field.

The first National Conference on **Quality and Reliability – CCF'87**, organised by the Central Reliability Group of MIEt, took place at the Hotel 'Teleferic' from Poiana Brasov, in 1987. It was then decided that this conference should become a traditional national scientific event in the field. Therefore, the second edition of the Conference, **CCF'88** took place at Baile Herculane, in 1988.

After the political changes of 1989, the **Romanian Society for Quality Assurance (SRAC)** took over this tradition, by organising the third edition of the Conference – **CCF'96** at the Hotel 'Roman' from Baile Herculane, in September 1996. The fourth edition of the conference – **CCF'97** was organised in Sinaia, on the 2nd – 3rd of October 1997, while the fifth edition – **CCF'98** was organised in Sinaia also, at the 'Holiday Inn' Hotel (28th – 30th of October 1998). **CCF'99**, the sixth edition of the conference took place at the Hotel 'Sport' from Poiana Brasov, during the period 22-24 October 1999.

The seventh edition of the conference – **CCF2000** was organised, at the Hotel 'Palace' from Sinaia between 27th – 29th September 2000; it was a scientific meeting with a wide international participation and, as a consequence, it was decided that the further editions of **CCF** should be included in the circuit of the international conferences in quality and dependability and organised every two years. The national journal "**CALITATEA – acces la succes**" and the international journal "**Qualite-Forum Scientifique**" were launched during CCF2000, in the presence of the Editors-in-Chief of the two publications.

The next **CCF** scientific meetings, namely the eighth edition of the Conference – **CCF 2002**, organized during the period 18th – 20th of September 2002, at Cazino Sinaia as well as

the ninth edition – **CCF 2004** – organized during the period 29th of September – 1st of October 2004, at Hotel Mara in Sinaia were unanimously considered as important international scientific events in the field of quality and dependability.

The 10th edition of the conference – **CCF2006** was a jubiliary one. More than 75 papers were presented by specialists in the field from 10 countries: Argentina, Australia, Belgium, France, Great Britain, Greece, Moldavia, the Netherlands, Switzerland and Romania, too. A special session of **CCF2006** marked the centenary of the **International Electrotechnical Commission (IEC)**. A round table dedicated to the problematic of innovation and improvement for a performant management was among the main moments of **CCF2006**.

At the 11th International Conference on Quality and Dependability – **CCF2008** specialists from 13 countries, including Australia, Belgium, France, Great Britain, Italy, India, Maroc, Moldavia, the Netherlands, Portugal, Switzerland, Tunisia and Romania, too presented their points of view in more than 60 papers.

The special session “A homage to Joseph M. Juran (1904-2008)” organized at the beginning of **CCF2008** represented a tribute to the great guru of quality **Joseph M. Juran**, the “father” of the modern day quality management who passed away at the beginning of 2008. Living through 104 years of profound changes and events, Dr. J.M. Juran, the famous quality “Guru” of Romanian origin, has participated vigorously in and contributed extensively to the growth of industry, society and – perhaps most important to us – quality. During this session, the exemplary life dedicated to quality and his main contributions in the field of quality management were presented.

Another special session of **CCF2008** marked **the two decades of the ISO 9000 standards**, analysing the evolution of this important family of standards for quality management systems. A **workshop** concerning the quality topic for SMM enterprises and a **round table** dedicated to the problem of **innovation and improvement for a performant management** were also organised in the frame of **CCF2008**, too.

During the last day of the conference the evolutions and the perspectives regarding the management, engineering and certification of quality in Romania were analysed as a part of the session that which marked the 15th anniversary of the **Romanian Society for Quality Assurance (SRAC)**, the main organiser of **CCF** conferences.

More than 50 papers authored by specialists from Australia, Belgium, Czech Republic, France, Great Britain, India, Maroc, the Netherlands, Switzerland, Tunisia and Romania were presented during the 12th International Conference on Quality and Dependability – **CCF2010** organized at the Casino Conference Center from Sinaia.

The participants at **CCF2010** had the special opportunity to meet Professor Emeritus **Alessandro Birolini**, a remarkable specialist in the field – considered as a Reliability Guru – who presented an invited conference. During **CCF2010** was launched – in world premiere – the 6th edition in English of the monumental book of Prof. Birolini **Reliability Engineering: Theory And Practice** – published by Springer Publishing House and considered by the specialists in the field as a veritable “Bible of Reliability”.

During the 13th International Conference on Quality and Dependability **CCF2012** – organised for the first time in a beautiful area of the Black Sea, at **Neptun** International Conference Center, specialists from 13 countries, including Australia, Belgium, France, Great Britain, Italy, India, Maroc, Moldavia, the Netherlands, Portugal, Switzerland, Tunisia and Romania presented at their points of view in more than 50 papers.

The special guest of the 13th International Conference on Quality and Dependability – **CCF2012** was Mr. **Gianluca Mule**, Senior Manager of the well-known **European Foundation for Quality Management – EFQM** who presented the EFQM Excellence Model. The EFQM Excellence Model is the most popular quality tool in Europe, used by more than 30 000 organizations to improve performance.

During the last day of the conference the evolutions and the perspectives regarding the management, engineering and certification of quality and dependability in Romania and abroad were analysed as a part of the special session **ISO 9000 Forum** – a session that marked the 25th anniversary of this famous international standard. This session celebrated the 20th anniversary of the **Romanian Society for Quality Assurance (SRAC)**, the main organiser of **CCF** conferences, too.

The previous conferences in quality, reliability and maintainability organised in Romania in the last 27 years have contributed to the promotion in our country of new ideas and methods in quality and dependability. We are sure that **CCF2014** will constitute a new qualitative step in this process.

Quality and **dependability** have become today undeniable strengths contributing to the development of companies, small businesses or large multinational groups. Their application in different organisations must be the result of research and partnership among industry, academia and business. This conference can contribute to the dialogue between the main actors of the quality and dependability world.

The points of view of well-known specialists in the field from Romania and several countries from Europe, Asia and Australia will allow to establish a realistic image of the national and international evolutions and of the perspectives of these modern fields.

The dynamic political and economic evolutions in Europe during the last decades increased the importance of **quality**, now considered as a strategic tool and a determining factor for the development and enhancement of Europe's global competitiveness.

The new EU's **Framework Programme for Research and Technological Development – FP7** and the forthcoming one – **FP8**, can be considered as a major tools to support the creation of the **European Research Area (ERA)**. The main topics of **FP7** and **FP8** and some representative projects, especially those in quality and safety/security fields will be analysed in the frame of this conference.

The international scientific meetings, such as **CCF2014** is, could be a modest contribution to this objective, by reviewing the state of the art, experiences, and new trends in the relevant scientific areas.

Several debates of **CCF2014** will be dedicated to the evolutions in the European quality on the European scene during these last years, as well as to the national evolutions in this field. The **real** integration of Romanian economy in the unified European structures is an impossible endeavour unless the severe requirements on quality based on the EU's standards are meet.

Several organisational, research and educational programs and initiatives in the **quality** and **dependability** (esp. safety/ security) field were developed in Romania in the last years, and they will be certainly analysed in the framework of this conference.

Under the conditions of the actual **world economic crisis**, the debates of **CCF2014** will try to give an answer to the following question: could be the optimal managerial and technical strategies based on quality and dependability an **advantage** for companies in their effort to overcome this economic crisis?

We are honoured by the participation in the **14th International Conference on Quality and Dependability – CCF2014** of well-known specialists in the field – academics, managers, practitioners and researchers from **Belgium, France, Great Britain, India, Israel, the Netherlands, Serbia, Switzerland, Turkey and Romania**, too. Their points of view, presented in about 60 papers will be of great interest to the participants at **CCF2014**.

The **14th International Conference in Quality and Dependability – CCF2014** covers major aspects of the field, including the following ones:

- Systems of Management: developments, evolution, standardisation (ISO 9000, ISO 14000, ISO2200, ISO 27000, OHSAS 18001 a.o.);

- ☐ *Quality management – the new standard ISO 9001:2015: perspectives, requirements and implications;*
- ☐ *New approaches: social accountability management (SA8000) and ethics management;*
- ☐ *Integrated Systems of Management;*
- ☐ *Service quality management (education, health care, tourism, banking system, etc.) and evaluation of customer satisfaction;*
- ☐ *TQM, Six Sigma, quality management tools;*
- ☐ *Accreditation (certification bodies, laboratories, personnel) and certification (quality systems, products and services);*
- ☐ *Voluntary product certification;*
- ☐ *Total Quality Management, Six Sigma, quality management tools;*
- ☐ *Modern control and conformity assessment techniques;*
- ☐ *Conformity assessment in the mandatory area;*
- ☐ *Business Continuity Management (BCM)*
- ☐ *Modern approaches in dependability, resilience and evolvability;*
- ☐ *Reliability (mathematical tools; design; predictive, experimental and operational reliability; reliability of human factor);*
- ☐ *Maintainability (maintenance management, preventive and corrective maintenance techniques, RCM)*
- ☐ *Education and training in quality and dependability.*
- ☐ *Computer-aided study in quality and dependability*
- ☐ *Quality, reliability and security in the IT&C industry*
- ☐ *Legislation and standardization in quality and dependability*
- ☐ *Social, juridical and economical implications of quality and dependability.*

Special emphasis will be given during CCF2014 to the problems of Quality Management, Reliability of Complex Components and Systems, Security and Risk Management and Analysis, Dependability Modelling and Evaluation, Environmental Management and Quality Assurance in Education. Sessions with these topics are included in the program of the conference.

A special attention will be given to the requirements and implications of the new standard ISO 9001:2015.

*The CCF2014 conference is organized in a special year for quality: 90 years ago, on 16 May 1924, **Walter Shewhart** introduced the first **control chart**, which launched **statistical process control** and **quality improvement**. Shewhart's invention of the control chart in 1924 has been considered by Deming as one of the greatest contributions to the philosophy of science. This moment could be considered as the **birthday of the modern quality**.*

That's why, the anniversary of nine decades of modern quality will be the point of departure of a CCF debate concerning the evolutions and the future of quality

*The CCF2014 Conference brings a special event in the first day: **The EFQM Open Doors Day in Romania**, organized by **SRAC** and **EFQM** and with the participation of **Grundfos Romania** and the **Hungarian Association for Excellence**. It is interesting to mention that **EFQM** celebrates this year **25 years of EXCELLENCE** during a special event organized in October 2014 at Brussels.*

*A wide selection of papers presented in the frame of CCF2014 is included in the **Proceedings** of the conference, entitled “ **Quality and Dependability**”.*

Finally, we would like to thank all the authors who submitted their work, the presenters, the members of the organising committee, and all those who contributed to the Conference with their efforts and support.

*Special thanks to the members of the **International Scientific Committee of CCF2014**, prestigious personalities in the field from 10 countries, who made up an equilibrated and high-level scientific program for **CCF2014**.*

*We hope that you will find **the 14th International Conference in Quality and Dependability – CCF2014**, organised in a beautiful area of the Carpathians Mountains – **Sinaia**, a both stimulating and enjoyable forum in which to share current results and trends in quality and dependability.*

We invite you to enjoy the presentations, panels, the technical and tourist visits over the three days of this conference and to participate to the fullest this international event gets underway.

Dr. Dan G. STOICHÎTOIU
General Chairman of CCF 2010

Prof. dr. Ioan C. BACIVAROV
*Chairman of the International
Scientific Committee of CCF 2010*

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ISO 9001:2015 and ISO 14001:2015 – Advanced QMS and EMS Versions

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Abstract

Business standardization developed intensely in the second decade of the 21st century. In late 2012 (31st of December) there were: (i) 1504213 certificates to ISO 9001, 13485, 14001, 16949, 22000, 27001 and 50001 in the world, whereby 1,101,272 certificates were to ISO 9001, and 285 844 were to ISO 14001. It is estimated that on 31st of December 2013 total number of certificates for all SMS will be 1600000, with just for QMS 1150000. In our country there are approximately 3000 certificates for QMS, and approximately 800 certificates for all other SMS, which is 2,6 i.e. 2,1 per mille, respectively, comparing to worldwide. This again means that with this number of certificates, both for QMS and total number, Serbia is about 40th ranked in the world. On the other hand, for two years now, ISO TC 176 is working intensely on the new QMS model. At the moment, there is current CD version, with the similar situation for ISO 14001 (EMS) for which ISO TC 207 is working on the new version. This paper provides detailed analysis of certification status, both in the world and our country, by different parameters, for seven standardized management systems, as well as the developing condition of the new QMS and EMS models.

Keywords: Business Standardization, QMS, EMS, analysis, new model

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Lean and Six Sigma: a Comparative Study

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Abstract

The purpose of this paper is to compare and contrast Lean and Six Sigma organizational approaches. This is an important area of study because although, theoretically, there are differences between Lean and Six Sigma, they can be compatible and comparable in practice. Organizations can benefit from the integration of Lean and Six Sigma, as both are effective methods of continual improvement. Although both are effective tools for implementing continuous improvement, when combined they are all the more successful. This paper therefore compares and contrasts Lean and Six Sigma with a view to illustrating their effectiveness separately and together. Thus this paper will identify the weaknesses and strengths of both Lean and Six Sigma and the ways in which they compliment each other.

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Nine Decades of Modern Quality: Walter A. Shewhart – A Life Devoted to Quality

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Abstract

Walter Shewhart was the pioneer and visionary of modern quality control. 90 years ago, Shewhart introduced the first control chart, which launched statistical process control and quality improvement. This moment is considered as the birthday of the modern quality. This paper analyses some important moments of the scientific activity of this great quality guru, during an exemplary life devoted to quality. Based on extensive documentation activities we can bring to the attention of specialists in quality original photographs and other documents concerning Shewhart.

Keywords: Quality, Modern quality, Quality control, Quality improvement, Walter Shewhart, SPC

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Paradigms of "Quality university" and of academic rankings

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Abstract

During the last two decades, world's prevailing reactions to the practice of ranking universities have evolved from disdain, unsubstantiated arguments about their contribution to 'academic drift', the negative impact of rankings on institutional diversification, or the 'turning of trust into commodity', to a more balanced view of accepting stake-holders' demands for a type of information rankings that can provide and even recognizing the value of rankings. During the last decade, the conversation of many informed observers has shifted to focus on how the methods behind rankings can be as clear and reliable as possible as well as to go beyond reflecting foremost research-based institutional performance. Although a positive view of rankings is not unanimously shared, it is likely that the naysayers are fighting a losing battle. The number of meetings and references to ranking of higher education confirms a wide interest and attention to this phenomenon. There is now increasing evidence that ranking systems are here to stay, and are having a growing effect on global dialogues about higher education quality and accountability. In recent years, this effect is beginning to be seen at a policy level and not just as a matter of curiosity for students and university leaders. This paper is presenting - comparatively and critically - the worldwide most important systems of academic rankings, and implicitly, the evolution of their "quality university" models.

Keywords: educație, calitate, universitate, evaluarea calității, clasamente academice, modele.

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The Heartbleed Bug – A Vulnerability in the OpenSSL Cryptographic Library

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Abstract

The purpose of this article is to present various aspects of the Heartbleed bug including a general overview of the vulnerability, details related to how it works, affected software distributions and statistical observations. Moreover, the paper presents the exploitation of a vulnerable version of an Apache server. The targeted machine is represented by a Linux image for ARM architecture installed on a RaspberryPI device. The Heartbleed Bug is a very intelligently chosen name for a serious vulnerability discovered in the OpenSSL Cryptographic software library. The vulnerability was erroneously introduced in the code and released on the 14th of March 2012. More than 2 years later, on April 1st it was discovered and publically disclosed. The SSL/TLS encryption, by design and implementation it's meant to protect the information. The consequence of this vulnerability is allowing attackers to obtain and read the memory of the systems and may lead to leaking information such as very sensitive information related to secret keys used to identify the service providers and to encrypt the traffic. Statistically speaking two thirds of the internet's web servers use OpenSSL. It is worth mentioning that exploitation of this bug does not leave any trace of anything abnormal happening to the logs. Studying this vulnerability and performing tests in the informational environment is critical and we highly recommend it.

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Comparative Study on Cyber Security Assurance Models

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Abstract

A "cybersecurity model" is a term that can describe all the requirements necessary to ensure basic security properties (privacy, availability, integrity) and represents a formal description of a policy or a set of security policies. A security policy specifies what should be done, while a security mechanism describes how available security technologies will be implemented (so, a security mechanism enforces part of security policy). The main components of a cybersecurity model are resources, users and a set of relationships between these two entities. This paper makes an assessment of main mathematical models to ensure cyber security and highlights the advantages, disadvantages and the context in which each of them can be adopted.

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Analysis of the Cyber Attacker Profile

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Abstract

Hackers are usually people passionate for computers who are interested in the details for operating systems, software applications or programming languages. There are white hackers – good hackers, and also black hackers that affect the reputation of this profession. Black hackers attack computer systems in order to steal or destroy sensitive data. Cyber attackers can be differentiated depending on attributes as resources, time, tools, assumed risks, access to systems and objectives. Building a cyber attacker profile is necessary to understand the measures need to be taken in order to stop them.

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Thermography as a Tool in the Development of Microdevices

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Abstract

The characterization of microdevices involves a multitude of methods and investigative procedures. Thermography, as a method, opens a new way of working in the development process of this class of devices. Investigated microdevices structures were subjected to various types of electrical stress and the effects of applying stimuli on these structures were visualized. This paper presents the issues related to the use of this method and treats the investigation procedures, the calibration problems and the necessary adjustments of characterization system. Experiments are performed using FLIR SC 5000 camera equipped with a G3 type lens. Various types of devices as well as specific test vehicles were subjected to the tests. The information obtained and the ways of interpreting them were analyzed.

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Failure Modes and Mechanisms of Electrolytic Capacitors

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Abstract

The typical failure modes and mechanisms of two families of electrolytic capacitors (aluminum and tantalum capacitors) are analyzed. Variants such as conductive polymer aluminium capacitors and polymer tantalum capacitors are also included. First, for each family of electrolytic capacitors, after a short description of the design and characteristics, the main applications are described. Then, the typical failure modes and mechanisms are detailed, the main factors that influence the reliability are identified, and some methods for diminishing their action are proposed.

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Failure Risks for Silicon and Non-Silicon Transistors

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Abstract

The transistors could be manufactured by two basic technologies: bipolar and MOS, respectively. Also, the basic material for transistors could be silicon (still, the most used at world level) or other materials (gallium arsenide, indium phosphide, silicon carbide, etc.). In order to cover all the possibilities, in this paper, four families of transistors will be analyzed: bipolar silicon / nonsilicon transistors and MOS silicon / non-silicon transistors. In each case, first, a short description of the design and characteristics is supplied, and the main applications are described. Then, the typical failure mechanisms are detailed, the main factors that influence the failure risks are identified and some methods for diminishing their action are proposed.

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Rethinking Robotic Arms for Research: A Reliable, High Precision, Low Cost Design

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Abstract

This paper investigates the use of new methods for the design of robot arms to improve their accuracy and strength without the use of expensive components or exotic gear systems. The result is a system with increased reliability compared to existing ones in this price category. The compromise we made is the use of a trapezoidal screw, similar to those used in CNC machines, that significantly reduces the speed but increases the overall accuracy and strength of the entire arm. Thus a millimeter precision can be achieved or even submillimeter depending on the type of screw used increasing the payload as necessary. The mechanical advantage is considerable and is not subject to the backlash phenomenon, so the control

scheme can be kept open using stepper motors and eliminating the need to use expensive position sensors and closed loop control schemes that requires intensive processing power. In this paper we present the relation between the parameters and the screw speed, accuracy and strength screw and a series of case studies that highlight the benefits of using this particular type of actuator arm screw. The prototype developed under this work has three degrees of freedom and can be used for very precise pick and place operations.

Keywords: robot, robotic, cost, design, reliability, precision

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Environmental Performance Indicators into Maintenance Activity of Industrial Equipments

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Abstract

The work proposes two indicators for environmental performance evaluation into maintenance activity of industrial equipments, namely: 1. The absolute indicator (Es) - CO₂ emission involved into service [kg CO₂]; 2. The relative indicator (es)- CO₂ specific emission involved into service [kg CO₂/euro]. The first indicator results from a "power approach" of the "environmental balance" which allows the calculation of "energy involved into service"(Ws). This energy is turn into "equivalent fuel" (Bs) and finally into "CO₂ emission involved into service" (Es). The second ones results by division of (Es) to the "total financial value of maintenance service" (Vs), expressed in euro. A practical application for calculation of these indicators in the case of two power transformers is done. (Es) puts in evidence only absolute value of environmental aspects. (es) is relevant because shows practically, with what environmental impact (kg CO₂) is obtained each monetary unit (1euro), accordingly with performed service.

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Investigating the Relationship between Downsizing and Total Quality Management

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Abstract

While the management literature shows considerable attention given to the restructuring fads and fashions of this era, relatively little attention has been paid to investigating the relationship between downsizing and TQM. Many organizations are going through periods of downsizing, rightsizing re-engineering, restructuring

or other types of reorganization with the ultimate goal of reducing staff numbers, developing a leaner organization and reducing costs.

At the same time, many of these organizations have already invested or are investing in continuous improvement activities and adopting the principles of total quality management (TQM). Many are using the quality award models as they strive for business excellence.

What happens to quality in periods of downsizing? Can quality programmes survive when quality departments are completely removed, team members are displaced and the situation for many employees who remain becomes insecure? Can TQM assist in the restructuring process?

This paper addresses some of these issues. Several large public sector organizations and one private sector organization in the state of Western Australia were investigated. All had been examined as part of an Australian survey on quality management self-assessment practices.

The organizations were reexamined later, using similar research techniques.

All had undergone substantial restructuring involving workforce reductions, the removal of entire divisions, outsourcing, corporatization and two had new CEOs assume office.

Keywords: Quality, Total Quality Management, Quality Award Models, Quality Program, Downsizing, Re-engineering, Large organizations

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A Methodology for Test and Correction of Software Errors in Complex Software Systems

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Abstract

The globalization of the market, the fast evolution of technologies and the need for innovating currently push the firms to be fallen under a permanent process of progress, at each level of its organization [Goldratt, 93]. Consequently, companies must consider strategies that reduce the time required to take a product from concept to market. According to Midler and Giard [Midler C. & Giard V., 93], the capacity to quickly develop new products (software) is at the heart of modern competitive strategies. Computer software has gradually become an indispensable element in many aspects of our daily life and an important factor in numerous critical applications such as nuclear plants, medical monitoring control, real-time military and air traffic control [Pham H., 02]. As from now, the firms are devoted to the software development with an aim of optimizing their performances in production. However, the development of software cannot be done without uncertainties. The question is today to know how make reliable this development by minimizing the probabilities of programming errors.

Keywords: software, software reliability, Markov model, mathematical model

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Quantitative Modeling of User Specifications and Properties of the Software Delivered Product

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Abstract

In this paper we propose a comprehensive methodology for relating hidden properties of the User Specification to that of the Software Delivered Product. Most of the User requirements, in an On Line Transaction oriented application, demanding high level of Human-Software interactions, are defined in the interfaces. Statistical models to investigate the association between the characteristics of the User Interfaces and that of the Software Delivered Product are derived. We describe the appropriate Statistical procedures that were applied, in the context of our study. The study was conducted on Relational Data model based Application systems, developed in CASE oriented Prototyping environment. Applying the methodology on a sample of Sixty nine cases, we describe the justification for its use in establishing Quantitative relationships between various Latent properties of different Software components.

Keywords: User specifications, User interface, Software Delivered Product, Prototyping, CASE, Canonical Correlation Analysis, Canonical Variates, Canonical Correlations, Chi Square distribution, Tests of Significance, Software, Development Life cycle, Quality attri

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On Analysis of Security and Survivability of Complex Web Systems

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Abstract

The strategy of an organization should include as a main objective the insurance of an optimal performance level for its information systems, which implies the need to define their core capabilities and fundamental quality attributes. The early development, since the design phase, of specific performance evaluation techniques and survivability capacities in different critical situations (attacks) for system operation, adds to the managerial decision-making process a powerful tool for maintaining the system to the expected performance level. This article analyses the survivability (ability to survive) of an application that uses Web technology in a 3-tier architecture through systematic evaluation, at different levels, of the availability in terms of cyber-attack and survival properties of the application.

Keywords: strategy, decision, complex systems, infrastructure, web design architecture, security, software security, survivability

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Software Fault Tree Reliability Analysis Using a Java-based Reliability Library

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Abstract

Software reliability is currently a research subject that has won respect from all areas of activity, particularly industry. However, in complex systems with large liability, in respect to reliability, techniques and methods for quality and reliability assessment still must be implemented urgently and with the same seriousness as in hardware. In this paper, the author proposes an integrated framework for software reliability modeling and analysis, based on several assessment techniques developed throughout history, and together with advanced Java programming technologies. The new methodology is simple to use and can model and analyze, in terms of reliability, a variety of complex systems. The analysis framework uses a new Java library called JReliability, and which can assess various measures of reliability, using analytical calculations together with graphical representations.

Keywords: software reliability, software modeling techniques, reliability analysis, SFTA, BDD, Java-based reliability

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On Security of Mobile Communications Networks. A Critical Analysis of ZUC Algorithm

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Abstract

ZUC is a data stream cipher, easy to implement, one of the fastest algorithms to encrypt messages in mobile communications. Because of the key and initialization vector large size (128-bits), ZUC provides high security and is enough resistant to many types of attacks: Weak Key Attacks, Guess-and-Determine Attacks, Algebraic Attacks, Timing Attacks, but not enough robust to withstand the DPA (Differential Power Analysis) type attack. This article makes an analysis of ZUC algorithm and presents the encryption efficiency, and its vulnerabilities; also it is made a comparison with other algorithms used in telecommunications (SNOW 3G, Kasumi, DES/3DES and AES).

Keywords: encryption, ZUC, algorithm, stream cipher, security.

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Interactive Mobile Telecommunications Systems

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Abstract

In the last years mobile communications market has experienced an accelerated growth through the introduction of the third generation of mobile technology (3G), followed in late 2009 by public launch of the LTE standard (4G Long-Term Evolution). Mobile communications have continued to rapidly evolve beyond the need for voice use only. With the development of Internet, mobile networks offer now data services, multimedia streaming and access to files and applications stored in cloud, thus increasing technical challenges and complexity of equipment which must perform the required services in terms of quality. A telecommunications complex system can be seen as an interactive system in which built-in functions must be in compliance with the requirements of the tasks which the user will perform by interacting with it. In addition to evaluation in terms of functionality, it is very important to measure the impact that the design of a system has on the user. This may include aspects related to ease of learning of systems' facilities, usability and the user's attitude toward the system. This paper is an overview of mobile telecommunications systems, describes the concept of usability in the design of telecommunications networks and presents aspects of monitoring network devices.

Keywords: mobile systems, telecommunications network, 3G, 4G, UMTS, usability

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Interoperability and Security Management for Complex Systems

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Abstract

The need to exchange data among organizations entails opening communications to ensure controlled access to internal resources of an entity. The adoption of interoperability standards coupled with complex analysis of safety and of modes of data access / transfer is an important component of information management strategy within an organization. The diversity of working technologies (proprietary, open source) requires the development of punctual analyses for each flow involving interchange of data and specific measures. The new security context in the online environment implies a punctual approach of complex systems in the information technology area. High frequency of incidents and the importance / criticality of data that are subject to cyber-attacks require a substantial change in the use and management for the component of interoperability of services and systems. Ensuring data and information protection, sharing necessary information to other entities - organizations require development (even from the design phase) of some evaluation components, of some resilience and survival skills in various critical situations (natural disasters, cyber-attacks).

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New Framework for Security Risk Management and Asset Protection in the Context of ISO 31000:2009 Standard

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Abstract

This paper analyses the new framework for security risk management and asset protection in the context of the standard ISO 31000:2009. The structure and the implication of the standard ISO 31000 are analyzed in detail. The conclusion is that ISO 31000 is a concise and well written standard, with a good position in the risk management standards landscape.

Keywords: security, risk, standard, framework, risk management, ISO 31000:2009, asset protection

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Implementation of Quality Management Systems Using QFD Analysis

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Abstract

Quality Function Deployment (QFD) is a management instrument used to transform the client demands into specific parameters and elements for the development team. More often, the voice of the customer [VOC] is not expressed into engineering characteristics, so this method helps creating a new product or improving an old one with a minimum of compromises and increase customer satisfaction. An analytical overview of this method, presenting its advantages and disadvantages is presented. An example of a step-by-step utilization for implementing the management system in a company using WHAT (customer demands) and HOW (technical requirements) lists is developed. Based on this lists and their interdependences, an illustrative representation using House of Quality technique was created.

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Metrology in Total Productive Maintenance

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Abstract

Prezenta lucrare își propune să investigheze impactul metrologiei asupra componentelor sistemului TPM pe toată durata de viață a echipamentului precum și contribuția pe care metrologia o aduce la realizarea performanței în acest domeniu.

Keywords: echipament, mentenanță total productivă, eficiența globală a echipamentului, metrologie, măsurare.

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Systematic Investigation of the Types of Failures and their Causes in Industrial Processes

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Abstract

Dezvoltarea organizațiilor industriale reclamă abordări pragmatice și sistematice ale problematicei domeniilor în care operează, ale valorificării resurselor, ale fluxurilor de valoare etc. Situația definitorie a unor astfel de organizații este aceea în care procese preexistente sunt continuu evaluate și îmbunătățite sub aspectul eficienței și eficacității. Această situație face necesară o metodologie care să identifice, să inventarieze și să evalueze mecanismele de pierderi care afectează procesul analizat. Dificultatea principală în construcția unei astfel de metodologii rezidă în asigurarea caracterului sistematic – programatic și exhaustiv. Lucrarea de față încearcă să rezolve dificultatea enunțată propunând o metodologie bazată pe metodologia deja cunoscută și larg răspândită: Failure Mode and Effect Analysis (FMEA), exploatându-se caracterul sistematic și cuantificarea rezultatelor FMEA. Caracterul sistematic este consolidat prin combinarea în angrenajul metodologiei a catalogului de procese interne, a diagramei procesului individual, a sistematizării Ishikawa a celor 6M și a tipologiei pierderilor fixate prin conceptele japoneze MUDA-MURI-MURA. Pentru a ilustra metoda propusă se prezintă un exemplu de analiză a tipurilor și cauzelor pe structura proceselor ALRO SA – organizație industrială din domeniul metalurgiei aluminiului.

Keywords: analiză pierderi, calitate, proces, mediu organizațional, audit intern.

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On Design of Resilient Communication Networks

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Abstract

This work develops approaches on providing resilience of a network, using the CAN algorithm and it will show the manner in which it can be applied to an internet communications protocol, such as the SIP (Session Initiation Protocol).

Keywords: peer-to-peer networks, SIP protocol, resilience, security.

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Solutions to Improve the Quality of Environment and Life by Implementing Environmental Management System

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Abstract

In EU states solving environmental problems is an important condition in promoting sustainable development. A first step in determining the future strategic priorities of environmental inventory is available at local level, identifying the needs of the sector and possible courses of action and intervention measures. The main aim in this paper is to update and supplement information regarding then organisations which have implemented an efficient environmental management system, as well promoting the importance of such a system. Also, the progresses, opportunities as well as problems and challenges regarding environment and life have been addressed. Solutions were developed to improve environmental quality in Romanian organizations by voluntarily implementing environmental management system, as well as highlighting the benefits that organizations can gain from implementing such a system. The multiple advantages brought to organizations have been highlighted by implementing an efficient environmental management system with an interest in environmental protection.

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Lean Manufacturing: Can It be applied Successfully within the Higher Education Sector?

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Abstract

The purpose of this paper is to present the findings of a research project which aims to determine if and how lean manufacturing principles can be applied to the Higher Education sector. The research is based on a comparative qualitative analysis of literature and semi-structured interviews with those involved in lean implementation across a number of sectors including Higher Education. It is shown that while lean projects can be successful at a local level, a more strategic approach is required to ensure a culture for continuous improvement and full implementation of lean principles is achieved. Furthermore, critical success factors are identified at all levels of implementation. The practical implication of this work is to provide a framework which will help in the planning and implementation stages of applying lean manufacturing to the Higher Education Sector. The value of the work which this paper conveys is the presentation of a framework, informed by best practice and lessons learned in implementing lean manufacturing and which can be applied to the higher education sector.

Keywords: Lean practices; best practice; higher education

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Standardization in Education versus Education about Standardization. Paradigm Shift in the Education of XXI-th Century?

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Abstract

In recent years there were in educational environments, intense debates on two major topics and trends related to standards and standardization: standardization in education and education about standardization. These trends were enabled, in our view, by the accelerated pace of implementation in everyday life of scientific and technical discoveries as well as by the higher development rate of economic and business environments in respect to the educational environments. Another reason for the development of these trends is the need for a more efficient correlation between the labor market needs and the offer of educational environments.

Keywords: standard, proces, standardizare, sistem, educație

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Institutional Self-Evaluation. Study Case: Anadolu University, Eskişehir, Turkey

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Abstract

Turkey knocking on the doors of the European Union for several years. Nowadays, do it as intelligent and "elegant" as in the days of the Sultan Suleyman. The preparation for accession begins with the education, which is granted with a special attention. The Higher Education receives enough funding and the professors have a special status in society. Anadolu University is one of the elite universities in Turkey and the Faculty of Education has a Department for Evaluation and Administration, within which are put in practice and there are experimenting processes of self-assessment of the EFQM model. Thanks to a postdoctoral fellowship, I had the opportunity to know and experience this process closely. In this paper, we present the most interesting aspects of the self-evaluation, in Anadolu University.

Keywords: self - evaluation, Anadolu University, higher education, process

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Performance Degradation and Reliability

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Abstract

Performance degradation over time contains the information for system or component reliability modelling. If system performance failure is defined in terms of performance degradation at a certain defined level, the system reliability assessment can be evaluated. The performance of an individual product unit is generally a function of use and/or aging across time, clues of which can be determined from measures of physical variables. The paper presents an approach to estimating conditional performance reliability for individual industrial equipments placed in service in real-time, applying the methods of multivariate statistics (regression, PCA, ARIMA).

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Considerations on the Use of a Three-Dimension Mathematical Model Probability-Gravity-Fault Cost for Improving Equipments Performance

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Abstract

This paper presents the development and use of a three-dimension model probability-gravity-fault cost, for improving equipments performance taking into account the internal requirements of the manufacturer (internal marketing policies, and so on), and / or external requirements (customers, regulations). For this purpose there are defined some coefficients and indicators and a Limited Surface Function (LSF) method.

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New Confirmations of the Entropic Models

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Optimization of the Structure of Redundant Schemes with the Entropic Risk Criteria

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Management of Electrical Energy Quality and Energy Efficiency

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Abstract

Calitatea energiei electrice furnizată utilizatorilor industriali poate influența în mod considerabil eficiența proceselor industriale. Variațiile de tensiune, variațiile de de frecvență, întreruperile de scurtă și de lungă durată, golurile de tensiune, distorsiunea curbelor de tensiune sau de curent electric precum și nesimetria tensiunilor de alimentare pot conduce la reducerea eficienței energetice a utilizatorilor și, în unele cazuri, chiar la avarii în echipamentele electrice. Sistemul electroenergetic de alimentare nu este o sursă ideală de energie electrică și trebuie cunoscute abaterile care apar, efectele asupra eficienței energetice și nivelul riscului acceptat de către utilizator. În prezent, pentru toate tipurile de perturbații din sistemele electrice de alimentare există soluții eficiente care trebuie cunoscute, analizată posibilitatea tehnică și economică a implementării acestora sau, în caz contrar, cunoașterea și acceptarea riscului determinat de o calitate neadecvată a energiei electrice furnizate. Un management energetic corespunzător poate asigura menținerea, în limitele acceptate, a riscului datorat unui nivel inadecvat al calității energiei electrice.

Keywords: calitatea energiei electrice, eficiența energetică, daune, risc.

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Cultural Service Quality Management in the Context of the Global Economic Crisis

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Abstract

It suffices to browse the websites of only a few of the most noteworthy Romanian cultural organizations – including the website of the Ministry of Culture – to conclude that quality policies are missing. In fact, these are not the only policies that are missing, but this topic should be discussed in another paper. The objective of this paper is to analyze the progresses and the opportunities, as well as the problems and the challenges that the Romanian society and economy are facing as far as culture is concerned at the beginning of the new millennium, in the particular context of the global economic crisis: specifically, we will focus on the role of cultural organization managers in implementing quality management as the main factor in assuring the competitiveness needed to overcome the crisis. Cultural organization managers generally admit that a change is needed in order to cope with competitive pressure, but few understand how this change should be implemented. To avoid the issues associated with "change programs", the management of cultural organizations must focus on the structure of processes, recognizing the roles and responsibilities of their employees in the processes in which they are involved.

Keywords: quality management, culture, cultural organizations, consumer, cultural services, competitiveness, global economic crisis

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Audit Management Systems in the Context of Economic Development in the Early Decades of the XXI Century

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Abstract

This paper tries to find answers to the current issue of the audit. What has to offer classical approach of audit practice to help organizations improve their performance? What should be done for the results of an audit of the audited organization to be useful in terms of its managers more interested in improving organizational performance, effective leadership, risk management, benchmarking and assessing the maturity of the organization in order to take decisions and improve business than the information to confirm compliance?

Keywords: organization, audit, quality management system, performance

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Particularities of Occupational Safety and Health management in Small and Medium Enterprises

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Abstract

Small and medium enterprises (SME) are an important contributor to the EU labor market and economic growth. They account for almost 70% of total employment in EU. They are dynamic, more flexible than bigger companies, but most of all they have huge diversities even within the same economic sector. In the same time, SMEs have high rate of occupational accidents and diseases. The article presents aspects related to occupational safety and health management in SMEs, addressing legal issues and practices in the smallest, but highly important enterprises in Europe.

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Audits from Integrity Program of Business Social Compliance Initiative

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Abstract

The paper presents the characteristics of the audits from the Business Social Compliance Initiative Integrity programme and the actions that the participants, business partners, producers and auditing companies have to implement in order to fulfil the requirements of Business Social Compliance Initiative secretariat. First the paper presents the integrity programme purposes and characteristics and its color-coded system to categorize the integrity issues of auditing companies in line with their severity and also its system of scoring the performance of the producers. Then the paper presents the new tool of Business Social Compliance Initiative secretariat to evaluate the ability of the producers to maintain the implementation of Business Social Compliance Initiative code of conduct requirements ie the random unannounced checks and the main issues regarding the maintenance of the implementation of these requirements by the producers. Then the paper presents the conclusions of the witness audit and duplicate audits on the performance of the auditing companies and the main issues of integrity resulted from these audits. Finally the paper draw the conclusion that the implementation of the Business Social Compliance Initiative requirements is not enough to fulfil Business Social Compliance Initiative requirements and that actions have to be taken by the producers to maintain the implementation of the requirements and by the auditing companies to ensure quality of audits and avoid soft grading.

Keywords: audit, business social compliance initiative (BSCI), integrity program, social accountability, random unannounced checks, duplicate audit, witness audit, sustainable development

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Six Sigma Project. Improvement of Decision-Making Process in Quality

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Abstract

Six Sigma contains a broad set of tools, interwoven in a business problem-solving methodology. Six Sigma tools are used to scope and choose projects, design new products and processes improve current processes, decrease downtime and improve customer response time. Six Sigma has not created new tools, it has simply organized a variety of existing tools to create flow. Six Sigma has not created new tools. It is the use and flow of the tools that is important. How they are applied makes all the difference. Six Sigma is also a business strategy that provides new knowledge and capability to employees so they can better organize the process activity of the business, solve business problems and make better decisions. Using Six Sigma is now a common way to solve business problems and remove waste resulting in significant profitability improvements. In addition to improving profitability, customer and employee satisfaction are also improved. Six Sigma is a process measurement and management system that enables employees and companies to take a process oriented view of the entire business. Using the various concepts embedded in Six Sigma, key processes are identified, the outputs of these processes are prioritized, the capability is determined, improvements are made, if necessary and a management structure is put in place to assure the ongoing success of the business.

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Validation in Food Safety Standards

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Abstract

The idea of drafting this work appeared over the auditor activity, when auditing the requirements 7.5.2- Production processes and services supply validation or 7.3.6- Design and development validation (ISO 9001:2008) and 8.2- Control actions combinations validation (ISO 22000:2005), whether the requirement was excluded, or the implementing evidences were missing or were partially formal. As a consultant for both ISO standards and the other food related standards, there arised the need for preparing the companies to meet the request of providing objective evidences for the validation requirement, during the audits. In practical terms, during my counseling activity, I found out that the Validation is a practical and appropriate instrument; I have observed that the clients were facing situations that required reducing the frequency, or even giving up to some of the burdensome and no deviation monitoring, sometimes years along, or „strengthening" of technical findings that were affecting the products harmlessness. For the counseled or audited organizations, in the relations with the Authorities and their own clients, it became necessary to take responsibility on certain sensitive issues, such as: showing the ingredients and nutritional information on food labels. Validation that can also be used in a satisfactory manner, if correctly oriented towards the requirements of the Authority and the clients. For this purpose I have structured the work as follows: - presentation of food safety standards, as they are accepted now by GFSI (Global Food Safety Initiative); - defining the validation- monitoring- verification terms, in order to avoid any confusion between those concepts; - specifying the validation methods (approaches), as they are presented in a Codex Alimentarius Guide; - detailing the validation stages, as they are presented in the same Codex Guide; - specifying the situations where the most common food safety standards (FSSC 22000, IFS Food and BRC) are recommending the validation. 17 such situations were identified. I have also mentioned the situations where the Certifying Bodies use the validation during the third party audit process. In order to use the instrument of validation practically, I have drafted a work pattern, based on the above mentioned issues and not lastly on my ten years experience as indirect participant in the food chain as auditor and consultant. The two presented practical examples are taken from the collaboration with a big food retailer which is also developing production activity.

Keywords: validare, siguranta alimentului, standard

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