

Work Group 1: Processes and Procedures

Leader: John Quigley

COST Action IS1304

5th July 2017

Introduction

- Description

- Key tasks

Key outputs

- The book

- Work group meetings

- Software for elicitation

Another key development

- EFSA guidelines

Description

Concerned with:

- ▶ The **processes** of eliciting expert judgment and operationalising these through **procedures**.
- ▶ The various approaches to elicitation are of special interest
- ▶ The need to develop processes that both support mutual understanding and minimise bias, in particular in group workshops.
- ▶ The particular context for elicitation is also important
 - ▶ what kind of decisions are being supported
 - ▶ who are the stakeholders
 - ▶ who are the decision makers
 - ▶ and so on.

Key tasks

- ▶ The development and evaluation of less labour intensive elicitation methods; in particular we seek to evaluate the use of web-based technologies.
- ▶ The development of graphical and interactive methods in elicitation processes.
- ▶ The advancement of methods for the elicitation of stakeholder preferences.
- ▶ The investigation of dependency between experts.
- ▶ The exploration of potential legal and political issues.

The book



Elicitation: The science and art of structuring judgment

*Springer International Series in Operational Research and
Management Science*

Editors: Luis Dias, Alec Morton and John Quigley

Chapters on processes to elicit uncertainty from experts:

2. Elicitation in the Classical Model (John Quigley, Abigail Colson, University of Strathclyde, Willy Aspinall, University of Bristol, UK, Roger Cooke, Resources for the Future, USA)
3. Validation in the Classical Model (Roger Cooke, Resources for the Future, USA)
4. SHELF: the Sheffield elicitation framework (John Paul Gosling, University of Leeds, UK)
5. IDEA for Uncertainty Quantification (Anca Hanea, University of Melbourne Australia Mark Burgman Imperial College, UK, Victoria Hemming, University of Melbourne Australia)
6. Elicitation and Calibration: A Bayesian Perspective (David Hartley, Simon French, University of Warwick, UK)
7. Constructing Subjective Probability Distributions with data - An Empirical Bayes Approach (John Quigley, Lesley Walls, University of Strathclyde, UK)
8. Eliciting Multivariate Uncertainty from Experts: Considerations and Approaches along the Expert Judgement Process (Christoph Werner University of Strathclyde, UK, Anca M. Hanea University of Melbourne, Australia, Oswaldo Morales-Npoles Technological University Delft, The Netherlands)
9. Combining judgements from correlated experts (Kevin Wilson, Malcolm Farrow, Newcastle University, UK)

Chapters on processes to elicit preferences from stakeholders or decision makers:

10. Utility elicitation (Jorge Gonzalez-Ortega, Vesela Radovic, David Rios Insua, ICMAT, Spain)
11. Elicitation in Target-Oriented Utility (Robert F. Bordley, University of Michigan, Ann Arbor, USA)
12. Multiattribute value elicitation (Alec Morton, University of Strathclyde)
13. Disaggregation approach to value elicitation (Nikolaos Matsatsinis, Evangelos Grigoroudis, Technical University of Crete; Greece, Eleftherios Siskos, National Technical University of Athens, Greece)
14. Eliciting multi-criteria preferences: ELECTRE models (Luis Dias, University of Coimbra, Portugal, Vincent Mousseau, cole Centrale Paris, France)

Chapters on cross-cutting issues:

15. Individual and Group Biases in Value and Uncertainty Judgments (Gilberto Montibeller, University of Loughborough, UK, Detlof von Winterfeldt, University of Southern California, US)
16. The Selection of Experts for (Probabilistic) Expert Knowledge Elicitation (Fergus Bolger, University of Durham, UK)

Chapters on applications:

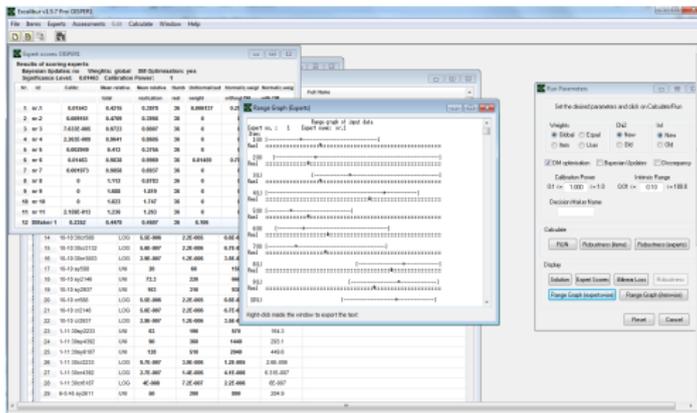
17. Eliciting Probabilistic Judgments for Integrating Decision Support Systems (Jim Smith, Martine J Barons, Sophia Wright, University of Warwick UK)
18. Expert elicitation to inform health technology assessment (Marta Soares, Laura Bojke)
19. Expert Judgment Based Nuclear Threat Assessment for Vessels Arriving in the US (Jason Merrick, Virginia Commonwealth University, Laura McLay, University of Wisconsin-Madison)
20. Risk Assessment using Group Elicitation: Case Study on Start-up of a New Logistics System (Markus Porthin, Tony Rosqvist, Susanna Kunttu, VTT Technical Research Centre of Finland Ltd)
21. Group Decision Support for Ecology Economics: A case study to guide the process of preferences' elicitation. (Pavlos Delias, Evangelos Grigoroudis, Nikolaos Matsatsinis)



- ▶ The University of Strathclyde held an annual workshop in a series on **Mathematical Methods in Reliability Research** between 2014 and 2016.
- ▶ The Strathclyde meeting was on the topic of *Expert Judgement* and co-hosted by the COST Action.
- ▶ The final meeting, in 2016, focussed on the book authors presenting their chapters.



MATCH Uncertainty Elicitation Tool



<http://www.expertsinuncertainty.net/Workgroups/Graphicaltools/tabid/4620/Default.aspx>

<http://www.expertsinuncertainty.net/Software/tabid/4149/Default.aspx>



- ▶ Guidance on Expert Knowledge Elicitation in Food and Feed Safety Risk Assessment [▶ Link](#)
- ▶ In particular, they support 3 methods for structured expert judgement elicitation:
 - ▶ The Classical Method
 - ▶ The SHEffield ELicitation Framework (SHELF)
 - ▶ The Delphi Method
- ▶ They also provide training courses on *Steering an Expert Knowledge Elicitation*

