



AMBIGUITY

**2 day short course on
Expert Judgment**

UNCERTAINTY

INDECISION

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EJ for RATIONAL CONSENSUS:

[RESS-TUDdatabase.pdf](#)

Parties pre-commit to a method which satisfies necessary conditions for scientific method:

Traceability/accountability

Neutrality (don't encourage untruthfulness)

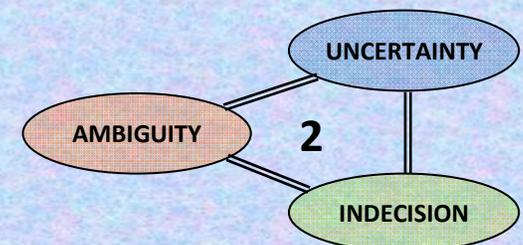
Fairness (ab initio, all experts equal)

Empirical control (performance meas't)

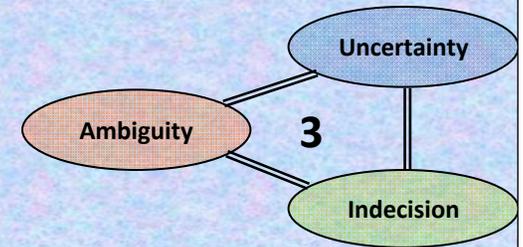
Withdrawal post hoc incurs burden of proof.

Goal: comply with principals and combine experts' judgments to get a **Good Probability Assessor**

“Classical Model for EJ”



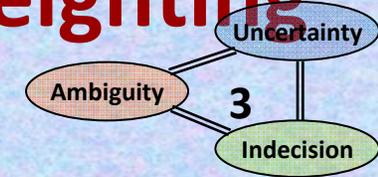
Experts CAN quantify uncertainty as subjective probability



<i>TU DELFT Expert Judgment database 45 applications (anno 2005):</i>	# Experts	# variables	# elicitations
Nuclear applications	98	2,203	20,461
Chemical & gas industry	56	403	4,491
Groundwater / water pollution / dike ring / barriers	49	212	3,714
Aerospace sector / space debris /aviation	51	161	1,149
Occupational sector: ladders / buildings (thermal physics)	13	70	800
Health: bovine / chicken (<i>Campylobacter</i>) / SARS	46	240	2,979
Banking: options / rent / operational risk	24	119	4,328
Volcanoes / dams	231	673	29079
Rest group	19	56	762
<i>TOTAL</i>	<i>521</i>	<i>3688</i>	<i>67,763</i>

We CAN do better than equal weighting

[RESS-TUDdatabase.pdf](#)



R.M. Cooke, L.L.H.J. Goossens / Reliability Engineering and System Safety 93 (2008) 657–674

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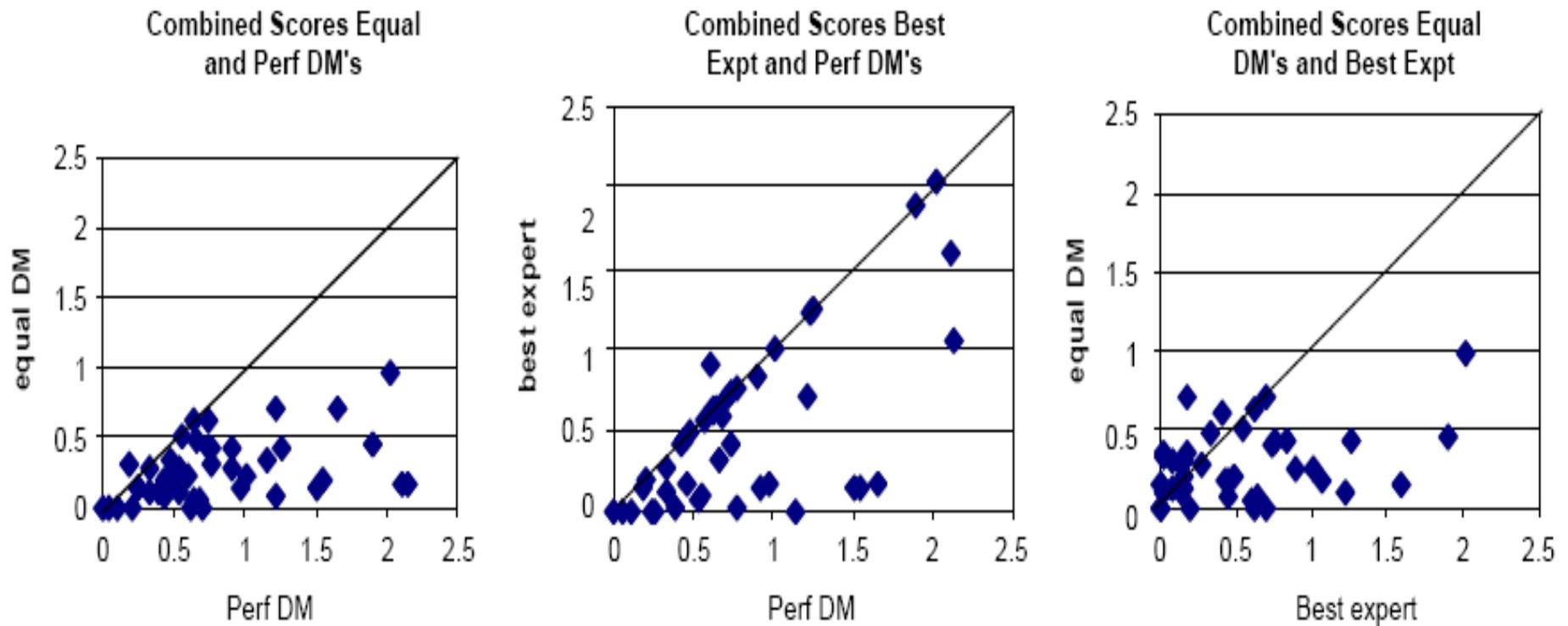


Fig. 1. Combined scores of equal weight DM, performance-based DM, and best expert.

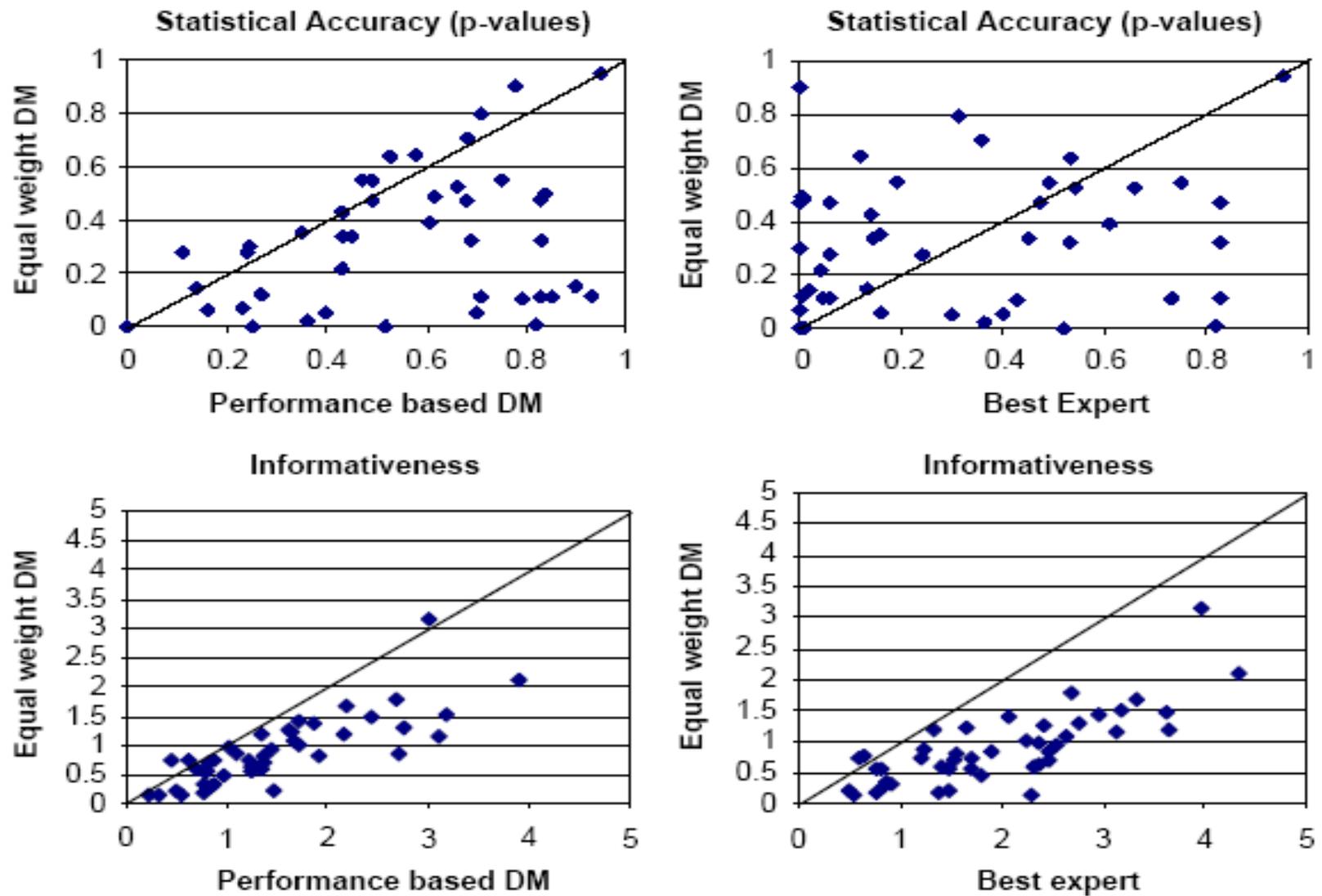
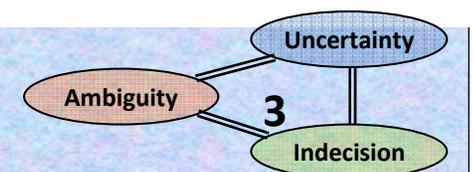
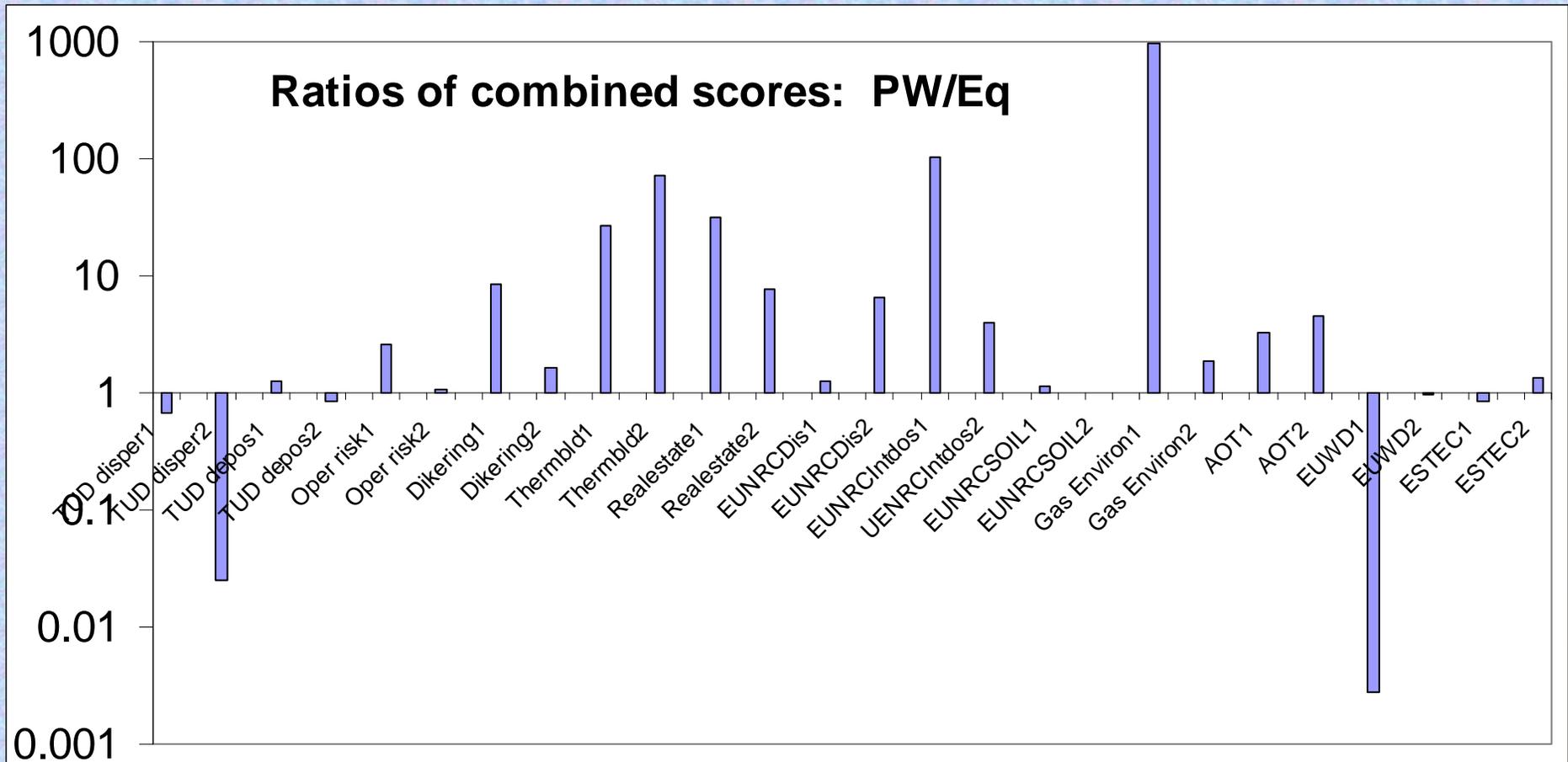
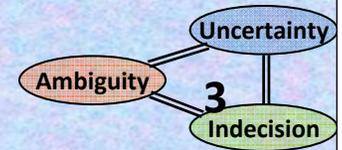


Fig. 2. Calibration (p -values) and information scores of equal weight DM, performance-based DM, and best expert.



Out-of-sample Validation

[RESS response2comments.pdf](#)



13 studies with ≥ 14 seed vbls, split, initialize on one half, predict other half



Aspinall & Associates

Proof of concept Elicitation Results



**Seventh Session of the Statistics and Risk Assessment
Section's International Expert Advisory Group on Risk
Modeling: Expert Elicitation Workshop, Ottawa 28 March 2008**

Results and findings from an Expert Elicitation Proof-of-concept Exercise

Summary report prepared by Aspinall & Associates

for

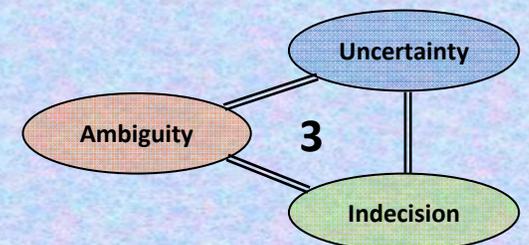
Public Health Agency of Canada

Contract reference: 4500180985
Vendor No. 1146454

Experts like performance assessment

Ask them [Aspinall mvo exerpts.pdf](#), [Aspinall et al Geol Soc .pdf](#), [Aspinall & Cooke PSAM4 3-9.pdf](#), [SparksAspinall VolcanicActivity.pdf](#)

**Separate
scientific assessment of
uncertainty
from
decision making**



The choice is NOT whether to use EJ;
but:
do it well or do it badly?

“NASA must always strive for the highest level of accomplishment, to exceed the expectations of the Nation, and to do what is right...”(Return to Flight task group p.14)

