Practical use of allocation uncertainty analyses

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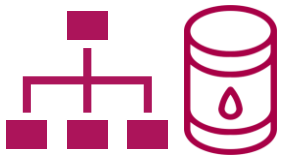
Allocation uncertainty analysis

Context

WHEN?	Tie-in
WHO?	Allocation engineers and commercial committee; operator and license partners
WHY?	Commercial negotiations and agreements
WHAT?	Uncertainty and financial risk exposure of host and tie-in field(s)
HOW?	Third party delivery, SoW by operator alone or in collaboration with license partners

Tie-in project

Challenges

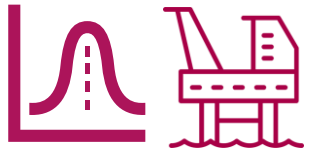


Complex tie-in setups

Result of declining reserves and cost efficiency

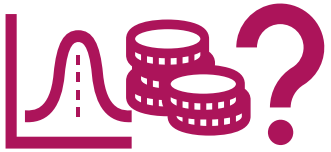
Design phase

Cost efficiency ≫ allocation uncertainty in concept select



Metering design

Uncertainty budget necessary



Allocation design

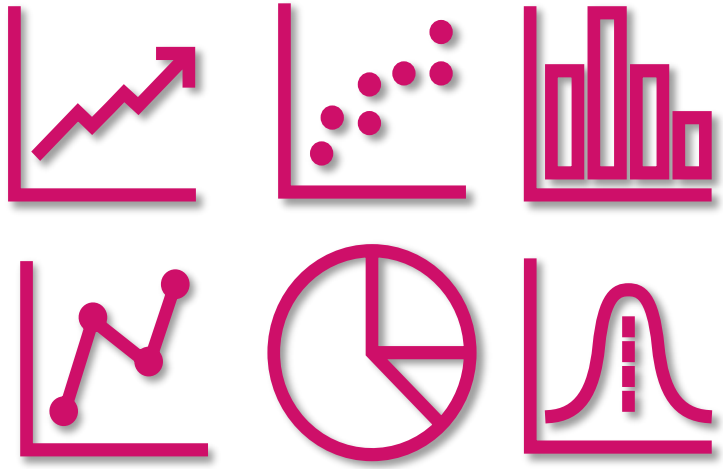
Uncertainty budget optional

Allocation uncertainty analysis

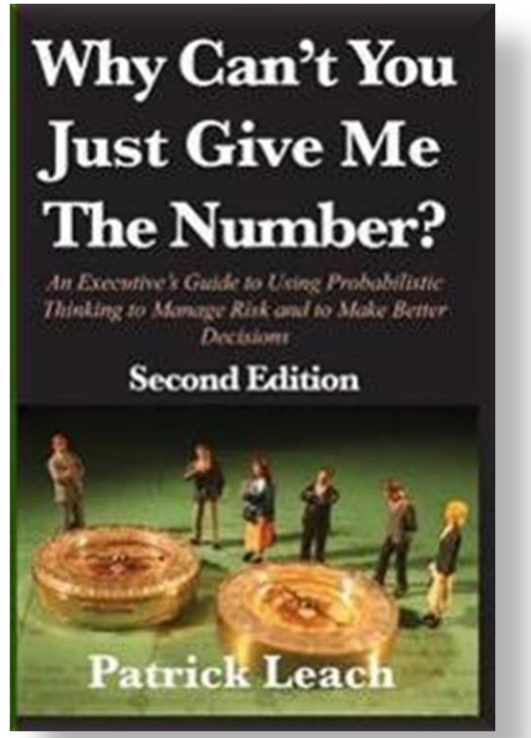
Input & output from operator standpoint

- **Input:**
  - Production profiles, densities (typically Sm^3)
  - Fluid compositions (typically reservoir cond.)
  - Fiscal metering design
  - Considered allocation scenario(s)

- **Output:**
  - Absolute and relative uncertainties for studied field(s) and host
  - Allocated masses/volumes
  - Cost/benefit, financial risk
  - ….most importantly suggestion as to what allocation design to choose/definitively discard, hidden biases, etc.



Why can’t you just give me the number?



Allocation uncertainty analysis

Challenges

Time pressure

Supplier availability

Tie-in project timeline (incl. license partners)

Project on top of daily work for allocation engineer

Simplification

Vastly simplified setup

Only a part of the allocation system considered to keep SoW manageable

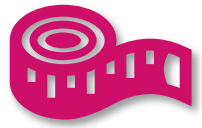
Estimates (input from operator & theoretical)

Purpose

Commercial: tariffs and taxes

Operations: minimized uncertainty of the allocation system to ensure fair and prudent production allocation

Operator & license partners



«One size fits all»

Assumptions and equations

Effects of commercial principles ruling allocation not accounted for

Back and forth adjustments

Cost/benefit

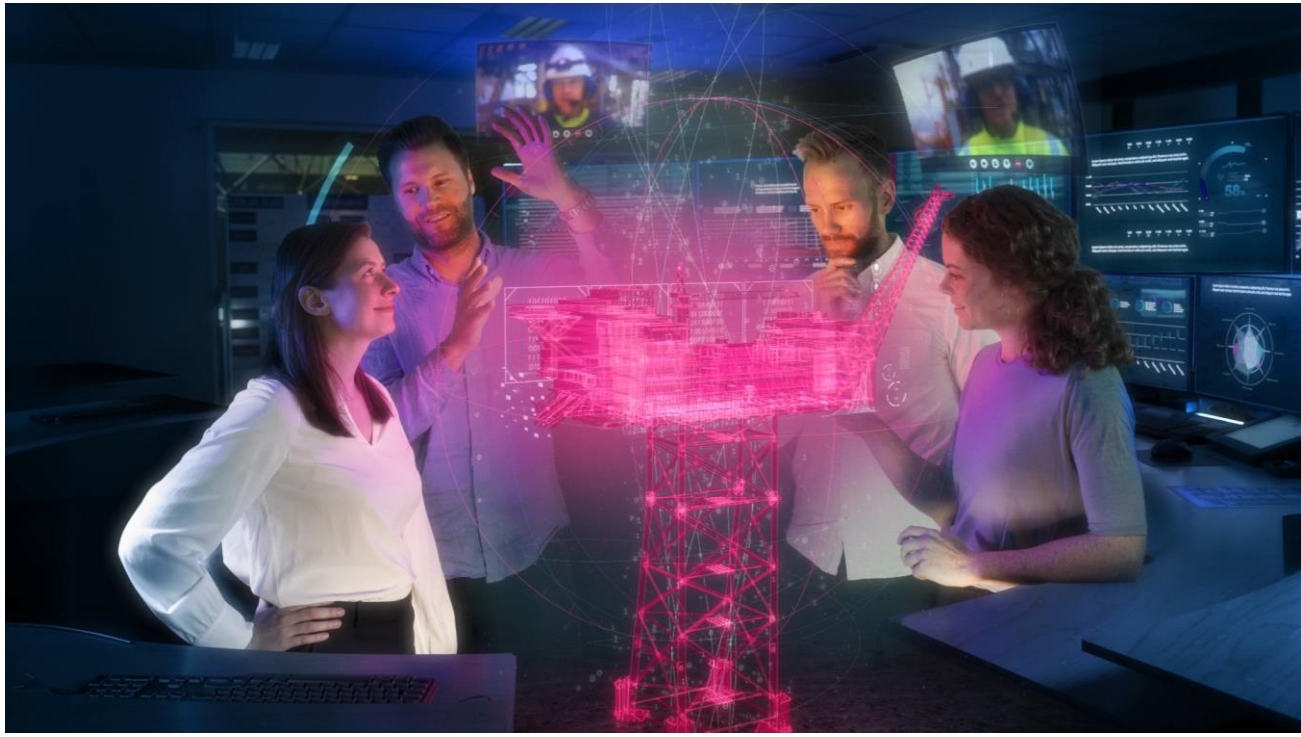
What value do we get out of the results?

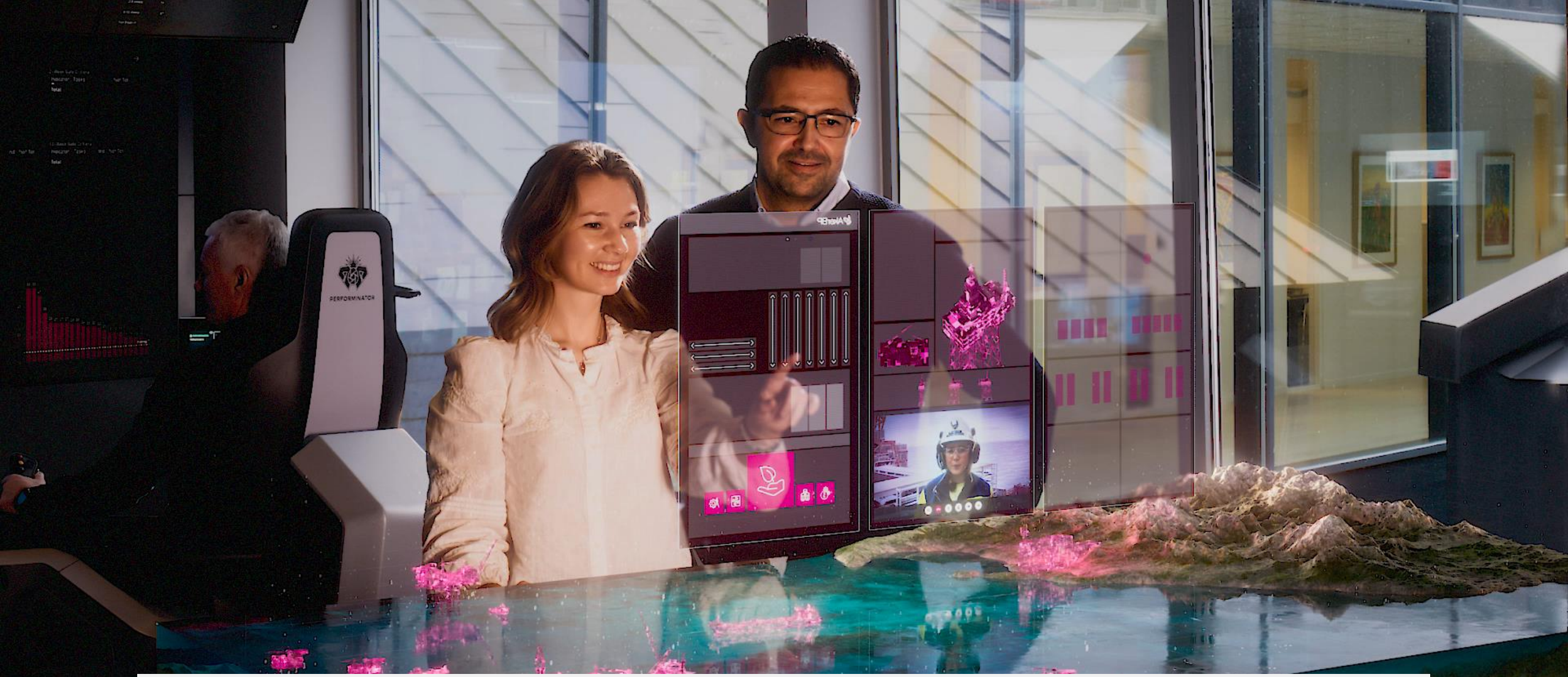
Are the answers we need even possible with the agreed, *manageable* SoW?

Follow ups

How about…

- Actual data vs. best guess
- Qualitative insights for a more holistic approach
- Comprehensive, continuous & operational vs. fragmented, ad-hoc & commercial motivation
- Benefit ≫ cost





Allocation uncertainty budget of an entire installation as industry best practice

Establishment and maintenance of allocation uncertainty budget

Benefits

Lower overall uncertainty of the allocation system with the right focus

More practical and less theoretical tie-in uncertainty analyses

Input available in earliest design phases → improved workflow

Continuous maintenance = continuous improvement of the system

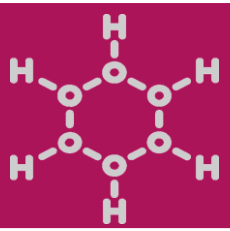
Proactive, not reactive approach

Focus on allocation as discipline

Improved M&A revisions

Improved commercial collaboration with license partners

Commercial best practice



Improved theoretical models & assumptions, e.g. sampling uncertainty, ORF/CORF/GRF uncertainty, etc.

Allocation uncertainty best practice

Official guidelines

Establishment and maintenance of allocation uncertainty budget

Challenges/questions

- Individual approach for each installation
- Scope of work
- Methodology and delivery
- Maintenance responsibility
- Cost
- Confidentiality/transparency
- Legal framework
- *One Team*

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