

**Dan STOICHIȚOIU**

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*Editors*

# **QUALITY and DEPENDABILITY**

## **PROCEEDINGS**

of the

**13<sup>th</sup> International Conference  
on Quality and Dependability**

**Neptun, Romania**

**September 5<sup>th</sup>–7<sup>th</sup>, 2012**

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# CCF 2012

## THE 13th INTERNATIONAL CONFERENCE QUALITY AND DEPENDABILITY

*WEDNESDAY, 5<sup>th</sup> September 2012*

### OPENING PLENARY MEETING

**Chairman:** *Dan STOICHIȚOIU – President of The Romanian Society for Quality Assurance, General Chairman of CCF2012*

Opening of the CCF 2012 International Conference Papers  
Greeting Messages

### PLENARY SESSION 1: *QUALITY MANAGEMENT*

**Chairmen:** *Gianluca MULE – Senior Manager EFQM, Belgium*  
*Prof. dr. Michele CANO – University of the West of Scotland, UK*

From Quality Management to Sustainable Excellence: EFQM Excellence Model  
*Gianluca MULE – Senior Manager EFQM*

“J.M. JURAN” Romanian Quality Award  
*Nicolae DRĂGULĂNESCU – Executive Director of “J.M. JURAN Romanian Quality Award” Foundation*

A Comparative Study of the Motives for Obtaining and the Impacts of ISO 9001 Certification in UK Organisations  
*Michele CANO, Scott McCrosson – University of the West of Scotland*

Media Quality Management Certification. New Approaches  
*Ioan BACIVAROV, Angelica BACIVAROV – EUROQUALROM, UPB*

SR EN ISO 9001 in Supply Chain  
*Mircea MARTIȘ – General Manager ASRO*

### POSTER SESSION

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

Quality Management. A New Approach  
*A. van der WIELE, J.D. Van IWAARDEN, S. ELDRIDGE – Erasmus University, Rotterdam, Holland*

Post-Manufacturing Traceability: Legal/Market Trends and Best Practices  
*David BALME – Challenge Optimum S.A., Geneva, Switzerland*

Dependability Estimation of Mechatronic Systems  
*Alin MIHALACHE, Fabrice GUERIN, Mihaela BARREAU – LASQUO, University of Angers, France*  
*Ioan BACIVAROV, Angelica BACIVAROV – EUROQUALROM, UPB*

Competitive Intelligence in Higher Education Quality Assurance  
*Maria Cristina MENDONÇA – Universidad de Coimbra, Portugal*

A Contextualized Quality Problem-Solving Method  
*Laetitia AVRILLON, Maurice PILLET – Université de Savoie, Annecy Cedex, France*

Accelerated Life Testing Models for Mechanical Components  
*F. Guérin, M. Barreau, A. Charki, A. Todoskoff, O. Tebbi – LASQUO, ISTIA, University of Angers, France*

System Test Point – A New Metric in Software Quality Testing  
*K.Mahesh KUMAR, Gargi KEENI – Tata Consultancy Services, Powai, India*  
*A.K.VERMA, A. Sri VIDYA – Indian Institute of Technology, Mumbai, India*

An Analysis of the Main Informatic Attacks in Romania  
*Ioan-Cosmin MIHAI – Police Academy, Bucharest*  
*Ioan C. BACIVAROV – EUROQUALROM, UPB*

Development of a Decisional Strategy on Complex Systems Survivability  
*Costel CIUCHI – General Secretariat of the Romanian Government*  
*Laura IANCU, Gabriel PETRICA, Ioan C. BACIVAROV – EUROQUALROM, UPB*

## **PLENARY SESSION 2: RISK MANAGEMENT**

**Chairmen:** *Steli LOZNEN – QA & Certification Manager, Israel Testing Laboratories*  
*Eugen NEACȘU – Auditor, SRAC CERT S.R.L.*

The Risk Approach into Systems Lifecycle  
*Steli LOZNEN – Israel Testing Laboratories*

Risk Assessment in Labor Security for Designing Engineer  
*Floarea BAICU – BAICONS S.R.L.*

A New Approach for Measurement Uncertainty Estimation in Material Testing  
*Ion PENCEA – University Politehnica of Bucharest*

Preventing Occupational Risks in Romania's Sanitary Units in Partnership with Personnel from the Health Care Sector  
*Steluța NISIPEANU, Ionel IORGA, Ruxandra CHIURTU, Maria HAIUCU, Octavian IORGA – INCDPM „Alexandru Darabont“ Bucharest*

Application of Risk Management in "Food Defense Plan" Designing and Implementing to a Hospital

*Eugen NEACȘU, Cornelia ȘULEA – SRAC CERT S.R.L.*

### **PLENARY SESSION 3: *QUALITY ASSURANCE IN EDUCATION***

**Chairmen:** *Prof. dr. ing. Nicolae DRAGULANESCU – General Secretary, the Romanian Foundation for Quality Promotion, Executive Director of “J.M. JURAN Romanian Quality Award“ Foundation*  
*Remus CHINĂ – Inspector, the Ministry of Education, Research, Youth and Sports*

Quality in Education – Key Factors, Processes, Management

*Remus CHINĂ – Ministry of Education, Research, Youth and Sports*

Accreditation in Education. Approaches in Different Educational Systems

*Manuela Aurora STOICA – Technical College „Toma N. Socolescu“*

Universitary Management Models (UMM) in Ranking with the Clients' Satisfaction

*Lidia CRISTEA – Romanian University of Sciences and Arts „Gh. Cristea“*

How the Romanian Higher Education makes Changes Simply for the Sake of the Change

*Constantin CODERIE, Mircea UDRESCU, Marcela GANEA – ARTIFAX University, Bucharest*

How to improve the Post-Audit Communication between the Auditor and the Enterprise's Management

*Mădălina IGNATOV, Daniela MORAR – Politehnica University of Bucharest*

***THURSDAY, 6<sup>th</sup> September 2012***

### **PLENARY SESSION 4: *RELIABILITY***

**Chairmen:** *Paul PENCIOIU – Technical director ICPE*  
*Prof. dr. Angelica BACIVAROV – EUROQUALROM, UPB*

Implementation Strategies for High Functional Importance Resilient Systems

*Angelica BACIVAROV, Ioan BACIVAROV – EUROQUALROM, UPB*

Reliability Testing of Micro and Nanostructured Epoxy/Rubber Blends

*Marius BĂZU, Virgil Emil ILIAN – IMT Bucharest*

*Titu BĂJENESCU – C.F.C., La Conversion, Switzerland*

Lead-Free Solder Joints Testing for Reliability Studies  
*Virgil Emil ILIAN, Marius BĂZU – IMT Bucharest*  
*Virgil Liviu Mircea ILIAN – EUROQUALROM, UPB*  
*Lucian GĂLĂȚEANU, Dragoș VÂRSESCU – IMT Bucharest*  
*Alena PIETRIKOVÁ – Technical University of Košice, Košice, Slovakia*

Using Leaky Integrators in the administration of Faults in an Autonomous Robot  
*Virgil L.M. ILIAN, Ioan C. BACIVAROV – EUROQUALROM, UPB*

Fault Tree Analysis as a Reliability Management Technique in Autonomous Robots  
*Virgil L.M. ILIAN, Ioan C. BACIVAROV – EUROQUALROM, UPB*

Researches Concerning Security in Long Term Evolution Mobile Networks  
*Laura IANCU, Ioan C. BACIVAROV – EUROQUALROM, UPB*

Vulnerabilities and Risk Analysis in Document Management Systems  
*Costel CIUCHI – General Secretariat of the Romanian Government*  
*Laura IANCU, Gabriel PETRICĂ, Angelica BACIVAROV – EUROQUALROM, UPB*

Survivability Analysis Based on Attack Models  
*Ioan-Cosmin MIHAI – Police Academy Bucharest*  
*Angelica BACIVAROV, Ioan C. BACIVAROV – EUROQUALROM, UPB*

## **PLENARY SESSION 5: ENVIRONMENT MANAGEMENT**

**Chairmen:** *Elena ZINCA – Technical Director, SRAC CERT S.R.L.*  
*Elena NECULA – Director, EUROSMART SYSTEMS S.R.L.*

Intranet Solutions for Implementing IMS in Order to reduce the Bureaucracy in the PVC  
Carpentry Companies  
*Elena NECULA – Eurosmart Systems S.R.L.*  
*Radu TRUFIN – Izotec Group S.R.L.*

Method for Determining Reference Levels on Energy Use and Energy Intensity  
*Leonida Brânduș STĂNOIU – Romanian Electrotechnical Committee (CER)*

Improving of Services Quality in Public Administration by Implementing of Internal/  
Managerial Control Standards according to OMPF 946/2005  
*Daniela MOLDOVAN – Apa Brașov Company*

EMAS – Tool for Improving Environmental and Business Performance  
*Elena ZINCA – SRAC CERT S.R.L.*  
*Felicia IOANA – Ministry of Environment and Forests, Bucharest*

How can we transform Metal Waste in Raw Materials? (EU) Regulation no. 333/2011  
*Elena ZINCA – SRAC CERT S.R.L.*

ISO 50001 – Support for improving Energy Performance  
*Elena ZINCA – SRAC CERT S.R.L.*

**FRIDAY, 7<sup>th</sup> September 2012**

**PLENARY SESSION 6**

**Chairmen:** *Eugen COSMA – Production Director, MECANOENERGETICA S.A.*  
*Eugen STAN – Auditor, E.M.I. Test S.R.L.*

The Development and Improvement of Integrated Management Systems by IRIS Standard Implementation and Certification in Railway Organizations – Need and Features  
*Irina TIHAN – ICPE SAERP S.A.*

Certification of Manufacturers of Welded Structures According to EN ISO 3834 Series of Standards and EWF / IIW Directives  
*Marius Adrian OPROIU, Horia DAȘCĂU – ISIM Timișoara*

Management and Research of Organizational Culture. The Concept of Corporate Social Responsibility (CSR) within Hotel Units in Romania  
*Gilda RUSU-ZAGAR, Ionel IORGA, Andrei IORGA, Octavian IORGA, Iulian Ioniță GHEORGHE, Cătălin RUSU-ZAGAR, Claudia IONESCU – INCDPM „Alexandru Darabont“ Bucharest*

Audit – Basic Tool used in the “Conformity Assessment” Processes  
*Eugen STAN – E.M.I. Test S.R.L.*

Approach of Six Sigma Methodology  
*Marius FLORESCU – CALITATE TOP 21 S.R.L.*

**PLENARY SESSION 7: THE ISO 9000 FORUM**

**Moderators:** *Dr. Dan STOICHIȚOIU – President of the Romanian Society for Quality Assurance*  
*Prof. univ. dr. ing. Ioan C. BACIVAROV – Director, EUROQUALROM – ETTI, “Politehnica” University of Bucharest*  
*Prof. univ. dr. ing. Nicolae DRĂGULĂNESCU – General Secretary, The Romanian Foundation for Quality Promotion; Executive Director “J.M. JURAN Romanian Quality Award” Foundation*

Two Decades of Quality Management and Consumer Protection in Romania  
*Nicolae DRĂGULĂNESCU – The Romanian Foundation for Quality Promotion*

The Situation of Management Systems Certification in Romania after 20 Years of Activity  
*Dan STOICHIȚOIU – Romanian Society for Quality Assurance*

Four Decades of Reliability in Romania  
*Ioan BACIVAROV – EUROQUALROM, “Politehnica” University of Bucharest*  
*Dan STOICHIȚOIU – Romanian Society for Quality Assurance*

**CLOSING OF THE CCF 2012 CONFERENCE**

## Welcome Message

On behalf of the **Organising Committee** and of the **International Scientific Committee** of **CCF2012**, 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 **13th International Conference on Quality and Dependability – CCF2012** is to provide an international forum for the dissemination of recent information and scientific results in these modern domains.

As traditionally, **CCF2012** is organised by the **Romanian Society for Quality Assurance**, under the aegis of several important international organisations in the field, including **Eurocer-building**. 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, again.

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**.

It is important to mention that the **13th International Conference on Quality and Dependability – CCF2012** is a **jubiliary edition**, marking the **25th anniversary** of the first CCF conference, organized in 1987.

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 – **CCF1987**, 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, **CCF1988** took place at the premises of 'Minerva', 'Diana' and 'Afrodita' hotels from Baile Herculane, in 1988.

After the political changes of 1989, **Romanian Society for Quality Assurance** took over this tradition, by organising the third edition of the Conference – **CCF1996** at the Hotel 'Roman' from Baile Herculane, in September 1996. The fourth edition of the conference – **CCF1997** was organised in Sinaia, on the 2nd – 3rd of October 1997, while the fifth edition – **CCF1998** was organised in Sinaia also, at the 'Holiday Inn' Hotel (28th – 30th of October 1998). **CCF1999**, the sixth edition of the conference took place at the Hotel 'Sport' from Poiana Brasov, during the period 22-24 October 1999.

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



The next CCF scientific meetings, namely the eighth edition of the Conference – **CCF 2002**, organized during the period 18th-20th of September 2002, at Casino Sinaia as well as the ninth edition – **CCF2004** – 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 10<sup>th</sup> 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 11<sup>th</sup> 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 15<sup>th</sup> anniversary of the **Romanian Society for Quality Assurance**, the main organiser of **CCF** conferences.

During the 12<sup>th</sup> International Conference on Quality and Dependability – **CCF2010** more than 50 papers authored by specialists from Australia, Belgium, Czech Republic, France, Great Britain, India, Maroc, the Netherlands, Switzerland, Tunisia and Romania were presented.

The participants at **CCF2010** had the special opportunity to meet Professor Emeritus **Alessandro Birolini**, a remarkable specialist in the field – considered as a Reliability Guru – who presented an invited conference.

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

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 25 years have contributed to the promotion in our country of new ideas and methods in quality and dependability. We are sure that **CCF2012** 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 and Asia will allow establishing 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 cooperate and exploit synergies resulting from their individual specific strengths and primary target groups.

In signing in 1998 the “**European Quality Charter**”, representatives of the major European quality organisations have taken 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 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 **CCF2012** 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.

Several debates of **CCF2012** 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 **CCF2012** 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 13th International Conference on Quality and Dependability – CCF2012 of well-known specialists in the field – academics, managers, practitioners and researchers from Belgium, France, Great Britain, Italy, India, Israel, the Netherlands, Portugal, Switzerland and Romania, too. Their points of view, presented in about 50 papers will be of great interest to the participants in CCF2012.*

*The 13th International Conference in Quality and Dependability – CCF2012 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 25 years;*
- New approaches: social accountability management (SA8000) and ethics management;*
- Integrated Systems of Management;*
- Service quality management (education, health care, tourism, banking system, etc.) and evaluation of customer satisfaction;*
- TQM, Six Sigma, quality management tools;*
- Accreditation (certification bodies, laboratories, personnel) and certification (quality systems, products and services);*
- Voluntary product certification;*
- Total Quality Management, Six Sigma, quality management tools;*
- Modern control and conformity assessment techniques;*
- Conformity assessment in the mandatory area;*
- Business Continuity Management (BCM);*
- Modern approaches in dependability, resilience and evolvability;*
- Reliability (mathematical tools; design; predictive, experimental and operational reliability; reliability of human factor);*
- Maintainability (maintenance management, preventive and corrective maintenance techniques, RCM);*
- Education and training in quality and dependability;*
- Computer-aided study in quality and dependability;*
- Quality, reliability and security in the IT&C industry;*
- Legislation and standardization in quality and dependability;*
- Social, juridical and economical implications of quality and dependability.*

*Special emphasis will be given during CCF2012 to the problems of Quality Management, Risk Management, Environment Management, Quality Assurance in Education and Reliability. Sessions with these topics are included in the program of conference.*

*During the last day of the conference the evolutions and the perspectives regarding the management, engineering and certification of quality and dependability in Romania and abroad will be analysed as a part of the special session **ISO 9000 Forum** – a session which will mark the 25<sup>th</sup> anniversary of this famous international standard.*

*This session will celebrate the 20th anniversary of the **Romanian Society for Quality Assurance**, the main organiser of CCF conferences, too.*

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

*A wide selection of papers presented in the frame of CCF2012 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 CCF2012**, prestigious personalities in the field from 11 countries, who made up an equilibrated and high-level scientific program for **CCF2012**.*

*We hope that you will find **the 13th International Conference in Quality and Dependability – CCF2012**, organised for the first time in a beautiful area of the Black Sea, at **Neptun**, 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 CCF2012*

**Prof. dr. Ioan C. BACIVAROV**  
*Chairman of the International  
Scientific Committee of CCF2012*

## Message of EFQM Representative, Gianluca MULE

On behalf of EFQM, I have the special pleasure to greet all participants of this Romanian *13th International Conference on Quality and Dependability – CCF2012*.

I am aware CCF2012 is a major event for all Romanian quality experts and I know this event is organized by the *Romanian Society for Quality Assurance*, with the support of several other organisations.

As you may know, **EFQM** – a not-for-profit membership Foundation, based in Brussels and formerly known as the *European Foundation for Quality Management* – goes back more than 20 years ago, in 1988, when 14 CEOs joined their forces in order to develop a Management tool that would increase the competitiveness of European organisations. Supported by the European Commission in the *European Quality Promotion Policy*, the founding members created the *EFQM Excellence Model*.

The EFQM Founding Members are some well known, successful western-European companies: AB Electrolux, British Telecommunications plc, Bull, Ciba-Geigy AG, C. Olivetti & C. SpA, Dassault Aviation, Fiat Auto SpA, KLM, Nestlé, Philips, Renault, Robert Bosch, Sulzer AG, Volkswagen.

The EFQM **Vision** is „*A world where European organisations are recognised as the benchmark for sustainable economic growth.*”

The EFQM **Mission** is „*To energise leaders who want to learn, share and innovate using the EFQM Excellence Model as a common framework.*”

We are committed in EFQM to help interested organisations to improve their performance through the *EFQM Excellence Model* – a management framework used today by over 30,000 organisations, based not only in Western Europe but also in Central & Eastern Europe as well as even outside Europe.

To help them to implement this *Excellence Model*, EFQM is providing *training, assessment tools and recognition*. But our real talent comes from *sharing knowledge* amongst our members through *events, case studies, online seminars, working groups, conferences and thematic events*... We at EFQM, aim to **share what works**. Sharing our member's enthusiasm, their motivation and the results they achieve – that is what we work for.

I know that **CCF2012** is a „silver jubilee” edition, marking the 25<sup>th</sup> anniversary of the first CCF conference, organized in 1987. I would like to confirm that, after 12 editions, the Romanian *International Conference on Quality and Dependability, CCF*, could be considered as a Romanian well established *brand of excellence* among the international scientific meetings within the inter-disciplinary fields of Quality and Dependability.

I know that the CCF's organizer, *Romanian Society for Quality Assurance*, is one of the founding members of „*J.M. Juran Romanian Quality Award*” *Foundation* – established in 1999, with the support of EEC and EFQM. In this way, *Romanian Society for Quality Assurance* is internationally known as *one of the most active Romanian promoters of quality culture in your country*.

I am happy to be here in Neptun, Romania, with you, during your *13th International Conference on Quality and Dependability – CCF2012*, in order to introduce the *EFQM Excellence Model* and to discuss the opportunities offered by this model and by EFQM in improving the performance of your organizations.

I am sure we will have a stimulating and interesting meeting.

I wish you, on behalf of EFQM, all the best for a successful and fruitful conference.

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# From Quality Management to Sustainable Excellence: EFQM Excellence Model

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## **Abstract**

We can all think of organisations that we would recognise as being excellent. They may well operate in different environments, with different stakeholder constituencies, and come in all shapes and sizes but what they do have in common is a mindset that is based on a number of attributes and ways of working that separate them from the rest of the crowd. This paper describes these attributes, what EFQM calls the Fundamental Concepts of Excellence, essential foundation of achieving Sustainable Excellence for any organisations. The latter are the underlying principles of the EFQM Excellence Model; this is a practical, non-prescriptive framework that can be used to gain a holistic view of any organisation regardless of size, sector or maturity, and improve therefore performances. The EFQM Model is divided into different criteria which are linked and integrated with the dimension of the Fundamental Concepts of Excellence. In the paper you will learn more about the criteria of EFQM, the interrelation with the Fundamental Concepts and how organisations are using the EFQM Excellence model as an overarching framework and experience for developing sustainable excellence.

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# "J.M. JURAN" Romanian Quality Award

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## **Abstract**

In 2000, the <Joseph M. Juran> Romanian Quality Award was launched in Bucharest, under the administration of the "<Joseph M. Juran> Romanian Quality Award" Foundation (established formally in February 1999, through a project developed by the author and financed by EC). The aim of the Romanian Quality Award is to recognise Romania's best performing organisations, whether private, public or non-profit. Giving his name to their Quality Award, Romanians decided to pay tribute to Dr. Joseph Moses Juran, a worldwide famous American citizen (born in 1904, in Braila, Romania and dead in 2008, in Rye, USA).

In February 2001, the first winners of <Joseph M. Juran> Romanian Quality Award were presented to the public. All winners received also a message signed by Joseph M. Juran. The <Joseph M. Juran> Romanian Quality Award – whose criteria are representing the Romanian Model for Excellence – was intended to represent the highest Romania's recognition, at national level, of managerial competence. It is based on the former EFQM European Model for Excellence, i.e. on the European Quality Award criteria, applied in Europe till 1999, as the European model of Total Quality Management (TQM). There are actually, in Romania, over 600,000 registered companies. Between years 2000-2008, only 32 organizations (mainly companies) got the <finalist> statute of the <Joseph M. Juran> Romanian Quality Award. This paper introduces - from historical and professional insider's perspective - the most important facts, challenges, issues and outcomes of this important and unique initiative.

# A Comparative Study of the Motives for Obtaining and the Impacts of ISO 9001 Certification in UK Organisations

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## **Abstract**

Since its introduction in 1987 the ISO 9000 series of standards has become a worldwide success, with it now considered to be the minimum standard for a quality management system with the number of certified companies increasingly annually. This paper presents the results of research which aimed to assess if the motives for obtaining ISO 9001 certification and the perceived impacts to be derived from ISO 9001 certification are seen to vary across different industrial sectors. Using a two-phase sequential explanatory mixed methods design, with quantitative data collected from 111 organisations in the first phase and qualitative data collected from four organisations in the second phase. The results show that there are significant statistical differences in the motives for obtaining ISO 9001 certification and also show statistically significant differences in the impacts of ISO 9001 certification based on industrial sector. The results presented in this paper provide a useful addition to the present knowledge in the study of ISO 9001 certification in terms of impact.

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# Post-Manufacturing Traceability: Legal/Market Trends and Best Practices

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## **Abstract**

Since WTO (World Trade Organization) had its agreement on Technical Barriers to Trade (TBT) signed by its members in 1994, manufacturing centers shifted to Asia and more particularly to China which manufacturing exports have been rising exponentially for the last decade. The outsourcing strategy led by global retailers, though it substantially cut down immediate manufacturing costs, also showed a spectacular increase of consumer products notifications and/or recalls, in every field of consumer goods. Meanwhile, neither the import verification programs nor mandatory verification of conformity provide enough guarantees that the retailed products are devoid of any defect or can be recalled in a fast and effective way. Consequently, a new class of regulations was born in 2009, widely based on the post-manufacturing traceability principle. The common backbone of these regulations is analyzed to highlight the key building blocks upon which current regulations are based on. Then, cross industry traceability standards are reviewed and the lessons learnt from the latest pilot projects led in different sector areas will highlight current best practices and stakes while implementing a postmanufacturing traceability system.

**Keywords:** post manufacturing traceability, product, quality, safety, conformity, authenticity, regulation, market, surveillance, critical tracking events, key data elements, RFID, data matrix, bar code, retail, manufacturing, control, notification, recall, ISO 1736

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# Dependability Estimation of Mechatronic Systems

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## Abstract

Dependability estimation is becoming an important issue of the design process of mechatronic systems. The concept of dependability is frequently seen as being one of the least controlled points and for some as being the critical point. Since these systems are very complex to study, the evaluation of their reliability is extremely difficult. In this paper, we propose a global method to estimate the mechatronic system reliability using operating field data. Since we have a small amount of data, we use an estimation method called Bayesian Restoration Maximization (BRM) method, thus increasing the estimation accuracy. The BRM method needs to define some prior knowledge. For this purpose, we propose to define the prior distribution using a Monte- Carlo simulation based on stochastic Petri Nets (SPN) model and on the operating field data. The stochastic PN model describes the functional and dysfunctional behaviours. In this study, we deal with the case of  $n$  repairable systems until a deterministic censoring time (for example, this censoring time may be the warranty period of an ABS system). We consider repair as the replacement of the failing component by an identical one in the case of electronic and mechanical subsystem and in the case of software, the default is rectified on all the subsystems. We simulate the failures times and we compute the confidence interval. The proposed method allows dependability evaluating both for  $n$  mechatronic systems and for their different subsystems.

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# Competitive Intelligence in Higher Education Quality Assurance

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## **Abstract**

Competitive Intelligence (CI) is a systematic and ethical program for gathering, analyzing, and managing external information that can affect the company's plans, decisions and operations. It is a crucial part of the emerging knowledge economy. By analyzing rival's moves, CI allows companies to anticipate market developments rather than merely react to them. Within this framework, benchmarking can involve ten steps: identify what's to be compared; identify comparative companies; determine data collection method and collect data; determine performance "gaps"; define future performance levels; communicate benchmark findings to the organization; establish goals to be attained; develop plan; implement and monitor progress; and recalibrate benchmarks. We propose to discuss several models of benchmarking in the aim of using competitive intelligence in higher education quality assurance and improvement.

**Keywords:** Quality, Competitive Intelligence, Benchmarking Models, Higher Education

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# A Contextualized Quality Problem-Solving Method

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## **Abstract**

The industrial products developed today are more complex and the times given to design them, shorter. In this situation, companies have to use effective problem-solving methods which have to be adapted to all types of problems. This article proposes to adapt the problem-solving method to the context of each problem. The idea is to have a methodological base and to choose the right tools and stage sequences related to each specific problem. To characterize the context of the problem, we propose to introduce two evaluations: the problem profile and the problem solving state. This article gives techniques to materialize these two concepts and then to build a customized method from these two evaluations each time. An industrial application in a new high technology company illustrates our proposition and presents how it can be implemented.

**Keywords:** Contextualized Method, Meta method, Problem Profile, Problem-solving, Quality Tools, Solving State

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# Accelerated Life Testing Models for Mechanical Components

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## Abstract

This paper provides an overview of the application of Accelerated Life Testing (ALT) models for reliability estimation to mechanical components. The reliability is estimated by considering a classical test plan using a sample system tested only under accelerated conditions. The time transformation function is considered as log-linear and three types of estimation are studied using parametric, Extended Hazard Regression (EHR) and semiparametric models. The paper is illustrated by a simulation example based on Ball bearings testing. The results are used to analyze and compare these estimation methods. The simulations have been repeated with and without censoring data in order to examine the asymptotic behavior of the different points estimate.

**Keywords:** Reliability, parametric estimation, Extended Hazard Regression model, semiparametric estimation, regression, Kaplan-Meier, Ball bearings

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# System Test Point - A New Metric in Software Quality Testing

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## Abstract

This paper proposes System Test Point (STP), a new metric for estimating system test effort. The proposed Metric encompasses various attributes, which affect testing effort and can be tailored to a specific project environment. A survey was conducted for expert ratings on the 12 identified attributes, which affect system testing. A Software package "RISK 4.0" was used to find the correlation between the identified attributes and system test effort. Positive results were observed on applying STP for a project. System test point is a useful Metric for Test Managers and Project Managers, which aids in precise estimation of effort. This paper addresses the interests of Metric group, Software managers and Test Managers of the software organization who are interested in estimating system test effort. The proposed framework allows the organization or the project managers to evaluate System Test points by varying the weightage as required by the change in project environment.

**Keywords:** Software, Quality, Test, System test points, System test effort, Software quality management

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# Analysis of the Main Types of Cyber Attacks in Romania

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## Abstract

Cyber-attacks have suffered a huge diversification over time. The 90's were marked by cyber vandalism, the 00's were represented by cyber-crime and now we are approaching to cyber terrorism. This paper presents the evolution of attacks over time and the main types of cyber-attacks: viruses, adware, spyware, rogue programs, trojans, worms, Denial of Service attacks, Buffer overflow, IP sniffers and e-mail attacks. The methods used to combat these types of attacks are also described here. The last section presents an analysis of informatics threads in Romania.

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# The Risk Approach into Systems Life

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## **Abstract**

The increasing complexity of modern technical equipment and the systemic failures, often elude traditional testing and assessment. It is necessary to know how well particular technical systems perform in relieving certain conditions, and which characteristics are associated with better and worse performance during the life cycle. Should know why and how systems fail. The failure is related to a specific level of associated operational risk, which is concerned with the uncertainty inherent in the execution of a specific function. It is impractical to expect absolute safety in the use of technical systems. Generally it is accepted that no system can be completely fail-safe and any associated risk should be reduced to an acceptable level. To reach this objective during the life cycle of systems it is necessary to analyse the harms (physical injury and/or damage to health or property), hazards (potential sources of harm) and risks (the probable rate of occurrence of the harm and the degree of severity of the harm) associated with its use. The realistic expectation must be that risks are kept as low as possible, taking into account the cost which would be incurred in further reducing risk and the benefits resulting from their use of the product. The needs of this kind of activities lead to the development of a number of standards that provide guidance and advice on the best way to manage the risks.

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# Risk Assessment in Labor Security for Designing Engineer

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## **Abstract**

The paper presents aspects concerning the assessment of labour security risks that occur during the activity of the designing engineer, who carries on office work and occasionally activity on the construction site. It presents requirements of the Romanian laws, OHSAS 18001 and SA 8000 concerning identification and evaluation of risks specific to job within a company. The risks afferent to this work position are identified according to regulation requirements for each element of the labour system, namely equipment and materials utilized in the labour process, physical, chemical and biological factors present in the work environment, physical and psychical working stress of the employee, wrong actions or omissions made by him. The method of determining the risk level is a mathematical method conceived by the authors, method that starts with risk definition (R) as combination between a risk occurrence probability (P) and that risk probable consequence (C). We decided that this combination should be the mathematical product between P and C so that in an orthogonal graph having as coordinate axes the risk occurrence probability and its consequences, the risk is a hyperbola. Several such accurately mathematically hyperbola drawn-up on the same graph can delimitate different risk levels, thus separating the acceptable risk from the non-acceptable one. This method of separating several risk levels based on Risk Acceptability Curves allows companies to have a sensitive assessment of identified risk and to adopt measures in order to mitigate the risk level according to objective, mathematical criteria.

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# A New Approach for Measurement Uncertainty Estimation in Material Testing

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## **Abstract**

The article addresses a more meaningful approach for measurement uncertainty (MU) estimation, particularly in the materials' testing field. The paper contributes to the state of the art by the development of a consistent approach for calculating the probability density function (pdf) of the sample mean statistic based on uniform pdfs. The MU estimation is based on multiconvolutional approach of the pdfs of the measurand. The MU of the Rockwell C hardness test was estimated by GUM approach and by the author's approach. The paper underline that the GUM approach given in ISO 6508-1 does not provide clear evidence for assigning Gaussian distribution to the hardness HRC. The pdf of the sample mean was obtained by 5-fold convolved product of uniform pdf assigned to the measurand. The most important result is that, when dealing with a measurand whose pdf is not known or is insufficiently documented, the best approach is to consider it has a uniform distribution. The interval of variance of the outcomes may be considered as the distribution width. Another important issue is that for estimating MU using the multiconvolutional approach, only data provided by the testing process are used, while the classical approach uses supplementary data.

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# Preventing Occupational Risks in Romania's Sanitary Units in Partnership with Personnel from the Health Care Sector

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## Abstract

The approach of this topic was generated by the following aspects: the medical system in Romania is an underfunded system, qualified medical staff was determined to leave the country, health care system reform led to the closure of a large number of health institutions, existing medical staff is often subject to a combination of risk factors, most prominently being psychosocial factors, the need for immediate preventive measures across the whole system. INCDPM and University of Medicine and Pharmacy Carol Davila from Bucharest have developed a nationwide project to increase the competitiveness, efficiency and occupational health and safety of the medical personnel by developing professional competences. This project aims to increase the OSH prevention performance level and to increase skills related to environmental protection and waste management.

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# **Application of Risk Management in "Food Defense Plan" Designing and Implementing to a Hospital**

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# Quality in Education - Key Factors, Processes, Management

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## Abstract

It is known that currently, there is talk of more and more about quality in education but also about the quality of education! The problem is that the two phrases are used most often mixed without making any distinction between their meanings. Excessive use them in different contexts, creating the false feeling that they have the same meaning. However, in our opinion, quality in education has a completely different meaning the quality of education. This paper examines in the first part, meaning the concept of quality in education, in terms of quality management in education, followed in a subsequent paper (Part II of the paper) to be analyzed in detail the concept of quality of education from the perspective of the educational product.

**Keywords:** education, system, quality, management, product

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# Accreditation in Education. Approaches in Different Educational Systems

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## Abstract

Worldwide, there are many ideas and approaches related to accreditation in education. In some countries, accreditation would mean that at least a standard threshold was reached. It is very difficult to define accreditation, because the concept is changing, even from day to day. Although the terminology is „imported” in Europe, are huge differences from the meaning of terms in the US, and even accreditation plays a different role. In Europe, institutional accreditation or re-accreditation plays are usually undertaken by national bodies or government departments or agencies initiated by the government, carrying out official recognition of judgments (yes/no). In the US, with an increased contribution of the private sector, accreditation is a process of self-evaluation. However, despite the voluntary nature of the process, there was a financial connection, with eligibility for federal aid.

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# University Management Models (UMM) in Ranking with the Clients' Satisfaction

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## **Abstract**

The University system has a huge responsibility inside the society based on knowledge. Its mission is the valorification and gives the knowledge or one practice of the analysis and the identification in the impact with the society, with the business, cultural and social environment. The Bologna cycle means short periods and more dynamic of university studies, which give to us a responsibility in front with our clients, the students in the benefit of the society based on knowledge. The present paper gives some models (UMM) with a procedure of the system: „The evaluation of clients satisfaction" and the questionnaires about this procedure with the interpretation models.

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# How the Romanian Higher Education Makes Changes Simply for the Sake of the Change

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## **Abstract**

This article is meant to emphasize that lack of funds, lack of correlation and too much centralized decision have weakened the Romanian education during the last 22 years. Despite continuous claiming that reforms are taking place, the overall level of quality of education decreased in Romania. On the one hand, Romania is the country whose mathematics Olympic team have won the 1st place in the global contest in 2012. On the other hand, it had the lowest percentage in the Bacalaureate exam in 2012.

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# How to Improve the Post-Audit Communication Between the Auditor and the Enterprise's Management

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## **Abstract**

Almost any enterprise passed one audit process along its existence, but the most parts of these audits were finished only with an audit report that usual includes: general conclusions, unconformities and recommendation. Simplifying the audit conclusions way of transmitting using graphs and colours code associated with a different degree of ISO 9001:2008 requirements' implementation within an enterprise represents a defining aspect in building the big picture of the audit report and sending messages to recipients. In other words, communicating the audit's results to the stakeholders (the audit client, enterprise's CEO, QMS Manager, and employers, too) must develop a permanent informational channel between the auditor and his client. The authors of the paper are proposing one model for auditing report that is able to give to the customer a complete view about enterprise's QMS performances between two consecutive audits.

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# Lead-Free Solder Joints Testing for Reliability Studies

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## Abstract

A nowadays technological requirement is replacing the current soldering technology based on lead containing solder alloys with other solder alloys without this metal, in accordance with the EU's RoHS Directive (finally agreed at world level). The solder alloy under investigation is a SnAgCu type, with three variants of PCB surface finishing as follows: copper, gold and HAL (Hot Air Solder Leveling). The devices subjected to the testing program were processed in two locations, as follows: an industrial process facility and a research laboratory. The DUT's were subjected to three types of tests: (i) Thermal cycling at -550C / +1250C / 30 minutes at each step; (ii) Cycling damp heat at -400C / 850C and 85%RH / 30 minutes at each step; (iii) mechanical stimulus superposed on climatically stress (cycling damp heat). The paper describes the tests and the appropriate fixtures designed and realized for a proper execution of all those tests. The results obtained so far are clearly tip the balance in favor of the HAL variant which assures a higher reliability level for both fabrication processes (industrial and laboratory).

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# Using Leaky Integrators in the Administration of Faults in an Autonomous Robot

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## Abstract

Autonomous robots are required by nature to have a large amount of reactive systems that are able to provide a time dependant response. This means the already limited resources available in autonomous robots have to accommodate a large number of time dependant decisional algorithms. Because of these limitations leaky integrators can fill the role quite well. They are lightweight in terms of computational power, easy to implement and easy to tune depending on the application. Since its discovery it has been used in electronics, mechanics and hydraulics. It has fit in particularly well in neural net models too successfully modelling a series of organic processes from neuroscience. Commonly used in reactive (bumper sensor based) navigation in autonomous robots leaky integrators can fill other roles too. In this paper we propose the use of leaky integrators as administrators of the warning flags sent by the defect detection system. In our case the defect detection system is a monitor that records and analyses the signals received from the robot sensors. A learned statistical model is used to evaluate the data (Ilian 2012) and highlight possible faults by triggering warning flags. The warning flags are then accumulated in a leaky integrator. If the trigger condition of the leaky integrator is reached it will in turn trigger a fault tree and a series of other systems to confirm and manage the fault (Ilian 2012). The implementation has proven to be robust and lightweight delivering results comparable to more complicated and computationally intensive event management systems. Favouring leaky integrators allows the redistribution of the limited computational resources of an autonomous robot to other processes that require them.

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# Fault Tree Analysis as a Reliability Management Technique in Autonomous Robots

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## **Abstract**

Fault tree analysis has been used for decades in aeronautics, automotive, nuclear power, chemical processing industries, but it has seen limited use in mobile systems. The automotive industry has used the technique successfully but not dynamically. I propose the use of fault tree analysis as a dynamic technique that can allow an autonomous robot to properly evaluate its situation in the case of a fault. The utilization of fault tree analysis is a top down analysis technique that refers to a posteriori evaluations of undesired effects regarding the functioning of a system. This paper deals with the use of fault trees specifically constructed for each functional assembly/subassembly of an autonomous robot. These trees are stored in the system and subsequently used as a pattern for the automatic analysis of defects, faulty components and the probable causes of these faults. The results of these analyses are then used to evaluate the functioning capacity of the robot and (if possible) to attempt corrective actions in order to ensure continued functioning and mission completion. While the use of fault trees implies a large volume of work related to modelling the fault trees of each component of the robot, the autonomy the robot gains represents a major improvement on previous reliability management techniques. The system also permits the use of fault trees provided by manufacturers for their components with minimal adaptation. Furthermore, if the several robot models use the same components they can share the fault trees for those specific components by simply copying them reducing the volume of work even more. This makes the technique versatile in the long run allowing extremely complex robots to manage their own faults.

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# Survivability Analysis Based on Attack Models

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## Abstract

Survivability is the capability of a system to fulfill its mission in a timely manner despite intrusions, failures or accidents. This paper analyzes the concept of survivability and examines some models to ensure the virtual machines survivability. Possible attacks on a virtual machine are presented, too. The conclusion is that there is no "absolute" survivability on informatics systems. Some attack or other may compromise any system, however well defended. It is interested in assessing the strength of a current defense mechanism of a system of a given design relative to a stochastic incidents process. The actual survivability could be a function of many other factors such as the policies of the system managers, the "behavior" of the system and the deterrence it can induce among potential attackers, its reaction (detection, resistance, recovery), or the publicity surrounding an incident experienced by the system.

**Keywords:** attack model, attack tree, security, survivability, virtual machine

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# **Intranet Solutions for Implementing IMS in Order to reduce the Bureaucracy in the PVC Carpentry Companies**

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## **Abstract**

We live in a period marked by deep changes occurring more and more rapidly. Practically, the change became the normality in the economic environment – new products and new technologies are created, new tendencies appear and generate new consumers' behavior... Recession sharpens more the need for changes, many of the businesses being under the specter of bankruptcy or the minimum threshold of profitability. In these conditions, similar to the use of modern devices in the modern medicine, the activities of the companies are depending on the instruments that are using. In the '80, there was a powerful trend for implementation of IT solutions to enable better management of enterprises' resources (the so called ERP). Besides these solutions, the documents and tasks control, and the quick access to information are now required. The web-based platforms facilitated it, focusing more on the analysis and planning the solutions, and less on programming. Using such an instrument could also be a means of strengthening the organizational culture, if key-persons from the entire company are involved in planning.

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# Method for Determining Reference Levels on Energy Use and Energy Intensity

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## **Abstract**

Determinarea unor niveluri de referință pentru utilizarea energiei și intensitatea energetică reprezintă o necesitate pentru managementul energiei. Nivelurile de referință formează o bază pentru compararea an de an a performanței energetice a unei organizații. În lucrare este descrisă metoda recomandată de Departamentul Energiei al SUA (DOE), de determinare a nivelurilor de referință privind utilizarea energiei și intensitatea energetică [1]. Pentru a obține caracterul generic de aplicare al metodei au fost eliminate elementele specifice care țin de cadrul administrativ al aplicării metodei de către DOE prin Programul de Tehnologii Industriale. Înțelegerea metodei implică definirea termenilor: nivel de referință – rezultatul măsurării sau al unui calcul privind, de exemplu, utilizarea energiei sau intensitatea energetică, cu scopul de a stabili o bază pentru compararea pe viitor a performanței energetice a unei organizații; nivel de referință pentru utilizarea energiei – cantitatea de energie care va fi consumată anual de către o organizație fără a implementa măsuri de economisire a energiei, bazată pe date măsurate din trecut, calcule ingineresti, măsurători pe clădiri sau sisteme consumatoare de energie, modele de simulare a încălzirii clădirilor, analiza statistică de regresie sau orice combinație a acestor metode [2]; intensitate energetică – energia utilizată pentru realizarea unei unități de produs. Cele șase etape ale metodei, prezentate detaliat în lucrare, inclusiv prin exemple și aplicații de calcul, sunt următoarele: 1. Definirea limitelor: constând, după caz, din unități de producție, mai multe unități de producție, toată organizația, operații de fabricație, toate operațiile de fabricație; 2. Alegerea unui an de referință: stabilirea unui an de referință sau stabilirea unui an pentru care există un nivel de referință pentru energia utilizată; 3. Colectarea datelor referitoare la utilizarea energiei: colectarea datelor despre utilizarea energiei din combustibili, determinarea energiei electrice utilizate pe amplasament și a energiei primare corespunzătoare, inclusiv energia din surse regenerabile de energie (SRE) pentru anul de referință selectat; 4. Stabilirea grupurilor de produse și a unităților de produs: identificarea grupurilor de produse și a unităților de produs din anul de referință și determinarea modificărilor producției din anii următori; 5. Calculul intensității energetice – calcularea intensității energetice de referință pentru anul de referință. Se calculează intensitatea energetică pentru anii următori; 6. Urmărirea și raportarea progresului – se ajustează nivelul de referință pentru utilizarea energiei și se raportează datele calculate managementului de la cel mai înalt nivel. De asemenea, lucrarea propune o abordare diferită de metoda DOE pentru estimarea economiei/creșterii energiei utilizate de o organizație în anul curent. Aceasta abordare înlocuiește în calculul economiei/creșterii energiei utilizate în anul curent, nivelul de referință al energiei primare utilizate cu nivelul de referință ajustat al energiei primare utilizate obținut prin însumarea unor termeni corespunzători grupelor de produse realizate în anul de bază. Fiecare termen este format din energia utilizată pentru realizarea grupei de produse respective multiplicată cu raportul dintre numărul de produse realizat în anul curent și numărul de produse realizat în anul de bază. Aceasta abordare pare să reflecte mai precis modificarea energiei totale utilizate de organizație în anul curent față de

anul de baza in situatia in care structura de productie si numarul de produse din grupele de produse s-au modificat semnificativ.

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# **Improving of Services Quality in Public Administration by Implementing of Internal/Managerial Control Standards according to OMFP 946/2005**

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## **Abstract**

Instituțiile publice, sub presiunea diverselor motoare externe, integrează deja principiile îmbunătățirii continue, orientarea spre proces și alinierea către satisfacția cetățeanului și mediului la nivel de obiective și în momentul analizei pe obiective. Relevanța sistemelor de management este reflectată de faptul că un număr în creștere de instituții publice au implementat sisteme speciale de management pentru calitate și mediu, în același timp. Discuția între experți și activitățile în multe instituții indică faptul că "sistemele integrate de management" sunt văzute astăzi precum concepte organizaționale și de management orientate către viitor. În practică, totuși, sistemele de management separate sunt predominante, situație datorată în principal faptului că ele au fost inițiate pe baza standardelor speciale sau se bazează pe acestea. Prioritatea actuală privind îmbunătățirea calității serviciilor în administrația publică este de implementarea Codului Controlului Intern/ Managerial în conformitate cu OMFP 946/2005 cu orientare spre planificare eficientă și eficace a proceselor/ activităților instituției prin obiective SMART și spre managementului riscului.

**Keywords:** Instituții publice, calitate, control intern/managerial, planificare

## **References:**

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- [2] Ordinul nr. 1.649 din 17 februarie 2011 de actualizarea ORDIN nr. 946 din 4 iulie 2005.

# EMAS – Tool for Improving Environmental and Business Performance

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## Abstract

EMAS este instrumentul european de management de mediu conceput pentru a sprijini organizațiile în îmbunătățirea continuă a performanței de mediu integrând conceptul dezvoltării durabile. La nivel global ca instrumente de referință pentru îmbunătățirea performanțelor de mediu ale organizațiilor sunt utilizate sistemele de management de mediu. În contextul Dezvoltării Durabile, protecția mediului a devenit parte integrantă a managementului organizațiilor. În contextul Consumului și Producției Durabile, a Planului de acțiune pentru Politica Industrială Durabilă a UE, EMAS reprezintă un model (pentru organizații) care conduce la optimizarea proceselor de producție, reducerea impactului asupra mediului și utilizarea eficientă a resurselor.

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<http://www.mmediu.ro/beta/domenii/emas/>.

# How Can We Transform Metal Waste in Raw Materials? (EU) Regulation no. 333/2011

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## **Abstract**

Anumite categorii de deșeuri încetează să mai fie deșeuri atunci când au suferit o recuperare (inclusiv tratare). Piețele de reciclare a deșeurilor metalice pot beneficia de pe urma existenței unor criterii specifice de determinare a condițiilor în care deșeurile metalice obținute din deșeuri nu mai constituie deșeuri. Aceste criterii trebuie să asigure un nivel ridicat de protecție a mediului și să respecte standardele relevante aplicabile deșeurilor sau specificațiile formulate de industria metalurgică.

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# ISO 50001 – Support for Improving Energy Performance

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## **Abstract**

Eficiența energetică este un termen foarte larg care se referă la multele modalități prin care putem obține același beneficiu (lumină, încălzire, mișcare, etc.) folosind mai puțină energie. Domeniul acoperă automobilele eficiente, becurile economice, practicile industriale îmbunătățite, izolarea mai bună a caselor și o gamă de alte tehnologii. Pentru că economisirea energiei înseamnă și economisirea banilor, eficiența energetică este foarte profitabilă.

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# **The Development and Improvement of Integrated Management Systems by IRIS Standard Implementation and Certification in Railway Organizations – Need and Features**

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## **Abstract**

Starting from a QMS (Quality Management System), the management system can be developed and improved by successive integration of various management systems, such as the environment, OH&S, information security, social responsibility management, and so on. Thus, the process map is developing and expanding with new added processes. And IMS (Integrated Management System) improves its performance by introducing new targets and KPI's (Key Performance Indicator). The paper identifies ways to develop and improve an IMS(or QMS), by implementing IRIS (International Railway Industry Standard) requirements in a railway industry organization, comparing the requirements of ISO 9001 and IRIS, in the IMS requirements assemblies, bringing a new vision about the interaction of management systems within the integrated system. There are taken into account the ISO 9004's requirements as a link between ISO 9001 and IRIS.

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# **Management and Research of Organizational Culture. The Concept of Corporate Social Responsibility (CSR) within Hotel Units in Romania**

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## **Abstract**

Cultura organizației este un sprijin în orientare, esențial pentru conducere și angajați, ea este sursa de identificare și creează un sentiment de securitate. Aceasta, exercită o influență foarte puternică asupra tuturor angajaților și deci asupra reușitei organizației fiind în strânsă legătură cu aplicabilitatea conceptului de responsabilitate social corporatista (CSR), prin care se fac cunoscute principiile și valorile atât pentru proprii angajați cât și pentru organizațiile externe. Pentru a identifica care este impactul culturii organizației asupra managementului au fost efectuate studii de caz în cadrul unor unități hoteliere din România . Obiectivele cercetării au fost acelea de a evidenția cultura unei organizații, de a determina posibilitățile de evoluție ulterioară a acestei culturi, de a identifica posibilele schimbări ce trebuie și pot fi realizate, la nivel managerial, în cadrul organizațiilor cercetate. Astfel, implementarea conceptului de responsabilitate social corporatista (CSR) constituie un obiectiv de maxima importanta la nivelul organizațiilor cercetate. Cultura hotelurilor analizate este caracterizată din punct de vedere al valorilor printr-o distanță mare față de putere, un control al incertitudinii ridicat, un individualism scăzut și o mentalitate comunitară. Datorită organizării birocratice și piramidale, atunci când va apărea o problemă de organizare, românii o vor rezolva apelând la ierarhie. Studiarea culturii unei organizații va deveni în viitor tot mai necesară deoarece nu putem conduce o organizație fără să-i cunoaștem valorile, In acest sens prin implementarea conceptului de responsabilitate social corporatista (CSR) se fac cunoscute principiile și valorile și astfel, cunoscând cultura unei organizații putem acționa în concordanță cu ea. Cultura unei organizații se dezvoltă treptat și este unică, numai ținând cont de ea dacă este necesar, în timp, o putem schimba.

**Keywords:** cultura organizațională, responsabilitate social corporatistă (CSR), management, practici culturale

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# **Audit – Basic Tool used in the "Conformity Assessment" Processes**

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## **Abstract**

Autorul lucrării își propune să aducă în atenția părților interesate, dar mai ales a auditorilor, aspectele referitoare la cerințele aplicabile în realizarea diferitelor tipuri de audituri, precum și cerințele aplicabile în formarea/selectarea auditorilor, luând în considerare cu predilecție prevederile standardelor internaționale EN ISO 19011:2011, EN ISO/IEC 17021:2011 și EN ISO/IEC 17011:2004. Scopul lucrării – eliminarea confuziilor, ce pot fi făcute, referitor la modul în care standardele mai sus citate pot fi utilizate ca referință sau trebuie luate în considerare la administrarea programelor de audit/asigurarea competenței auditorilor.

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# Approach of Six Sigma Methodology

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## **Abstract**

Six Sigma is a management technique that aims business process improvement to create and deliver near perfect products and services. Six sigma is a comprehensive and flexible system for achieving, sustaining and maximizing business success is driven only Six Sigma closely understanding of customer needs, disciplined use of facts, information and statistical analysis as well as attention in managing, improving and remodeling business process.

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# Two Decades of Quality Management and Consumer Protection in Romania

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## **Abstract**

The former socialist/ communist rule kept Romania isolated from the Western World for almost half a century (1945-1989). All about 7000 Romanian former state-owned companies (which were operational at the end of 1989) were obliged, by Law, starting the years '60, to organize their own so-called "CTC (Technical Quality Control) Department", in order to inspect the quality of their products. This practice - known outside Romania as "State Quality Control" - was imported from the former USSR and was based on the principles and structures (including even a central State body, IGSCCP, nicknamed "Quality Police"!) characterizing the so-called "passive-repressive approach" of Quality. In 1992, three years after the fall of dictatorship (in 1989), in Romania were published both the first Romanian edition of famous ISO 9001 standard (in 1987, when ISO published internationally this issue, the former Romanian dictatorship did not allow the issuing of a Romanian version!) and the first Consumer Protection Act in Romania's history. This paper introduces - from historical and professional insider's perspective - the most important facts, challenges, issues and outcomes of these very important events, two decades ago.

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# Raising Electric Power Quality at Lighting Systems with LEDs

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## Abstract

Sistemele de iluminat artificial utilizând LED-uri pot fi considerate ca având un rol important în asigurarea, în viitor, a fluxului luminos necesar activităților în lipsa iluminatului natural. Sistemele de iluminat cu LED-uri, ca receptoare electrice, reprezintă circuite neliniare care pot determina importante perturbații în rețeaua electrică de alimentare, odată cu creșterea ponderii acestora ca surse de lumină. Cunoașterea schemelor de alimentare, a nivelului de perturbații determinat în schemele obișnuite și adoptarea de măsuri pentru limitarea acestor perturbații va determina creșterea gradului de acceptabilitate a acestor receptoare în rețeaua electrică de distribuție. În cadrul lucrării sunt analizate perturbațiile armonice determinate în schemele simple și soluții pentru limitarea acestora până la valori admisibile, conform normativelor în vigoare.

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# Researches Concerning Security in LTE (Long Term Evolution) Mobile Networks

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## **Abstract**

This paper presents the interdisciplinary research developed at the EUROQUALROM laboratory regarding Long Term Evolution Mobile Networks. These researches have the purpose to describe and improve reliability and security of mobile telecommunications systems called SAE/LTE (System Architecture Evolution/Long Term Evolution). The number one goal of the 3GPP System Architecture Evolution /Long Term Evolution (SAE/ LTE) is to move mobile networks technology into its fourth generation. The unique features of 3GPP LTE/SAE architecture are creating a number of new challenges in designing the security algorithms. This article will give the necessary background information on cellular networks, relevant security concepts, also will describe LTE architecture and will represent the first step regarding the study of security mechanisms.

**Keywords:** LTE, mobile networks, security, reliability, confidentiality, integrity, AKA

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# Vulnerabilities and Risk Analysis in Document Management Systems

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## **Abstract**

Developing a collaborative environment at organizational level due to the current requirements on the use of information and data from various sources (internal or external) requires the unification of resources and tools for improving the quality and efficiency of the activity especially reducing the time spent on making the decision, and improvement of the decision making. In this context, a common requirement for the development of IT systems is security but security mechanisms are too often implemented without considering which the security elements necessary to system are. A formal specification of what is allowed and not allowed into a secure system is a security policy; their definition represents the adopting of a set of rules that define secure system and system exposed states (uncertain). Whereby the detailed study of the vulnerabilities and implementation of a risk analysis are developed solid and necessary tools for security of document management systems.

**Keywords:** security, vulnerability, management, risk, document management systems, standards, Web applications

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# Development of a Decisional Strategy on Complex Systems Survivability

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## **Abstract**

Reducing time for the decision making in order to restore optimal operating performance of a system is one of the objectives that should be taken into account within the design phase. This aim can be achieved by implementing survivability qualities for systems in all operating and usage conditions and reducing security risks leads to increasing quality and efficiency of management process. Definition of some quality attributes as essential to complex systems of big functional accountability by simulating some critical situations (incident, cyber attack, disaster), by integrating all components (hardware and software) brings a simplification of quantification of costs associated to ensuring a high level performance (availability and security). Availability and security used as a real basis for managerial decision for an as real as possible ratio between security costs and the importance of providing quality services should be developed as methods and tools for modeling the organizational information architecture. Evaluation and implementation strategy of survival capacities for complex / critical system attaches great importance usually in the context and currently known threats, but it must consider too the future evolution and development trends of that system.

**Keywords:** strategies, decision, complex systems, infrastructure, Web application, security, survivability

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# Reliability Testing of Micro and Nanostructured Epoxy/Rubber Blends

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## Abstract

The reliability testing of epoxy / rubber blends used in micro / nanotechnologies is discussed. The necessary specific tests are described; then the reliability of epoxy / rubber blends studied by accelerated tests, in the main applications, is detailed.

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# Strategies for the Implementation of Resilient High Functional Importance Socio-Technical Systems

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## Abstract

This paper presents some interdisciplinary researches developed at the EUROQUALROM laboratory in the frame of the research project "Socio-technical systems resilient to errors / fault"; these researches had as purpose to improve the dependability (and especially its main components – reliability and safety/security) of socio-technical systems, mainly through the use of errors/fault tolerance and resilience attributes. Resilience to failures and deliberate attacks is becoming an essential requirement in most communication networks today. The main concepts and models regarding the socio-technical systems and dependability are analysed in the first part of the paper. In the second part of the paper, some strategies for the implementation of resilient structures to assure the safety / security of high functional important structures are proposed. These strategies are finally applied in the case of data transmission systems.

**Keywords:** Concept, Model, Dependability, Reliability, Safety, Security, High functional importance systems, Socio-technical systems, Data transmission systems, Resilience

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# Quality Management. A New Approach

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## Abstract

Many organisations now have to operate in highly uncertain environments. Global competition drives organizations to reduce their capital employed and cut costs through lean manufacturing, outsourcing and extended supply or to grow by entering new markets, introducing new technologies, building unique alliances. And all this is happening at a much faster speed than even ten years ago. On a journey towards excellence, learning from past performance is always beneficial. However the applicability of the learning rapidly diminishes in a continuously structurally changing environment. One key (implicit) assumption of the theories and practices of TQM and Business Excellence is that the business environment is relatively stable and predictable. However, this is no longer the case and therefore we must also accept that much of our current theory and practice is no longer as effective as in the past. In particular, we need to develop a strategic and practical approach to sustaining Business Excellence to support executives and their organisations that face uncertainty and instability in their particular market environments. Our approach is an application of well-tested theories of complexity analysis using Simons' Four Levers of Control model. It analyses all the organization's systems and structures which might be driving the behaviour of the people involved and examines the degree to which these systems and structures support or undermine efforts to maintain business excellence. It then considers how this situation can best be managed now; what needs to be changed in which direction in the future; and how and when this can best be achieved, given the operating environment of the company. We have found that crucial processes in an uncertain environment have to be managed through the use of all four levers of control according to Simon's model, however, the interactive control mechanisms are becoming more important. Quality Management approaches should therefore cover not only the tools and instruments to measure and control performances in order to find deviations from the goals, but should also include methods to stimulate and improve the more interactive management activities in order to be able to cope with the uncertain environments.

**Keywords:** Management Control; Uncertainty; Simon's Levers of Control, Quality Management

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# **Certification of Manufacturers of Welded Structures According to EN ISO 3834 Series of Standards and Directives EWF/IIW**

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## **Abstract**

This article presents the developments and perspectives regarding the certification of the welded constructions manufacturers according to the EN ISO 3834 series of standards and directives European Welding Federation (EWF) and International Institute of Welding. In the introduction brief information about the certification process and the main Certification norms are given. The status in Romania, together with the development of the EWF Scheme in Romania are given in a comparative manner, referring to the starting year and 12 years later, this allowing to have a general view on the tendencies manifested on the Romanian market. The last part of the article presents the EWF/IIW Harmonised Manufacturers Certification System perspectives of system on the European/International market, as well on the Romanian market.

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