



**71st Advisory Forum meeting
Bucharest, Romania, 03-04.04.2019**



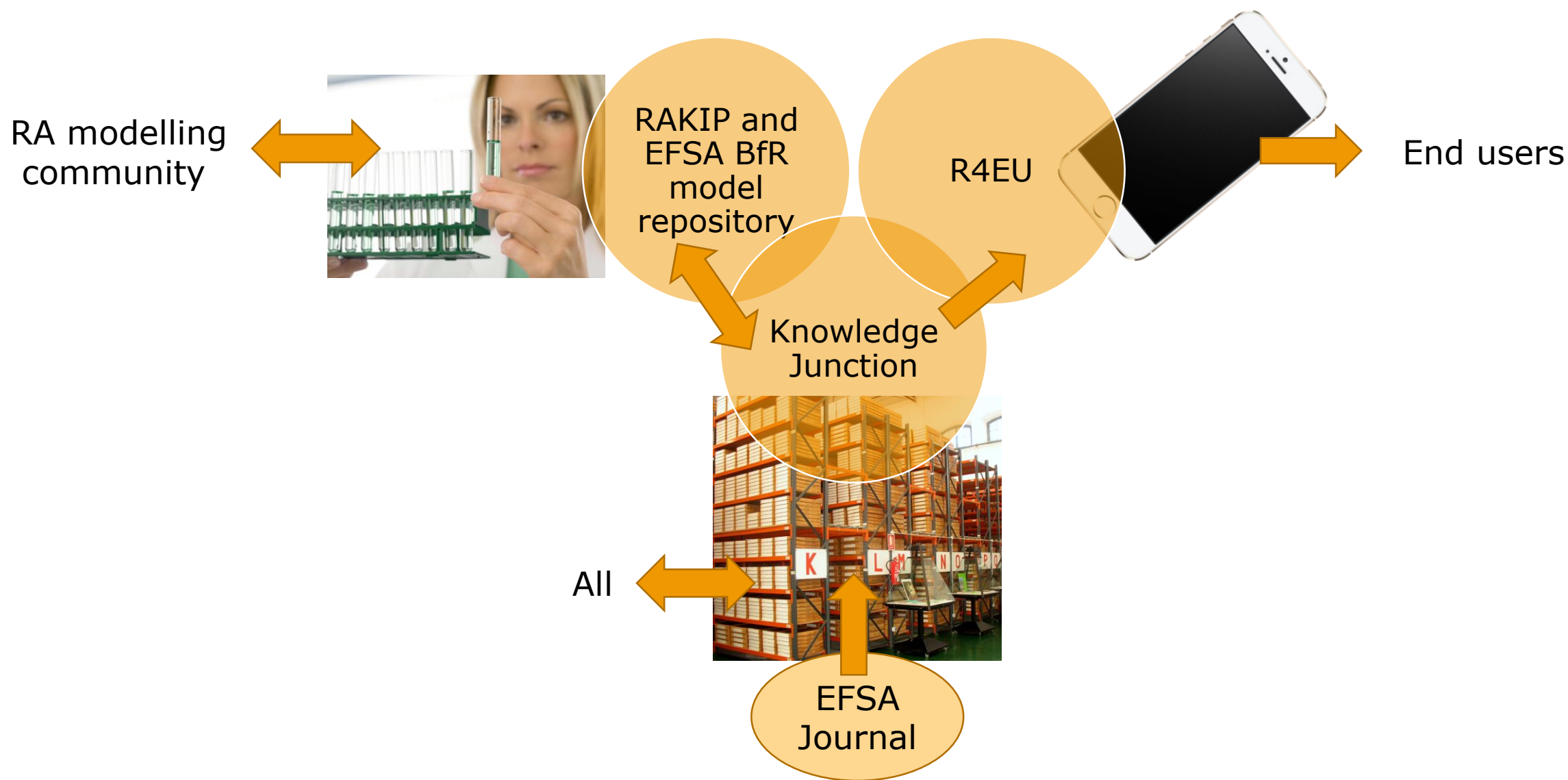
RAKIP-EFSA/BfR model repository Knowledge Junction R4EU

Didier Verloo

Head of Assessment and Methodological
Support Unit

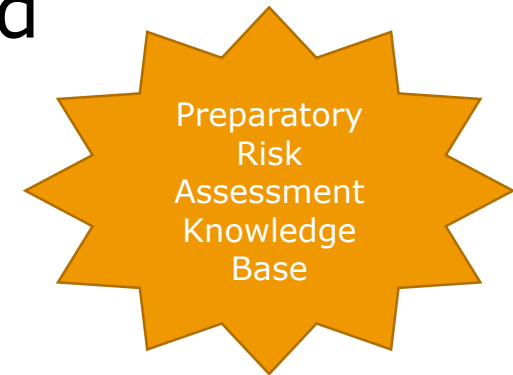
Trusted science for safe food

Different scope yet thoroughly related



Knowledge Junction

- **Community:** a curated, open repository for the exchange of evidence and supporting materials used in food and feed safety risk assessments.
- **Aim:** to improve transparency, reproducibility and evidence reuse.
- **Content:**
 - Evidence – reports, datasets, images, videos, laboratory outputs
 - Supporting materials – software, tools, models, code, protocols, appraisal schemes
 - Risk assessment – mandates, opinions, statements, guidance documents, annual and strategic plans provided by Member States



FAIR PRINCIPLES IN PRACTICE

Accessible

zenodo

Search



Upload

Communities

Log in

Sign up

September 30, 2016

Software Open Access

Campylobacter in broilers model on control options (CAMO)

Vose, David; Mintiens, Koen; Van Hauwermeiren, Michael; Raman, Daan; Alban, Lis; Sandberg, Marianne; Vaz, Yolanda; Fraqueza, Maria João; Leontidesm, Leonidas; Kostoulas, Polychronis

The model produced evaluates quantitatively the effect of interventions on the risk of campylobacteriosis from broiler meat in EU Member States (MS). The model uses many of the same principles of previous food safety risk assessment models, but takes a different mathematical approach to achieve its results. This provides the ability to investigate the effect of different combinations of interventions extremely quickly. It characterizes the variability of the level of contamination by the normalized central moments (mean, variance, skewness and kurtosis) of the log10 numbers and evaluates the effects of processing, interventions etc. by combining the raw moments of variables in the model using analytical mathematical equations. The model is normalized to current observations throughout the farm-to-fork continuum. The output is the change in the human incidence rate of campylobacteriosis, rather than the actual incidence rates before and after variations in the interventions applied. The advantage of this approach is that the model's outputs are less sensitive to any assumptions or statistical uncertainty in parameter estimates, leading to more robust quantitative results.

Microsoft Excel with the ModelRisk 3.0 add-in from Vose Software

Preview

Page: 1 of 79 Automatic Zooms



A quantitative microbiological risk

Publication date:
September 30, 2016

DOI:
DOI 10.5281/zenodo.247339


Keyword(s):
Campylobacter QMRA microbiological risk assessment
broiler meat food chain empirical model
deterministic models sensitivity analysis

Related identifiers:
Cited by:
10.2903/sp.efsa.2011.EN-132,
10.2903/j.efsa.2011.2105

Communities:
Knowledge Junction

License (for files):
Creative Commons Attribution 4.0

Share



Cite as

Vose, David; Mintiens, Koen; Van Hauwermeiren, Michael; Raman, Daan; Alban, Lis; Sandberg, Marianne, ... Kostoulas, Polychronis. (2016). Campylobacter in broilers model on control options (CAMO) [Data set]. Zenodo. <http://doi.org/10.5281/zenodo.247339>

Start typing a citation style...

Export

BibTeX CSL DataCite Dublin Core JSON
MARCXML Mendeley

Findable

Reusable

Interoperable



KNIME

■ RAKIP model repository

- Uploading of models
- Downloading of models
- Modification of models

■ EFSA-BfR model repository

- Uploading of models
- Downloading of models
- Modification of models
- Provision of DOI through Knowledge Junction – versioning through DOI
- Transfer of models from repository to KJ - curation
- Execution of models directly from the KJ
- Linkage to many other types of objects (Scientific documents, Scientific Opinions etc.)



bmd

benchmark dose modeling



MDR

multi-drug resistance analysis



MonteCarlo

risk assessment using Monte Carlo



European Food Safety Authority

MonteCarlo Comparison

compare risk assessment scenarios



Database

Member states risk assessment activities



ribess

risk based surveillance systems



sampelator

sample size calculator



European Food Safety Authority

Expert Knowledge Elicitation



spatial

exploratory analysis for spatio-temporal epidemiology



mss-to-excel

transform MSS files into Excel files



Abstract Screening



European Food Safety Authority

EU-RAA

EU Risk Assessment Agenda Projects and Partnering



Subscribe to

www.efsa.europa.eu/en/news/newsletters
www.efsa.europa.eu/en/rss



Engage with careers

www.efsa.europa.eu/en/engage/careers



Follow us on Twitter

@efsa_eu
@plants_efsa
@methods_efsa

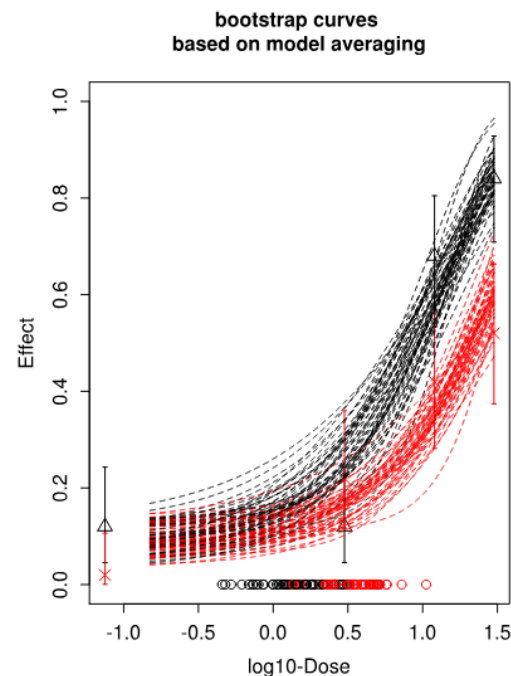
Back up slides



What is it for?

Pre-requisites?

Outputs?



- To estimate the dose corresponding to the benchmark response of interest. The software can apply model averaging.
- Extended PROAST data format
- BMD report
- R code available on <https://zenodo.org/record/889583>
- [Manual](#) (under update)
- In 2017, EFSA organised a workshop on BMD (not specific on the tool). Information available on <https://www.efsa.europa.eu/en/events/event/170301-0>

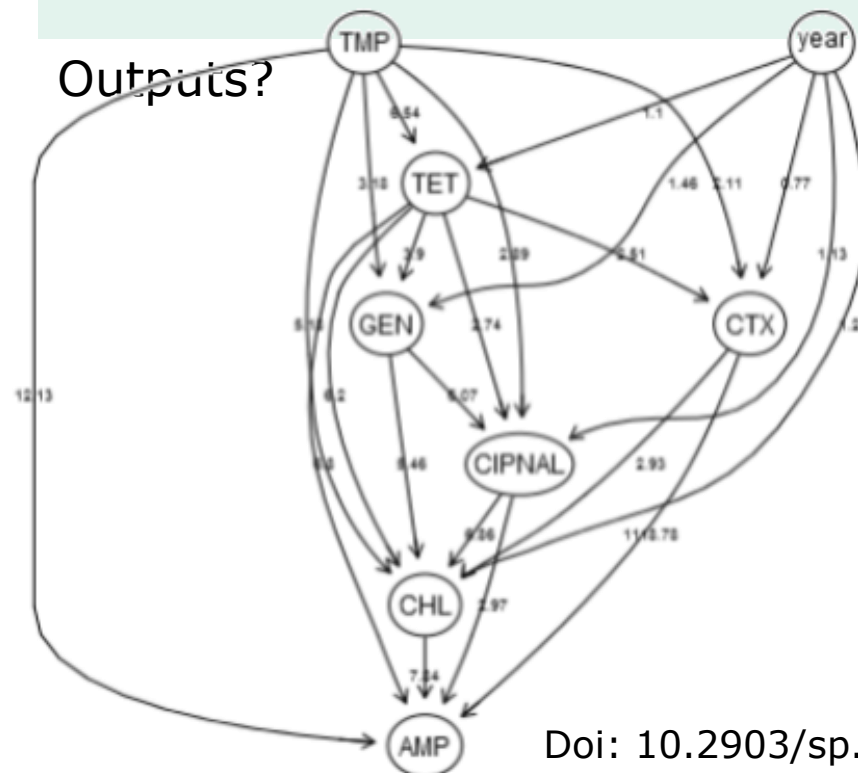


What is it for?

Pre-requisites?

Outputs?

- Analyse AMR data to indicate MDR
- AMR data (in the same format as used for the EC reporting)
- Data exploration under many different tools, e.g. Spatial analysis, Bayesian networks, Generalized Estimating Equation, Latent Class Analysis, etc.



Doi: 10.2903/sp.efsa.2016.EN-1084



What is it for?

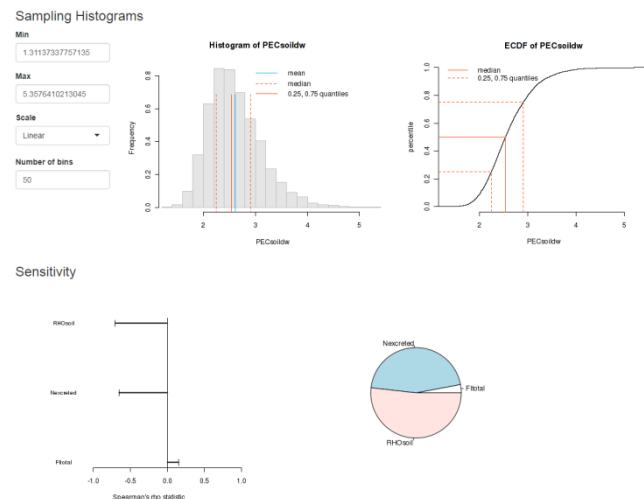
- A computational approach to model the probability of different outcomes in a process
- Mainly used, so far, for plant health RA

Pre-requisites?

- Model equation
- Knowledge of the probability distribution for each of the input variables

Outputs?

- Probability distribution of the output variable
- Sensitivity analysis for the input/output variables
- Uncertainty evaluations





What is it for?

Estimation of the sample size, design prevalence, global sensitivity and probability of freedom from disease

Pre-requisites?

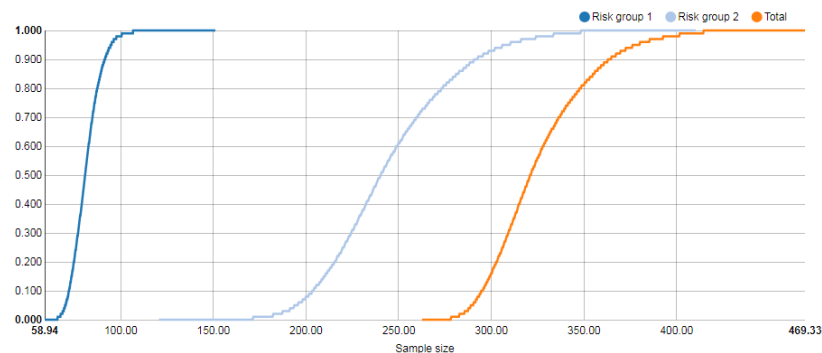
- Population Size
- Design Prevalence/Samples taken
- Test sensitivity

Finite population

	Species	Population size	Sample size	Group sensitivity
1	Sheep	340.000	81.000	0.780
2	Others	660.000	240.000	0.776

Total sample size: 321
Global sensitivity: 0.95

[Download](#)



Outputs can take into account Risk Factors with different relative risks and proportions in the populations

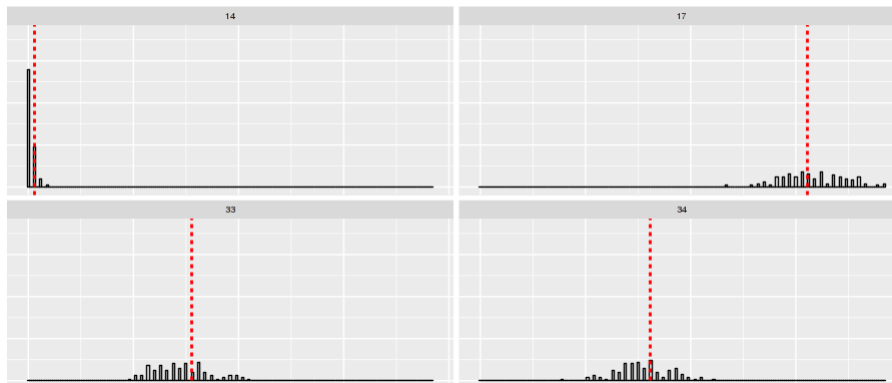


What is it for?

Sample a dataset following a sampling strategy (random sampling, stratified sampling, multi-step sampling, measure change over time, etc.)

Pre-requisites?

Sample size, desired difference to be tested for or power;
Population to be sampled



Sample table; Sampelator can provide a visual indication of representativeness for the sampling performed

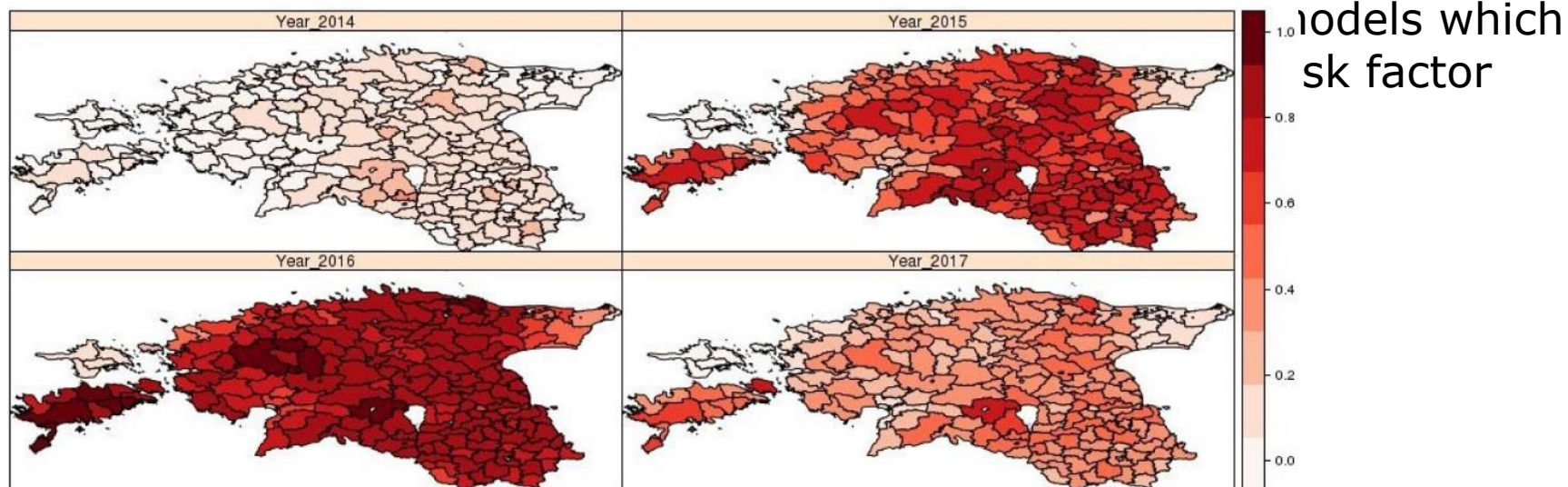


What is it for?

Exploring epidemiological scenarios using two model classes (Bayesian hierarchical models, Generalised additive models)

Pre-requisites?

Temporal and spatial data



Selection of publications to be used in a systematic review (pilot phase)

Full-text articles or abstracts;
Training data ($\sim 10\%$)

Inclusion prediction probabilities





What is it for?	Compare different Montecarlo Scenarios	Facilitate EKE using the WEB to contact and gather expert replies	Database with MS Risk Assessment Agendas for the Delphi priorities
Pre-requisites?	Have used Montecarlo WEB app for each Scenario	Have a well formulated question and a group of experts to elicit	
Outputs?	Report with comparison of Scenarios using probability distribution and tables	Report with the EKE performed, providing a documented process for each expert	Report on MS proposals and graphical presentation of the information