

ENBIS-12 in Ljubljana

9-13 September 2012

Session Reports

Monday, 10 September 2012

Opening Keynote

Session chair: Irena Ograjenšek

***09:20-10:20* Netnography in a Nutshell**

Robert Kozinets (York University)

With social media expanding into a natural part of individuals' existence, online communities are having profound effects on human social life. In this presentation, Robert Kozinets oriented the audience to the approach of netnography, a social media research method based upon the anthropological approach of ethnography. Key terms and principles were overviewed, and some examples of successful netnographic research were discussed. The presentation sparked a vivid exchange of opinions between Rob and Tony Greenfield which gave all present food for thought for the days to come.

Irena Ograjenšek

Contributed Session: Quality and Lean Six Sigma

Session chair: Stelios Psarakis

***10:20-10:40* The Significance of Measurement Systems Analysis within the Lean Philosophy**

Phil Lewis (Coventry University), Gillain Cooke (Coventry University)

***10:40-11:00* Cause and Effect, Roland Caulcutt (Caulcutt Associates)**

Roland Caulcutt (Caulcutt Associates)

***11:00-11:20* Problem Definition Using 4W & 1H**

Jonathan Smyth-Renshaw (University of Liverpool), Iain Reid (University of Liverpool)

Three presentations were planned to be given during this session. Finally the 1st presentation "The Significance of Measurements System Analysis within the Lean Philosophy" has not been given.

25 people attended the other two presentations. The presenters used the time given to them without exceeding the limit of twenty minutes. At the end of each presentation three questions were done to each of the presenters, while at the end a useful discussion concerning both two presentation were done. It was a really nice session that I enjoyed to chair.

Stelios Psarakis

Contributed Session: Pharma

Session chair: David Steinberg

10:20-10:40 Rolling the Improvement Wheel in a Pharmaceutical Filling Plant

Antje Christensen (Novo Nordisk)

10:40-11:00 Use of Statistics in Pharmaceutical Industry

Alain Poncin (ProtAffin Biotechnologie)

11:00-11:20 How to Accept the Equivalence of Two Measurement Methods?

Bernard Francq (Université Catholique de Louvain), Bernadette Govaerts (Université Catholique de Louvain)

The session drew about 30 people, though some left part way through. Antje Christensen described the improvement process at Novo Nordisk and how it has been applied in a number of production problems. Alain Poncin described his experiences in using DOE and QbD to accelerate the development of protein development and set a basis for negotiating design space windows with regulatory agencies. Bernard Francq described and compared several methods for assessing whether two measurement systems are equivalent to one another.

David Steinberg

Contributed Session: Predictive Network Models

Session chair: Marco Reis

10:20-10:40 Applications of Bayesian Networks

Ron S. Kenett (KPA / University of Turin)

10:40-11:00 Short-term Prediction of Dangerous High-water Levels at a Dutch Storm Surge Barrier

Alessandro Di Bucchianico (Eindhoven University of Technology), Krijn Saman (Dutch Ministry of Transport, Public Works and Water Management), Jan-Rolf Hendriks (Dutch Ministry of Transport, Public Works and Water Management)

11:00-11:20 Distribution-free Prediction Intervals

Rainer Göb (University of Würzburg), Kristina Lurz (University of Würzburg)

The session started with a 5 min. delay, as it happened just afterwards the opening session, and there was no time for people to change rooms. Consequently, the session ended 5 min. later due to the same reasons. The presentations have a clear impact in the audience, judging for the spontaneous questions and feedback received later on, after the session. Approx. 32 were present in the session. The fact that there were not any assistant in the room to facilitate the last hour introduction of

presentations, might have been a problem, but it was not in this case. To sum, it was a successful session and attendees left it satisfied.

Thank you very much for inviting me to chair it!

Marco Seabra Reis

US Invited Session

Session chair: Geoff Vining

11:50-12:20 Issues in Planning Experiments for Highly Constrained Regions

Geoff Vining (Virginia Tech)

12:20-12:50 A Bayesian Approach to the Analysis of Split-Plot Combined and Product Arrays and Optimization in Robust Parameter Design

Tim Robinson (University of Wyoming)

12:50-13:20 Implementing Design and Analysis of Experiments in the U.S. Department of Defense Testing Community

Laura Freeman (The Institute of Defense Analyses)

Contributed Session: Higher Dimensional Modelling

Session chair: Murat Testik

11:50-12:10 Compositional T² Control Chart: Interpretation of Out-of-control Signals

Marina Vives-Mestres (Universitat de Girona), Josep Daunis-i-Estadella (Universitat de Girona), Josep-Antoni Martín-Fernández (Universitat de Girona)

12:10-12:30 A Cointegration Approach to Monitoring Nonstationary Multivariate Processes

Bart De Ketelaere (Katholieke Universiteit Leuven)

12:30-12:50 Kernel PLS GLM Regressions

Frédéric Bertrand (Université de Strasbourg), Myriam Maumy-Bertrand (Université de Strasbourg), Nicolas Meyer (Université de Strasbourg)

12:50-13:10 Restricted Kernel Canonical Correlation Analysis

Nina Otopal (IMFM)

Contributed Session: Adaptive Solutions

Session chair: Sonja Kuhnt

11:50-12:10 A Time Series Analysis Approach to Analyze Two-Level Factorial Designs Affected by Disturbances

Peder Lundkvist (Luleå University), Erik Vanhatalo (Luleå University)

12:10-12:30 Balancing Interpretation and Prediction Accuracy in Classification and Regression using Local Correlation Information

Marco S. Reis (University of Coimbra)

12:30-12:50 Interpretation of Shewhart Control Charts: New Opportunities

Yuri Adler (VEI), Olga Maksimova (VEI), Vladimir Shper (VEI)

12:50-13:10 Managing Information Technologies Capacities through Data Analysis: Data Availability & Exploitation

Michel Lutz (Information Technologies (IT)), Lance Mitchell (Information Technologies (IT)), Xavier Boucher (Information Technologies (IT))

Invited Session: Software Session

Session chair: Alessandro Di Bucchianico

15:15-15:35 Tolerance Design in JMP: An Introduction To Profiling and Stochastic Optimisation

Volker Kraft (JMP), Ian Cox (JMP)

15:35-15:55 Using Design-Expert® Software to Manage Uncertainty in Design Space

Pat Whitcomb (Stat-Ease)

15:45-16:05 Operational Excellence and Advanced Condition Monitoring – Reducing Cost and Increasing Reliability of Current Assets in the Field

Markus Gretschnann (IBM SPSS)

Kraft showed the advantages of the JMP profiler for design optimization, including the feature to add linear constraints. Whitcomb showed how the DesignExpert software developed by StatEase uses tolerance intervals to back off from specification during design optimization. Gretschnann gave an overview of the use of SPSS Modeller (previously known as Clementine) to several predictive maintenance projects with features like maintenance dashboards. The session was attended by 20 participants.

Alessandro Di Bucchianico

Contributed Session: Statistics Education and Outreach

Session chair: Shirley Coleman

15:15-15:45 Reasons for Not Using Factorial Experimental Designs

Bjarne Bergquist (Luleå University of Technology)

15:45-16:15

Turning a Simple Case Study into a Single Session, Three Stage Active Learning Exercise for Classroom Use

Jacqueline Asscher (Kinneret College on the Sea of Galilee)

There were approximately 25 people in attendance. Both talks elicited lively discussion and many contributions from the floor. The audience enjoyed the opportunity to engage with the speakers.

Bjarne Bergquist from Lulea University talked about “Reasons for not using Factorial Experimental Designs”. He had interviewed people from the miningsector and found that their experimental campaigns often took a long time and were riddled with disturbances making the aims of the experiment unclear and also the significance of any results. Nevertheless he was continuing with his efforts and was hopeful of improved uptake in the future.

Jacqueline Asscher from Kinneret College, Israel talked about “Turning a simple case study into a single session, three stage active learning exercise for classroom use”. The speaker described her problem based approach to developing an evolving hands-on practical for students to tackle in pairs or groups. The method was highly effective and lends itself to other subject matter.

Shirley Coleman

Contributed Session: Data Mining

Session chair: Andrea Ahlemeyer-Stubbe

15:15-15:35 Classification and Regression Trees in the Process Industry

Stefanie Feiler (AICOS Technologies AG), Philippe Solot (AICOS Technologies AG)

15:35-15:55 Big Data - How Big is Big?

Volker Kraft (JMP)

15:55-16:15 Profile Prediction from Online Data

Marko Limbek (University of Ljubljana, Faculty of Economics)

Poster Storm Session I

Session chair: David Steinberg

16:45-16:50 On the Construction of Control Charts for the Logarithmic Distribution

Stelios Psarakis (Athens University of Economics and Business. Dept of Statistics), Elisabeth Topalidou (Athens University of Economics and Business. Dept of Statistics)

16:50-16:55 On the Use of Partial versus Marginal Correlations in SPC

Tiago M. Rato (University of Coimbra), Marco S. Reis (University of Coimbra)

16:55-17:00 Outlier Detection for Business Indicators of Healthcare Quality - A Comparison of Four

Approaches to Overdispersed Proportions

Gaj Vidmar (University of Ljubljana, Faculty of Economics), Rok Blagus (University of Ljubljana, Faculty of Economics)

17:00-17:05 Monitoring Multivariate Process Variability: A Unified View From Generalized Variance To Likelihood Ratio Control Charts

Emanuel Pimentel Barbosa (Universidade Estadual de Campinas), Mario Antonio Gneri (Universidade Estadual de Campinas), Ariane Meneguetti (Universidade Estadual de Campinas)

17:05-17:10 EWMA p Charts Under Sampling by Variables – Ideas, Numerics and Properties

Sven Knoth (Helmut Schmidt University Hamburg), Sebastian Steinmetz (Helmut Schmidt University Hamburg)

17:10-17:15 Data Analysis for Condition Based Railway Maintenance

Bjarne Bergquist (Luleå University of Technology), Peter Söderholm (The Swedish Transport Administration)

17:15-17:20 A Quantitative Methodology for Designing Systems for Adaptability

Pietro Tarantino (Tetra Pak packaging solutions), Carlo Leardi (Tetra Pak packaging solutions), Andrea Angelini (Tetra Pak packaging solutions), Roberts Nicolini (Tetra Pak packaging solutions)

17:20-17:25 How to Market Statistics

Winfried Theis (Shell Global Solutions BV)

17:25-17:30 A Critical Assessment of Statistical Process Control (SPC) Implementation Frameworks and Agenda for Future Research

Sarina binti Abdul Halim Lim (University of Strathclyde), Jiju Antony (University of Strathclyde)

The poster storm session was very lively and well attended, with about 15-20 people in addition to those presenting the posters. The poster descriptions were quite effective in giving quick summaries of the work done and in stimulating listeners to come visit the posters.

David Steinberg

Poster Storm Session II

Session chair: Lance Mitchell

Number of delegates attending this session: 22.

16:45-16:50 Statistical Modelling of a Thermal Spraying Process with Additive Day-effects

André Rehage (Technical University Dortmund), Sonja Kuhnt (Technical University Dortmund)

16:50-16:55 Fitting Data using B-spline Functions and GA and PSO Bioinspired Methods

Angel Cobo Ortega (University of Cantabria), Alberto Luceño Vázquez (University of Cantabria), Jaime Puig-Pey Echebest (University of Cantabria)

16:55-17:00 Power and Sample Size Calculation for General Full Factorial Design

Melike Bahçecitapar (Hacettepe University), Özge Karadağ (Hacettepe University), Serpil Aktaş (Hacettepe University)

17:00-17:05 Comparison of Different Forms of Sequential Designs for a Low and High Dimensional Case

Koen Rutten (KU Leuven), Josse De Baerdemaeker (KU Leuven), Bart De Ketelaere (KU Leuven)

17:05-17:10 On Categorization of Perturb and Combine Ensemble Methods

Riadh Khanchel (University of Tunis), Mohamed Limam (University of Tunis)

17:10-17:15 Designing Choice Experiments by Optimizing the Complexity Level to Individual Abilities

Vishva Danthurebandara (Catholic University of Leuven), Jie Yu (Catholic University of Leuven), Martina Vandebroek (Catholic University of Leuven)

17:15-17:20 Performance Measurement Systems Research in CEE

Adriana Rejc Buhovac (University of Ljubljana, Faculty of Economics), Maja Zaman Groff (University of Ljubljana, Faculty of Economics)

17:20-17:25 When the Surgeon Does Not Cut Straight

Bernard Franco (Université Catholique de Louvain)

The spirit was high in the session.

The presenters did a great job of sticking to their time slots whilst exciting the audience.

The posters presented all look very interesting.

The speakers from Tunisia were absent from the session.

The audience were very well behaved and respectful to the speakers.

The chair only had to interrupt once to silence a pair who were speaking during the presentation. To compensate, he added 30 seconds to the time allowed for the affected speaker.

The poster evaluation forms were explained (by Irena Irena Ograjenšek) and were handed to all of the delegates (by the Chair) as they left the room.

Lance Mitchell

Greenfield Challenge Prize Ceremony

Session chair: Shirley Coleman

17:45-18:15

There were lively presentations from 2 aspirants for the Greenfield Challenge in a well-attended plenary session. Bernard Franq presented his excellent and clear analysis of surgical outcomes based on his presentation “When the surgeon does not cut straight”. His presentation was an exemplar on how to make serious analytical work widely accessible. Galit Shmueli gave an animated and engaging presentation showing how customer data can revolutionise company understanding. She included a 10 minute video from: <http://www.youtube.com/watch?v=hD2eSnwsRqY> which showed why she is a widely sought after inspirational speaker.

As in previous years there was great diversity of approach and content but excellent quality from all the offerings to the Greenfield Challenge. This year it was decided that the award would be shared between the two presenters and they were both delighted.

Shirley Coleman

Tuesday, 11 September 2012

Keynote

Session chair: Irena Ograjenšek

09:00-10:00 On the Many Faces of Text Processing

Marko Grobelnik (Inštitut Jožef Stefan)

In his presentation Marko tried to provide an answer to the question why do people process textual data with computers. He touched on various aspects of text processing along several dimensions: (a) how we represent the textual data, (b) what kind of algorithms and techniques we use, and (c) what kind of problems we solve on the top of text. Each of them was illustrated with numerous real-life examples.

Irena Ograjenšek

Invited Session: Hidden Gems Session

Session chair: Anne De Frenne

10:00-10:20 Tomas Bata – Entrepreneurial Legacy

Pavel Velez (Tomas Bata Foundation)

10:20-10:40 Tomas Bata: The Unknown Quality Guru

Irena Ograjenček (University of Ljubljana)

10:40-11:00 Bata: An Indestructible Brand

Vesna Zabkar (University of Ljubljana, Faculty of Economics), Maja Hosta (University of Ljubljana, Faculty of Economics)

About 50 persons attended the session (the room was full).

Pavel Velev (Bata Foundation) presented the amazing economical, production and social philosophy driving the development of the shoe maker Tomas Bata and his worldwide influence.

Irena Ograjenček (University of Ljubljana) focused on Tomas Bata's quality management running its own industrial company compared to consultant quality guru.

Vesna Zabkar and Maja Hosta (University of Ljubljana) analyzed the Bata brand and the reasons for its world-wide success over a century.

Time was too short to cover all these very interesting topics. Many question were raised and discussion continued after the session.

Anne de Frenne

Optimisation and Design

Session chair: Antje Christensen

10:00-10:20 Water Quality Function Deployment

Shuki Dror (ORT Braude College), Natalia Zaitsev (ORT Braude College)

10:20-10:40 An EGO-type Algorithm based on Kernel Interpolation

Momchil Ivanov (TU Dortmund), Sonja Kuhnt (TU Dortmund)

10:40-11:00 Replicates or Repeats

Magnus Arnér (Tetra Pak Packaging Solutions)

Tuesday morning, the session on Optimization and Design offered a combination of theory and application, experience and fresh thinking. Shuki Dror from the Ort Braude College gave US a guided tour of the house of quality for tapwater in Israel. Monchil Ivanov explained results from his PhD work at the Technical University Dortmund in Germany on an optimization algorithm. His approach drew enough questions to keep him busy for several coffee breaks. Magnus Arner of Tetrapak in Sweden often encounters the practice of replacing replicates with repeats. He shared simulated data that demonstrate the effect of this practice on models. About 20 people attended.

Antje Christensen

Contributed Session: Modelling in Practice

Session chair: Chris McCollin

10:00-10:20 A Poisson-Gamma Hierarchical Model for Estimating the Complication Rates of Bladder Cancer

Özge Karadağ (Hacettepe University), Gül Ergü (Hacettepe University)

10:20-10:40 Estimation for Utility of Donor Arrivals

Banu Yuksel Ozkaya (Hacettepe University), Murat Caner Testik (Hacettepe University)

10:40-11:00 PM10 Forecasting Using Mixture Linear Regression Models

Jean-Michel Poggi (University of Paris Descartes), Bruno Portier (INSA Rouen), Michel Misiti (University of Orsay), Yves Misiti (University of Orsay)

About twenty participants came to each of the three talks which were diverse in application: complication rates of bladder cancer, blood donor arrival rates and air quality. Every speaker was very good at expressing their problem, the Poisson-Gamma modelling hierarchical model for bladder cancer although quite detailed was explained well, the blood bank analysis logistic regression conclusions were quite enlightening and highlighted an innovative recruitment strategy. The PM10 forecasting was explained with graphical outputs which made the issues of data collection and the differences between cities very clear. Each speaker discussed the issues that arose with the data collection. There were three questions fielded from the floor for each speaker which were all answered expertly, so much so that the chair didn't have to ask his own questions! The hierarchical modelling especially provided good scope for future work.

Chris McCollin

ISBIS Invited Session: The COM-Poisson Model for Count Data: Methods and Applications

Session chair: Werner Müller, Galit Shmueli

11:30-11:50 Introducing the COM-Poisson

Galit Shmueli (Indian School of Business)

11:50-12:10 Statistical Advancements Using the COM-Poisson Distribution

Kimberly Sellers (Georgetown University)

12:10-12:30 Some Marketing and e-Commerce Applications of the COM-Poisson

Sharad Borle (Rice University)

12:30-12:40 Some Tracks for Extending the COM-Poisson

Célestin Kokonendji (University of Franche-Comté)

12:40-12:50 Discussion in the Session "The COM-Poisson Model for Count Data: Methods and Applications"

Werner G. Müller (Johannes Kepler University Linz)

12:50-13:00 Questions and Answers with the Audience

The ISBIB special session was entitled "The COM-Poisson Model for Count Data: Methods and Applications" and included three invited talks and two discussion papers. The session was tied to a recent ASMBI paper with discussion "The COM-Poisson Model for Count Data: A Survey of Methods and Applications" (Sellers et al., 2012)

The first talk "Introducing the COM-Poisson" by Galit Shmueli (Indian School of Business, India) introduced the the two-parameter COM-Poisson distribution which can model over and under dispersion, its properties, estimation methods, computational issues, some applications, and generalizations to classic and Bayesian regression models.

The second talk by Kimberly Sellers (Georgetown University, USA) presented "Statistical Advancements Using the COM-Poisson Distribution", which introduced a GLM COM-Poisson regression model and a COM-Poisson control chart.

The third talk by Sharad Borle (Rice University, USA) introduced "Some Marketing and e-Commerce Applications of the COM-Poisson", illustrating the advantage of using the COM-Poisson in fields that are heavy users of Poisson and Negative Binomial models for count modeling.

The first discussion by Celestin Kokonendji (University of Franche-Comté, France) discussed special properties such duality between under and over dispersion with respect to the Poisson distribution as well as the COM-Poisson as a particular case of weighted Poisson distributions.

The second discussion by Werner Müller (JKU Linz, Austria) presented a copula model with COM-Poisson margins and illustrated its use for predicting football scores.

The session was well attended by over 30 participants and had a lively Q&A session.

References:

[Sellers, K. F., S. Borle, and G. Shmueli, "The COM-Poisson Model for Count Data: A Survey of Methods and Applications"](#), *Applied Stochastic Models in Business and Industry*, vol. 28, issue 2, pp. 104-116, 2012.

[Sellers, K. F., S. Borle, and G. Shmueli, "Rejoinder: The COM-Poisson Model for count data: A survey of methods and applications"](#), *Applied Stochastic Models in Business and Industry*, vol. 28, issue 2, pp. 128-129, 2012.

Galit Shmueli

Business

Session chair: Lance Mitchell

Number of delegates attending this session: 25

***Cancelled* -Worst-Case Scenarios Identification as a Financial Stress Testing Tool for Financial-Economic Risk Models**

Mohamed El Ghourabi (University of Tunis), Amor Messaoud (University of Tunis), Mourad Landolsi (University of Tunis), Amira Dridi (University of Tunis)

11:40-12:05 Ask the Right Questions, or Apply Involved Statistics? Thoughts on the Analysis of Customer Satisfaction Data

Dr. Thomas Hochkirchen (Ford Motor Company), Dr. Martin Blankenagel (divis GmbH)

Good question from the floor: *Has there ever been a customer satisfaction survey of customer satisfaction surveys?*

12:05-12:30 ENBIS Conference Participants Satisfaction Survey

Irena Ograjenšek (University of Ljubljana, Faculty of Economics)

Almost perfect to time!

12:30-12:55 Discussion: ENBIS Conference Participants Satisfaction Survey -Where do we go from here?

Shirley Coleman (Newcastle University)

Negative comment made about the links to help with preparation of papers. Tony Greenfield responded that he would help this to be addressed for ENBIS 13.

Speaker made a comment about the length of the survey. Suggestion was made about allowing options for a short or long survey. Xavier Tort pointed out that this may not be a good idea because he thought that EVERYONE would opt for the short version.

Various suggestions were made for questions for the survey and inclusions for future conferences. The Chair asked if those with ideas should post them to the Organizing Committee for inclusion in this year's survey (as invited by Irena Ograjenšek in the previous talk.

We started 10 minutes late due to the over-run of previous sessions. This was at the direction of Irena Ograjenšek.

The speakers from Tunisia were absent.

I granted the remaining speakers an additional 5 minutes each, giving them 25 minutes including questions.

The speakers respected the timings.

The audience respected the speakers.

Shirley's talk on the future generated a very lively discussion.

One of the delegates made a complaint because I had shuffled the timings and this made it impossible for her to switch sessions to listen to another talk in a different room. I apologised.

Note for Chair of the Organizing Committee: The most popular Slovenian girls' name is **Marija**. Perhaps!

Lance Mitchell

Reliability

Session chair: Bart De Ketelaere

11:30 – 11:50 Physical versus Statistical Assumptions in Modelling: A Study of Maintenance

Chris McCollin (Nottingham Trent University), Shirley Coleman (University of Newcastle upon Tyne)

11:50 – 12:10 Reliability Analysis with Warranty Data

Nikolaus Haselgruber (CIS consulting in industrial statistics)

12:10 – 12:30 A Bayesian Approach for Inference in POD Models

Merlin Keller (EDF R&D), Nicolas Bousquet (EDF R&D)

12:30 – 12:50 A Refined Coefficient Fixed-Effects Estimator for Long Panels

Subrato Banerjee (Indian Statistical Institute)

There were four talks scheduled, although only three were given (Subrato Banerjee was not present). The session was attended by 10-15 people, varying during the session.

Chris McCollin discussed the issue of assumptions in modeling – from statistical to physical and eventually emotional (touching Kansei Engineering). Most of the talk was spent on SPC related issues, and dealt with introducing process knowledge into SPC schemes.

Nikolaus Haselgruber gave a presentation about reliability analysis applied to warranty data, pinpointing that such data often pose issues related to the fact that often not all (necessary) data are available for an unbiased estimation of the reliability parameters, and introduced new ways of overcoming this issue of missingness, and the several mechanisms of it ranging from missing completely at random (MCAR) to missing not at random (MNAR).

Last, Merlin Keller presented about a Bayesian approach for inference of probability of detection models (POD). A case study was presented combining destructive experiments and nondestructive experiments, and the limitations were discussed. In order to overcome such limitations, a Bayesian approach was proposed. Both simulation results as well as real-life experiments were presented.

Overall, there was a good interaction with the audience, but the attendance was quite low when compared to (some) other sessions.

Bart DeKetelaere

Keynote

Session chair: David Steinberg

15:00-16:00 The Design For Variation (DFV) Process at Pratt & Whitney

Grant Reinman (Pratt & Whitney)

This plenary talk was given by Grant Reinman from Pratt & Whitney. Grant explained how modeling and describing variation has become an integral part of the design process at Pratt & Whitney. He described the steps involved in the design process and shared his wealth of experience with practical industrial design problems. An important aspect of the talk related to the work that was needed to make DFV so successful at Pratt & Whitney. The talk was very well attended and stimulated excellent questions and discussion. Numerous participants approached Grant after the talk to get more information from him.

David Steinberg

Contributed Session: DoE in Practice

Session chair: Froydis Bjerke

16:30-16:50 Improving an Electron Beam Soldering Process by Design of Experiments

Pere Grima (Universitat Politècnica de Catalunya, Barcelona), Xavier Tort-Martorell (Universitat Politècnica de Catalunya, Barcelona), Lluís Marco-Almagro (Universitat Politècnica de Catalunya, Barcelona), Miguel Sarachaga (ITP)

16:50-17:10 Response Surface Design in Injection Moulding

Magus Arnér (Tetra Pak Packaging Solutions)

17:10-17:30 How to Design Experiments when Categorical Mixture Components Go to Zero

Pat Whitcomb (Stat-Ease, Inc.)

17:30-17:50 Challenges in Using Mixture DoE to Understand the Complex Phase Behaviour of a 3-Component Formulation

Phil Kay (Fujifilm Imaging Colorants Ltd.)

About 32 people attended.

Talks were generally good and within the session header. Also they complemented each other, and thus there was no rush in and out from the attendees. In my opinion one of the best sessions in terms of quality and subject of presentations, as well as performance of the presenters. Thank you!

It was a pleasure to chair this session!

Froydis Bjerke

SfDS (French Statistical Society) Invited Session: Reliability and Uncertainty Analysis in Industry

Session chair: Alberto Pasanisi

16:30-16:50 Introduction

Jean-Michel Poggi (SfDS President)

16:50-17:10 Evaluation of Measurement Uncertainty and Regulatory Context: An Application in Fire Engineering

Alexandre Allard (Laboratoire National de Métrologie et d'Essais), Nicolas Fischer (Laboratoire National de Métrologie et d'Essais), Franck Didieux (Laboratoire National de Métrologie et d'Essais), Eric Guillaume (Laboratoire National de Métrologie et d'Essais)

17:10-17:30 Sensitivity Analysis of a Welding Thermomechanical Simulation Model

Anne-Laure Popelin (EDF R&D), Leila Guenad (EDF R&D), Bertrand Iooss (EDF R&D)

17:30-17:50 How to Choose a Fragility Curve? Bayesian Decision Theory Applied to Uncertainty Analysis in an Industrial Context

Guillaume Damblin (AgroParisTech / EDF R&D), Merlin Keller (EDF R&D), Alberto Pasanisi (EDF R&D), Irmela Zentner (EDF R&D), Pierre Barbillon (AgroParis Tech), Eric Parent (AgroParis Tech)

There were approximately 15 attendees. The talks were followed by a number of interesting questions and comments.

The president of the French Statistical Society, Jean-Michel Poggi, introduced the session with a short presentation of the Society. SFdS and ENBIS are engaged in establishing a more and more deep cooperation and, among other actions, SFdS intends organizing a session at the yearly annual ENBIS Conference, and reciprocally ENBIS at the "Journées de Statistique".

Alexandre Allard presented some works carried by the French National Lab for Metrology and Testing (LNE) about sensitivity analysis in fire simulation. This topic is particularly interesting in the context of fire safety regulation studies, aiming to ensure the fast evacuation of a building in case of fire.

Anne-Laure Popelin (EDF R&D) gave a talk about sensitivity analysis in welding numerical simulation. Actually the parameters involved in the simulation of welding processes (e.g. materials characteristics) at high temperatures are known with uncertainties and their impact on the output variables (typically the residual stresses) must be assessed. The talk, and the discussion which followed, also highlighted an important issue in this kind of problems: the need for appropriate tools for visualizing a multidimensional "uncertain" output of a physical code.

Finally, the talk of Merlin Keller (EDF R&D) was concerned with the problem of establishing fragility curves of engineering structures, i.e. the functions relying the probability of failure to given levels of the load (e.g. seismic acceleration). This curves are established by means of numerical simulation and/or expertise. The talk focused on the problem to obtain Bayesian estimations of the fragility curve by minimizing the expectation of given loss function, taking into account in different ways the idea of "conservatism".

Alberto Pasanisi

Stochastic Modelling Session

Session chair: Rainer Göb

16:30-16:50 The Energy Production Profile of a Large Number of Residential Co-generators: A Statistical Evaluation

Antonio Pievatolo (CNR-IMATI), Raffaele Argiento (CNR-IMATI), Stefano Galli (CNR-ITC), Matteo Mariotto (CNR-ITC)

16:50-17:10 Electric Load Forecasting in Italy by Exponential Smoothing with Covariates

Kristina Lurz (University of Würzburg), Rainer Göb (University of Würzburg), Antonio Pievatolo (CMR-IMATI)

17:10-17:30 Bayesian Analysis of Short-term Directional Data for Wind Potential Assessment

Pasquale Erto (University of Naples Federico II), Antonio Lanzotti (University of Naples Federico II), Antonio Lepore (University of Naples Federico II)

17:30-17:50 Nonparametric Control Charts: The Data Depth Approach

Giovanni Porzio (University of Cassino), Giancarlo Ragozini (University of Naples Federico II)

17:50-18:10 A Nonparametric Multivariate Location Control Chart for Angular Symmetric Distributions

Amor Messaoud (University of Tunis), Giovanni Porzio (University of Cassino), Giancarlo Ragozini (University of Naples Federico II)

Conference Dinner with Keynote

20:00-20:30 Taking Politics (and Statistics) to the People and the Businesses

John Pullinger (House of Commons)

John addressed the ENBIS audience as an official who is and has been responsible for developing the UK Parliament's strategy for public engagement. He talked about online approaches to politics, as well as about how MPs use information, including statistics, and also about the Royal Statistical Society's getstats campaign to promote statistical literacy across the UK: in politics, in the media, in education, and, of course, in business.

Irena Ograjenšek

Wednesday, 12 September 2012

Process and Control

Session chair: Alessandro Di Bucchianico

09:45-10:05 Robust Control Chart to Monitor the Information System of Semiconductor Production Plant

Michel Lutz (Ecole des Mines de Saint-Etienne), Espéran Padonou (Ecole des Mines de Saint-Etienne), Olivier Roustant (Ecole des Mines de Saint-Etienne)

10:05-10:25 Detection of Abrupt Changes in Count Data Time Series: Cumulative Sum Derivations for INARCH(1) Models

Christian H. Weiß (Darmstadt University of Technology), Murat Caner Testik (Hacettepe University)

10:25-10:45 Imputation Methods in the Estimation of ARMA Models with Missing Observations

Korneel Bernaert (Vrije Universiteit Brussel)

10:45-11:05 An Overview of Bayesian Networks for Dynamic System Analysis and Control

Michael Ashcroft (Uppsala University)

Between 25 and 30 participants attended this session.

Padonou described the challenges in setting up hundreds of control charts in a semiconductor setting where frequently outliers occur that are not special causes. Solutions were provided with robust versions of time series approaches like Holt-Winter smoothing.

Weiss discussed several issues in setting up control charts for discrete counter parts of well-known time series.

Bernaert compared several imputation mechanisms in a time series setting. A lively discussion yielded ideas for multiple rather than single imputation.

In the last talk of this session, Ashcroft gave a clear overview of dynamic Bayesian network and demonstrated dedicated software that he is developing.

Alessandro Di Bucchianico

DEINDE Invited Session

Session chair: Grazia Vicario

09:45-09:55 Introducing DEINDE (DEsign of INDustrial Experiments)

Grazia Vicario (Politecnico di Torino)

09:55-10:25 An Improvement to the Sequential Simplex Optimization Algorithm

Bryan Dodson (SKF), Paolo A Re (SKF), Rene Klerx (SKF), Markus Weidenbacher (SKF)

10:25-10:55 Split-plot Design and Mixed Response Surface Models

Rossella Berni (University of Florence)

Number of people attending this session: no less than 25 but no more than 28 (people that joined the session later).

We started 8 minutes late due to the over-run of the Best manager Award (the moving from second floor to the ground floor takes a few minutes that should be considered when scheduling the sessions), but the presentations didn't suffer for it because one presentation (Authors: Arnouds and Goos) was withdrawn and they had more time than the scheduled one.

Both the presentations were clear and attractive. They generated a number of question-answers very profitable, facilitated by the increasing time.

Grazia Vicario

Problem Solving

Session chair: Lance Mitchell

Number of delegates attending this session: 34

09:45-10:05 Implementation of Six Sigma in SMEs. A Case Study in Swedish Industry

Anna Errore (University of Palermo), Stefano Barone (University of Palermo), Alberto Lombardo (University of Palermo), Therese Doverholt (Structo Hydraulics AB)

Errors in initial study due to badly structured database. Had to be re-designed for second study

10:05-10:25 Analysis and Comparison of Flow Chart Trace Softwares

Susana Vegas (Universidad de Piura), Ana María Cumpa (Universidad de Piura), Laura Ilzarbe (Transabadell)

Most important factor: ease of use

10:25-10:45 A Bayesian Approach to Technical Performance Measures in Product Development Projects

Pietro Tarantino (Tetra Pak packaging solutions), Carlo Leardi (Tetra Pak packaging solutions)
Great practical relevance!

10:45-11:05 People Make Mistakes –Unavoidable

Johan Batsleer (Amelior)

We started 10 minutes late due to the over-run of the previous sessions, but I cut 1 minute off each presentation, without telling anyone, so that we finished only five minutes late.

The speakers respected my timings.

The audience respected the speakers.

All four presentations had very high practical relevance and some good examples.

Lance Mitchell

Keynote

Session chair: Irena Ograjenšek

11:45-12:45 Lies, Damn Lies and Business Statistics! What can NSIs do to Reveal the Truth?

Steve MacFeely (Central Statistics Office)

In his talk Steve argued that, in a time of abundant data, National Statistical Institutes (NSIs) must rethink their mission and in particular their communication and analysis strategies. Fundamental to this reassessment is a simple question; is the role of the NSI simply to provide independent, unbiased statistics or independent, unbiased information? In what has been referred to as a 'Data Deluge', economies and societies are now swamped with all manner of fragmented statistics and indicators, many of them of poor quality. So at a time when modern economic and societal interactions are growing increasingly complex, there are many contradictory data available but relatively little good quality, integrated analyses. Consequently, there is a legitimate and useful role for the modern NSI in providing unbiased, useable information rather than pure statistics; distilling the available statistics to reveal the truth - to bring alive the stories hidden within the data. Steve showed how this can be done by providing more comprehensive and improved contextual macro-analysis to illustrate the relevance of overall official business statistics. Greater emphasis must also be given to improving data accessibility; physically, conceptually and visually. At the micro-level, NSIs could provide individual respondent feedback in the form of tailored, firm specific performance metrics or micro-analysis. This would not only provide enterprises with valuable information but also reduce perceived respondent burden, thus incentivising respondent compliance.

Irena Ograjenšek

Thursday, 13 September 2012

09.00-17.00 Teaching statistics for process improvement

Roland Caulcutt

Workshop evaluation

We hope that you have enjoyed the workshop. We hope that you and your company will get immediate and long term benefits from your attendance. Will you kindly help us to improve our performance by completing this short questionnaire? Please tick the appropriate boxes below.

	Extremely bad	Very bad	Bad	Satisfactory	Good	Very good	Extremely good
Who will improve your processes?					1	3	3
Management by fact						4	4
Teaching and learning N/A							
Teaching significance testing						5	4
Teaching design of experiments					1	4	4
Measurement error N/A							
Group exercises						5	4
Presentations						3	5
Overall assessment of the workshop						5	4

	Too fast	About right	Too slow
Speed of presentation		9	

	Too high	About right	Too low
Level of difficulty		7.5	1.5

Please use this space to make additional comments on the workshop.

It was very useful. Thank you.

The chance to use the material for our own training was a real positive.

I enjoyed your workshop very much. I particularly liked the many examples from real life that were provided. All the presentations were very good and extremely interesting.

I was planning to see more statistics. A bit long. Low concentration at the end. Very good food.

Very satisfied. I hope to someday reach the level of presenting quality and conduct which the presenter had.

Lots of examples are very beneficial for future implementation

No comment from three people.

Thank you to all session chairs for your valuable contribution.

Shirley Coleman, ENBIS 12 Programme Chair

17 September 2012