The VUCA Meter - Enhancing the Traditional Risk Assessment Procedure in Projects

Thordur Vikingur Fridgeirsson

Helgi Thor Ingason

Vaðlaheiðargöng – a case study of risk

Vaðlaheiðargöng (tunnel) timeline

- 2002 – Report published claiming a feasible and technical simple project
- 2003 – A private company, Greið leið ehf, established
- 2004 – Geological research begins
- 2005 – Preparations continues
- 2006 – Report published that the project is economically profitable
- 2007 – Geological assessment indicates decent conditions for tunnelling
- 2008-2010 – Financial crash! The business model reworked. Risk transferred to the state

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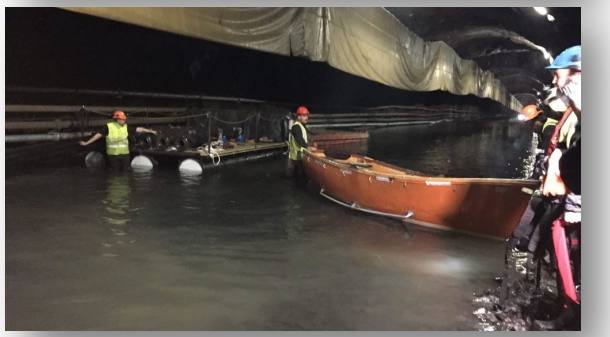
- 2011 – First tenders arranged. Planned project closure July 2015.
- 2012 – The site development begins
- 2013 – Tunnel excavation begins
- 2014 – 46°C/350 l/sec hot water vain discovered. The contractor moves his equipment to the other side
- 2015 – A cold water vain (520 l/sec at max) discovered
- 2018 – Tunnel opens for traffic in December
- 2020 – Covid19 reduces traffic 20%



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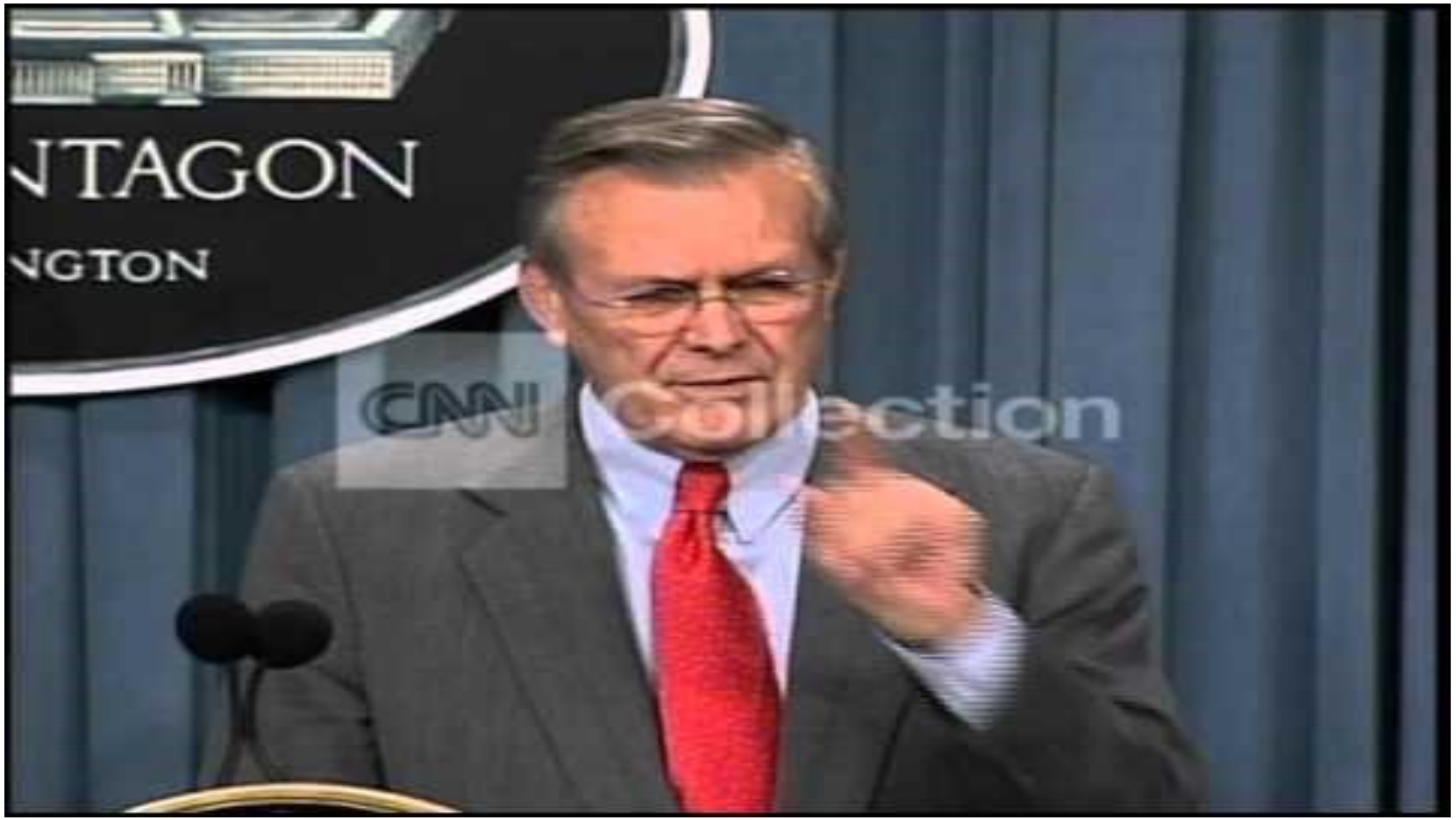
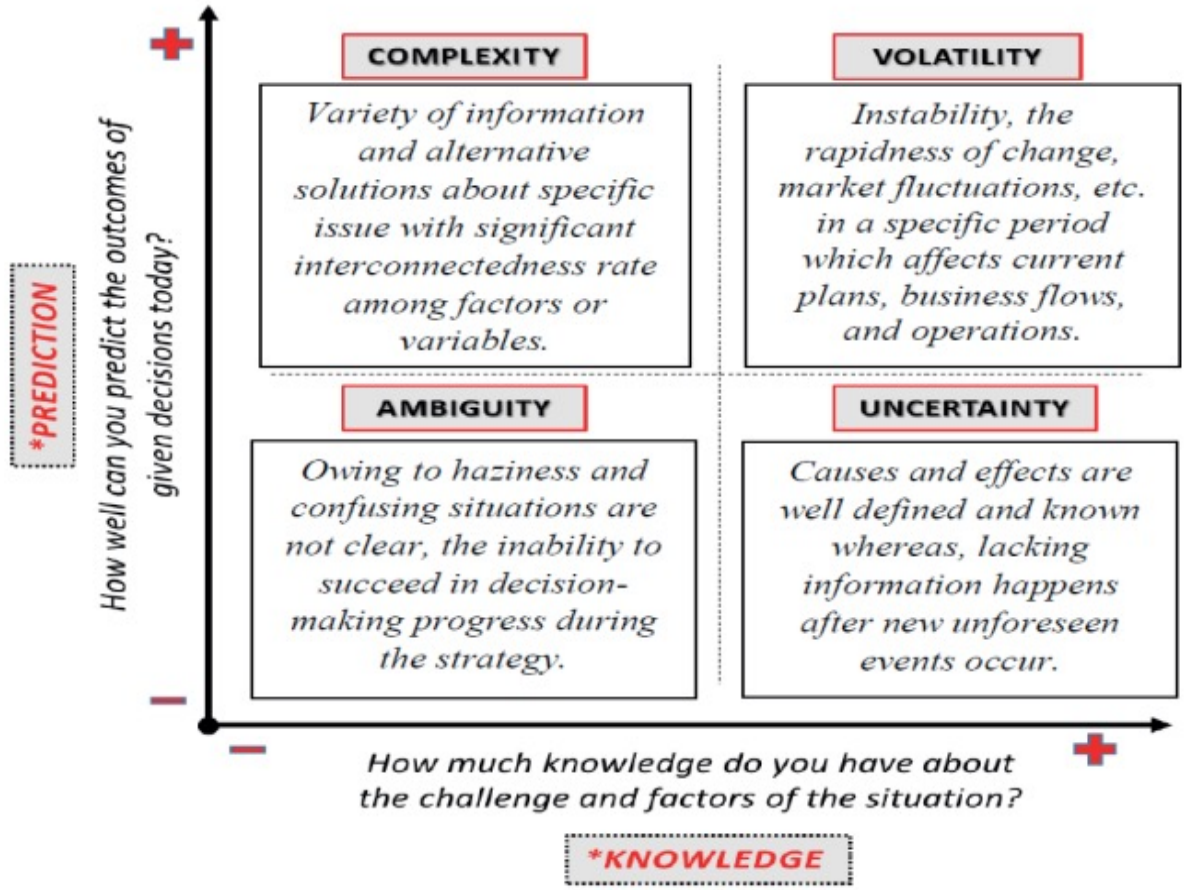
Risk is also opportunity – Forest Lagoon

Vaðlaheiðargöng. Epitome of the VUCA world



What is VUCA?

- VUCA is a short for Volatility, Uncertainty, Complexity and Ambiguity
  - “Hey, it‘s crazy out there!”
- The VUCA semantics was introduced in 2014 by Nate Bennett and G. James Lemoine



The axioms of Risk

- A chance (…) of danger, loss, injury or other adverse consequences (The Oxford English Dictionary)
- Risk is the combination of the probability of an event and its consequence (Institute of Risk Management (IRM))
- Uncertainty of outcome (…) arising from a combination of the impact and the probability of potential events (HM Treasury)
- Risk is measured in terms of consequences and likelihood (Institute of Internal Auditors)

RISK = PROBABILITY of an event X IMPACT of event

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How good are people at estimating probabilities?

- The human mind applies mental heuristics and associated biases
  - Representativeness (sample sizes, randomness, gamblers fallacy, etc.)
  - Availability (how easy to imagine rather than probable, etc.)
  - Anchoring and adjustment (first mover, conjunctive events, etc.)
- In short – the estimate of the subjective probabilities is the backbone of risk management but people are not very good at it

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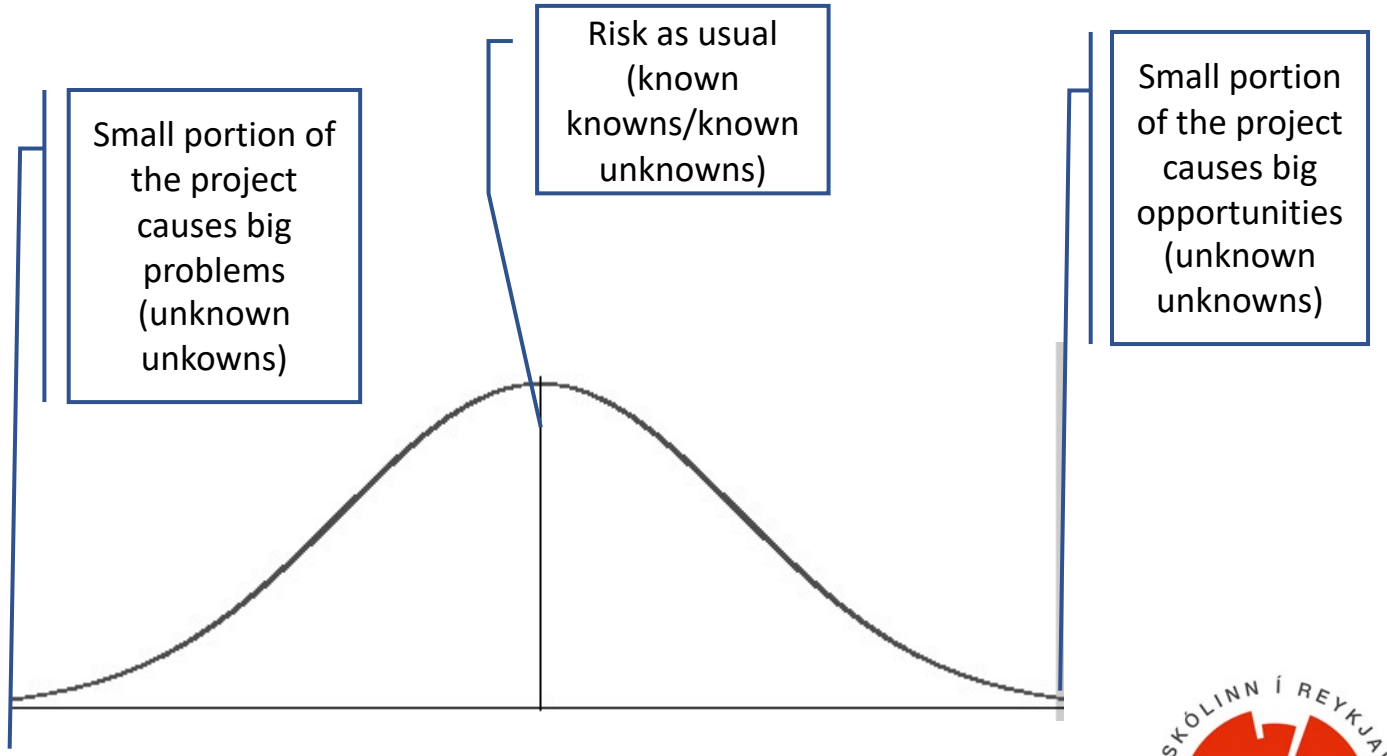
What about probabilities based on empirical evidences?

- Three problems
  A. What reference class?
  B. How valid is empirical data?
  C. The risk event is based on frequency not the impact



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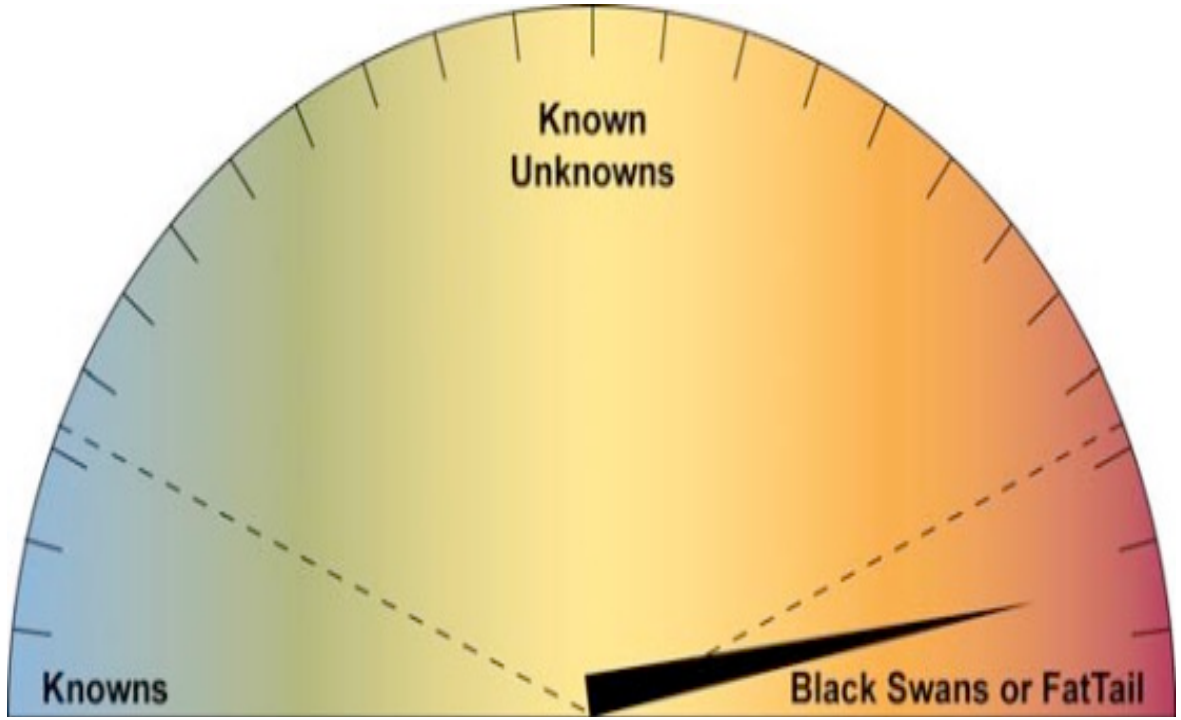
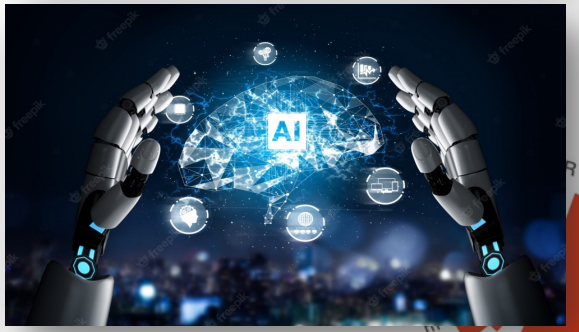
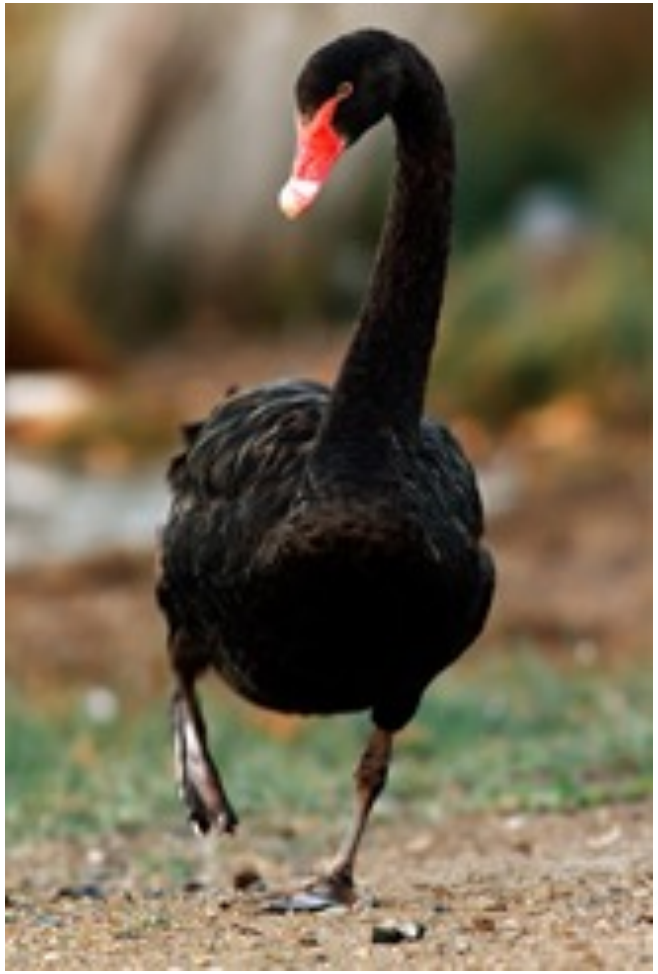
Enhancement with the VUCA meter





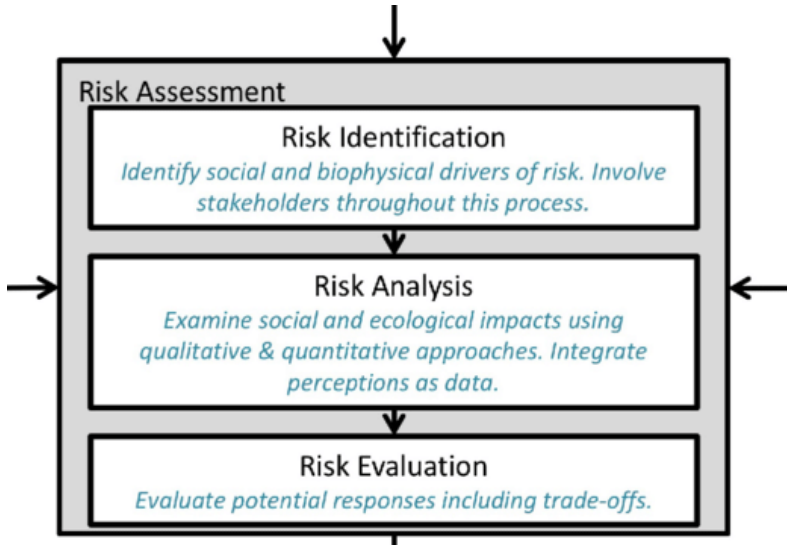
What are fat tail events (Black Swans)?

- We do not expect it to happen
- It carries an extreme impact
- In retrospect it seemed predictable



The authors assumptions

- The conventional probability/impact risk approach can be augmented by VUCA
- The “VUCA meter” is designed to getting ready for low probability/high impact events
- The VUCA meter is a normative sequential method applied in conjunction with conventional methods
- It is based on theories from decision analysis (consensus methods)



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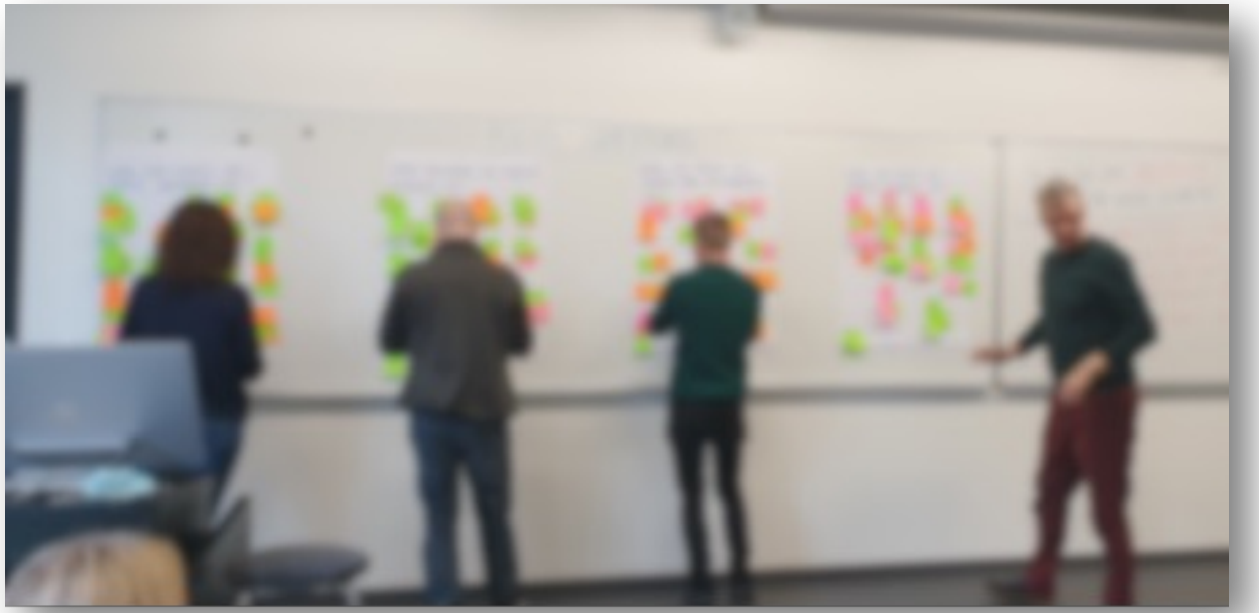
The seven steps of the VUCA meter

1. Pre-preparation
2. Workshop kick-off
3. Four VUCA rounds
    i. Volatility
    ii. Uncertainty
    iii. Complexity
    iv. Ambiguity
4. Categorizing
5. Risk event formulation
6. Risk event impact assessment
7. Black swan identification



Volatility	
Planning and schedules volatility	Contracts and integrity volatility
Goals and objectives volatility	Resources and needs (finance included) volatility.

Uncertainty	
Technological uncertainty	Culture and time-zones challenges
Scope and limitations uncertainty	Risk management and control uncertainty

Complexity	
Regulatory and politics complexities	External interfaces (projects, technology, culture, etc.) complexities
Uniqueness of project challenges	Decision making and governance complexities

Ambiguity	
Deliverables assesses with the “unknown unknowns”	Task connections unclear
“Hidden agenda” – the unsaid things effect	Stakeholder management obscure

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The VUCA meter tested

- The VUCA meter has been tested on four projects
  - The reception of children and young people fleeing Ukraine, to the Icelandic school system
  - Waste-to-Energy Plant
  - Infrastructure transportation
  - Geothermal Project in Indonesia

- Results indicate that the VUCA meter can enhance traditional methods based on empirical evidences

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