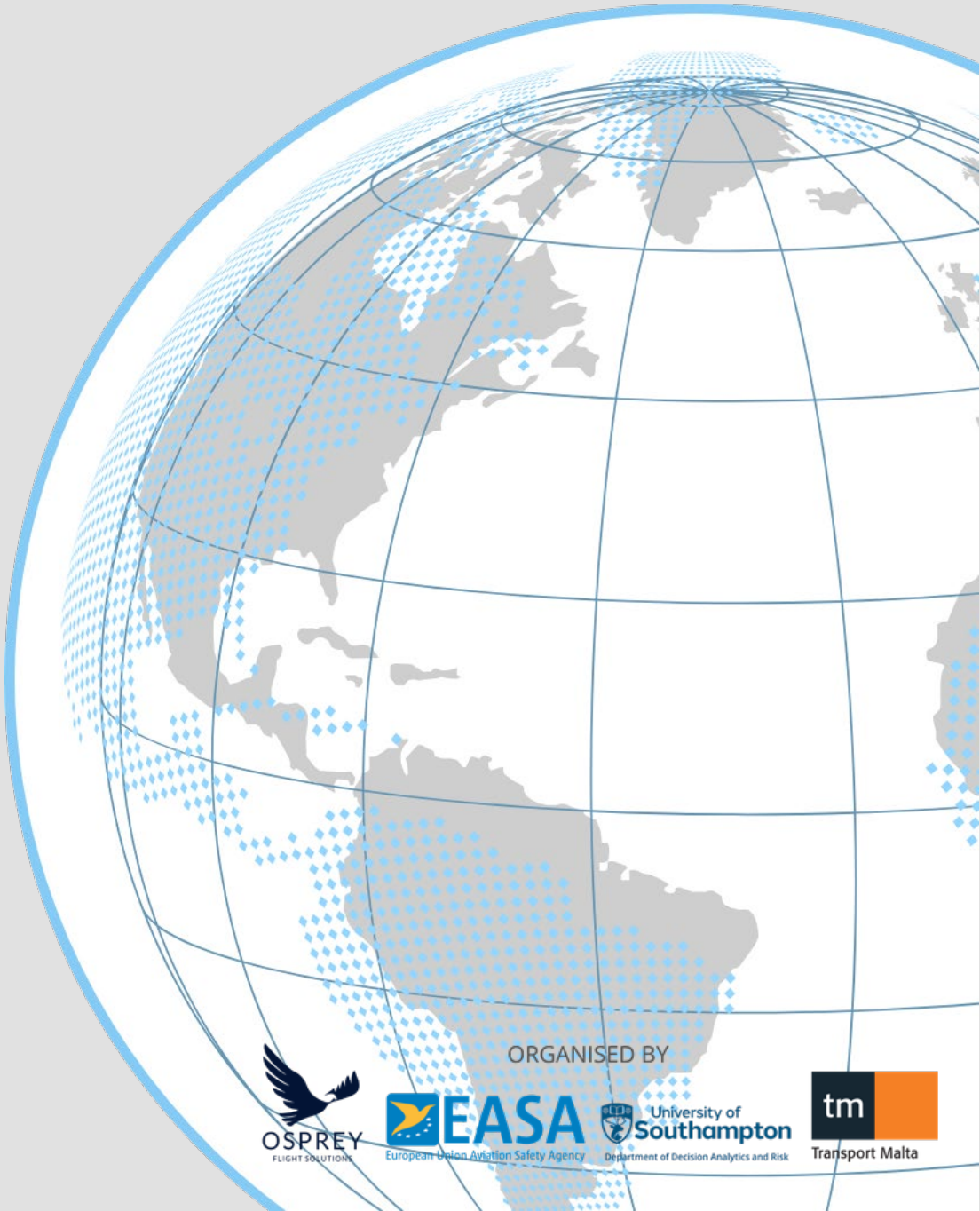
WORC™ 2026

World Overflight Risk Conference

Does Your Risk Analysis Improve Decisions—or Just Reduce Decision Anxiety?

Doug Hubbard, President, Hubbard Decision Research



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EASA European Union Aviation Safety Agency

University of Southampton Department of Decision Analytics and Risk

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Introduction

The Biggest Risk

Question: What is your single biggest risk?

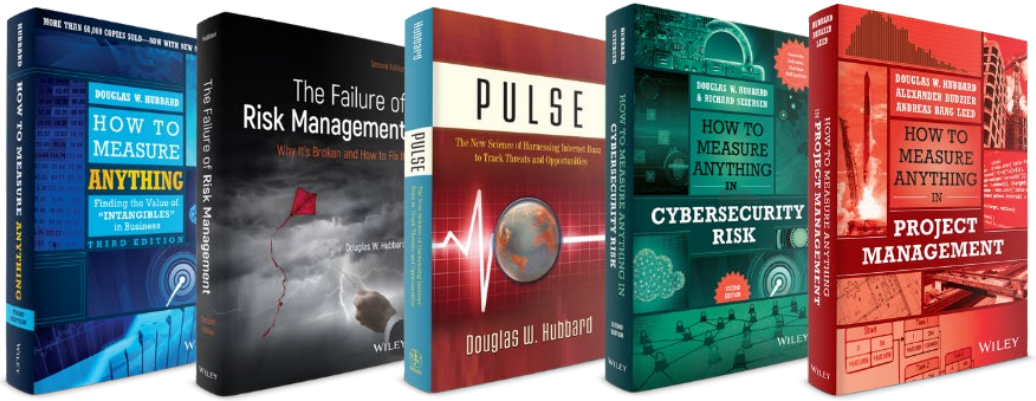
Answer: How you measure risk.

The “Meta-Risk”

How do we know what works and what doesn’t?

Hubbard Decision Research Background

In 300+ major analysis projects, HDR has been able to show that no matter how difficult the measurement and monetization problem appears to be, we find a way to evaluate it and communicate the results.

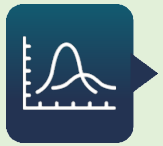


- The benefits and risks of ***dams on the Mekong River***
- The relative value of ***R&D portfolios*** in aerospace, biotech, and pharma
- ***Logistics forecasts for the battlefield*** and the effectiveness of training for the US Military
- ***IT Project Portfolio*** and ***Cybersecurity Risk Assessments*** in several industries
- Risks and benefits of ***Environmental policy*** for US farmers and public health
- The benefits of ***Educational assistance*** in inner city schools
- The benefits of roads, schools and hospitals in Haiti and how to prioritize them for the ***United Nations***

General Thoughts on Decision Making

Many supposedly “structured” methods improve confidence while making judgements worse.

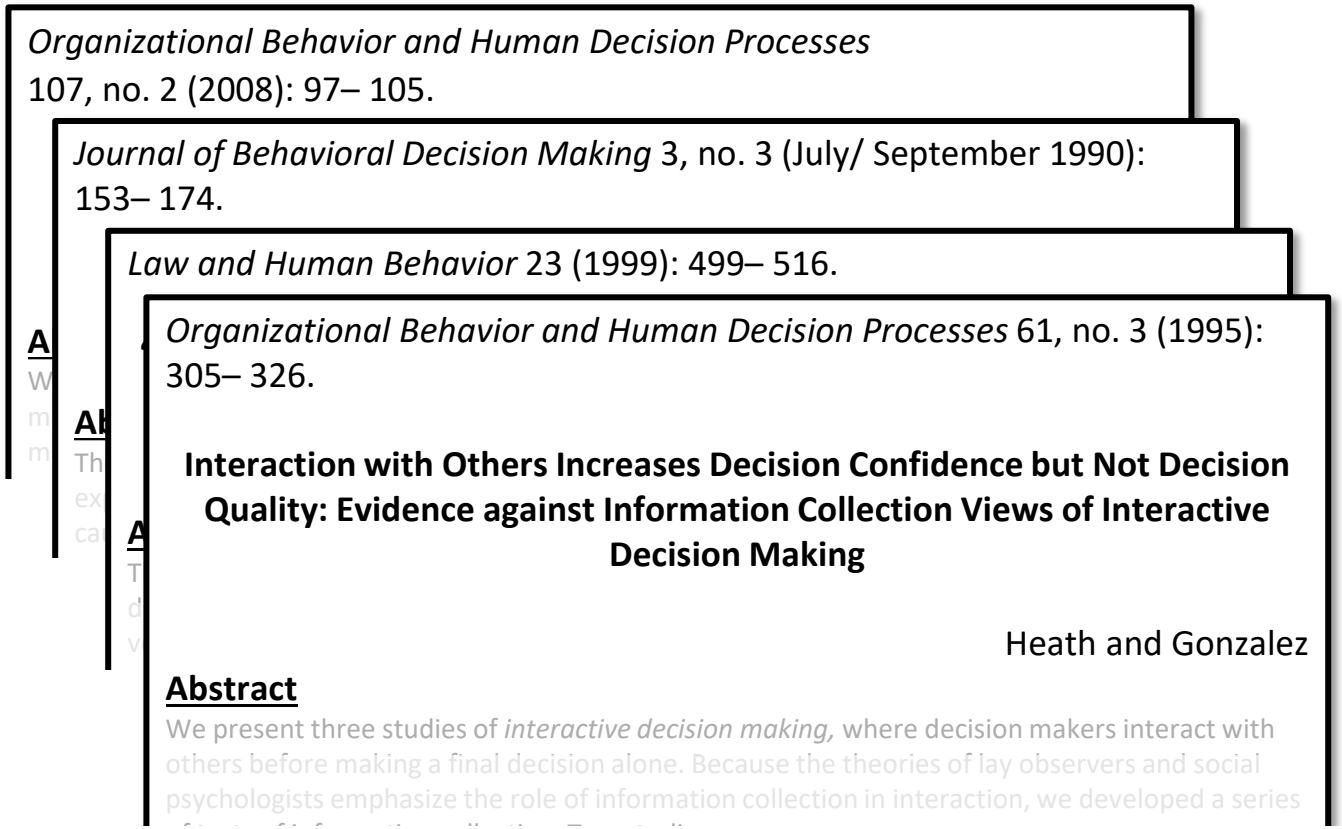
Some methods measurably outperform others, even among subjective methods.

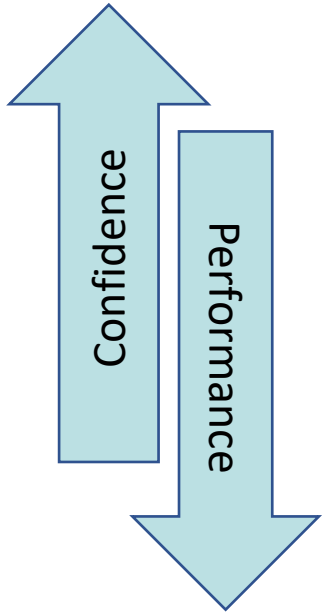


Nothing is immeasurable. Anything of value can be monetized.

The Analysis Placebo

Confidence in Decision-Making Methods is Detached from Performance



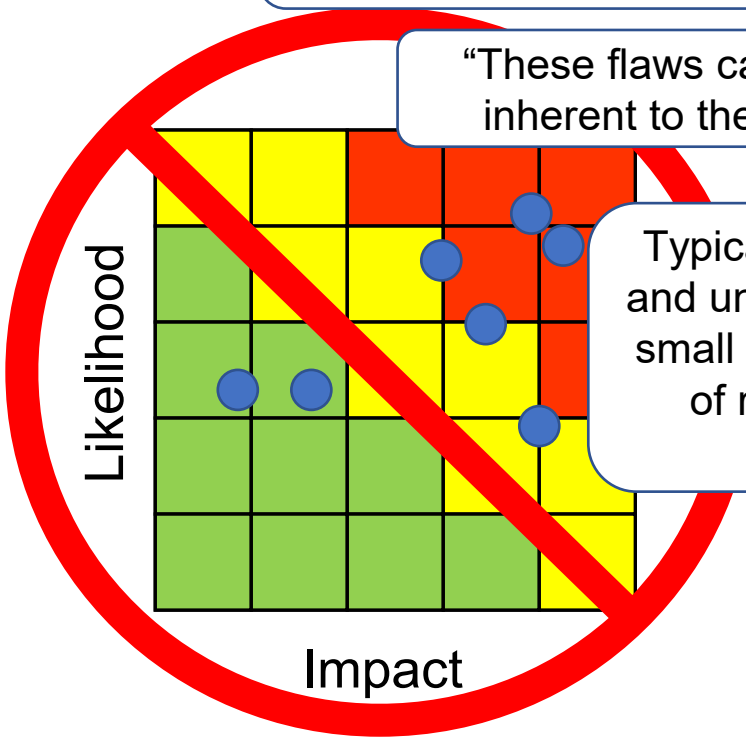


Do "Scores" and "Scales" Work

The Ubiquitous Risk Matrix

"The ranking produced by RMs was shown to be unduly influenced by their design, which is ultimately arbitrary."

"Risk Matrices should not be used for decisions of any consequence"



"These flaws cannot be corrected and are inherent to the design and use of RMs."

ty of Petroleum Engineers Econ
): 56–66.

The Risk of Using Risk Matrices

P. Thomas, R. Bratvold, and J. E. Bickel

Abstract

widely espoused approach to assess and analyze risks in the oil & gas

Typical risk matrices can correctly and unambiguously compare only a small fraction (e.g., less than 10%) of randomly selected pairs of hazards.

28, no. 2 (2008).

What's Wrong with Risk Matrices?

L. A. Cox, Jr.

ratings to corresponding risk priority
isk analysis, highway construction
isk management,
e.g., Military

"Effective allocation of resources to risk-reducing countermeasures cannot be based on the categories provided by risk matrices."

Standard 882
many organiz
performance

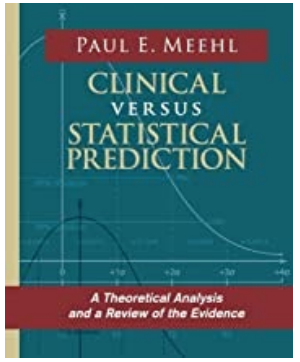
"For risks with negatively correlated frequencies and severities, they can be 'worse than useless,' leading to worse-than-random decisions."

Experts vs. Algorithms

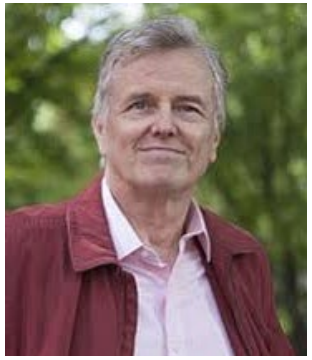
What the Research says about Statistical Methods vs. Subject Matter Experts

Paul Meehl assessed 150 studies comparing experts to statistical models in many fields (sports, prognosis of liver disease, etc.).

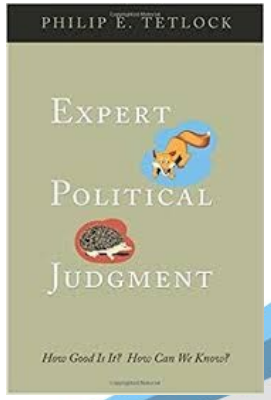
"There is no controversy in social science which shows such a large body of qualitatively diverse studies coming out so uniformly in the same direction as this one."



Philip Tetlock tracked a total of over 82,000 forecasts from 284 experts in a 20-year study covering politics, economics, war, technology trends and more.



"It is impossible to find any domain in which humans clearly outperformed crude extrapolation algorithms, less still sophisticated statistical ones."

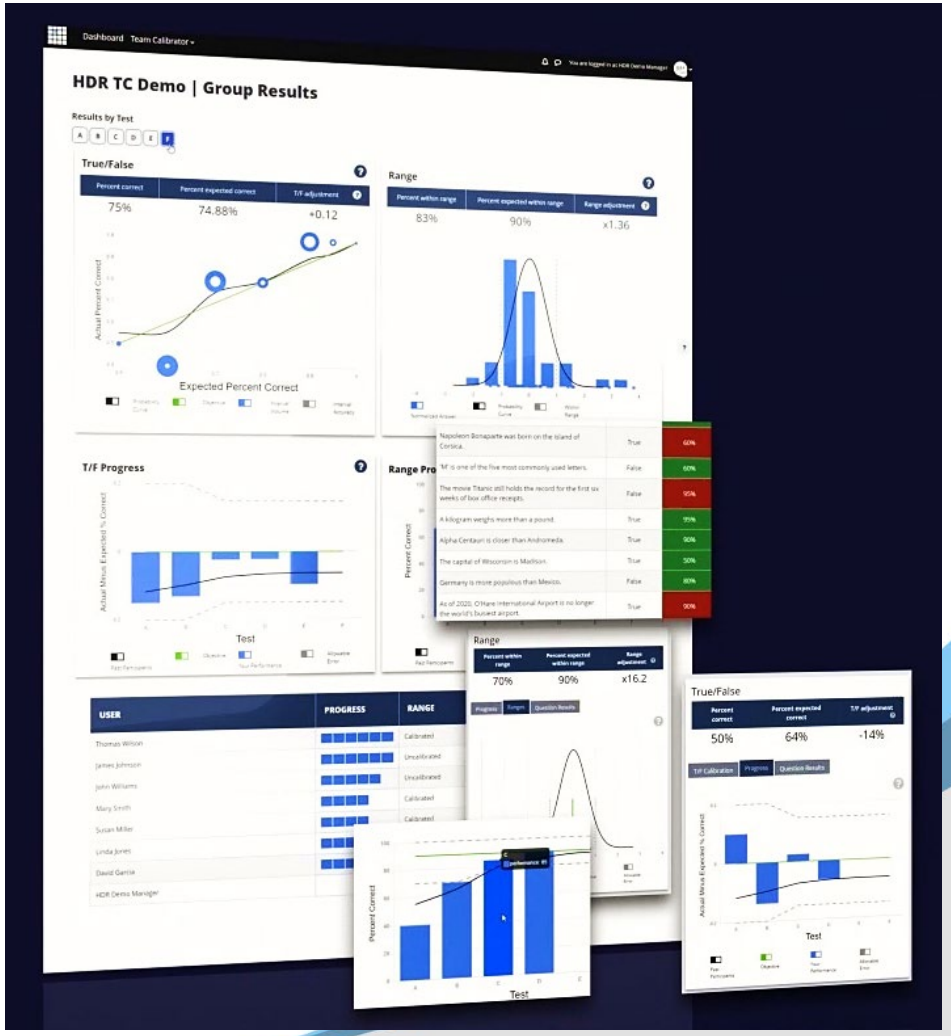


Overconfidence

The Need to be "Calibrated"

"Overconfident professionals sincerely believe they have expertise, act as experts and look like experts. You will have to struggle to remind yourself that they may be in the grip of an illusion."

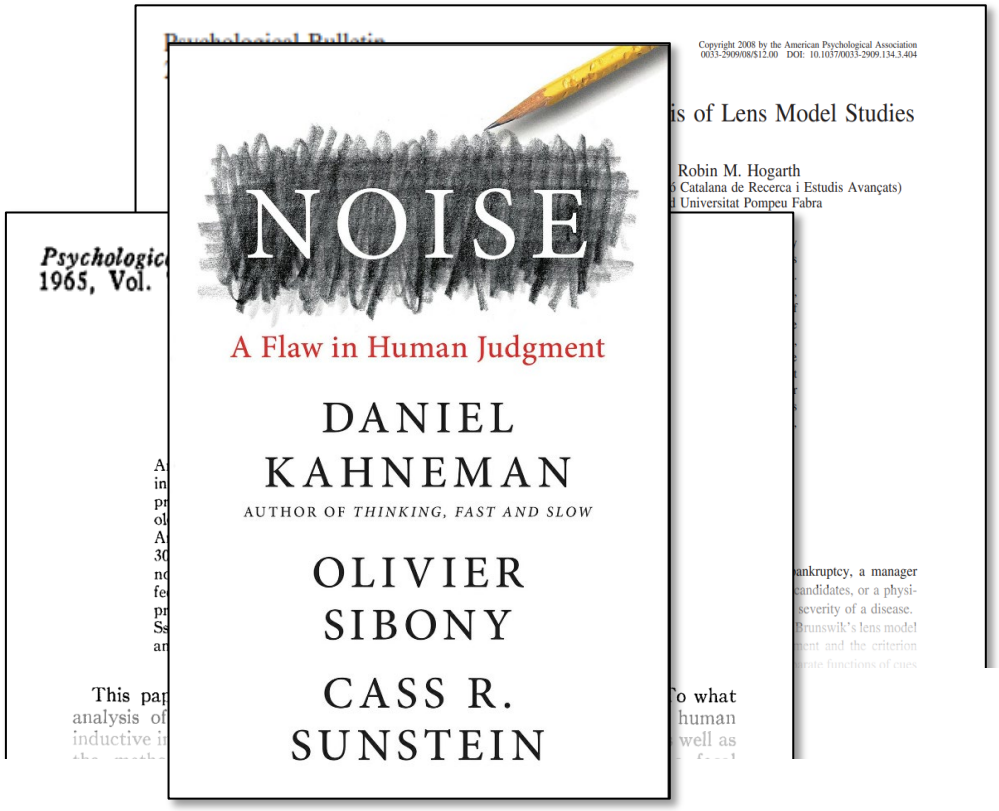
Daniel Kahneman, Psychologist, Economics Nobel

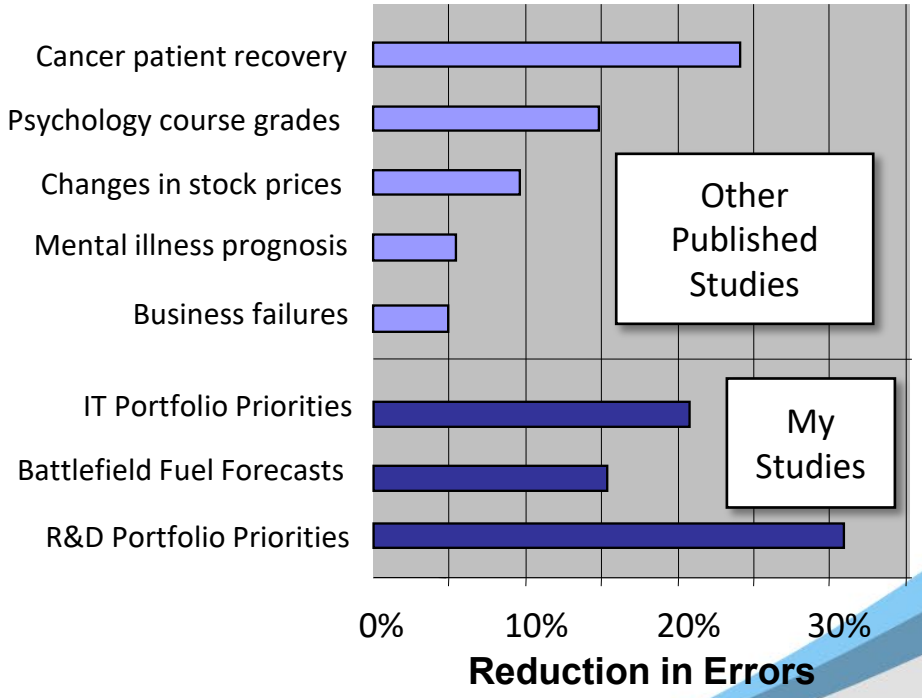


- Studies also show that measuring *your own* uncertainty about a quantity is a general skill that <u>can be taught</u> with a ***measurable*** improvement.
- HDR has asynchronous training for this and has algorithms for combining multiple experts in a way that outperforms the best individual.
- We've also experimented with AIs providing estimates.

Removing Inconsistency

The “Lens Method” statistically “smooths” estimates of experts. Several studies for many different kinds of problems show it reduces judgement errors.





Practical Lessons

Here are a few key things I've learned measuring the "immeasurable"

- You *have more* data than you think and you *need less* data than you think.
- It's been measured before.
- Your probably need *different* data than you think.
- Decision makers understand it just fine if explained well.
- The best investment in most portfolios was better measurements of investments.

Thank You

Doug Hubbard

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Measure What Matters.

Make Better Decisions.

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20 - 22 April 2026 | St Julian's, Malta

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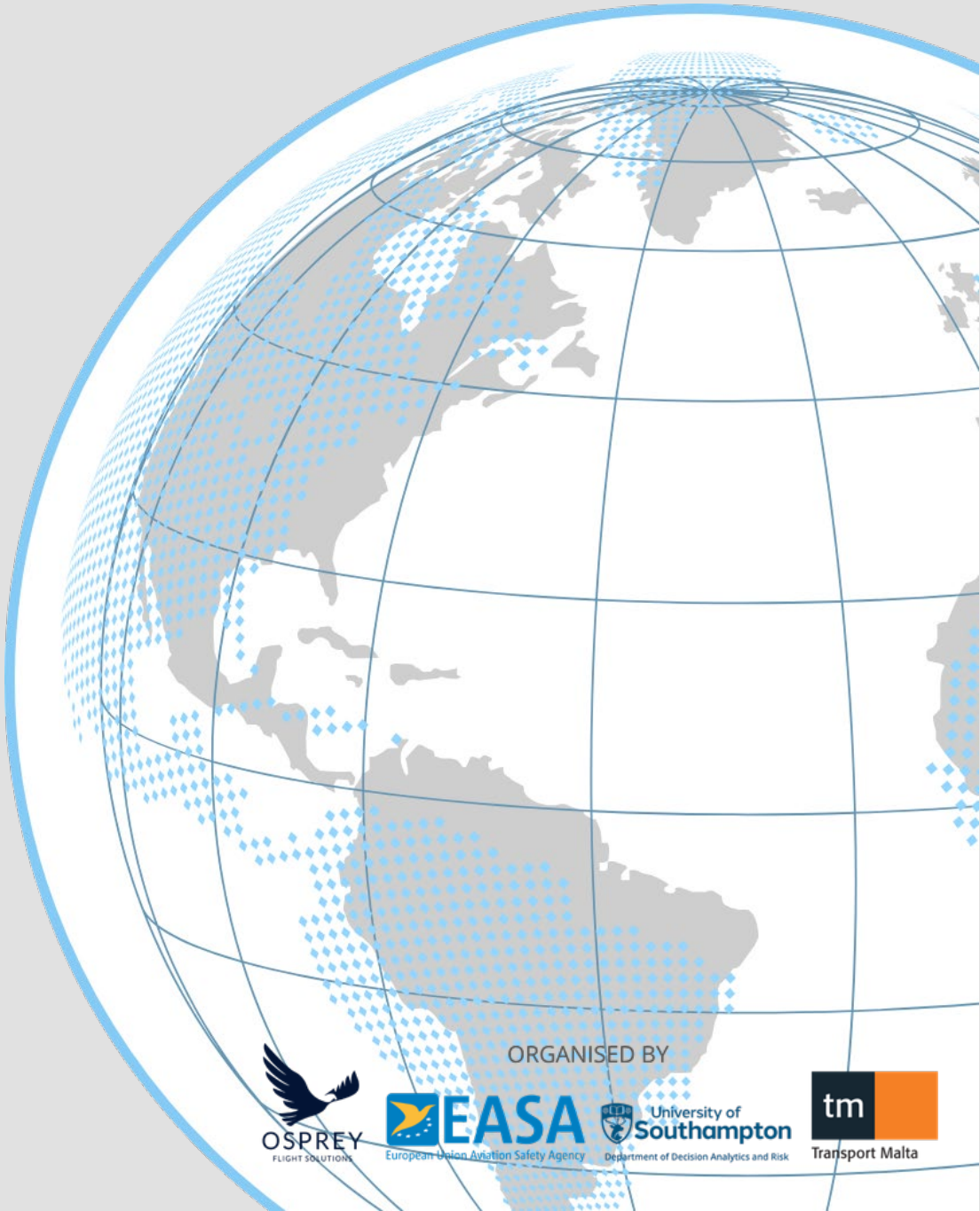

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