

Dan STOICHITOIU Ioan BACIVAROV A. KOBI Michele CANO
Editors

QUALITY and DEPENDABILITY

PROCEEDINGS

of the

**12th International Conference
on Quality and Dependability**

**Sinaia, Romania
September 22th–24th, 2010**

SOCIETATEA ROMÂNĂ PENTRU ASIGURAREA CALITĂȚII
2010



SOCIETATEA ROMÂNĂ PENTRU ASIGURAREA CALITĂȚII

Copyright © SOCIETATEA ROMÂNĂ PENTRU ASIGURAREA CALITĂȚII

SOCIETATEA ROMÂNĂ PENTRU ASIGURAREA CALITĂȚII

Str. Theodor Burada, nr. 6, sector 1

010215 – București

Tel.: 021-313 63 35

Fax: 021 – 313 23 80

E-mail: office@srac.ro

Site: www.srac.ro

Issue co-ordinator: Lorena CHIRIȚĂ

DTP: Sanda STROESCU

Proof: Viorica BURCIU

Bun de tipar: 10.09.2010

ISSN 1842-3566

COMMITTEES

HONORARY COMMITTEE:

Alessandro BIROLINI – Professor Emeritus, Switzerland, guest of honor
Sorin DIMITRIU – President of the CHAMBER OF COMMERCE AND INDUSTRY OF BUCHAREST
Michael DRECHSEL – President of THE INTERNATIONAL CERTIFICATION NETWORK – IQNet
Ioan DUMITRACHE – President of the NATIONAL UNIVERSITY RESEARCH COUNCIL
Petru IANC – Director of the General Director of Industrial Policy and Competitiveness, MINISTRY OF ECONOMY, TRADE AND THE BUSINESS ENVIRONMENT
Cristiana ION – Director of the Infrastructure of Quality and Environment Directorate, MINISTRY OF ECONOMY, TRADE AND THE BUSINESS ENVIRONMENT
D.F. LĂZĂROIU – Prof. dr. eng. – France, guest of honor
Costin LIANU – General Manager of the General Directorate for Export Promotion in the MINISTRY OF ECONOMY, TRADE AND THE BUSINESS ENVIRONMENT
Vlad OPREA – Mayor of SINAIA City
Ioan PITURESCU – President of the NATIONAL INSTITUTE FOR SMEs
Florin Theodor TĂNĂSESCU – President of CER
Gheorghe ȚUCU – President of Romanian Standard Association
Ulrich SIEBERATH – Director of IFT ROSENHEIM

ORGANIZATION COMMITTEE:

Dan STOICHIȚOIU – President of the Romanian Society for Quality Assurance – *General Chairman of CCF 2010*
Mihaela CRISTEA
Eugen COZMA
Daniel LOLEA
Alexandru STAMATIU

SCIENTIFIC INTERNATIONAL COMMITTEE:

Ioan C. BACIVAROV – Professor at the POLITEHNICA University of Bucharest, Romania – *Chairman*
Michele CANO – Professor at West Scotland University, Paisley, Great Britain – *Co-Chairman*
Abdessamad KOBI – Professor at ISTIA, Angers University, France – Co-Chairman
Bruno-Marie BECHARD – Professor at University of Sherbrooke, Canada
Allan BROWN – Professor at University of Perth, Australia
Remy GAUTIER – Professor at ENSAM, Paris, France
Fabrice GUERIN – Professor at University of Angers, France
Amilcar GONCALVEZ – Professor at University of Lisabona, Portugal
Socrates KAPLANIS – Professor at University of Patras, Greece
Liviu MĂȘĂLAR – Professor at University of Liege, Belgium
Mihai POPESCU – Professor at „Politehnica“ University of Bucharest, Romania
Ajit K. VERMA – Professor at Indian Institute of Technology of Bombay, India
Ton van der WIELE – Professor at Erasmus University of Rotterdam, Netherlands
Enrico ZIO – Professor Politehnica University of Milano, Italy

SECRETARIAT:

Lorena CHIRIȚĂ
Marius RĂMARU
Marga ZAHARIA

CCF 2010

THE 12th INTERNATIONAL CONFERENCE QUALITY AND DEPENDABILITY

Wednesday, 22 September 2010

PLENARY OPENING SESSION

Chairman: *Dan STOICHIȚOIU – President of The Romanian Society for Quality Assurance, General Chairman of CCF2010*

Opening the debates of the Conference CCF 2010
Welcoming and greetings

PLENARY SESSION I

Chairmen: *Liviu MĂȘĂLAR – University of Liège, Belgium*
Alex STAMATIU – UTCB Bucharest

Risk Management by an Appropriate selection of safety devices in machine control systems
Liviu MĂȘĂLAR – University of Liège, Belgium

Media Quality Management Certification – An Innovative Approach
Ioan C. BACIVAROV – „Politehnica“ University Bucharest
Louis BALME – ISAS, Geneva, Switzerland

A new theory of reliability
Alexandru STAMATIU, Eugen BADEA, Bogdan NAN, Gheorghe PALTINEANU – Construction University Bucharest

PLENARY SESSION II

Chairmen: *Ioan C. BACIVAROV – „Politehnica“ University, Bucharest*
Abdessamad KOBI – University of Angers, France

Lean Principles in Service Delivery Improvements: a Health Care Case Study
Michele CANO, Athanassios KOUROUKLIS, Siobhan DRUMMOND – University of The West of Scotland, Paisley, Great Britain

Evaluation des risques d'un système par approche Bayésienne : Application aux passages à niveau
A. BOUCHIBA, A. CHERKAoui – École d'Ingénieurs Rabat, Maroc

M.BARREAU, A. KOBI – LASQUO-ISTIA, Univ. Angers, France

Decisional transparency – the basic element to increase the efficiency of public services provided to the community

Tudor PENDIU, Maria ROTARU – PITEȘTI City Hall

Services Quality Management in IT Organizations

Doina CONSTANTINESCU, Bianca PRISECARU – „Politehnica“ University, Bucharest

TQM and necessary changes in the organization that implements such system

D. NICOLESCU, Doina CONSTANTINESCU – „Politehnica“ University, Bucharest

Challenges and threats for public institutions in excellence concepts implementation

Irina SEVERIN, Mihai CARAMIHAI – „Politehnica“ University, Bucharest

Organization's Management and corporate social responsibility

Victor ANDREI – CCA TehnoREX S.R.L., Bucharest

POSTER SESSION

Chairman: Ioan C. BACIVAROV – „Politehnica“ University Bucharest

1. Multicriteria Approach to Assessment Risk Professionals in the Industry of Gas Treatment

Dorra AYADI – Faculté des sciences économiques(FSE) Sfax – Tunisia

Abdessamad KOBI, Christian ROBLEDO – LASQUO/ISTIA Angers, France

Habib CHABCHOUB – Inst. Supérieur de Gestion Industrielle Sfax – Tunisia

Lotfi AZZABI, Younes BOUJELBENNE – FSE Sfax – Tunisia

2. Total Quality Management and Reorganization of Large Companies

Alan BROWN – Edith Cowan University, Churchlands, Australia

Ton van der WIELE – Erasmus University, Rotterdam, The Netherlands

3. The Virtual Machines Survivability

Ioan-Cosmin MIHAI – Police Academy, Bucharest

Ioan C. BACIVAROV – „Politehnica“ University, Bucharest

4. Reliability and Safety Issues of Telepresence and Teleoperated Robots

Virgil L.M. ILIAN, Ioan C. BACIVAROV – EUROQUALROM-ETTI, „Politehnica“ University, Bucharest

5. Building a Decisional Model in a Complex Socio-Technical System

Angelica BACIVAROV – „Politehnica“ University, Bucharest

Costel CIUCHI – Secretariat General of the Government, Bucharest

Gabriel PETRICĂ, „Politehnica“ University, Bucharest

6. Application of Taguchi Method in Optimization of A Technological Process Parameters

Suraj S. RANE – Padre Conceicao College of Engineering, Goa, India

A. SRIVIDYA, AK.VERMA – Indian Institute of Technology Bombay, Mumbai, India

7. On Degradation of Interconnects in Multi-Chip Modules

Michel IGNAT – CNRS, INP Grenoble, LTPCM, France

8. Reliability Analysis of Highly Reliable Elements

D. VALIS, Z. VINTR – University of Defence, Brno, Czech Republic

M. KOUCKY – Technical University of Liberec, Liberec, Czech Republic

9. Resilience Analysis on Lifetime Based Node Failure for Peer-to-Peer Networks

Dorina Luminița COPACI – Bucharest Courthouse

Constantin A. COPACI – ANCOM, Bucharest

Note: Poster paper works will be introduced by short presentations of the authors /chairman

Thursday, 23 September 2010

PLENARY SESSION III: Quality Assurance in Education

Chairmen: *Nicolae DRĂGULĂNESCU – „Politehnica“ University, Bucharest*
Ioan HOHAN – President of FIATEST

Quality assurance in education – from the European project to the Romanian outcome

Nicolae DRĂGULĂNESCU – „Politehnica“ University, Bucharest

Remus CHINĂ – Ministry of Education, Research, Youth and Sport

„Achievements and prospects of SMC design for continuous professional training system in Romania within the European Framework for Quality Assurance application in education and professional training.“

Ioan HOHAN – President of FIATEST

Internal evaluation – a process essential in developing a school to a referential optimal or adoption of a model of excellence

Remus CHINĂ – Ministry of Education, Research, Youth and Sport

Quality standards for students placement – Q-PlaNet approach

Doru TALABĂ, Laura Teodora DAVID – Transylvania University, Braşov

Obstacles and delays reluctances within the Romanian schools development according to widely recognized benchmarks and excellence models

Manuela STOICA – National Agency for Quality Assurance in pre-university Education

PLENARY SESSION IV

Chairmen: *Eugen NEACȘU – SRAC CERT, Bucharest*
Steluța NISIPEANU – SRAC CERT, Bucharest

Risk Management, integrated part of an performant management
Steluța NISIPEANU, Maria Haiducu – INCDPM, Bucharest
Standardization, conformity assessment and testing – tools to ensure the requirement for safe operation of equipments
Ionel IORGA, Anca Antonov, Octavian IORGA – INCDPM, Bucharest

A solution for the validation of medical processes
Eugen NEACȘU – Director of S.C. Q-INSPECT S.R.L.
Dragoș VINEREANU – Director of the University Hospital for Emergency from Bucharest

The impact of Romania's water industry on the weather changes
Daniela Simona Moldovan – Compania Apa Brașov

SPECIAL SESSION

In Honor of Prof. Emeritus Alessandro Birolini at his 70th anniversary

Chairmen: *Dan STOICHIȚOIU – General Chairman CCF 2010*
Ioan C. BACIVAROV – Chairman Scientific Committee CCF 2010

Prof. Alessandro BIROLINI – An European Guru of Reliability
Ioan C. BACIVAROV – Editor for Europe „Quality Engineering“ (U.S.A.)

Approximate Expressions for the Reliability and Availability of Repairable Large Systems
Professor Emeritus Alessandro BIROLINI – ETH Zurich (Elvetia)

The release – world premier of the 6th edition of the remarkable book of Professor Birolini „Reliability Engineering: Theory and Practice“ (Springer, September 2010), work considered by experts in the field a real „Bible“ of reliability.

Presenting: *Dan STOICHIȚOIU*
Ioan C. BACIVAROV
Alessandro BIROLINI

SPECIAL SESSION: CE mark and window quality in Romania

Chairmen: *Ulrich SIEBERATH – Director ift ROSENHEIM*
Cristian Paul STAMATIADÉ – Director Ministry of Regional Development and Tourism
Alex STOICHIȚOIU – Executive Director SRAC CERT

The significance of conformity mark CE and quality mark ift Zertifiziert
David HEPP – ift ROSENHEIM

SRAC CERT – ift-ROSENHEIM Partnership; Testing Laboratory
Alex STOICHIȚOIU – Executive Director SRAC CERT

Cascade application criteria of ITT results established by the system provider
Georgeta NEAGU – SRAC CERT, Bucharest

Discussions, questions

FRIDAY, 24 September 2010

PLENARY SESSION V

***Chairmen: Michele CANO – West Scotland University, U.K.
Romeo DENUNTZIO – SRAC CERT, Bucharest***

PAS 99:2006 – Instrument for implementing the management systems into the general business management

M.S. IGNATOV – „Politehnica“ University, Bucharest

Petru FUNAR – „Politehnica“ University, Bucharest

Processes innovation project for test processes in the test desks areas for traction electric equipments

Irina TIHAN – ICPE SAERP S.A., Bucharest

Motivational aspects of South Korean Quality Management approach

Nicolae DRĂGULĂNESCU – „Politehnica“ University, Bucharest

Preparing the internal audit program by processes of the social accountability-health and safety integrated management system according to the requirements of SA8000:2008, BS OHSAS 18001:2007 and ISO 19011:2002 standards

Romeo DENUNTZIO – SRAC CERT, Bucharest

Efficient evaluation of quality management system by optimum organization processes in the automotive industry in compliance with ISO/TS 16949:2009

Emilian LONCEA, Elena LONCEA – SRAC CERT, Bucharest

„Lean Manufacturing“ Concepts and methods to continuously improve the processes in the automotive industry

Elena LONCEA – SRAC CERT, Bucharest

Benefits of accredited SA8000 certification – local and international perspective

Tatiana CHIROȘCA – IQNet LTD, Berna

PLENARY SESSION VI

Chairmen: *Angelica BACIVAROV – „Politehnica“ University, Bucharest*
Marius BĂZU – IMT Bucharest

Researches Concerning the Dependability of Socio-Technical Systems

Angelica BACIVAROV – „Politehnica“ University Bucharest

Ioan. C. BACIVAROV – „Politehnica“ University Bucharest

Reliability testing of electronic components: state-of-the-art and new trends

Marius BĂZU, Virgil ILIAN, Lucian GĂLĂȚEANU – National Institute for Research and Development in Microtechnologies, Bucharest

Typical failure mechanisms of microsystem technology

Marius BĂZU, Lucian GĂLĂȚEANU, Virgil ILIAN – IMT Bucharest

Solar Cells Reliability Testing Programs

Virgil ILIAN – UPB; Elena MANEA, Marius BĂZU, Lucian GĂLĂȚEANU – IMT Bucharest

On e-learning Systems Security

Ioan-Cosmin MIHAI – Police Academy, Ioan C. BACIVAROV – „Politehnica“ University, Bucharest

Methods to Ensure Resilience In Communication Networks and P2P Overlay

Luminița COPACI – Bucharest Court House, Alin COPACI – ANRCTI, Angelica BACIVAROV – „Politehnica“ University, Bucharest

Implementation of the Integrated Management Systems (SMI)

Lidia NICULITA– Technical University of Civil Engineering

Petru COST – State Inspectorate for Constructions

DISCUSSIONS

CLOSING THE CCF 2010 DEBATES

Welcome Message

On behalf of the **Organising Committee** and of the **International Scientific Committee** of **CCF2010**, 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 **12th International Conference on Quality and Dependability – CCF2010** is to provide an international forum for the dissemination of recent information and scientific results in these modern domains.

As traditionally, **CCF 2010** is organised by the **Romanian Society for Quality Assurance (SRAC)**, under the aegis of several important international organisations in the field, including **ITC – UNCTAD/WTO**, the joint technical cooperation agency of the **United Nations Conference on Trade and Development (UNCTAD)** and the **World Trade Organization (WTO)**. 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 the premises of 'Minerva', 'Diana' and 'Afrodita' hotels from 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 – **CCF'2000** 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 success**" 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 Casino 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 **CCF2010** 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 of 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.

As already mentioned, the **International Conferences in Quality and Dependability- CCF** conferences have a long tradition among the specialists of the field. The previous conferences in quality, reliability and maintainability organised in Romania in the last two decades have contributed to the promotion in our country of new ideas and methods in quality and dependability.

We are sure that **CCF2010** 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, America, Africa 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.

Several organisational, scientific, and educational initiatives and programs of leading European organisations, developed in the last years, which have contributed to the creation of a favourable framework for quality promotion in Europe, support this assertion.

Sixteen years ago, in 1994, an important initiative regarding the **European Policy for Quality Promotion** -was developed by the **European Commission (EC)**. The implementation of the **European Quality Promotion Program (EQPP)** was based on a strategy of unified and co-ordinated actions for various participants, both private and public, at community, national, and regional levels.

The need for a holistic approach to quality as a key to business excellence in a united Europe has created an appropriate climate for the European organisations in the field to co-

operate and exploit synergies resulting from their individual specific strengths and primary target groups.

In signing in 1998 an „**European Quality Charter**“, representatives of the major European quality organisations have taken – two decades ago – a step towards the harmonisation of their approaches to quality.

The document recognises that, in a global economy, **quality** is the key to competitiveness for European companies and makes it incumbent on signatories to work toward a common goal of promoting quality across the continent.

Different **European programs and initiatives in dependability** (reliability, maintainability, safety and security) field were developed in the last years, too.

The **European Commission** emphasised, in its **Fifth Research Framework Programme-FP5**, „...the emerging generic **dependability** requirements in the information society, stemming both from the ubiquity and volume of embedded and networked systems and services as well as from the global and complex nature of large-scale information and communication infrastructures, from citizens, administrations and business in terms of technologies, tools, systems, applications and services“.

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 **CCF2010** is, could be a modest contribution to this objective, by reviewing the state of the art, experiences, and new trends in the relevant scientific and relevant areas.

CCF2010 is the second great international conference in quality and dependability organized in Romania after the integration of Romania in the European Union on the 1st of January 2007.

Several debates of **CCF2010** 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 **CCF2010** 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 **12th International Conference on Quality and Dependability – CCF2010** of well-known specialists in the field – academics, managers, practitioners and researchers from **Australia, Belgium, Czech Republic, France, Great Britain, India, Maroc, the Netherlands, Switzerland, Tunisia and Romania**, too. Their points of view, presented in about 50 papers will be of great interest to the participants in **CCF2010**.

The **12th International Conference in Quality and Dependability – CCF2010** 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: ISO 9000 series after two decades;**
- ❑ **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.

The special session organized during the 12th **International Conference on Quality and Dependability – CCF2010** in the honor of Professor Emeritus **Alessandro Birolini** represents the homage of the specialists in the field for this remarkable specialist and man at his 70th anniversary.

The participants at **CCF2010** will have the special opportunity to meet Professor **Alessandro Birolini**- considered a Reliability Guru – who will present a conference concerning Approximate Expressions for the Reliability and Availability of Repairable Large Systems.

During **CCF2010** will be launched the 6th edition in English of the monumental book of Prof. Birolini **Reliability Engineering: Theory And Practice** – published by Springer Publishing House in September 2010, and considered by the specialists in the field as a veritable “Bible of Reliability”

A wide selection of papers presented in the frame of **CCF2010** 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 CCF2010**, prestigious personalities in the field from 10 countries, who made up an equilibrated and high-level scientific program for **CCF2010**.

We hope that you will find **the 12th International Conference in Quality and Dependability – CCF2010**, 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. STOICHIȚOIU
General Chairman of CCF 2010

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

Contents

SPECIAL SESSION

In Honor of Professor Emeritus Alessandro Birolini, PhD

At his 70th anniversary 19

Professor Emeritus Alessandro BIROLINI – A Guru of European Reliability

Ioan C. BACIVAROV 20

Alessandro Birolini: RELIABILITY ENGINEERING.

THEORY AND PRACTICE – A Bible of Reliability

Ioan C. BACIVAROV 22

O nouă teorie a fiabilității sistemelor

Alexandru STAMATIU, Eugen BADEA, Bogdan IVAN, George PALTINEANU 25

Evaluation of Lean Approaches in UK National Health Trusts

Michele CANO, Athanassios KOUROUKLIS, Siobhan DRUMMOND, Tendai SHANA 47

Evaluation des risques d'un système par approche Bayésienne:

Application aux passages à niveau

A. BOUCHIBA, A.CHERKAOUI, M. BARREAU, A. KOBİ 53

*Transparența decizională – element de bază al creșterii eficienței serviciilor publice
oferite cetățenilor unei comunități*

Tudor PENDIUC, Marioara ROTARU 65

Services Quality Management in IT Organizations

Bianca PRISECARU, Doina CONSTANTINESCU 72

TQM and Necessary Changes in the Organization that implements such System

Daniel Valentin NICOLESCU, Doina CONSTANTINESCU 80

<i>Challenges and Threats for Public Institutions in Excellence Concepts Implementation</i> Irina SEVERIN, Mihai CARAMIHAI	85
<i>Managementul organizației și responsabilitatea socială corporativă</i> Andrei VICTOR	93
<i>A Multicriteria Approach to Assessment Risk Professionals in the Industry of Gas Treatment</i> Dorra AYADI, Abdessamad KOBI, Habib CHABCHOUB, Lotfi AZZABI, Christian ROBLEDO, Younes BOUJELBENNE	96
<i>Total Quality Management and Reorganization of Large Companies</i> Alan BROWN, Ton van der WIELE	111
<i>The Virtual Machines Survivability</i> Ioan-Cosmin MIHAI, Ioan C. BACIVAROV	117
<i>Reliability and Safety Issues of Telepresence and Teleoperated Robots</i> Virgil L.M. ILIAN, Ioan C. BACIVAROV	124
<i>Dezvoltarea unui model decizional într-un sistem socio-tehnic complex</i> Angelica BACIVAROV, Costel CIUCHI, Gabriel PETRICĂ	129
<i>Application of Taguchi Method in Optimization of Technological Process Parameters</i> Suraj S. RANE, A. SRIVIDYA, A. K. VERMA	138
<i>On Degradation of Interconnects in Multi-Chip Modules</i> Michel IGNAT	146
<i>Reliability Analysis of Highly Reliable Elements</i> D. VALIS, Z. VINTR, M. KOUCKY	153
<i>Resilience Analysis on Lifetime based Node Failure for Peer-to-Peer Networks</i> Dorina Luminița COPACI, Constantin A. COPACI	159
<i>Asigurarea calității în educație – de la proiectul european la rezultatul românesc</i> Nicolae DRĂGULĂNESCU, Remus CHINĂ	165
<i>Evaluarea internă – process esențial în dezvoltarea unei școli față de un referențial optimal sau în adoptarea unui model de excelență</i> Remus CHINĂ	173

<i>Quality Standards for Students Placement – Q-PlaNet Approach</i> Laura Teodora DAVID, Doru TALABA	180
<i>Obstacole și rețineri în dezvoltarea școlilor românești după referențiale de performanță, modele de excelență recunoscute</i> Manuela STOICA	186
<i>Managementul riscului, parte integrantă a unui management performant</i> Steluța Elisabeta NISIPEANU, Maria HAIDUCU	193
<i>O soluție de validare a proceselor medicale</i> Eugen NEACȘU, Dragoș VINEREANU, Claudia DOBRE	198
<i>Impactul industriei apei din România asupra schimbărilor climatice</i> Daniela Simona MOLDOVAN	205
<i>Approximate Expressions for the Reliability and Availability of Repairable Large Systems</i> Alessandro BIROLINI	209
<i>PAS 99:2006 – Instrument for Implementing the Management Systems into the General Business Management</i> Madalina IGNATOV, Petru FUNAR	220
<i>Processes Innovation Project for Test Processes Innovation in the Test Desks Areas for Traction Electric Equipments</i> Irina TIHAN	224
<i>Aspecte motivaționale în abordarea sud-coreeană a Managementului calității</i> Nicolae DRĂGULĂNESCU	231
<i>Preparing the Internal Audit Programme by Processes of the Social Accountability – Health and Safety Integrated Management System according to the Requirements of SA 8000:2008, BS OHSAS 18001:2007 and ISO 19011:2002 Standards</i> Romeo DENUNTZIO	238
<i>Efficient Evaluation of Quality Management System by Optimum Organization Processes in the Automotive Industry in Compliance with ISO/TS 16949:2009</i> Emilian LONCEA	243

<i>„Lean Manufacturing” Concepts and Methods to Continuously Improve the Processes in the Automotive Industry</i>	
Elena LONCEA	252
<i>Reliability testing of electronic components: state-of-the-art and new trends</i>	
Marius BĂZU, Virgil ILIAN, Lucian GĂLĂȚEANU	262
<i>Typical Failure Mechanisms of Microsystem Technology</i>	
Marius BĂZU, Virgil ILIAN, Lucian GĂLĂȚEANU	268
<i>Solar Cells Reliability Testing Programs</i>	
Virgil Emil ILIAN, Elena MANEA, Marius BAZU, Lucian GALATEANU, V.L.M. ILIAN	274
<i>E-learning Systems Security</i>	
Ioan-Cosmin MIHAI, Ioan BACIVAROV	278
<i>Methods to ensure Resilience in Communication Networks and P2P Overlay</i>	
Dorina Luminița COPACI, Constantin A. COPACI, Angelica BACIVAROV	286
<i>Implementarea Sistemelor de Management Integrat (SMI)</i>	
Lidia NICULIȚĂ, Petru COST	294
<i>Media Quality Management Certification – An Innovative Approach</i>	
Ioan C. BACIVAROV, Louis BALME	303
<i>CE-marking and ift-Q-Zert Quality mark Windows and doors as per EN 14351-1</i>	
David HEPP	305
<i>Benefits of accredited SA8000 certification – local and international perspective</i>	
Tatiana CHIROȘCA	347
<i>Authors Index</i>	371

A New Theory of Systems Reliability

**Alexandru STAMATIU, Eugen BADEA, Bogdan IVAN,
George PĂLTINEANU**

Universitatea Tehnică de Construcții București

Abstract

The paper presents the theoretical bases of the new theory of evolution of systems from nature, called in 2004 The entropic theory of systems (ETS), based on new mathematical formalism and concepts developed in the last 11 years: the entropy S form $= - \ln p$, which led to the maximum entropy determined for the end of the evolution of a process, time step, quantum time, sustainability, life remaining, canonical entropic graph, entropic risk and global availability. It is shown that the mathematical model called the canonical form of entropic graph or canonical entropic graph (CEG) is in interconnection with the most important fundamental principles or laws of nature known, of which, the principle of minimum action, the action by contiguity principle (step by step), the principles of thermodynamics, the principles of special and general relativity theory, the fundamental principles of quantum physics, plus quantum time, etc. The new theory of reliability systems presented in the paper, accompanied by the principles, laws, theorems and applications, thus appears as an application of the more general theory of evolution systems from nature. Consequences and conclusions presented in the last chapter, of which the implications and possible applications in quantum theories of electromagnetism and gravity, with great power forecasting of the new theory spares us the other explanations we need.

References:

- [1] Stamatiu, Al. – Asupra necesitatii redefinirii cuantei de timp, The 11th International Conference on Quality and Dependability, Proceedings CCF-2008, Sinaia, 24th – 26th september.
- [2] Stamatiu, Al. – Fiabilitatea instalatiilor, MATRIX ROM, Bucuresti, 1998, 295 p.
- [3] Stamatiu, Al. – Entropie si fiabilitate, Conferinta Facultatii de Instalatii, Universitatea Tehnica de Constructii, Bucuresti, 1999.
- [4] Stamatiu, Al. – Schimbare si entropie, Conferinta Nationala de Instalatii, Sinaia, 2000.
- [5] Stamatiu, Al. – Implicatii ale legii entropiei in analiza fiabilitatii sistemelor, The 7th International Conference on Quality, Reliability, Maintainability – CCF 2000, Proceedings of CCF 2000 (I), Sinaia, 27th – 29th september.
- [6] Stamatiu, Al., Ivan, N., Badea E. – Modelarea entropica a unor Lanturi Markov finite, a VIII-a Conferinta a Facultatii de Instalatii, Bucuresti, 2001.
- [7] Stamatiu, Al., Ivan, N., Badea E. – Contributii la evaluarea MTTF prin modelul degradarii entropice, a VIII-a Conferinta a Facultatii de Instalatii, Bucuresti, 2001.
- [8] Stamatiu, Al. – O problema de matematica foarte veche cu implicatii multiple in unele chestiuni fundamentale actuale, Conferinta Nationala de Instalatii, 2001.
- [9] Stamatiu, Al. – Entropia maxima – solutii pentru evaluarea schimbarii entropice, a VIII-a Conferinta a Facultatii de Instalatii, Bucuresti, 2001.
- [10] Stamatiu, Al. – Considerations on Maximum Entropy, World Energy Council, Regional Energy Forum, Neptun-Olimp, Romania, 2002.

- [11] Stamatiu, Al., Badea, E. – Aplicatii ale modelarii entropice in fiabilitatea instalatiilor energetice, a XXXVII-a Conferinta de Instalatii Electrice si Automatizari, Sinaia, 2002.
- [12] Stamatiu, Al., Ivan, N. – Un nou model entropic pentru analiza sistemelor redondante, a XXXVII-a Conferinta de Instalatii Electrice si Automatizari, Sinaia, 2002.
- [13] Ivan, N. – Consideratii asupra aplicarii modelarii entropice pentru determinarea duratei de functionare pana la defectare a sistemelor de tip “a din n”, rev. Asigurarea Calitatii, nr 35, 2003.
- [14] Stamatiu, Al. – Modele entropice pentru evaluarea fiabilitatii sistemelor, The 8th International Conference on Quality, Reliability, Maintainability, Proceedings CCF 2002, Sinaia, 18th – 20th september.
- [15] Stamatiu, Al. – Consideratii asupra posibilitatii modelarii entropice a unor fenomene naturale, Simpozionul National de Electrotehnica Teoretica–SNET 2003, Universitatea Politehnica Bucuresti, iunie 2003.
- [16] Stamatiu, Al. – Noi confirmari si consecinte ale modelarii entropice a fenomenelor naturale, Conferinta Facultatii de Instalatii, Bucuresti, noiembrie, 2003.
- [17] Stamatiu, Al. – Bazele unei teorii entropice a sistemelor. Aplicatii in fiabilitate, The 9th International Conference on Quality and Dependability – Proceedings CCF 2004, Sinaia, 29th sept.– 1th oct.
- [18] Ivan, N. – Un model simplu pentru evaluarea fiabilitatii sistemelor complexe, rev. Asigurarea Calitatii, nr 36, 2004.
- [19] Ivan, N. – Contributii la evaluarea duratei de functionare neintrerupta a unor scheme de alimentare cu energie electrica, SIEAR, 2004.
- [20] Badea, E. – Contributii la optimizarea proiectarii instalatiilor electrice si de automatizare, Teza de doctorat, Catedra de Electrotehnica, Universitatea Tehnica de Constructii Bucuresti, 2010.

Evaluation of Lean Approaches in UK National Health Trusts

**Michele CANO, Athanassios KOUROUKLIS, Siobhan
DRUMMOND, Tendai SHANA**

University of the West of Scotland Paisley, Scotland, United Kingdom
Michele.cano@uws.ac.uk, Thanos.kourouklis@uws.ac.uk, Siobhan.drummond@uws.ac.uk,
tshana@shineleanconsultancy.com

Abstract

The concept of Lean manufacturing was initially developed by Ohno (1988) and resulted in the well known Toyota Production System. This work was later commercialised by Womack and Jones (1996) who described lean as the ‘antidote to waste’. More recently, the concept of lean manufacturing has been developed and implemented for various industrial scenarios. Independent of the industrial sector implementation still focuses on the core objectives of elimination of waste and creation of value for the end user. Adoption of lean principles has been successful to service companies as well as to manufacturing companies from where the concepts originated (Alstrom, 2004). In particular health care organisations are increasingly recognising the benefits of adopting lean practices (Sarkar, 2008), (Ballé and Régnier, 2007), (Allway and Corbett, 2002) and they have embarked on their implementation. According to Brandao de Souza (2009), the NHS Modernisation Agency first suggested the implementation of lean practices in healthcare back in 2001 and since then, the adoption has ‘grown significantly in the last few years’. Jones and Mitchell (2006) have identified particular problems that UK NHS Trusts face and suggest that implementation of lean practices is the way forward in resolving hospital acquired infections, capacity and financial constraints and public concern about waiting times. The NHS hospitals are now required to operate within budget and provide high quality healthcare service. Lean system implementation can enable the attainment of these benchmarks. Assessing the extent of adoption and its associated benefits therefore becomes useful in the formulation of implementation strategies. This paper presents the results of a preliminary research carried out across NHS trusts in the UK. The research aimed to determine the extent of lean implementation and the perceptions of those with lean roles and responsibilities.

Keywords: Lean manufacturing, health, quality, healthcare service, NHS, United Kingdom

References:

- [1] Ahlstrom O., 2004, Lean Service Operations: translating lean production principles to service operations, *International Journal of Services technology and Management*, Vol 5.
- [2] Allway M. and Corbett S., 2002, Shifting Lean Service: Stealing a Page from manufacturers’ Playbooks, *Journal of Organizational Excellence*, Spring, Wiley Periodicals.
- [3] Ballé M., Régnier A., 2007, Lean as a learning system in a hospital ward, *Leadership in Health Service*, Vol 20 No.1.
- [4] Brandao de Souza, 2009, Trends and approaches in lean healthcare, *Leadership in Health Services*, Vol 22, No 2, pp 121 – 139.

- [5] Cano M., Moore C., Kourouklis A., Lean Principles in Service Delivery Improvements: a Health care case study, Joint ToulonVerona and QMOD conference, Verona, August 2009.
- [6] Convis G., 2001, role of management in a lean manufacturing environment, Automative Manufacturing and Production, Vol 7, No.2, pp 2-7.
- [7] Fillingham D., 2007, Can lean save lives? Leadership in Health Services, Vol 20, No 4, pp 231-241.
- [8] Hines P., Holwe M., Rich N., 2004, Learning to Evolve: A Review of Contemporary Lean Thinking, International Journal of Operations and Production Management, Vol 24, No 10, pp 994 – 1013.
- [9] Jones and Mitchell, 2006, Lean thinking for the NHS, NHS Confederation ISBN 85947127 7
- [10] Kotter J.P., 1999, What Leaders Really Do, Harvard Business Review book, 1999
- [11] Ohne T., 1988, Toyota Production System, Productivity Press, Portland OR.
- [12] Sarkar D., 2007, Lean for Service Organizations and Offices: A Holistic Approach for Achieving Operational Excellence and Improvements, ASQ Quality Press, Milwaukee, Wisconsin.
- [13] Spear S.J., 2005, Fixing healthcare from the inside today, Harvard Business Review, Vol 83, No 9, pp 78-91.
- [14] Wheatley M., 2005, Think Lean for the long term, Manufacturing Business technology, June 2005, pp 36-68.
- [15] Womack J.P. and Jones D.T., 1996, Lean Thinking, Simon and Schuster, New York.
- [16] Young T., Brailsford S., Connell C., Davies R., Harper P. and Klein J.H., 2004, Using industrial processes to improve patient care, British Medical Journal, Vol 328, No 7432, pp 162-164.

Evaluation des risques d'un système par approche Bayésienne: Application aux passages à niveau

A. BOUCHIBA, A.CHERKAOUI, M. BARREAU, A. KOBİ

Ecole Mohammadia d'Ingénieurs Rabat Maroc; Ecole Mohammadia d'Ingénieurs Rabat Maroc;
LASQUO-ISTIA-Université d'Angers, France; LASQUO-ISTIA-Université d'Angers, France
bouchiba_anass@hotmail.com, cherkaoui_a@yahoo.com, mihaela.barreau@univ-angers.fr,
abdessamad.kobi@univ-angers.fr

Abstract

La sûreté de fonctionnement occupe une place forte dans la réalisation et la conception des systèmes. Les modes de fonctionnement normal ou dégradé vont conditionner la performance de ces systèmes et la gestion efficace de ces modes va permettre d'évaluer la performance afin d'atteindre les objectifs requis. L'élimination des Passages à Niveau et leurs remplacements par des passages dénivelés est un projet acté à long terme car il engendre des coûts considérables et des délais d'étude et de réalisations relativement longues. Dans ce contexte, le présent travail vise à développer au sein de cet établissement, un outil d'évaluation de la performance des Passages à Niveau basé sur l'approche bayésienne, qui constitue une approche dynamique d'analyse, permettant ainsi la prise en compte des aspects comportemental et temporel du système (événements liés au facteur humain ou matériel, événements aléatoires des accidents, conséquences non maîtrisées des accidents etc.).

Keywords: Passage à Niveau, Performance, Réseaux Bayésiens, Sûreté Ferroviaire

References:

- [1] Brenier H., Les spécifications fonctionnelles. Collection EEA, Éditions Dunod (2001).
- [2] Matheron J.P., Comprendre Merise: outils conceptuels et organisationnels. Éditions Eyrolles (2002).
- [3] Roboam M., La méthode Grai. Principes, outils, démarche et pratiques. Éditions Teknea (1993).
- [4] Terrier F. et Gérard S., UML pour le temps réel : le langage et les méthodes. Techniques de l'Ingénieur, S 8 070 (2005).
- [5] Ziadi T., Manipulation de lignes de produits en UML, Université de Rennes 1, Thèse DEC 2004.
- [6] Le Coz E., – Méthodes et outils de la qualité. Outils classiques. Techniques de l'Ingénieur, AG 1 770 (2001).
- [7] Cheze N., Statistique inférentielle. Estimation. Techniques de l'Ingénieur, AF 168 (2003).
- [8] Ladet P., Réseaux de Petri. Techniques de l'Ingénieur, R 7 252 (1989).
- [9] Ridoux M., AMDEC – Moyens Techniques de l'Ingénieur, AG 4 220 (1999).
- [10] Mortureux Y., Arbres de défaillance, des causes et d'événement. Techniques de l'Ingénieur, SE 4 050 (2002).
- [11] Patrick Naim, Pierre-Henri Wuillemin, Philippe Leray, Olivier Pourret, et Anna Becker, Réseaux bayésiens – 2ème édition. Eyrolles, 2004.

- [12] Pearl, J. (1997), Probabilistic Reasoning in Intelligent Systems : Networks of Plausible Inference. Morgan Kaufmann, 2nd edition.
- [13] Todd A. Stephenson, An introduction to Bayesian network theory and usage, IDIAP-RR 00-03, 2003
- [14] Antoine Cornuéjols, Laurent Miclet, Apprentissage artificiel: Concepts et algorithmes, édition Eyrolles, 2002.
- [15] Alain Delaplace, Approche évolutionnaire de l'apprentissage de structure pour les réseaux bayésiens, Thèse de Doctorat, Université de TOURS, 2007.
- [16] Sylvain Verron, Diagnostic et surveillance des processus complexes par réseaux bayésiens, Thèse de Doctorat, Ecole Doctorale d'ANGERS, 2007.
- [17] M. I Jordan, Learning in Graphical Models. Kluwer Academic Publishers, Dordrecht, The Netherlands, 1998.
- [18] A. Dempster, N. Laird et D. Rubin, Maximum likelihood from incomplete data via the EM algorithm. Journal of the Royal Statistical Society, B 39: 1-38, 1977.
- [19] Peter Spirtes, Clark Glymour, and Richard Scheines, Causation, prediction, and search. Springer-Verlag, 1993.
- [20] Peter Spirtes, Clark Glymour, and Richard Scheines, Causation, Prediction, and Search. The MIT Press, 2nd edition, 2000.
- [21] Judea Pearl, Causality : Models, Reasoning, and Inference. Cambridge University Press, Cambridge, England, 2000.
- [22] Judea Pearl and Tom Verma, A theory of inferred causation. In James Allen, Richard Fikes, and Erik Sandewall, editors, KR'91 : Principles of Knowledge Representation and Reasoning, pages 441–452, San Mateo, California, 1991. Morgan Kaufmann.
- [23] Philippe Leray, Réseaux bayésiens : apprentissage et modélisation de systèmes complexes. Dans Soutenance Habilitation à Diriger les Recherches, 2006.
- [24] Peter Spirtes, Clark Glymour, et Richard Scheines, Causation, prediction, and search. springer-Verlag, 1993.
- [25] T. Cormen, C. Leiserson, and R. Rivest, Introduction à l'algorithmique. Dunod, 1994.
- [26] Ladet P., Réseaux de Petri. Techniques de l'Ingénieur, R 7 252 (1989).
- [27] Riviere Nicola, Modélisation et analyse temporelle par réseaux de PETRI et logique linéaire, INSA TOULOUSE, Thèse NOV. 2003.
- [28] Villemeur A., Sûreté de fonctionnement des systèmes industriels. Fiabilité, facteurs humains, informatisation. Collection de la Direction des Études et Recherches d'Électricité de France. Éd. Eyrolles, Paris (1988).
- [29] Noyes D., Approche analytique par espace d'états : Markov. Maîtrise des Risques et Sûreté de Fonctionnement des Systèmes de Production, Collection IC2, Hermès (2002).
- [30] Signoret J.-P., Analyse des risques des systèmes dynamiques : approche markovienne. Techniques de l'Ingénieur, SE 4 071 (2005).
- [31] Giraud M., Sûreté de fonctionnement des systèmes. Analyse des systèmes réparables. Techniques de l'Ingénieur, E 3 852 (2006).
- [32] Koller G., Risk assessment and Decision Making in Business and Industry. A Practical Guide. CRC Press LCC (1999).
- [33] ONCF – Cours de formation des chefs de districts Passage à Niveau (1987).
- [34] Modeling risk to increase safety at the level crossing in the Moroccan rail way–Al AKHAWAYN University-2007.

Decisional Transparency – Basic Element to Increase the Efficiency of Public Services Provided to a Community

Tudor PENDIUC, Marioara ROTARU

Mayor of Pitesti Municipality; Counselor within the Quality Department
primaria@primariapitesti.ro

Abstract

Transparency is essential for achieving high standards in the governance process and for developing the citizen's confidence in the integrity of public institutions. Transparency validates the role of democratic processes in promoting and protecting the interests and welfare of citizens. Transparency, good governance and fighting against corruption underlie a successful reform of public administration and an equitable and sustainable economical and social development. However, we must realize that transparency is not an objective in itself. It must be confronted with other values / interests. Too much openness and transparency could hamper / doubting some very well thought out decisions, while too much privacy will lead to some poorly informed planning and to a misconduct perception.

Services Quality Management in IT Organizations

Bianca PRISECARU, Doina CONSTANTINESCU

POLITEHNICA” University of Bucharest, Romania
biancaprisecaru@gmail.com

Abstract

The services particularities in relation to material goods, as well as particularities of services provider organizations, generally require a special approach of the organization’s management, and especially of quality management. A very special approach of services quality management is necessary also in IT organizations. This paper presents the main particularities of services quality management in these types of organizations, identified by combining two concepts: “The Services Triangle” and the “Conceptual Model of Service Quality”. Since the service buyer satisfaction is largely determined by the performance of the 10 expectations, common to all types of services, the paper presents a standard questionnaire, designed to collect information regarding this quality service component. In order to assess the customer’s satisfaction, determined by the level of his requirements fulfillment, as well as for identifying improvement opportunities, this paper presents the standard structure of another questionnaire. This questionnaire helps to collect the information required to establish services quality objectives using the QFD (Quality Function Deployment) method.

Keywords: services, “the Services Triangle”, “Conceptual Model of Service Quality”, SERVQUAL, QFD

References:

- [1] K. Albrecht, R. Zemke, Service America! Doing business in the new economy, Dow Jones-Irwin, Homewood, 1985.
- [2] De Bart van Looy, Paul Gemmel, Roland Dierdonck, Services management. An integrated Approach, Prentice Hall Financial Times, 2003.
- [3] Doina Constantinescu, Quality Management, Ed. PRINTECH, 2005.
- [4] David. A. Garvin, Managing Quality: The Strategic and Competitive Edge, The Free Press, 1988.
- [5] V. Zeithaml, A. Parasuraman, L. Berry, Delivering Quality Service, The Free Press, 1990.

TQM and Necessary Changes in the Organization That Implements Such System

Daniel Valentin NICOLESCU, Doina CONSTANTINESCU

S.C. Interactive Services S.R.L., Bucharest, Romania; Polytechnic University of Bucharest,
Bucharest, Romania

danielvalentin.nicolescu@ipsos.com, sam.upb@gmail.com

Abstract

In a complex world with rapidly changing business environment, managing organizations represents a major challenge. To respond promptly to the environmental changes, the managers must identify areas of improvement which could bring important results on long and medium time periods. One approach used more and more often, is the implementation of a total quality management system. In this paper, the authors identify changes in organization's areas, needed to meet the stakeholder's requirements with minimum resource allocation. The paper starts from the idea that implementing a new management system in an organization involves a number of changes and by default, resources. Using the criteria of the EFQM's excellence model, the authors identify the necessary changes in the three directions of change within an organization: employee behaviour, organizational structure, technology. By highlighting the changes required to implement a total quality management system, the authors wish to emphasize that acceding to the state of excellence in business, can involve significant changes in different plans.

Keywords: TQM, organizational changes, EFQM

References:

- [1] D. Constantinescu, Technological Change, The Path To Excellence In Management, Proceedings of The 6th International Conference on Management and Technological Change, 2009.
- [2] D. Constantinescu, Quality management, Printech, 2005.
- [3] D. Nicolescu, Necessary Changes For Implementing A Quality Management System In Higher Education, The 6th International Seminar Quality Management in Higher Education, 2010.
- [4] D. Nicolescu, Advanced Management Systems And Instruments Used For The Improvement Of The Technological System Of Excellent Organizations, Proceedings of The 6th International Conference on Management and Technological Change, 2009.
- [5] www.efqm.org.

Challenges and Threats for Public Institutions in Excellence Concepts Implementation

Irina SEVERIN, Mihai CARAMIHAI

Politehnica University of Bucharest, Romania,
National Agency for Community Programmes in the Field of Education and Vocational Training,
*EFQM assessor
iseverin@camis.pub.ro, m.caramihai@ieee.org

Abstract

The paper has aimed to present and discuss the fundamental concepts of EFQM (European Foundation for Quality Management) reviewed 2010 model for the particular case of public institutions. As starting point, a case study of a public Romanian organization (National Agency for Community Programmes in the Field of Education and Vocational Training - www.anpcdefp.ro) that successfully committed for excellence (C2E) in 2009 and has certified its' QMS since 5 (five) years is considered. The focus for the case study organization is to apply in the near future for the first star of recognized for excellence (R4E). Considering the excellence model review, a critical analysis and discussion is presented even if certain aspects are not officially acknowledged by EFQM board, but the public organisations are largely debating around. The fundamental concepts : achieved balanced results, adding value for customers, leading with vision, inspiration and integrity, managing by processes, succeeding through people, nurturing creativity and innovation, building partnerships, taking responsibility for a sustainable future, are discussed each of them presenting aspects to be fixed by public institutions before launching an excellence approach.

References:

1. EFQM publications – booklets, EFQM excellence model, Assessing for excellence (1999-2003), Excellence One Tool book for Self – Assessment, Excellence Assessors Training module, (2009).
2. www.efqm.org.
3. EFQM 2010 Excellence Model, EFQM Publications.
4. EFQM Excellence Model, Public and Voluntary Sector Version, 1999, 2003.
5. The National Association of State Chief Information Officers (NASCIO), Keys to Collaboration: Building Effective Public- Private Partnerships Corporate Leadership Council (CLC), 2006.
6. ASRO/ISO standards: ISO 9000, 14000, 28000, 27001, SA 8000 (www.iso.ch).
7. Severin, Irina, Voicu, Mihai, Ingineria Calitatii, Ed. Printech, (2005).
8. Oprean, Constantin, Kifor, Claudiu Vasile, Suci, Octavian, Managementul integrat al calitatii, Ed. Universitatii Lucian Blaga din Sibiu, (2005).
9. Severin, Irina, QMS continuous improvement towards excellence, Proc. of TQSD 08, Bucharest, pp. 231 – 234, AGIR Publishing House, (2008).
10. Severin, Irina, Caramihai, Mihai, Commitment for excellence approach, 5 Balkan Region Conference on Engineering and Business Education & 2nd International Conference on Engineering and Business Education, 2009 LBUS, Sibiu, Romania, 15 - 17 October, 2009.

Management Organizations and Corporate Social Responsibility

Andrei VICTOR

Departamentul Cercetare-Dezvoltare, SC Victor Prodinvest SRL, București, România
victorprod@gmail.com

Abstract

Appreciation of the overall performance organizations cannot distinguish nor ignore the economic and social achievements. Performance is not an objective measure, an attribute of a phenomenon measured independently of observer, but is built by actors in relation to the type of activity and the targets. Appearing on the more supporters of our organizations and placing the responsibility admit such practices as a success in business. Unfortunately, the incipient condition because the concept of the state is incomplete and the right of a market economy, many of non-governmental organizations looking to fine companies that offer financial support, but the current activities harmful to society or nature. Future social responsibility may join in the three current perceptions thereof. A first version can be that the current campaigns stranding the recognition of benefits of this practice. A second version, in the near future most likely, is still the most current spread, and for dealing with social responsibility in a secondary objective and investing only in out to bring benefits. The latest version is for future social responsibility and creates a concept of social entrepreneurship and build on these bases for future companies to consider equally objectivescollar, with the environmental and social.

References:

- [1] Aarronson Susan Ariel, Reever James T., Corporate Responsibility in the Global Vialge: the Role of public Policy, National Policy Association, USA, 2002.
- [2] Redman Elizabeth, The Models of CSR, The Roselvelt Institution, 2006.
- [3] Busines in the Comumunity – www.bitc.org.uk.
- [4] CSR România – www.csr.romania.ro.

A Multicriteria Approach to Assessment Risk Professionals in the Industry of Gas Treatment

Dorra AYADI*, **Abdessamad KOBI****, **Habib CHABCHOUB*****, **Lotfi AZZABI***, **Christian ROBLEDO****,
Younes BOUJELBENNE*

*Faculté des sciences économiques et gestions de Sfax, Tunisia; **LASQUO/ISTIA, Angers-France;
***Institut Supérieur de Gestion Industrielle de Sfax, Tunisie
dorra_ayadi@yahoo.fr, kobi@istia.univ-angers.fr, habib.chabchoub@fsegs.rnu.tn,
lotfi_azzabi@yahoo.fr, Christian.Robledo@univ-angers.fr, younes-boujelbene@fsegs.rnu.tn

Abstract

In their competitiveness's research, and facing an uncertain environment, the firms search more and more to attain again objective. For that, it is necessary to minimize risks and unforeseen in their systems give complexes by the assessment risks; this one has been envisaged a long time of the technical point of view, as a first tentative to minimize risks and accidents. Then, the adoption of the analysis on the flat engineering only for the risks elimination endures to run out of him taken in account different demonstrated variability by the human operator. The human operator as the basic postulate of events appearance of catastrophes and failures; however issuing finders of diverse currents have to apply different methods to minimize risks of human errors, some have used combined methods taking counts him personals factors and engineering, others himself are supported on estimations probabilities to calculate trials of workers. This paper uses to assessment the risks produced by the human with application of multicriteria method: Promethee methods and AHP (Analytical Hierarchy Process) methods to help the decision for to assessment human errors and to make firm a level of improvement of the long-term security. The applications of the multicriteria approach in the treatment Gas industry in order to visualize his importance level.

Keywords: Human risk; Risk assessment; multicriteria approach; methods Promethee, methods AHP

References:

- Ayadi, D. Azzabi, L. Kobi, A. Robledo, C. Chabchoub.H. (2008), "Classification of Human Risks with the Method Analytical Hierarchy Process", Quality and Dependability the 11th international conference, September.
- Bernhard, K. Catharina, G.Marc F. (2007), "State/event fault trees - A safety analysis model for software-controlled systems", international journal of Reliability Engineering and system safety.
- Brans, J.P. Vincke, P.h. Mareschal, B. (1986), "How to select and how to rank projects: The Promethee method", European Journal of Operational Research 24 -228–238.
- Colson, G. (2000), "The OR's prize winner and the software ARGOS: how a multijudge and multicriteria ranking GDSS helps a jury to attribute a scientific award", Computers & Operations Research 27 741}755.
- Fadier, E. Ciccotelli, J. (1999), "How to integrate safety In Design: Methods and Models". Journal of Human Factors and Ergonomics in manufacturing John Wiley & Sons, vol.9 (4) pp.367–380.

- Fadier, E. Garza, C. Didelot, A., "Safe design and human activity: construction of a theoretical framework from an analysis of a printing sector"; *Safety Science* 41 759–789
- Goetsch, D. L. (1997), "Implementing Total Safety Management", Simon&Schuster Pub.
- Gregoriades, A. Sutcliffe, A. (2008), "Workload prediction for improved design and reliability of complex systems" *Reliability Engineering and System Safety* 93 530–549.
- Hale, A. Kirwan, B. Kjellén, U. (2003), "Safe by design: where are we now?" *Safety Science* 45 (2007) 305–327
- HEALTH & SAFETY EXECUTIVE. (1999), "HSG48, Reducing Error and Influencing Behaviour", HSE Books.
- HEALTH AND SAFETY EXECUTIVE. (2006), "Five steps to risk assessment"; INDG163(rev2) 06/06.
- Holický, M. Klokner, I. (2001), "Terminology Joint Committee of Structural Safety", Background Documents on Risk Assessment in Engineering Document #7, Technical University, Prague Haimes, YY, Risk Modeling, Assessment, and Management, John Wiley and Sons, New York, New York,; Wilson, R, EAC Crouch, Risk-Benefit Analysis, Harvard University Press, Cambridge, MA, 2001.
- Hughes, G. Weichel, M K. (2004), "Whose fault is it anyway? A practical illustration of human factors in process safety", *Journal of Hazardous Materials* 115- 127–132.
- Huylbroeck, G.V. (1995), "The Conflict Analysis Method" bridging the gap between ELI CTRE, PROMETHEE and ORESTE", *European Journal of Operational Research* 82 490- 502 North-Holland.
- Ingram, S. (2003), "Risk Assessment", Fact Sheet- Umatilla Chemical Agent Disposal Facility, State of Oregon, Department of environmental Quality.
- Larsen, R F. Buede, D M. (2002), "Theoretical Framework the continuous Early Validation (CEAVA) Method", *Journal Systems Engineering*, Volume 5, Number 3, pp.223-241
- Leena, N. Paula. S. (2004), "Usability evaluation of complex system: a literature review", STUK-YTO-TR.
- Marc, M.J. (1999), "Multicriterion decision aid: methods and applications. ", CORS-SCRO, Annual conference, Windsor, Ontario.
- Neathey, F. Sinclair, A. Rick, J. Ballard William Hunt, J. Denvir, A. (2006), "An evaluation of the five steps to risk assessment", Institute for Employment Studies Mantell Building Falmer Brighton BN1 9RF, HSE BOOKS.
- Neboit, M. (2003), "A support to prevention integration since design phase: the concepts of limit conditions" and limit activities" tolerated by use *Safety Science* 41 - 95–109
- Nijstad, B. A. Stroebe, W. Lodewijk, H. F. (2003), "Production blocking and idea generation: Does blocking interfere with cognitive processes", *Journal of Experimental Social Psychology*, 39, 531-548.
- Osborn, A.F. (1963), "Applied imagination: Principles and procedures of creative problem solving", (Third Revised Edition). New York, NY: Charles Scribner's Sons.
- Papadopoulos, Y. Maruhn, M. (2001), "Model-based automated synthesis of fault trees from Matlab-Simulink models", DSN'01, Int'l Conf. on Dependable Systems and Networks, pp. 77-82, Göteborg.
- Pate-Cornell, M.E. (1998), "Uncertainties in Risk Analysis: Six Levels of Treatment, *Reliability Engineering and System Safety*", vol. 54(2-3), 1996, pp. 95-111; Haimes, YY, Risk Modeling, Assessment, and Management, John Wiley and Sons, New York, New York.
- Pierre, B.J. Bertrant, M. (1986), "How to Select and How to Rank Projects: The PROMETHEE Method", *European Journal of Operational Research*", 44, pp 1-10.
- Rasmussen, J. (1999), "The concept of human error: is it useful for the design of safe systems" *Safety science monitor*, special edition.
- Roy, B. (2000), "Multicriteria aid for decisions", A French–English decision aiding glossary. Newsletter of the European Working Group Series 3, vol. 1.

- Saaty, T. L. (1989), "Group Decision Making and the AHP in the Analytic Hierarchy Process: Application and Studies". Springer-Verlag.
- Saaty, T. L. (2001), "The Analytic Network Process: Decision Making with Dependence and Feedback". RWS Publications.
- Saaty, T. L. (2002), "Fundamentals of Decision Making with the Analytic Hierarchy Process", paperback, RWS Publications, 4922 Ellsworth Avenue, Pittsburgh, PA 15213-2807, edition, revised.
- Saaty, T. L. (2007), "Time dependent decision-making; dynamic priorities in the AHP/ANP: Generalizing from points to functions and from real to complex variables", Mathematical and Computer Modelling 46.
- Sylvain, D. Elie, F. Olivier, C. Jean-Marc, P. (2003), "Complexité des interactions entre un modèle de sécurité et un modèle d'organisation ", Qualita, -Swaminathan.
- Villemeur, A. (1992), "Methods and Techniques, Reliability, Availability, Maintainability and Safety Assesment", John Wiley.

Total Quality Management and Reorganization of Large Companies

Alan BROWN, Ton van der WIELE

Edith Cowan University, Churchlands, Australia; Erasmus University, Rotterdam, The Netherlands
awiele@rsm.nl

Abstract

Many organizations/companies are going through periods of downsizing, rightsizing reengineering, restructuring or other types of reorganization with the ultimate goal of reducing staff numbers, developing a leaner organization and reducing costs. In the public sector much of this change is driven by the economic rationalist model where the focus is usually on contracting out services, selling parts of the enterprise to the private sector, corporatization and deregulation. 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, TQM, Reorganization, Downsizing, Re-engineering, Large organizations

References:

- Brown, A. and van der Wiele, A. (1996), "Quality management self-assessment in Australia", Total Quality Management Journal, Vol. 7 No. 3, pp. 293-308.
- Buch, K.W. (1992), "Does downsizing affect employee involvement?", Journal for Quality and Participation, Vol. 15 No. 1, pp. 74-9.
- Burda, D. (1995), "Sensible downsizing can lower costs, improve quality; a study", Modern Healthcare, Vol. 25 No. 9, p. 42.
- Davidson, D., Dickson, D. and Trice, J. (1993), "Rightsizing for success", Business Forum, Vol. 18 No. 1/2, pp. 10-12.
- Deming, W.E. (1986), Out of the Crisis, Center for Advanced Engineering Study, Massachusetts Institute of technology, Cambridge, MA.
- Industrial Engineering (1993), "Workforce reductions will continue through corporate America", Industrial Engineering, Vol. 25 No. 9, p. 10.
- Knill, B. (1995), "Tortoise versus hare: downsizing versus TQM", Material Handling Engineering, Vol. 50 No. 10, p. 7.
- Messmer, M. (1992), "Rightsizing, not downsizing", Industry Week, Vol. 241 No. 15, pp. 23-6.

- Niven, D. (1993), "Case study – when times get tough, what happens to TQM?", Harvard Business Review, Vol. 71 No. 3, pp. 20-34.
- Powell, A.S. (1994), "Are TQM and downsizing incompatible?", Across the Board, Vol. 31 No. 3, p. 48.
- Sullivan, P.S. and Stabler, J.D. (1994), "Downsizing with TQM", Journal for Quality and Participation, Vol. 17 No. 2, pp. 84- 90.
- Troy, K. and Schein, L. (1995), "The quality culture: manufacturing versus services", Managing Service Quality, Vol. 5 No. 3, pp. 45-7.
- Weller, L.D. (1995), "School restructuring and downsizing: using TQM to promote cost effectiveness", The TQM Magazine, Vol. 7 No. 6, pp. 11-6.

The Virtual Machines Survivability

Ioan-Cosmin MIHAI, Ioan C. BACIVAROV

Police Academy, Faculty of Police, Bucharest, Romania; Electronics, Telecommunications and
Information Technology Faculty, Bucharest, Romania
cosmin.mihai@yahoo.com, bacivaro@danube.euroqual.pub.ro

Abstract

Many organizations connect to the Internet, accepting the risks along with the benefits. In order to provide sufficient protection against increasingly cyber-attacks, survivability technology is explored. For a terminal user, it is very important to construct a survivable workstation. To address this problem, we propose virtual machine solution. A virtual machine is a software implementation of a machine that executes programs like a physical machine. A system virtual machine provides a complete system platform which supports the execution of a complete operating system.

References:

- [1] Goldberg, R., "Architecture of Virtual Machines", AFIPS National Computer Conference. New York – NY– USA, 2003, pp. 12-20
- [2] Garfinkel, T., Rosenblum, M., "A Virtual Machine Introspection Based Architecture for Intrusion Detection", Proceedings of the Network and Distributed System Security Symposium (NDSS), 2003, pp. 20-25
- [3] Andrew P. Moore, Robert J. Ellison, Richard Linger, "Attack Modeling for Information Security and Survivability", Technical Report, 2002, pp. 12-15
- [4] Survivable Systems Analysis Method, <http://www.cert.org/archive/html/analysis-method.html>, 2010
- [5] Soumyo Moitra, Suresh Konda, "A Simulation Model for Managing Survivability and Networked Information System", CMU/SEI-200-TR-20, 2000, pp. 4-8
- [6] Nancy R. Mead, Robert J. Ellison, "Survivable Network Analysis", Pittsburgh, Software Engineering Institute, Carnegie Mellon University, 2000, pp. 8-12
- [7] Richard C. Linger, Andrew P. Moore, "Foundations for Survivable System Development: Service Traces, Intrusion Traces, and Evaluation Models", Software Engineering Institute, Carnegie Mellon University, 2001, pp. 5-8
- [8] Richard C Linger, Howard F. Lipson, Nancy R. Mead, "Life-Cycle Models for Survivable Systems", CMU/SEI- 2002-TR-026, Networked Systems Survivability Program, Carnegie Mellon University, 2002, pp. 12-15
- [9] Howard Lipson, "Evolutionary Systems Design: Recognizing Changes in Security and Survivability Risks", CMU/SEI-2006-TN-027, Technical Report, 2006, pp. 20-22
- [10] Fisher, D.A., "Emergent Algorithms—A New Method for Enhancing Survivability in Unbounded Systems" IEEE Proceedings of the Hawaii International Conference on Systems Sciences. Wailea, HI, 2004, pp. 6-7
- [11] Albert, R. & Barabási, A., "Statistical Mechanics of Complex Networks" Reviews of Modern Physics 74 <http://www.nd.edu/~networks/PDF/rmp.pdf>, 2008

Reliability and Safety Issues of Telepresence and Teleoperated Robots

Virgil L.M. ILIAN, Ioan C. BACIVAROV

EUROQUALROM UPB – Polytechnic University of Bucharest, Romania; EUROQUALROM UPB
– Polytechnic University of Bucharest, Romania
ilianvlm@euroqual.pub.ro, bacivaro@euroqual.pub.ro

Abstract

While telecommuting and teleconferencing started to take root at the end of the 20th century it has only recently started to become mainstream as VoIP solutions have become commonplace and easy to deploy by taking advantage of the ever-increasing bandwidth of users worldwide. Robotics has also enjoyed a similar development with industrial robotics blooming the late 20th century and personal robotics gaining a foothold in both the office and the home environment in recent years. The combination of these emergent technologies are the teleoperated and telepresence robots that are being developed at the moment. Applications range is very wide, from industrial (dam inspection, interventions in hazardous environments etc.), to architectural (inspection, construction), to healthcare (remote visiting) and home or office etc. Along with new technologies and applications come new issues of reliability and safety. Old standards may not be adequate for the new situations that arise not to mention completely new unforeseen challenges that are certain to manifest themselves. This paper analyses the current situation of the field of telepresence and teleoperated robots, highlights potential issues that need to be resolved and proposes possible solutions that can be implemented to assure a high quality and safe experience when using such systems.

References:

- [1] http://online.wsj.com/article/NA_WSJ_PUB:SB126102247_889095011.html.
- [2] http://www.informationweek.in/Archive/09-05-01/Is_Wire_less_Secure.aspx.
- [3] Sami Haddadin, Alin Albu-Schaffer and Gerd Hirzinger, The Role of the Robot Mass and Velocity in Physical Human-Robot Interaction - http://www.phriends.eu/ICRA_08b.pdf.
- [4] H. Choset, W. Burgard, S. Hutchinson, G. Kantor, L. E. Kavraki, K. Lynch and S. Thrun, "Principles of Robot Motion: Theory, Algorithms, and Implementation", MIT Press, April 2005.
- [5] P.W. Singer, "Wired for War", Penguin Press HC, January 22, 2009.
- [6] B.M. Dickens, R.J. Cook, "Legal and ethical issues in telemedicine and robotics", International Journal of Gynecology and Obstetrics, Published by Elsevier Inc., Volume 94, Issue 1, Pages 73-78 (July 2006).

Building a Decisional Model in a Complex Socio-Technical System

Angelica BACIVAROV*, Costel CIUCHI**, Gabriel
PETRICĂ*

*Faculty of Electronics, Telecommunications and Information Technology, Polytechnic University, Bucharest; **General Secretariat of Government, Department of Informatics, Bucharest
angelica@euroqual.pub.ro, costel.ciuchi@gov.ro, gabi@euroqual.pub.ro

Abstract

Nowadays, the society is dominated by fast development of computer networking and by the integration of Internet services at every organizational level. The success of an organisation depends largely on the quality and the quantity of information that's available in order to make decisions capable to respond fast to the current requirements. The need of a collaborative environment within the central administration, leads to the consolidation and unification of the resources around the Center of the Government, together with the main objectives for increasing the quality and efficiency of the decision making process and decreasing the time allocated for the decision making process, developed for the improvement of the decision making process. The institutional analyze and definition of informational architecture in an organization (up to the last level), together with the complete utilization of informational resources and infrastructure contributes at growing the quality of the information and services offered by that organization. Defining of working models by integration all components (hardware and software) within the complex systems of great functional responsibility leads to a higher efficiency of the ratio of costs and expenses. Defining a hierarchical structure of infrastructure in an organization (on different levels of importance and criticality) and consistent implementation of security policies in a computer system lead by default to a reduction in costs related to performance, safety and maintenance thereof. To create a real basis of decision should be taken into account, above all, achieving an integrated infrastructure application. Developing advanced software tools for integrating and aggregating information should be main strategy of the organizational information architecture. Decisional strategy based on a system complex / critical must always pay attention to the context from that moment and to trends of development a decisional system.

Keywords: management, strategy, decision, complex systems, infrastructure, e-government, information society, government platform, public administration, standards, e-government, government infrastructure

References:

- [1] W. Van Grembergen, "Strategies for Information Technology Governance", Idea Group Publishing, 2004.
- [2] C.M. Young, "An Introduction to IT Service Management", Research Note, COM-10-8287, Gartner, 2004.
- [3] R. Peterson, "Integration Strategies and Tactics for Information Technology Governance", in Strategies for Information Technology Governance, Idea Group Publishing, 2003.

- [4] ITGI, "Board briefing on IT Governance", 2001.
- [5] Mathias Salle, "IT Service Management and IT Governance: Review, Comparative Analysis and their Impact on Utility Computing", Hewlett-Packard Company, 2004.
- [6] ITGI, "Control Objectives for Information and related Technology (COBIT)", 3rd Edition, 1998.
- [7] P. Weill and J.W. Ross, "IT Governance: How Top Performers Manage IT Decision Rights for Superior Results", Harvard Business School Press, Boston, 2004.
- [8] Dumitru Oprea, Florin Dumitriu, Gabriela Meșniță, "Proiectarea sistemelor informaționale", Editura Universității „Alexandru Ioan Cuza”, Iași, 2006.
- [9] V. Stanciu, ș.a., "Proiectarea sistemelor informatice", Ed. Dual Tech, 2004.
- [10] R. Sprague, H. Watson, "Decision Support Systems-Putting Theory Into Practice", 3rd. Edition, Prentice Hall, 1993.
- [11] M.J. Druzdzal, R.R. Flynn, "Decision Support Systems", Encyclopedia of library and Information Science, Ed. Allen Kent, Marcel Dekker, Inc., 1999.
- [12] D.J. Power, "A Brief History of Decision Support Systems", DSSResources.COM, World Wide Web, version 2.8, 2003.
- [13] M. Velicanu, M. Muntean, I. Lungu, S. Ionescu, "Oracle. Platformă pentru baze de date", Editura Petron, București, 2002.
- [14] A. Bacivarov, I. Bacivarov, A. Mihalache, "Fiabilitatea și mentenabilitatea sistemelor electronice", Editura "Electronica 2000", 2003.

Application of Taguchi Method in Optimization of Technological Process Parameters

Suraj S. RANE, A. SRIVIDYA, A. K. VERMA

Department of Mechanical Engineering, Padre Conceicao College of Engineering, Goa INDIA;

Department of Civil Engineering, Indian Institute of Technology Bombay, Mumbai, INDIA;

Department of Electrical Engineering, Indian Institute of Technology Bombay, Mumbai, INDIA

rsurajs@yahoo.com

Abstract

This study investigates the factors that optimize the surface finish of turbine blades on the centrifugal finishing machine. Taguchi method has been employed to determine the optimal levels of process parameters which affect surface finish. The factors identified in the brainstorming session are type of abrasive, water level and operation time. Orthogonal array decided by number of factors and their levels, was used to conduct the experiment. Signal-to-noise ratio and analysis of variance were then calculated to provide the statistical confidence of the experiment. The result of this study is that the surface finish of the blades improved considerably which led to scrap reduction. Also there was a reduction achieved in operation time per blade from 25 minutes to 3 minutes.

Keywords: Centrifugal finishing, Taguchi methods, surface finish, turbine blades

References:

1. G. Taguchi, S. Chowdhary, S. Taguchi, Robust Engineering, McGraw Hill, New York, 2000.
2. O. Hasan, T. Erzurumlu, M. Col, A study of the Taguchi optimization method for surface roughness in finish milling of mold surfaces, *Int. J. Adv. Manuf. Technol.*, 28, 2006, pp. 694-700.
3. C. Lin, L. Yang, H. Chow, Study of magnetic abrasive finishing in free-form surface operations using the Taguchi method, *Int. J. Adv. Manuf. Technol.*, 34, 2007, pp. 122-130.
4. E. Bagci, S. Aykut, A study of Taguchi optimization method for identifying optimum surface roughness in CNC face milling of cobalt-based alloy (stellite 6), *Int. J. Adv. Manuf. Technol.*, 29, 2006, pp. 940-947.
5. M. Kurt, E. Bagci, Y. Kaynak, Application of Taguchi methods in the optimization of cutting parameters for surface finish and hole diamtere accuracy in dry drilling processes, *Int. J. Adv. Manuf. Technol.*, 40, 2009, pp. 458-469.
6. K. Palanikumar, Application of Taguchi and response surface methodologies for surface roughness in machining glass fiber reinforced plastics by PCD tooling, *Int. J. Adv. Manuf. Technol.*, 36, 2008, pp. 19-27.
7. H. Liao, J. Shie, Yang Y., Applications of Taguchi and design of experiments methods in optimization of chemical mechanical polishing process parameters, *Int. J. Adv. Manuf. Technol.*, 38, 2008, pp. 674-682.

8. V. N. Gaitonde, S. R. Karnik, B. T. Achyutha, B. Siddeswarappa, Methodology of Taguchi optimization for multi-objective drilling problem to minimize burr size, *Int. J. Adv. Manuf. Technol.*, 34, 2007, pp. 1-8.
9. C. Manoharan, V. P. Arunachalam, Dynamic analysis of hydrodynamic bearing performance in ic engines by using Taguchi techniques and Response Surface Methodology (RSM), *Int. J. Adv. Manuf. Technol.*, 36, 2008, pp. 1061- 1071.
10. J. C. Chen, Y. Li, R. A.Cox, Taguchi-based Six Sigma approach to optimize plasma cutting process: an industrial case study, *Int. J. Adv. Manuf. Technol.*, 41, 2009, pp. 760- 769.
11. A. Manna, B. Bhattacharyya, Investigation for optimal parametric combination for achieving better surface finish during turning of Al /SiC-MMC, *Int. J. Adv. Manuf. Technol.*, 23, 2004, pp. 658-665.
12. M. Wang, H. Wu, S.L. Chung, Optimization of experimental conditions based on Taguchi robust design for the preparation of nano-sized TiO₂ particles by solution combustion method, *J. Porous Mater.*, 13, 2006, pp. 307-314.
13. R. Jeyapaul, P. Shahabudeen, K. Krishnaiah, Simultaneous optimization of multi-response problems in the Taguchi method using genetic algorithm, *Int. J. Adv. Manuf. Technol.*, 30, 2006, pp. 870-878.
14. ASM Metal Handbook, Vol. 5 Surface Engineering, 1994.

On Degradation of Interconnects in Multi-Chip Modules

Michel IGNAT

CNRS, INP Grenoble, LTPCM, Saint Martin d'Hères, France
michel.ignat@inpg.fr

Abstract

The mechanical and metallurgical characteristics of PbSn solder joints used as interconnects in Multi-Chip Modules (flip-chips) are examined through mechanical testing (in tension and in shear) and by thermal treatments. The influence of the solder pad metallurgies (Au and Ni) upon the behaviour of the solder joints is examined. Fatigue testing performed upon flipchip samples demonstrates the difference in mechanical comportment between Pb40Sn60 and Pb95Sn5 solders, as well as the influence of Au upon the fatigue life. A model for predicting fatigue life is put forward.

References:

- [1]. R. Satoh, K. Arakawa, M. Harada and K. Matsui: "Thermal fatigue life of Pb-Sn alloys interconnections", IEEE Trans. CHMT., Vol.14, 1, 1991, pp. 224-232.
- [2]. D.R. Frear, D. Grivas, and J.W. Morris Jr.: "A microstructural study of the thermal fatigue failures of 60Sn- 40Pb solder joints", J. Electron. Mats., vol. 17, 1988, pp.171- 180.
- [3]. L.S. Goldman, R.D. Herdzyk, N.G. Koopman, and V.C. Marcotte, IEEE Trans., vol. PHP-13, 3, 1977, pp.194-201.
- [4]. A. Soper "Contribution à l'étude mécanique des interconnexions par microbilles" Docteur Ingénieur thesis INP Grenoble, 1997.
- [5]. G. Pozza, G. Parat, M. Ignat « Mechanical behaviour of two sorts of MCM structures". MRS Proceedings, Vol. 390, 1996, pp.153-159.
- [6]. M.F. Ashby and D.R.H. Jones, Matériaux 1, Propriétés et Applications, Dunod, Paris, 1991.
- [7]. J. Lemaitre and J.L. Chaboche, Mécanique des Matériaux Solides, Ed. Dunod, Paris, 1985.
- [8]. R. Darveaux and K. Banerji, « Constitutive relations for tinbased solder joints », IEE Trans. CHMT., vol.15, 6, 1992, pp.1013-1024.
- [9]. C. Laird and G.C. Smith, Phil. Mag., Vol.7, 77, 1962, pp.847.
- [10]. W.G. Bader, "Dissolution of Au, Ag, Pt, Cu and Ni in a molten tin-lead solder", Weld. J., Vol.40, 1969, pp.551-557.
- [11]. G.D. O'Clock, M.S. Peters, J.R. Pater, G.A. Kleese and R.V. Martini, "Pb-Sn alloy microstructure: potential reliability indicator for interconnects", IEEE Trans. CHMT., Vol.10, 1, 1987, pp.82-88.
- [12]. K.J. Puttlitz, "Preparation, structure, and fracture modes of Pb- Sn and Pb-In terminated flip-chips attached to gold capped microsockets", IEEE Trans. CHMT., Vol. 13, 4, 1990, pp.647-655.
- [13]. P. Rabbe "La fatigue des matériaux et des structures" Ed. J.P. Bailon Coll. Hermes, Paris, 1980.
- [14]. S. Suresh "Fatigue of materials" Ed. Cambridge Univ. Press. UK 1991.
- [15]. R.C. Weinbel, J.K. Tien, R.A. Pollak, S.K. Kang, J. Mater Sci., 22, 11, 1987, pp.3901-3906.

- [16]. I. Dewolf, G. Pozza, K. Pinardi, D.J. Howard, M. Ignat, S. Jain, H. Maes "experimental validation of mechanical stress models by microRaman Spectroscopy" *Microelectron. Reliab.*, Vol. 136, 11-12, 1996, pp.1751-1754.
- [17]. I. Dewolf, M. Ignat, G. Pozza, L. Maniguet, "Analysis of local mechanical stresses in and near tungsten lines on silicon substrate" *J. Appl. Phys.*, Vol. 85, 9, 1999, pp. 1-9.

Reliability Analysis of Highly Reliable Elements

D. VALIS, Z. VINTR, M. KOUCKY

University of Defence, Brno, Czech Republic; University of Defence, Brno, Czech Republic;
Technical University of Liberec, Liberec, Czech Republic
miroslav.koucky@tul.cz

Abstract

In recent years the intensive efforts in developing and producing electronic devices have more and more critical inference in many areas of human activity. Engineering is one of the areas which have been also importantly affected. The paper deals with dependability namely reliability analysis procedure of a highly reliable item. The data on manufacturing and operating of a few hundred thousands pieces of electronic item are available and they are statistically a very important collection/set. However, concerning some items the manufacturing procedure was not checked and controlled accurately. The procedure described in the paper is based on the thorough data analysis aiming at the operating and manufacturing of these electronic elements. The results indicate some behaviour differences between correctly and incorrectly made elements. It was proved by the analysis that dependability and safety of these elements was affected to a certain degree. Although there is a quite big set of data the issue regarding the statistical comparability is very important.

Keywords: Reliability, dependability, procedure, risk analysis, risk priority, criticality matrix failure, field data, electronic production

References:

- BMW Group Standard; GS 95003-1 Electrical/Electronic Assemblies in Motor Vehicles – General Information.
- BMW Group Standard GS 95003 (Supplement 1) Electrical/Electronic Assemblies in Motor Vehicles – Tests.
- BMW Group Standard GS 95003-4 Electrical/Electronic Assemblies in Motor Vehicles - Climatic Requirements.
- IEC 600 50 (191) (IEV) 1990. Dependability and quality of services.
- IEC 60605-4 2004. Equipment reliability testing - Part 4: Statistical procedures for exponential distribution - Point estimates, confidence intervals, prediction intervals and tolerance intervals.
- EN 60812 2006. Analysis techniques for system reliability - Procedure for failure mode and effects analysis (FMEA).
- MIL-STD-1629a 1998. Procedures for performing a failure mode, effects and criticality analysis.
- SAE J 1739 2006. Potential Failure Mode and Effects Analysis in Design, Manufacturing and Assembly and for Machinery (Design FMEA, Process FMEA and Machinery FMEA).
- R. Holub 1992. Dependability tests (stochastic methods). Brno: Military Academy, 1992.
- C. Lipson, N.J Sheth 1973. Statistical Design and Analysis of Engineering Experiments; New York: Mc Graw Hill.
- V. Neson 1982. Applied Life Date Analysis, New York: John Wiley and Sons.

Proceedings of the 12th International Conference on Quality and Dependability
Sinaia, Romania, September 22th-24th, 2010
ISSN 1842-3566
Pages 153-158

K.C. Kapur, L.R. Lamberson 1977. Reliability in Engineering Design; New York: John Wiley & Sons.

Resilience Analysis on Lifetime based Node Failure for Peer-to-Peer Networks

Dorina Luminița COPACI, Constantin A. COPACI

Tribunalul București, România; ANCOM, București, România
lcopaci@yahoo.com, acopaci@yahoo.com

Abstract

In the last few years, P2P networks have rapidly evolved and emerged as a promising platform to deploy new applications and services in the Internet. This paper investigates the resilience of random graphs to lifetime-based node failure and derives the expected delay before a user is forcefully isolated from the graph and the probability that this occurs within his/her lifetime. Using these metrics, we show that systems with heavy-tailed lifetime distributions are more resilient than those with light-tailed (e.g., exponential) distributions and that for a given average degree, k -regular graphs exhibit the highest level of fault tolerance. We finish the paper by observing that many P2P networks are almost surely connected if they have no isolated nodes and derive a simple model for the probability that a P2P system partitions under churn.

References:

- [1] M. Abadi and A. Galves, "Inequalities for the occurrence times of rare events in mixing processes. the state of the art," *Markov Proc. Relat. Fields*, vol. 7, no. 1, pp. 97-112, 2001.
- [2] D. Aldous and M. Brown, "Inequalities for rare events in timereversible markov chains ii," *Stochastic Processes and their Applications*, vol. 44, no. 1, pp. 15-25, Jan. 1993.
- [3] J. Aspnes, Z. Diamadi, and G. Shah, "Fault tolerant routing in peer to peer systems," in *ACM PODC*, July 2002, pp. 223-232.
- [4] R. Bhagwan, S. Savage, and G. Voelker, "Understanding availability," in *IPTPS*, Feb. 2003, pp. 256-267.
- [5] F. Bustamante and Y. Qiao, "Friendships that last: Peer lifespan and its role in p2p protocols," in *IEEE WCW*, Sept. 2003, pp. 233-246.
- [6] Y. Chawathe, S. Ratnasamy, L. Breslau, N. Lanham, and S. Shenker, "Making gnutella like p2p systems scalable," in *ACM SIGCOMM*, Aug. 2003, pp. 407-418.
- [7] R. Cohen, K. Erez, D. ben Avraham, and S. Havlin, "Resilience of the internet to random breakdowns," *Physical Review Letters*, vol. 85, no. 21, pp. 4626-4628, Nov. 2000.
- [8] H. Exton, *Handbook of Hypergeometric Integrals: Theory, Applications, Tables, Computer Programs*. Ellis Horwood, Chichester, England, 1978.
- [9] A. Fiat and J. Saia, "Censorship resistant peer-to-peer content addressable networks," in *ACM-SIAM SODA*, Jan. 2002, pp. 94- 103.
- [10] A. Ganesh and L. Massoulié, "Failure resilience in balanced overlay networks," in *Allerton Conference on Communication, Control and Computing*, Oct. 2003.
- [11] C. Gkantsidis, M. Mihail, and A. Saberi, "Random walks in peer-to-peer networks," in *IEEE INFOCOM*, Mar. 2004, pp. 119-130.
- [12] P. Golle, K. Leyton-Brown, I. Mironov, and M. Lillibridge, "Incentives for sharing in peer-to-peer networks," in *ACM Conference on Electronic Commerce*, Oct. 2001, pp. 264-267.

- [13] M. Kaashoek and D. Karger, "Koorde: A simple degree-optimal distributed hash table," in IPTPS, Feb. 2003, pp. 98-107.
- [14] S. Krishnamurthy, S. El-Ansari, E. Aurell, and S. Haridi, "A statistical theory of chord under churn," in IPTPS, Feb. 2005, pp. 93-103.
- [15] F. Leighton, B. Maggs, and R. Sitamaran, "On the fault tolerance of some popular bounded-degree networks," in IEEE FOCS, Oct. 1995, pp. 542-552.
- [16] W. Leland, M. Taqqu, W. Willinger, and D. Wilson, "On the self-similar nature of ethernet traffic," in ACM SIGCOMM, Sept. 1993, pp. 183-193.
- [17] D. Leonard, V. Rai, and D. Loguinov, "On lifetime-based node failure and stochastic resilience of decentralized peer-to-peer networks," in ACM SIGMETRICS, June 2005, pp. 26-37.
- [18] D. Liben-Nowell, H. Balakrishnan, and D. Karger, "Analysis of the evolution of peer-to-peer systems," in ACM PODC, July 2002, pp. 233-242.
- [19] S. Liu, K.-H. Cheng, and X. Liu, "Network reliability with node failures," *Networks*, vol. 35, no. 2, pp. 109-117, Mar. 2000.
- [20] D. Loguinov, A. Kumar, V. Rai, and S. Ganesh, "Graph-theoretic analysis of structured peer-to-peer systems: Routing distances and fault resilience," in ACM SIGCOMM, Aug. 2003, pp. 395-406.
- [21] G. Manku, M. Naor, and U. Weiser, "Know thy neighbor's neighbor: the power of lookahead in randomized p2p networks," in ACM STOC, June 2004, pp. 54-63.
- [22] L. Massoulié, A.-M. Kermarrec, and A. Ganesh, "Network awareness and failure resilience in self-organising overlay networks," in IEEE Symposium on Reliable Distributed Systems, Oct. 2003, pp. 47-55.
- [23] G. Pandurangan, P. Raghavan, and E. Ufpl, "Building low-diameter peer-to-peer networks," *IEEE Journal on Selected Areas in Communications*, vol. 21, no. 6, pp. 995-1002, Aug. 2003.
- [24] S. Ratnasamy, P. Francis, M. Handley, R. Karp, and S. Shenker, "A scalable content-addressable network," in ACM SIGCOMM, Aug. 2001, pp. 161-172.
- [25] S. Resnick, *Adventures in Stochastic Processes*, Birkhauser, Boston, 2002.
- [26] S. Rhea, D. Geels, T. Roscoe, and J. Kubiatowicz, "Handling churn in a dht," in USENIX Annual Technical Conference, June/July 2004, pp. 127-140.
- [27] A. Rowstron and P. Druschel, "Pastry: Scalable, decentralized object location and routing for large-scale peer-to-peer systems," in IFIP/ACM Middleware, Nov. 2001, pp. 329-350.
- [28] J. Saia, A. Fiat, S. Gribble, A. Karlin, and S. Saroiu, "Dynamically fault-tolerant content addressable networks," in IPTPS, Mar. 2002, pp. 270-279.
- [29] S. Saroiu, P. Gummadi, and S. Gribble, "A measurement study of peer-to-peer file sharing systems," in MMCN, Jan. 2002, pp. 156-170. [36] A. Shwartz and A. Weiss, *Large Deviations for Performance Analysis*. Chapman and Hall, 1995.
- [30] K. Sripanidkulchai, B. Maggs, and H. Zhang, "Efficient content location using interest-based locality in peer-to-peer systems," in IEEE INFO-COM, Mar. 2003, pp. 2166-2176.
- [31] I. Stoica, R. Morris, D. Karger, M. Kaashoek, and H. Balakrishnan, "Chord: A scalable peer-to-peer lookup service for internet applications," in ACM SIGCOMM, Aug. 2001, pp. 149-160.
- [32] W. Willinger, M. Taqqu, R. Sherman, and D. Wilson, "Self-similarity through high-variability: Statistical analysis of ethernet LAN traffic at the source level," in ACM SIGCOMM, Aug. 1995, pp. 100-113.
- [33] R. Wolff, *Stochastic Modeling and the Theory of Queues*. Prentice Hall, 1989.

Quality Assurance in Education – from the European Project to the Romanian Outcome

Nicolae DRĂGULĂNESCU, Remus CHINĂ

Facultatea de Electronică, Telecomunicații și Tehnologia Informației, Universitatea Politehnica, București, România; Ministerul Educației, Cercetării, Tineretului și Sportului, București, România
nicudrag@yahoo.com, remus_china@yahoo.com

Abstract

In 2005, Romania started to achieve one of its most important processes in education area – i.e. designing and implementing a national system of quality assurance in education. Between years 2005-2006 the necessary legal and institutional frameworks were developed, adopted and implemented. But, given the fact that the year 2004 was - at European level - the starting year of the new European <Common Quality Assurance Framework (CQAF)> in vocational education and training (VET), it is obvious that the Romanian approach was included within “the first wave” of this initiative - a situation which is simultaneously beneficial and risky. The European CQAF was conceived as being based on three fundamental pillars – i.e. the ISO 9001 model, the European Excellence Model (EFQM) and the PDCA cycle. In 2008, following a Resolution of the European Parliament, CQAF became EQARF (<European Quality Assurance Reference Framework> in vocational education and training), with the recommendation that, during the next 24 months after its establishment, the EQARF should be adopted by the vocational education and training (VET) in EC Member States, in order to more effectively “connect” their labour market to the requirements of the European Qualifications Framework (EQF). After 5 years of expensive “experimentation” of quality assurance in Romanian education, we did find that the advantage of being among the first in Europe to implement a national system of quality assurance in education - both at the educational system level and at entity (university or school) level - is about to be lost because the outcome is rather disappointing: the simulation of quality assurance in education can not be accepted because it is definitely a counterproductive approach. This paper presents detailed and argued causes of these unwanted developments as well as some solutions to be adopted in order to remedy this unacceptable situation.

References:

- [1] Legea învățământului, nr.84/1995, republicată cu modificările și completările ulterioare.
- [2] Legea asigurării calității educației, nr.87/2006, republicată cu modificările și completările ulterioare.
- [3] Hotărâre de Guvern nr. 1175/ 2006 - privind organizarea studiilor universitare de licență și aprobarea listei domeniilor și specializărilor din cadrul acestora.
- [4] Hotărâre de Guvern nr. 404/ 2006 - privind organizarea și desfășurarea studiilor universitare.
- [5] Hotărâre de Guvern nr. 21/10.01.2007 - ce aprobă standardele de autorizare, respectiv standardele de acreditare și evaluare periodică a unităților de învățământ preuniversitar.
- [6] Hotărâre de Guvern nr. 22/ 2007 – ce aprobă Metodologia de evaluare instituțională în vederea autorizării, acreditării și evaluării periodice a organizațiilor furnizoare de educație.
- [7] Hotărâre de Guvern nr. 1534 /25.11.2008 - privind aprobarea standardelor de referință și indicatorii de performanță pentru evaluarea și asigurarea calității în învățământul preuniversitar.

- [8] Ordinul MECI nr. 3928/ 2005 - privind asigurarea calității serviciilor educaționale în instituțiile de învățământ superior. B. Standarde – Referențiale
- [9] CQAF - Common Quality Assurance Framework; <http://www.evta.net/CQAF>.
- [10] EQF - The European Qualifications Framework; <http://ec.europa.eu/education/lifelong-learning>.
- [11] EQARF -European Quality Assurance Reference Framework for Vocational Education and Training; <http://www.europarl.europa.eu/>.
- [12] ENQA - Standards and Guidelines for Quality Assurance in the European Higher Education Area ; www.enqa.eu.
- [13] SR EN ISO 9000:2000 – Sisteme de management al calității. Principii fundamentale și vocabular, ASRO.
- [14] SR EN ISO 9001:2008 – Sisteme de management al calității. Cerințe, ASRO.
- [15] SR ISO IWA 2:2006 - Sisteme de management al calității. Linii directoare pentru aplicarea ISO 9001:2000 în domeniul educației, ASRO.
- [16] SR EN ISO 9004:2001 – Sisteme de management al calității. Linii directoare pentru îmbunătățirea performanțelor, ASRO. C. Articole și comunicări
- [17] Nicolae Drăgulănescu - Standarde pentru evaluarea calității în învățământul superior din România, <http://www.ndragulanescu.ro>.
- [18] Nicolae Drăgulănescu - Asigurarea calității educației în România - între necesitate, confuzii și obstacole, <http://www.ndragulanescu.ro>.
- [19] Ion Hohan - Cadrul European de asigurare a calității în educație și formare profesională. Corelație cu managementul calității și Modelul EFQM de excelență. Recomandări pentru furnizori de educație și formare profesională, Brașov, 13.11.2006 – <http://www.fiatest.ro>.
- [20] Quality Assurance in Teacher Education in Europe, Euridice, 2006, Text completed in 2006, (<http://www.eurydice.org>).
- [21] Recommendations European Parliament and Council of 18 june 2009 on the establishment of a European Quality Assurance Reference Framework for Vocational Education and Training, <http://www.europarl.europa.eu/>.
- [22] Myron Tribus, Exergy, Inc. Hayward, CA, 1992 – Quality Management in Education, ERIC, Record Details ED37144.
- [23] Iosifescu, Șerban - Calitatea educației/concept, principii, metodologii, Educația 2000+, pag. 45.

Internal Evaluation – a Process Essential in Developing a School to a Referential Optimal or a Model of Excellence

Remus CHINĂ

Ministerul Educației, Cercetării, Tineretului și Sportului, București, România
remus_china@yahoo.com

Abstract

Any school organization will evolve, under the current approach to quality assurance in education, between two referential: minimal (called accreditation standard) and optimal (in current legislation called pleonastic standard of "reference"). The external evaluation process, based on referential minimal working of the school, will be validated at these standard requirements. In fact, it validated the functional capacity of schools to offer beneficiaries (community, education system, etc.) educational products and services that meet minimum requirements for accreditation referential. Evolution and development of the school, in conjunction with referential optimal requirements, is strongly influenced by internal evaluation process as "simultaneous movement philosophy" of the organization with the two referential, is completely different from the first referential school development. Internal evaluation is a continuous process, more important than external evaluation process and its effective management and creates real opportunities for school development with the two referential, the capability and resources of the organization. The internal school evaluation process should take under control the two crucial components affecting school progress: operating (maintained at standard accreditation requirements) but the performance (the areas that the school believes that it can develop, in conjunction with referential optimal requirements or European Excellence Model - EFQM). Evolution of school will be a resultant of two components, and its development will be strongly influenced by how the organization manages the process of internal evaluation.

References:

- [1] Legea învățământului, nr.84/1995, republicată cu modificările și completările ulterioare.
- [2] Legea asigurării calității educației, nr.87/2006, republicată cu modificările și completările ulterioare.
- [3] Hotărâre de Guvern nr. 1175/ 2006 - privind organizarea studiilor universitare de licență și aprobarea listei domeniilor și specializărilor din cadrul acestora.
- [4] Hotărâre de Guvern nr. 404/ 2006 - privind organizarea și desfășurarea studiilor universitare.
- [5] Hotărâre de Guvern nr. 21/10.01.2007 - ce aprobă standardele de autorizare, respectiv standardele de acreditare și evaluare periodică a unităților de învățământ preuniversitar.
- [6] Hotărâre de Guvern nr. 22/ 2007 – ce aprobă Metodologia de evaluare instituțională în vederea autorizării, acreditării și evaluării periodice a organizațiilor furnizoare de educație.
- [7] Hotărâre de Guvern nr. 1534 /25.11.2008 - privind aprobarea standardelor de referință și indicatorii de performanță pentru evaluarea și asigurarea calității în învățământul preuniversitar.

- [8] Ordinul MECI nr. 3928/ 2005 - privind asigurarea calității serviciilor educaționale în instituțiile de învățământ superior. B. Standarde
- [9] CQAF-Common Quality Assurance Framework; <http://www.evta.net/CQAF>.
- [10] EQF-The European Qualifications Framework; <http://ec.europa.eu/education/lifelong-learning>.
- [11] EQARF - European Quality Assurance Reference Framework for Vocational Education and Training; <http://www.euro.parl.europa.eu/>.
- [12] ENQA - Standards and Guidelines for Quality Assurance in the European Higher Education Area ; www.enqa.e.
- [13] SR EN ISO 9000:2000 – Sisteme de management al calității. Principii fundamentale și vocabular, ASRO.
- [14] SR EN ISO 9001:2008 – Sisteme de management al calității. Cerințe, ASRO.
- [15] SR ISO IWA 2:2006 – Sisteme de management al calității. Linii directoare pentru aplicarea ISO 9001:2000 în domeniul educației, ASRO.
- [16] SR EN ISO 9004:2001 – Sisteme de management al calității. Linii directoare pentru îmbunătățirea performanțelor, ASRO. C. Articole și comunicări
- [17] Nicolae Drăgulănescu - Standarde pentru evaluarea calității în învățământul superior din România, <http://www.ndragulanescu.ro>.
- [18] Nicolae Drăgulănescu - Asigurarea calității educației în România - între necesitate, confuzii și obstacole, <http://www.ndragulanescu.ro>.
- [19] Ion Hohan - Cadrul European de asigurare a calității în educație și formare profesională. Corelație cu managementul calității și Modelul EFQM de excelență. Recomandări pentru furnizori de educație și formare profesională, Brașov, 13.11.2006 – <http://www.fiatest.ro>.
- [20] Quality Assurance in Teacher Education in Europe, Euridice, 2006, Text completed in 2006, (<http://www.eurydice.org>).
- [21] Recommendations European Parliament and Council of 18 June 2009 on the establishment of a European Quality Assurance Reference Framework for Vocational Education and Training, <http://www.europarl.europa.eu/>.
- [22] Myron Tribus, Exergy, Inc. Hayward, CA, 1992 – Quality Management in Education, ERIC, Record Details – ED37144.
- [23] ISO – International Organization for Standardization, <http://www.iso.org/iso/>.
- [24] Iosifescu, Șerban - Calitatea educației/concept, principii, metodologii, Educația 2000+, pag. 4.

Quality Standards for Students Placement – Q-PlaNet Approach

Laura Teodora DAVID, Doru TALABA

Psychology Department, Transilvania University of Brasov, Romania; Product Design and Robotics
Department, Transilvania University of Brasov, Romania
lauradavid@unitbv.ro, talaba@unitbv.ro

Abstract

Higher education is no longer a solely guarantee of a successful career. At least not in a narrow meaning. Universities are broadening their offer in order to increase the employability of the graduates. The collaboration between Universities and economic and social environment is becoming a compulsory need for Higher Education institutions. Scientific literature opened through theory and research toward understanding how learning may be supported in order to adjust formal education to work field requirements. Practical placement combines methods of learning that may enhance the preparation of students for a globalize work market. Even though the importance of practical placement is more and more acknowledged, there is still not enough coherence and efficacy in organizing and valorizing this activity. Q-PlaNet project's aim is to set a standard in measuring quality of trans-national placements for students. As a mean of making that possible there were established innovative structures named Quality Reference Centres (QRC) that have the task to check quality of placements and to label company that comply with the quality criteria as well as to support higher education-company cooperation. The QRC's function at a regional level and are responsible to check organizations from their region. Through of a network of QRC transnational students placement is maintain at quality standards. The standards include requirements for all parties involved: the University, the student and the host organization and include guidelines for resources, processes and procedures, quality control being in the center of partnership.

References:

- [1] Tynjälä, P., Perspective into learning at the workplace, *Educational Research Review*, 3, 2008, pp.130-154.
- [2] Winkleby, M.A., Ned, Y., Ahen, D., Koehler, A., Kenneddy, J.D., Increasing diversity in science and health professions: a 21-years longitudinal study documenting college and career success, *J. Sci. Educ. Technol*, 18, 2009, pp.535-545.
- [3] McKenna, L.G., Wray, N., McCall, L., Exploring continuous clinical placement for undergraduate students, *Adv. in Health Sci. Educ.*, 14, 2009, pp.327-335.
- [4] Fraser, S., Storey, D.J., Westhead, P., Student work placements in small firm: do they pay-off or shift tastes? *Small Business Economics*, 26, 2006, pp.125-144.
- [5] Krumboltz, J.D., The Happenstance learning theory, *Journal of Career Assessment*, 17(2), May 2009, pp.135-154.
- [6] Sauders, M. Machell, J., Understanding emerging trends in higher education curricula and work connection, *Higher Education Policy*, 13, 2000, pp. 287-302.

- [7] Talaba D., Enhancing the transfer of know-how: European strategy for closer cooperation between the academia and small enterprises. 4th European Conference on Craft and Small Enterprises, Stuttgart, 16-17 April (2007).
- [8] Talaba D., University-Industry cooperation in the Knowledge based society. Proceedings of the 2nd International EUI-Net Conference on: Teaching and Research Synergy”, 4-6 May, Tallinn, pp.7-13. (2006).
- [9] Talaba, D., Moja, A, Zirra, E., Guidelines towards a European standard for quality assurance of student placement, available in login space on www.q-planet.org.
- [10] Zirra E., March F., Building University - Enterprise Cooperation for the Benefit of Students, Enterprises and Companies. EUI-Net workshop, Athens 28 September (2006). http://www.eui-net.org/Project_documents/.
- [11] Working groups of the Q-PlaNet team, Project meeting & workshop, Brussel, 25-26 January 2010, meeting minute in login space on www.q-planet.org.
- [12] Working groups of the Q-PlaNet team, Project meeting & workshop, Erfurt, 28-29 September 2009, meeting minute in login space on www.q-planet.org.
- [13] <http://www.unitbv.ro/desc/en>.
- [14] <http://www.unitbv.ro/cicoc>.
- [15] Slavin, E.R., Can financial incentives enhance educational outcomes? Evidence from international experiments, Educational Research Review, 5, 68-80, (2010).

Obstacles and Delays Reluctances Within the Romanian Schools Development According to Widely Recognized Benchmarks and Excellence Models

Manuela STOICA

Agenția Română pentru Asigurarea Calității în Învățământul Preuniversitar, București, România
manuela_aura@yahoo.com

Abstract

Implementing a quality management system level, but also at the level of organization is, under current circumstances, absolutely necessary in education too. Application of quality promoted by the family of ISO 9000, in the educational environment, is raising the quality of education provided by educational organizations, contributing thus to the development of national education system compared to other education systems in Europe and only. School organization can evolve its founding, the provisional operation to normal operation, equivalent to the minimum quality of education provided by the organization by its beneficiaries, which we call phase of accreditation, depending on development opportunities, to higher levels quality in school organizations. Will allow development organizations to promote good school system and basically the best national and international practices and, consequently, the occurrence of specific milestones and stable development of education system. Excellence models have been developed by successful companies in the economic environment. Public recognition of excellence is by providing quality awards based on a set of stringent criteria and transparent assessments of performance. Awards which have been introduced to recognize the merits of organizations that have proven excellence in performance through the adoption and development of quality management principles. More and more schools across Europe choose the European Excellence Model (EFQM) as their development philosophy some managed to win the prestigious award. It is normal that the development of Romanian schools to spend in accordance with rules and European and international education. In this regard, consider that although there have been significant changes in the process of implementing a quality management system at the level of school education, however, results at national level, are quite modest. Implementation models of excellence in education and create real conditions: compatibility with other education systems, the actual development of micro (school organization), compared with other similar school systems, education providers enter the market at national level and Europe. Given the Romanian reality, can you answer to the question if Romanian schools can connect to the excellence models? If yes - How? If not - Why?

References:

- [1] Czinkota, Michael R., "Loosening the Shackles: the Future of Global Higher Education", Statement for the WTO, Geneva, 2005, 1 – 24.

- [2] Global Higher Education, "Education Cities, Knowledge Villages, Schoolhouses, Education Hubs and Hot Spots: Emerging Metaphors for Global Higher Education", April 16, 2008, <http://globalhighered.wordpress.com/2008/04/16/metaphors>.
- [3] Carillo, Francisco Javier, "Knowledge Cities: Approaches, Experiences and Perspectives", Butterworth-Heinemann, 2006.
- [4] Drăgulănescu, Nicolae, De la calitatea controlată la calitatea totală, Ed. Alternative, 1996, București.
- [5] Hohan, Ion; Cucu, Maria; Hohan Andrei, Instrumentele Excelenței, Ed. FiaTest, 2006. Resurse legislative.
- [6] Legea nr.84/1995, Legea învățământului, republicată în M.O., Partea I, nr. 606/10.12.1999.
- [7] Legea nr. 87/2006, pentru aprobarea O.U.G. nr. 75/2005, privind asigurarea calității educației, publicată în M.O., Partea I, nr. 334/13.04.2006.
- [8] H.G. nr.1258/2005 privind aprobarea Regulamentului de organizare și funcționare al Agenției Române de Asigurare a Calității în Învățământul Preuniversitar.
- [9] H.G. nr. 21/2007 pentru aprobarea Standardelor de autorizare de funcționare provizorie a unităților de învățământ preuniversitar, precum și a Standardelor de acreditare și de evaluare periodică a unităților de învățământ preuniversitar.
- [10] H.G.nr. 22/2007 pentru aprobarea Metodologiei de evaluare instituțională în vederea autorizării, acreditării și evaluării periodice a organizațiilor furnizoare de educație.
- [11] H.G. nr. 1534/2008 privind aprobarea Standardelor de referință și a indicatorilor de performanță pentru evaluarea și asigurarea calității în învățământul preuniversitar. Resurse web
- [12] <http://www.asaecenter.org/PublicationsResources>, Paul Borawski, CAE and Maryann Brennan, The Baldrige Model: An Integrated and Aligned Systems Approach to Performance Excellence, 2008.
- [13] www.efqm.org, The European Foundation for Quality Management.
- [14] www.asro.ro, Asociația Română de Standardizare.
- [15] www.asq.org, American Society for Quality.
- [16] <http://excellenceone.efqm.org> – website al EFQM care cuprinde o compilație a celor mai recente articole din domeniu.
- [17] <http://www.leyhill.com/ourtoolkit/EFQM.html>, „Ley Hill Solutions” este un organism de consultanță, membru al British Quality Foundation (BQF).
- [18] http://www.valuebasedmanagement.net/methods_baldrige.html, despre „Baldrige Award Framework”.

Risk Management, Integrant Part of a Advanced Management

Steluța Elisabeta NISIPEANU, Maria HAIDUCU

Institutul Național de Cercetare-Dezvoltare pentru Protecția Muncii, București
snisipeanu@protectiamuncii.ro

Abstract

The article addresses the role and importance of risk management in the organizational management. To achieve an efficient management, the implementation of the International Standard ISO 31000: 2009 - Risk management - Principles and guidelines to the level of organization will help companies of all types and all sizes to find resources and forces necessary for the effective risk management. Based on its principles, ISO 31000 will allow continued development of the organization's performance. The authors aim to highlight the importance of identifying and assessing risks that can occur within an organization and the team role in implementing, monitoring, review and continuous improvement of the management process.

References:

- [1] A Risk Management Standard - AIRMIC, ALARM, IRM: 2002.
- [2] ISO 31000: 2009 - Risk management - Principles and guidelines.
- [3] Gh. Ilie, T. Urdareanu - Securitatea deplină, Editura UTI, Bucuresti, 2001.
- [4] P.A. Chaires, C.M. Vazquez, G.M. Latisnere, C.O. Paniagua - Risk Management in the presence of a linked environmental threat – IDRC Davos 2010.
- [5] L. Nyberg, M. Evers, Y. Andersson - Skold, Magnus Johansson, B. Blumenthal- Sustainability aspects of flood risk management – interrelation and challenges – IDRC Davos 2010.

A Validation Solution for Medical Processes

Eugen NEACȘU, Dragoș VINEREANU, Claudia DOBRE

Q-INSPECT S.R.L. București România; Spitalul Universitar de Urgență, București, România;
Spitalul Universitar de Urgență, București, România
qinspect@gmail.com, dvinereanu@yahoo.com, claudiadobre77@yahoo.com

Abstract

The validation process is one of the critical elements in the medical field. Although he found many deficiencies and shortcomings in organizing health services, though the notion of validation processes is rarely seen in the medical care system in general. There is a good practice validation processes in medical devices and related services, as stipulated in the ISO 13485:2003 standard requirements for a quality management system in this area. Validation concept recognizes that the validation process can not be tested on patients, but must be primarily designed to process / medical service to reduce the risk of nonconformities during and after the medical service. Therefore we consider that medical validation process must precede any implementation of such a process. Based on these requirements we designed a solution for validation of medical processes following a concrete application on the processes of an operating block from a hospital.

The Impact of Romania's Water Industry on the Weather Changes

Daniela Simona MOLDOVAN

Quality Environment Representative, SC Compania Apa Brasov SA, Romania
danielamoldovan@apabrasov.ro, moldovandaniela@yahoo.com

Abstract

Promoting environmental protection represents a major concern because the economic development takes place in our background. The impact of climate changes reflected in the diminution of drinking water resources, the hydrological cycle alteration, the increase of the average temperature with major variations in the regional area, seasons alteration, the increase of extreme climatic phenomena, biodiversity diminution, they all represent an actual global concern. This paper presents the mechanism of greenhouse effect gases and carbon footprint challenges in water sector, focusing on how much we understand today from this concept, where can these challenges be identified and described, unknowns and gaps.

Keywords: climate changes, greenhouse effect gases, carbon management, carbon footprint, water sector

References:

- [1] HG nr. 780/2006 privind infiintarea unei scheme de comercializare a certificatelor de emisii de gaze cu efect de sera.
- [2] OM nr. 1008/2006 privind administrarea Registrului National al emisiilor de gaze cu efect de sera.
- [3] OM nr. 1175/2006 pentru aprobarea procedurii privind monitorizarea si raportarea emisiilor de gaze cu efect de sera.
- [4] IPCC (2007) Climate Change 2007 – Impacts, Adaptation and Vulnerability, Contribution of Working Group II to the Fourth Assessment Report of the IPCC, available from www.ipcc.ch/ipccreports/ar4-wg2.htm.
- [5] Schimbari climatice, www.anpm.ro.
- [6] D. Moldovan, V. Ciomos, D. Dimitriu, Provocarile Amprenteii de Carbon in sectorul apei; exemplificari din Marea Britanie; studiu de caz SC Compania Apa Brasov SA, Conferinta Tehnico-Stiintifica dedicata sectorului public de alimentare cu apa si canalizare, cu tema "Tehnologii avansate in productia de apa potabila, epurarea si reutilizarea apelor uzate", 23 - 24, iunie 2009, Palatul Parlamentului Bucuresti, Romania.

PAS 99:2006 – Instrument for Implementing the Management Systems into the General Business Management

Madalina IGNATOV, Petru FUNAR

Center for Training in Quality Assurance and Certification of Auditors, Faculty of Engineering and
Technological Systems Management, Polytechnic University of Bucharest, Bucharest, Romania
ignatov.madalina@rdslink.ro, office@cpac.ro

Abstract

The competitive pressure in the last years imposes the Romanian companies to progressively or simultaneously adopt more management systems (quality, environment, occupational health and safety, social responsibility, etc.). Due to a deficitary education in the field, „de novo” approach of the management systems or the underdevelopment of the department designated with the implementation, maintenance and efficiency of the integrated management system, most of the time the implementation of one or more management systems is reduced to summing up their key characteristics, development in parallel of policies, programmes and documentations, but especially in the omission of the relationship of subordination between the integrated management system to the general business management. In all management systems there are identifiable common elements as well as specific ones, which can be successfully integrated in the general business management, adding value to the organizational system, regardless its typology. Although there isn't an accepted or certifiable standard in Romania, PAS 99:2006 can represent an useful instrument in the management systems' implementation, covering in the same time the issue of the business risk management, often result of the poor operation of the integrated management system implemented within an organization.

Keywords: integrated management system, business management, risk management

References:

- [1] ISO. ISO Guide 72:2001, Guidelines for the justification and development of management system standards.2001. pp. 5-18.
- [2] BSI. Creating a Manual, IMS Risk Solutions, London. 2003. pp. 28-33.
- [3] HINCH, H. IMS: Managing Food Safety, London. Integrated Management systems – Good practices and experience feedback AC X 50-200 AFNOR. 2003. pp. 29-41.
- [4] ISO. Guide 73:2003, Risk management – Vocabulary – Guideline for use. 2003. pp. 5-19.
- [5] SMITH, D. IMS: Implementing and Operating, London BSI, 2002. pp. 9-27.

Processes Innovation Project for Test Processes Innovation in the Test Desks Areas for Traction Electric Equipments

Irina TIHAN

Quality Management Department, S.C. ICPE SAERP S.A, Bucharest, Romania
irinatih@ yahoo.com

Abstract

The paper was elaborated as a result of a project in INNOVATION programme, in the frame of National Plan for Research-Development and Innovation – 2007-2013 – PN II. The project operates in present with the cooperation of the following partners: ICPE SAERP – coordinator (project manager), UPB-CCSAE – partner 1, CER (Romanian Electrotechnic Committee) – partner 2, AFER (Romanian Railway Authority) – partner 3. Innovation represents one of the Europe Union economic rising way and, in the same time, one of the Romanian economy performances rising way, and for SMEs. In accordance with COM 688/1995 (European Commission Communication), „innovation” consists of: a) Introduction of new products families, new services and associated markets, the extension of them. b) Establishing new product method, purchasing and distribution. c) Introduction of management changes, work organization, work conditions and personnel training. A process innovation is the implementation of a new or significantly improved production process, distribution method, or support activity for the enterprise goods or services. The innovation (new or improved) must be new to the enterprise, but it does not need to be new to the sector or market. The paper is an identification study of the test process innovation (improvement), innovation impact evaluation and the base creation for the management systems development in the organization. It starts from the classic ways, mentioned in SRENISO 9001: 2008, for QMS efficacy continuous improvement and analyses the test process as a part (sub-process) of the service, complains solving process, modernizing, general revision process.

References:

- [1] http://ec.europa.eu/news/science/070223_1_ro.htm.
- [2] <http://www.agpitt.ro/procesuldeinovare.html>.
- [3] Standard SRENISO 9001 : 2008 –Sisteme de management al calitatii. Cerinte.
- [4] http://89.96.239.108/proto_pim -Platforma PIM.

Motivational Aspects of South Korean Quality Management Approach

Nicolae DRĂGULĂNESCU

Facultatea de Electronică, Telecomunicații și Tehnologia Informației,
Universitatea Politehnica, București, România
nicudrag@yahoo.com

Abstract

During a 10-months mission as <Distinguished Visiting Professor> in a big private university of Seoul, South Korea, the author has had the opportunity to be acquainted with “Morning Calm” country – one of the Asia’s four “tiger economies” - as well as with its history, its people and its culture. Few Romanian people know that South Korea has succeeded – mainly during the years 1965-1985 - to rapidly improve productivity, quality, competitiveness, prestige and standard of living, as well as to build a so-called “Ubiquitous Information Society”. Unfortunately, about nobody in Romania knows HOW did they accomplish this and what kind of Quality Management (QM) has been adopted in their vast mass-production systems which could have made such rapid development possible. This paper has two main objectives: - To synthesize the results of a personal research about the QM approach in South Korea. As industrial strengths of this country in the areas of quality and global competitiveness were mainly in the electronics, automobile and shipbuilding industries, the author’s research was limited to these industries. A particular attention was given to the techniques employed in order to motivate South Korean employees for quality. - To establish some proposals on how Romanian industry can learn and gain from the experience of South Korean industry, in QM areas.

References:

1. Drăgulănescu, Nicolae, Drăgulănescu, Magdalena, Managementul calității serviciilor, Ed.AGIR, Buc., 2004.
2. Drăgulănescu, Nicolae, De la calitatea controlată la calitatea totală, Ed.Alternative, Buc. 1996.
3. Kondo, Yoshio, Motivația umană – factor esențial în management, Editura Niculescu, 2000.

WIKIPEDIA – Coreea de Sud

- http://en.wikipedia.org/wiki/South_Korea.
- http://en.wikipedia.org/wiki/Economy_of_South_Korea.
- http://en.wikipedia.org/wiki/Administrative_divisions_of_South_Korea.
- http://en.wikipedia.org/wiki/Geography_of_South_Korea.
- http://en.wikipedia.org/wiki/Administrative_divisions_of_South_Korea.
- http://en.wikipedia.org/wiki/Education_in_South_Korea.
- http://en.wikipedia.org/wiki/History_of_South_Korea.
- http://en.wikipedia.org/wiki/Transportation_in_South_Korea.

PORTALURI GENERALE – Coreea de Sud

- www.han.com/gateway.html - NETWORK KOREA (portal cu linkuri spre siturile interesante si utile pentru vizitatori).
- www.joongangdaily.com – portalul JOONGANGDAILY. MASS MEDIA – Coreea de Sud (în limba engleză)
- www.koreatimes.co.kr – cotidianul KOREA TIMES.
- <http://theseoultimes.com> – cotidianul SEOUL TIMES.
- www.koreaherald.co.kr – periodicul THE KOREA HERALD.
- www.arirang.co.kr – canal TV coreean (in engleza).
- <http://english.kbs.co.kr/> - Korean Broadcasting System (producator TV).

INSTITUTII din Coreea de Sud

- www.cau.kr – Universitatea Chung Ang.
- www.ssu.ac.kr – Universitatea Soongsil.
- www.france.or.kr – Centrul Cultural Francez la Seul.
- <http://global.seoul.go.kr> – Global Centre for Foreigners.
- www.airport.or.kr/eng - aeroportul international Incheon al Seulului.
- www.koreanfriends.co – relatii intre coreeni si straini.
- www.raskb.com – The Royal Asiatic Society – Korean Branch.
- www.koreanair.com – Compania KOREANAIR.
- www.kpc.co.kr – Korea Productivity Center.
- www.kca.go.kr – Korean Consumer Agency.

Preparing the Internal Audit Programme by Processes of the Social Accountability – Health and Safety Integrated Management System according to the Requirements of SA 8000:2008, BS OHSAS 18001:2007 and ISO 19011:2002 Standards

Romeo DENUNTZIO

SEMQ MANAGEMENT S.R.L., Bucharest, Romania
denuntzio@yahoo.com

Abstract

The paper establish the internal audit programme by processes necessary for the implementation of the social accountability-health and safety integrated management system according to the requirements of SA 8000:2008, BS OHSAS 18001:2007 and ISO 19011:2002. In order to prepare the internal audit programme the starting point is the list of the processes of the integrated management system and the organizational structure of an organization. Then the preparation of the internal audit programme aims two purposes: auditing all the processes of the integrated management system and the creation of the condition for the certification of the auditors who will carry out the internal audits. For these purposes the internal audit programme includes seven audits and also the necessary management reviews. For each audit are established which requirements will be audited, the processes that will be audited and the organizational units that will be audited. Each process of the integrated management system will be audited twice. In the first six audits the integrated management system will be audited by groups of processes according the clauses of the SA 8000:2008 standard auditing in the same time the corresponding clauses of the BS OHSAS 18001:2007 standard. The seventh internal audit is an audit of the integrated management system in which all the processes of the integrated management system will be audited in the same audit. After this internal audit will follow the management review. In the first four internal audits the auditors will gain the experience necessary to become auditor for the integrated management system and in the last three audits one auditor will gain the experience necessity to become lead auditor for the social accountability-health and safety integrated management system.

Keywords: Social accountability; Occupational health and safety; integrated management system; internal audit programme

References:

*** International standard SA 8000:2008-Social accountability 8000.

*** BSI British standard BS OHSAS 18001:2007-Occupational health and safety management systems-Requirements.

Proceedings of the 12th International Conference on Quality and Dependability

Sinaia, Romania, September 22th-24th, 2010

ISSN 1842-3566

Pages 238-242

*** Technical report ISO/TR 10013:2001-Guidelines for quality management system documentation.

*** International standard ISO 19011:2002, Guidelines for quality and/or environmental management systems auditing.

Efficient Evaluation of Quality Management System by Optimum Organization Processes in the Automotive Industry in Compliance with ISO/TS 16949:2009

Emilian LONCEA

Manager Quality- METAPLAST , Lead Auditor - S.C. SRAC CERT S.R.L, Bucharest, Romania
lonceae@yahoo.com

Abstract

This paper is dedicated to improving important aspects in the development of third party audits in order to achieve an effective assessment of the audit for certification organizations have areas of activity: development, design and manufacture of products and spare parts for industry car. Audit program is dimensioned from the organizational process map identified in the audited organization. This is important to establish an organization to optimize processes in order to evaluate effectively audited quality management system in accordance with ISO / TS 16949:2009 requirements. Even if the document is binding, its contents not specifically stated in the official journal of IATF documents. Degree of complexity should provide a clear and concise description of organizational functioning.

Keywords: Quality Management Systems, Manufacturing, ISO / TS 16949:2009.

References:

- [1] *** Rules for Achieving IATF Recognition 3rd Edition Sanctioned Interpretation. 2008, IATF - International Automotive Task Force.
- [2] Hoyles, D.: Automotive Quality Systems Handbook. Second Edition. Elsevier Ltd, 2005.
- [3] ISO 19011:2002-10-01 Guidelines for Quality and/or Environmental Management Systems Auditing.
- [4] *** Technical Specification ISO/TS 16949. Third Edition. 2009-06-15 Corrected version 2003-12-15, Quality Management Systems -Particular Requirements for the Application of ISO 9001:2008 for Automotive Production and Relevant Service Part Organizations -Systèmes de management de la qualité -Exigences particulières pour l'application de l'ISO 9001:2008 pour la production de série et de pièces de rechange dans l'industrie automobile, ANFIA, CCFA/FIEV, SMMT, VDA, DaimlerChrysler, Ford Motor Company, General Motors Corp., ISO 2009.

"Lean Manufacturing" Concepts and Methods to Continuously Improve the Processes in the Automotive Industry

Elena LONCEA

Lead Auditor - S.C. SRAC CERT S.R.L, Bucharest, Romania
lonceae@yahoo.com

Abstract

This paper is dedicated to improving the work undertaken under any productive society, but especially with applications within the automotive industry organizations. This paper presents the rules that must be known to implement and maintain an organization that wants to expand operations in accordance with the concept of "Lean Manufacturing" so to be able to constantly monitor the losses and improve processes continuously and Quality Management System. This paper presents "Lean Manufacturing" as a concept that can manage change within the organization, which can be applied to any process of organization, key elements of the concept, which tools and methods which help to implement the concept and last but not least which are benefit results of this implementation.

Keywords: LEAN MANUFACTURING concepts and methods applied in the automotive industry processes for continuous improvement activities

Reliability Testing of Electronic Components: State-of-the-art and New Trends

Marius BĂZU, Virgil ILIAN, Lucian GĂLĂȚEANU

National Institute for Research & Development in Microtechnologies, IMT-Bucharest, Romania
marius.bazu@imt.ro, virgil.ilian@imt.ro, lucian.galateanu@imt.ro

Abstract

In the last years, the methods for testing the reliability of electronic components have evolved significantly, according to the evolution of the technologies for fabricating the components. Accelerated tests, proposed many years ago, became the usual solution, the new trend being towards the use of failure analysis as compulsory step in the procedure for reliability assessment. The paper is reviewing the modern solutions in the reliability testing of electronic components, both for quantitative and qualitative life tests.

References:

- [1] Bajenescu T., and M. Bazu, "Component Reliability for Electronic Systems", Artech House, 2010.
- [2] Peck, D. S., "Semiconductor Reliability Predictions from Life Distribution Data", Semiconductor Reliability, Reinhold Publishers, 1961, pp. 51–63.
- [3] Băzu, M., L. Gălățeanu, and V. Ilian, "Basic elements of accelerated testing," Proceedings of 10th International Conference on Quality and Dependability CCF 2006, Sept. 27–29, 2006, pp. 139–146.
- [4] Tseng, S.-T., and C.-H. Hsu, "Comparison of Type-I & Type-II Accelerated Life Tests for Selecting the Most Reliable Product", IEEE Trans. on Reliability, Vol. 43, September 1994, pp. 503– 510.
- [5] Peck, D. S., and C. H. Zierdt Jr., "The Reliability of Semiconductor Devices in the Bell System", Proceedings of the IEEE, Vol. 62, No. 2, Feb., 1974, pp. 185–211.
- [6] Băzu, M., et al. ,"Reliability Accelerated Testing of MEMS Accelerometers", Proc. of International Semiconductor Conference CAS 2007, 30th edition, Sinaia, Romania, October 15–17, 2007, pp. 103–106.
- [7] Băzu, M., et al., "Quantitative Accelerated Life Testing of MEMS Accelerometers", Sensors, Vol. 7, December, 2007, pp. 2846–2859.
- [8] Chen-Mao, L., and T. Sheng-Tsaing, "Optimal Design for Step- Stress Accelerated Degradation Tests", IEEE Trans. on Reliability, Vol. 55, March, 2006, pp. 59–66.
- [9] Hseh, M.-H., and S.-L. Jeng, "Accelerated Discrete Degradation Models for Leakage Current of Ultra-Thin Gate Oxides", IEEE Trans. on Reliability, Vol. 56, No. 3, September, 2007, pp. 369– 380.
- [10] Ng, T. S., "An Application of the EM Algorithm to Degradation Modeling", IEEE Trans. On Reliability, Vol. 57, No. 1, March, 2008, pp. 2–13.
- [11] Yang, G and Z. Zaghati, "Accelerated Life Tests at Higher Usage Rates: A Case Study", Proc. of the Annual Reliability and Maintainability Symp., Newport Beach, Ca, USA, January 23–26, 2006, pp. 313–316 .
- [12] Yang, G., "Accelerated Life Tests at Higher Usage Rates", IEEE Trans. on Reliability, Vol. 54, No. 1, March, 2005, pp. 53–57.
- [13] Soto, E., et al., "Reliability Analysis of Aged Components", Proc. of the Annual Reliability and Maintainability Symp., Newport Beach, Ca, USA, January 23–26, 2006, pp. 396–401.

- [14] Gu, C., et al., “Ambient Use-Condition Models for Reliability Assessment”, Proc. of 44th Annual IEEE Reliability Physics Symp. San Jose, Ca, USA, March, 26–30, 2006, pp. 299–306.
- [15] Barton, R. R., “Optimal Accelerated Life-Time Plans that Minimize the Maximum Test-Stress”, IEEE Trans. on Reliability, Vol. 40, No. 2, June, 1991, pp. 166–172.
- [16] Birolini, A., “Quality and Reliability of Technical Systems”, Springer, 1994.
- [17] Jensen, F., “Electronic Component Reliability”, John Wiley & Sons, 2000.
- [18] Taguchi, G., “Quality Engineering (Taguchi Methods) for the Development of Electronic–Circuit Technology”, IEEE Trans. On Reliability, Vol. 44, No. 2, June, 1995, pp. 225–229.
- [19] Bell Lab., “EMP Engineering and Design Principles”, Bell Telephones, 1975.

Typical Failure Mechanisms of Microsystem Technology

Marius BĂZU, Virgil ILIAN, Lucian GĂLĂȚEANU

National Institute for Research & Development in Microtechnologies, IMT-Bucharest, Romania
marius.bazu@imt.ro, virgil.ilian@imt.ro, galateanu@imt.ro

Abstract

The paper is furnishing details about the failure mechanisms (FMs) that are specific to microsystem technology (MST), including corrective methods for diminishing or even avoiding the failures. The FMs are grouped according to the possible failure risks, arisen at various process steps, such as: quality of materials, design and fabrication, operational and environmental stresses. Moreover, some FMs (stiction, fracture, mechanical and thermal fatigue), which are specific to MST and most frequently encountered, are detailed, including up-dated corrective methods.

References:

- [1] Bazu, M. and T. Bajenescu, "Failure Analysis: A Practical Guide for Manufacturers of Electronic Components and Systems", J. Wiley and Sons, in press.
- [2] Tanner, D.M., et al., "The Effect of the Humidity on the Reliability of Surface Micromachined Microengine", Proc. of IEEE International Reliability Physics Symposium, March 21-25, 1999, San Diego CA, pp. 189-197.
- [3] Walraven, J. A., "Failure Mechanisms in MEMS", International Test Conference ITC, 2003, Paper 33.1, pp. 828-833.
- [4] Miller, S.L., et al., « Failure Modes in Surface Micromachined MicroElectroMechanical Actuators », 36th Annual IEEE Int. Reliab. Physics. Symp., 31 Mar-2 Apr 1998, pp. 17-25.
- [5] Bhushan, Bh., (ed.), Nanotechnology, New York: Springer, 2006.
- [6] Patton, S. T., and J. S. Zabinski, "Failure Mechanisms of DC and Capacitive RF MEMS Switches," Proceedings SPIE, Vol. 6111, Mechanisms, Structures, and Models, 2006.
- [7] Tazzoli, A., et al., "Reliability Issues in RF-MEMS Switches Submitted to Cycling and ESD Test", IEEE 43rd Annual International Reliability Physics Symposium, San Jose, CA, 2005, pp. 410-415.
- [8] XXX, "MEMS Fatigue", MEMS Reliability Newletters, Vol. 1, No. 1, Sept. 2001, pp. 1-4.
- [9] De Pasquale, G., A. Somà, and A. Ballestra, "Mechanical Fatigue Analysis of Gold Microbeams for RF-MEMS Applications by Pull-in Voltage Monitoring," Analog Integrated Circuits and Signal Processing, Vol. 61, No. 3, December 2009, pp. 215-222.
- [10] Hsu, T. R., "Reliability in MEMS Packaging," 44th International Reliability Physics Symposium, San Jose, CA, March 26-30, 2006.
- [11] Ping, C. W., S. Izumi, and S. Sakai, "Strength and Reliability Analysis of MEMS Micromirror," Proceedings of the Annual Meeting of JSME/MMD, 2004, pp. 273-274.
- [12] Broue, A., et al., Methodology to Analyze Failure Mechanisms of Ohmic Contacts on MEMS Switches, Proceedings of IEEE International Reliability Physics Symposium, IRPS 2009, pp. 869-873.
- [13] Walraven, J. A., "Future Challenges for MEMS Failure Analysis", International Test Conference ITC, 2003, Paper 33.4, pp. 850-885.

- [14] Tanner, D. M., et al., "Accelerated Aging Failures in MEMS Device," IEEE 43th Annual International Reliability Physics Symposium, San Jose, CA, 2005, pp. 317-324.
- [15] Meneghesso, G., and A. Tazzoli, "Reliability of RF-MEMS for High Frequency Applications," IEEE Transactions on Device and Materials Reliability, Vol. 7, Issue 3, Sept. 2007, pp. 429-437.

Solar Cells Reliability Testing Programs

Virgil Emil ILIAN*, **Elena MANEA***, **Marius BAZU***, **Lucian GALATEANU***, **V.L.M. ILIAN****

*National Institute for Research & Development in Microtechnologies, IMT-Bucharest, Romania;

**EUROQUALROM Laboratory, University "Politehnica" of Bucharest, Romania

virgil.ilian@imt.ro

Abstract

This paper deals with issues of electrical characterization and testing programs, required to characterize the reliability of high efficiency solar cells. The electrical parameters specific for solar cells and the methods applied for electrical characterization by using an Automatic Test System for parametric characterization of semiconductor devices are presented. Qualification and reliability studies tests, applied to high-efficiency solar cells, are presented in the second part of this paper. A testing program is discussed that consists of a set of five groups of mechanical testing climate. All tests under discussion are combined tests, applying in the same time different stimulus. The tests are intended to emulate, as faithful is possible, the mechanical and climate stress faced by solar cells in actual operating conditions.

References:

- [1] Keithley 4200-SCS Semiconductor Characterization System, Technical Data Book.
- [2] SR EN 60904 - Photovoltaic devices.
- [3] SR EN 61215 - Crystalline silicon terrestrial photovoltaic (PV) modules – Design qualification and type approval.
- [4] SR EN 60068 - Environmental testing.

E-learning Systems Security

Ioan-Cosmin MIHAI, Ioan BACIVAROV

Police Academy, Faculty of Police, Bucharest, Romania; Electronics, Telecommunications and
Information Technology Faculty, Bucharest, Romania
cosmin.mihai@yahoo.com, bacivaro@danube.euroqual.pub.ro

Abstract

E-learning systems consist of a planned teaching-learning experience, organized on a platform that provides materials in order to be assimilated by the students. Today, e-learning systems are used by many people. Therefore security becomes a fundamental requirement. As e-learning increases in popularity and reach, the need to understand security will also increase. A risk analysis needs to be part of each e-learning project. This paper analyzes the security of the elearning systems.

Keywords: Security, vulnerability, system, e-learning, platform

References:

1. Som Naidu, "E-learning – A Guidebook of Principles, Procedures and Practices", 2nd Revised Edition, CEMCA, 2006, pp. 5-9.
2. A. Jalal, Mian Ahmad Zeb, "Security Enhancement for ELearning Portal", IJCSNS International Journal of Computer Science and Network Security, VOL.8 No.3, March 2008, pp. 42-44.
3. Edward Hurley, News Writer, "Dangerous, familiar application vulnerabilities top list", 27 Jan 2004.
4. Sumit Siddharth, Pratiksha Doshi, "Five common Web application vulnerabilities", April 2006, pp. 12-18.
5. C Lim, M Yu, J S Jin., "Generic e-learning data structure and Web teaching", IEEE International Conference on e- Technology, e-Commerce and e-Service, Hong Kong, March 2005, pp 564-569.
6. A. Jalal, Mian Ahmad Zeb, "Security and QoS Optimization for Distributed Real time Environment", IEEE International Conference on Computer and Information, 2007, pp. 4-8.
7. "Benefits of e-Learning", <http://www.hyperstudy.com/>, July 2010.
8. Vladimir Dimitrov, Hristo Turlakov, Luben Boyanov, "Elearning System for Course Works", of international workshop NGNT, 2007, pp. 57- 65.
9. E. Kritzinger, S.H von Solms, "E-learning - Incorporating Information Security Governance", 2006, pp. 4-7.
10. Akram Alkouz and Samir A. El-Seoud, "Web Services Based Authentication System for e-learning", International Journal of Computing & Information Sciences, Vol. 5, No. 2, August 2007, pp. 74-78.
11. Atkinson Bob, Della-Libera Giovanni, Hada Satoshi, "Web Services Security (WS-Security) Version 1.0 05", Microsoft corp., April 2002, pp. 20-31.
12. "WS-Security Specifications" <http://msdn.microsoft.com/library/default.asp?url=/library/enus/dnglobspec/html/wssecurspecindex.asp>, July 2010.

Methods to Ensure Resilience in Communication Networks and P2P Overlay

**Dorina Luminița COPACI, Constantin A. COPACI, Angelica
BACIVAROV**

Tribunalul București, București, România; ANCOM, București, România; Laboratorul
EUROQUALROM, Universitatea „Politehnica” din București, România
lcopaci@yahoo.com, acopaci@yahoo.com, angelica@euroqual.pub.ro

Abstract

In the last few years, peer-to-peer networks have rapidly evolved and have become an important part of the existing Internet culture. Resilience to failures and deliberate attacks is becoming an essential requirement in most communication networks today. In this paper, we present a survey of strategies to improve resilience in communication networks as well as in P2P overlay networks. Furthermore, our intention is to point out differences and similarities in the resilience-enhancing measures for both types of networks. By using some basic concepts from graph theory, we show that many concepts for communication networks are based on well-known graph-theoretical problems. P2P overlay networks evidently benefit from resilience-enhancing strategies in the underlying communication infrastructure, but beyond that, their specific properties pose the need for more sophisticated mechanisms.

References:

- [1] R. Albert, H. Jeong, and A.-L. Barabasi. Error and attack tolerance of complex networks. *Nature*, 406(6794):378-382, July 2000.
- [2] A. L. Barabasi and R. Albert. Emergence of scaling in random networks. *Science*, 286(5439):509–512, October 1999.
- [3] M. Brinkmeier, M. Fisher, S. Grau, G. Schafer, T. Strufe: Methods for Improving Resilience in Communication Networks and P2P Overlays
- [4] M. Castro, P. Druschel, Y. C. Hu, and A. Rowstron. Topology-aware routing in structured peer-to-peer overlay networks. Technical Report MSR-TR-2002-82, Microsoft Research, 2002.
- [5] M. Castro, P. Druschel, A.-M. Kermarrec, A. Nandi, A. Rowstron, and A. Singh. Splitstream: high-bandwidth multicast in cooperative environments. In *SOSP '03: Proceedings of the nineteenth ACM symposium on Operating systems principles*, pages 298-313, New York, NY, USA, 2003. ACM.
- [6] F. Chung and L. Lu. The average distance in a random graph with given expected degree. *Internet Mathematics*, 1(1):91- 114, 2002.
- [7] T. Cicic, A. F. Hansen, and O. K. Apeland. Redundant trees for fast ip recovery. In *Broadnets 2007*. IEEE, 2007.
- [8] G. C. Clark and J. B. Cain. *Error-Correction Coding for Digital Communications*. Perseus Publishing, 1981.
- [9] clip2. The gnutella protocol specification v0.4. <http://rfc-gnutella.sourceforge.net/>, 2002.
- [10] B. F. Cooper. An optimal overlay topology for routing peer-to-peer searches. In *LNCS: Middleware 2005*, pages 82 - 101, 2005.

- [11] P. Elias, A. Feinstein, and C. Shannon. A note on the maximum flow through a network. *IEEE Transactions on Information Theory*, 2:117-119, December 1956.
- [12] G. Ellinas, A. G. Hailemariam, and T. E. Stern. Protection cycles in mesh wdm networks. *Selected Areas in Communications, IEEE Journal on*, 18(10):1924-1937, Oct 2000.
- [13] W. Grover. *Mesh-Based Survivable Networks. Options and Strategies for Optical, MPLS, SONET, and ATM Networking*. 2004.
- [14] A. F. Hansen, A. Kvalbein, T. Cicic, S. Gjessing, and O. Lysne. Resilient routing layers for recovery in packet networks. *International Conference on Dependable Systems and Networks DSN 2005. Proceedings.*, pages 238-247, June- 1 July 2005.
- [15] T. Klingberg and R. Manfredi. The gnutella protocol specification v0.6. <http://rfc-gnutella.sourceforge.net/>, 2002.
- [16] A. Kvalbein, A. F. Hansen, T. Cicic, S. Gjessing, and O. Lysne. Fast recovery from link failures using resilient routing layers. *10th IEEE Symposium on Computers and Communications, ISCC 2005. Proceedings.*, pages 554-560, June 2005.
- [17] A. Kvalbein, A. F. Hansen, T. Cicic, S. Gjessing, and O. Lysne. Fast ip network recovery using multiple routing configurations. *INFOCOM 2006. 25th IEEE International Conference on Computer Communications*, pages 1-11, April 2006.
- [18] S. Lee, Y. Yu, S. Nelakuditi, Z.-L. Zhang, and C.-N. Chuah. Proactive vs reactive approaches to failure resilient routing. *INFOCOM 2004. Twenty-third Annual Joint Conference of the IEEE Computer and Communications Societies*, 1:-186, March 2004.
- [19] S. P. M. Shand, S. Bryant. Draft: Ip fast reroute using not-via addresses. February 2008.
- [20] M. Medard, S. G. Finn, R. A. Barry, and R. G. Gallager. Redundant trees for preplanned recovery in arbitrary vertexredundant or edge-redundant graphs. *IEEE/ACM Transactions on Networking*, 7(5):641-652, Oct 1999.
- [21] J. M. Michael Menth, Andreas Reifert. Self-protecting multipaths - a simple and resource-efficient protection switching mechanism for mpls networks. *3rd IFIP-TC6 Networking Conference (Networking2004 Athens/Greece)*, 2004.
- [22] J. Moy. Ospf version 2, apr 1998.
- [23] C. G. Plaxton, R. Rajaraman, and A. W. Richa. Accessing nearby copies of replicated objects in a distributed environment. In *ACM Symposium on Parallel Algorithms and Architectures*, pages 311-320, 1997.
- [24] S. Ratnasamy, P. Francis, M. Handley, R. Karp, and S. Schenker. A scalable content-addressable network. In *Conference on Applications, Technologies, Architectures, and Protocols for Computer Communications*, pages 161-172, 2001.
- [25] E. Rosen, A. Viswanathan, and R. Callon. Multiprotocol label switching architecture, jan 2001.
- [26] D. J. Rosenkrantz, S. Goel, S. S. Ravi, J. Gangolly: Structure-Based Resilience Metrics for Service-Oriented Networks, October 11, 2004.
- [27] A. Rowstron and P. Druschel. Pastry: Scalable, distributed object location and routing for large-scale peer-to-peer systems. In *IFIP/ACM International Conference on Distributed Systems Platforms*, pages 329 - 350, November 2001.
- [28] M. Shand and S. Bryand. Draft: Ip fast reroute framework. Technical report, February 2008.
- [29] I. Stoica, R. Morris, D. Karger, F. Kaashoek, and H. Balakrishnan. Chord: A Scalable Peer-to-Peer Lookup Service for Internet Applications. In *ACM Applications, Technologies, Architectures, and Protocols for Computer Communication*, pages 149 - 160, September 2001.
- [30] W. W. Terpstra, J. Kangasharju, C. Leng, and A. P. Buchmann. Bubblestorm: resilient, probabilistic, and exhaustive peer-to-peer search. In *SIGCOMM Comput. Commun. Rev.*, 2007.
- [31] S. Wang, D. Xuan, and W. Zhao. Analyzing and enhancing the resilience of structured peer-to-peer systems. *Journal of Parallel and Distributed Computing*, 65:207-219, 2005.
- [32] B. Y. Zhao, J. D. Kubiatowicz, and A. D. Joseph. Tapestry: An infrastructure for fault-tolerant wide-area location and routing. Technical Report UCB/CSD-01-1141, UC Berkeley, April 2001.

Implementation of Integrated Management Systems (IMS)

Lidia NICULIȚĂ, Petru COST

Technical University of Civil Engineering, Bucharest; Inspectoratul de Stat in Construcții
niculita@gmail.com

Abstract

This article presents the analysis results of a study concerning procedures of implementation procedures in management systems. The objective was to investigate the mode, the way and necessary procedures for planning and execution of an implementation process in an organization inside an integrated management system. The paper is addressing a board system of manager's users, employers, directors, and chief compartments and specialist of firms and any type of organizations. Keywords: integrated management systems, procedures quality, quality systems, project, organizations

References:

1. Niculiță, L., Managementul și ingineria calității, Editura Academiei Romane, București, 2005.
2. Juran, M., Joseph, Godfrey A. Blanton, Manualul calității, Juran, Traducere după ediția a 5-a, McGraw – Hill, Newyork, SRAC, București, 2004.
3. Sisteme de management al calității – Cerințe, SR EN ISO 9001:2008.
4. Sisteme de management al calității – Principii fundamentale și vocabular, SR EN ISO 9000:2006.
5. Sisteme de managementul calității – Linii directoare pentru îmbunătățirea performanțelor, SR EN ISO 9004:2008.
6. Sisteme de management de mediu. Cerințe cu ghid de utilizare - SR EN ISO 14001:2005.
7. Sisteme de Management al Sănătății și Securității Ocupaționale - SR OHSAS 18001:2008.

Media Quality Management Certification – An Innovative Approach

Ioan C. BACIVAROV, Louis BALME

ETTI-EUROQUALROM, Polytechnic University, Bucharest, Romania; ISAS, Geneva, Switzerland
bacivaro@euroqual.pub.ro

Abstract

In the first part of the paper the characteristics of media (mass media and public media) and their important role in today society are analyzed. Information is a basic human right, which is essential to social development and democracy. Media - particularly radio and television, being the main source of information of most people around the globe - have a special responsibility to ensure that this right is fully enjoyed in the 21st century. Specifically, mass media must: - Disseminate accurate information and knowledge as widely as possible - Offer a lively social and political debate at the local, national and global levels. The essential role of media in social development and democracy is widely recognized, but political and economic powers often hamper their most important service to society, which is to give a faithful representation of the world, to induce citizens' participation in political decisions, and to create an open space for democratic debate. Independence and accuracy of information, quality and creativity of programmes and publications are keys to the mission of print, broadcasted and electronic media. It is not acceptable to see them reduced either to propaganda outlets or to entertainment carriers without content. The authors mention that, in order to assist broadcasters and press and magazine publishers in resisting outside pressures and serving society efficiently, a group of prominent media professionals have introduced two universal quality management standards, ISAS BC 9001: 2003, specially designed for broadcasters and internet content providers, and ISAS P 9001: 2005 for print media. Those "tools to generate trust" will give the public an internationally recognized guarantee that the content it watches or listens to has been produced in accordance with a world standard of good governance within the media. Media themselves, by submitting their internal quality processes to a neutral, independent, professional control, will increase their credibility for a larger audience. This is the basis upon which the Media and Society Foundation, a Geneva-based nonprofit institution created by media professionals, has launched, some years ago, two international quality media management standards, ISAS BC 9001 and ISAS P 9001. They are completed by a set of guidelines, collecting the best practices used all over the world within the media industry. ISAS BC 9001 and ISAS P 9001 are adaptations of ISO 9001, the world reference for quality management systems, which, in the last twelve years, has been adopted by more than 1 200 000 companies, both public and private, in 180 countries. In the second part of the paper the characteristics of the ISAS BC 9001 and ISAS P 9001 standards are analysed in detail. The authors outlines that, in addition of being ISO 9001 compliant, the standards are focused on media companies, measuring the degree to which they meet the following criteria: - Satisfaction of viewers-listeners-readers; - Quality and accuracy of information; - Quality and diversity of other types of programming; - Innovation and creativity; - Independence and transparency of management; - Promotion and respect for ethical rules; - Representation of national minorities; - Universal access; - Social relevance; The standards ISAS BC 9001 and P 9001 measure how radios, televisions, newspapers, magazines and internet content providers meet the ISO 9001 criteria of good management, while at the same time respecting specific media quality criteria, which are universally recognized. It is important to

underline that the standards ISAS BC 9001 and ISAS P 9001 set clear, measurable objectives. The first step towards ISAS BC 9001 & P 9001 certification is the evaluation of present management systems, viewed from three separate and complementary angles: - Efficiency and performance, focussing on the costs of quality - Perceptions of the management system by personnel, customers, suppliers and other stakeholders - The specific criteria of the ISAS BC 9001 & P 9001 standard mentioned above On the basis of this evaluation, companies will be given detailed recommendations for improvement that should be implemented to meet the requirements of ISAS BC 9001. In the last part of the paper the evolution and the future of these standards are analysed. The international Standardization Committee for media quality management agreed on merging ISAS BC and P 9001 standards into one, serving all media. Taking into account the various feedbacks coming from media users (40 organizations) and the changes introduced in ISO 9001:2008 version, the panel of experts met in Geneva in September 2009 to review and update the former ISAS BC 9001:2003 (for broadcasting industry) and ISAS P 9001:2005 (for print media) standards. Their merging into one revised standard, called ISAS BCP 9001:2009 reflects the evolution of modern media organizations towards multimedia and work convergence.

Keywords: Democracy, Mass Media, Print Media, Broadcasting industry, Quality Management, Standard, Certification, Convergence, Social Responsibility

Authors Index

Andrei Victor	93	Haiducu Maria	193
Ayadi Dorra	96	Hepp David	305
Azzabi Lotfi	96		
		Ignat Michel	146
Bacivarov Angelica	129, 286	Ignatov Mădălina Silvia	220
Bacivarov C. Ioan	20, 22, 117, 124, 278, 303	Ilian V.L.M.	124, 274
Badea Eugen	25	Ilian Virgil Emil	262, 268, 274
Balme Louis	303	Ivan Bogdan	25
Barreau M.	53		
Bâzu Marius	262, 268, 274	Kobi Abdessamad	53, 96
Biolini Alessandro	209	Kouki M.	153
Boujelbene Younes	96	Kourouklis Athanassios	47
Bouchiba A.	53		
Brown Alan	111	Loncea Elena	252
		Loncea Emilian	243
Cano Michele	47	Manea Elena	274
Caramihai Mihai	85	Mihai Ioan-Cosmin	117, 278
Chabchoub Habib	96	Moldovan Daniela Simona	205
Cherkaoui Abdelgheni	53		
Chină Remus	165, 173	Neacșu Eugen	198
Chiroșca Tatiana	347	Nicolescu Daniel Valentin	80
Ciuchi Costel	124	Niculiță Lidia	294
Constantinescu Doina	72, 80	Nisipeanu Steluța Elisabeta	193
Copaci Constantin Alin	159, 286		
Copaci Dorina Luminița	159, 286	Păltineanu George	25
Cost Petru	294	Pendiuc Tudor	65
		Petrică Gabriel	124
		Prisecaru Bianca	72
David Laura Teodora	180		
Denuntzio Romeo	238	Rane Suraj S.	138
Dobre Claudia	198	Robledo Christian	96
Drăgulănescu George Nicolae	165, 231	Rotaru Maria	65
Drummond Siobhan	47		
		Severin Irina	85
Funar Petru	220	Tendai Shana	47
Gălățeanu Lucian	262, 268, 274		

Srividya A.	138	Valis D.	153
Stamatiu Alexandru	25	Verma A. K.	138
		Vinereanu Dragoş	198
Stoica Mihaela	186	Vintr Z.	153
Talabă Doru	180	van der Wiele Ton	111
Tihan Irina	224		