SESG Summary and conclusion

21-11-2023 @ USN Kongsberg

2pm – 5pm

SESG numbers and data

- SESG facilitators: 2
- Coffee with cookies available: Yes ☺
- Duration: 3 hours
- Participants: ~40 (people from industry and academia, including SESG facilitators)
- Presentations: 3
- Workshop groups: 7 (3-4 people in each group)
- Posters with group feedback

SESG event 21th November, 2023, 14:00-17:00

Title: Revisiting what does the progress in AI mean for systems engineering?

Brief description:

The progress in generative AI, e.g. ChatGPT, has once more increased the buzz level of AI. We like to explore how AI is actually being used today (for example to populate concept space, or as pattern recognition in systems) and what the consequences are for systems engineering (for the previous examples respectively speeding up and broadening in the early phase, challenges in qualification and certification). “

Speakers:

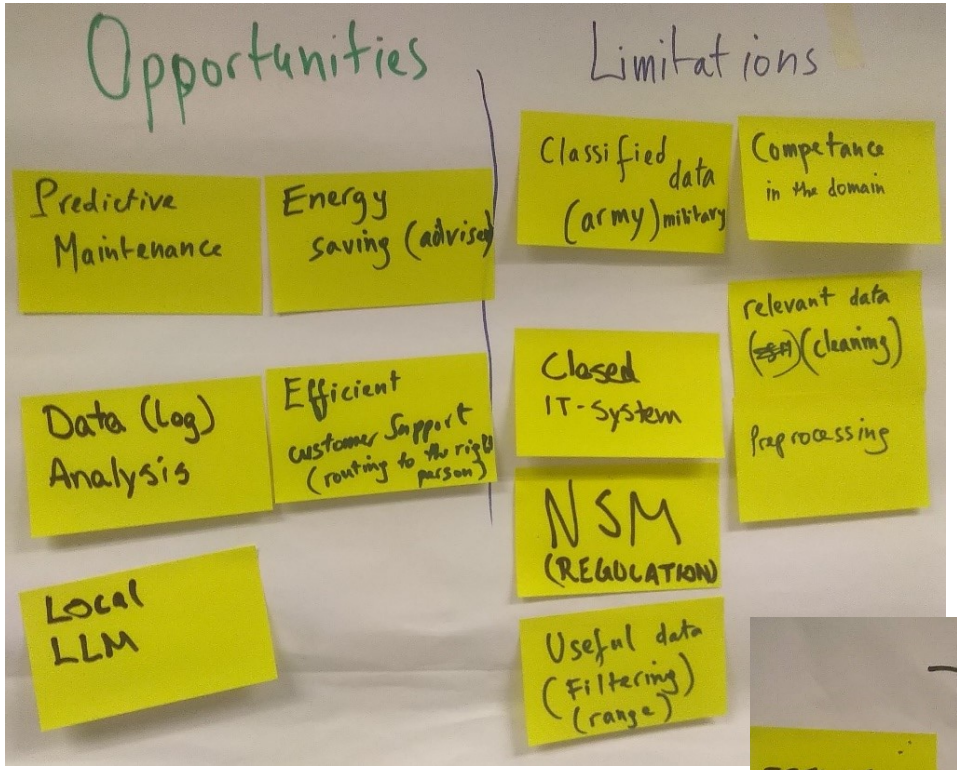
- Darren Murphy, Kongsberg Maritime
- Tobias Hylleseth, Digitread Connect
- Maged Helmy, Newcode.ai

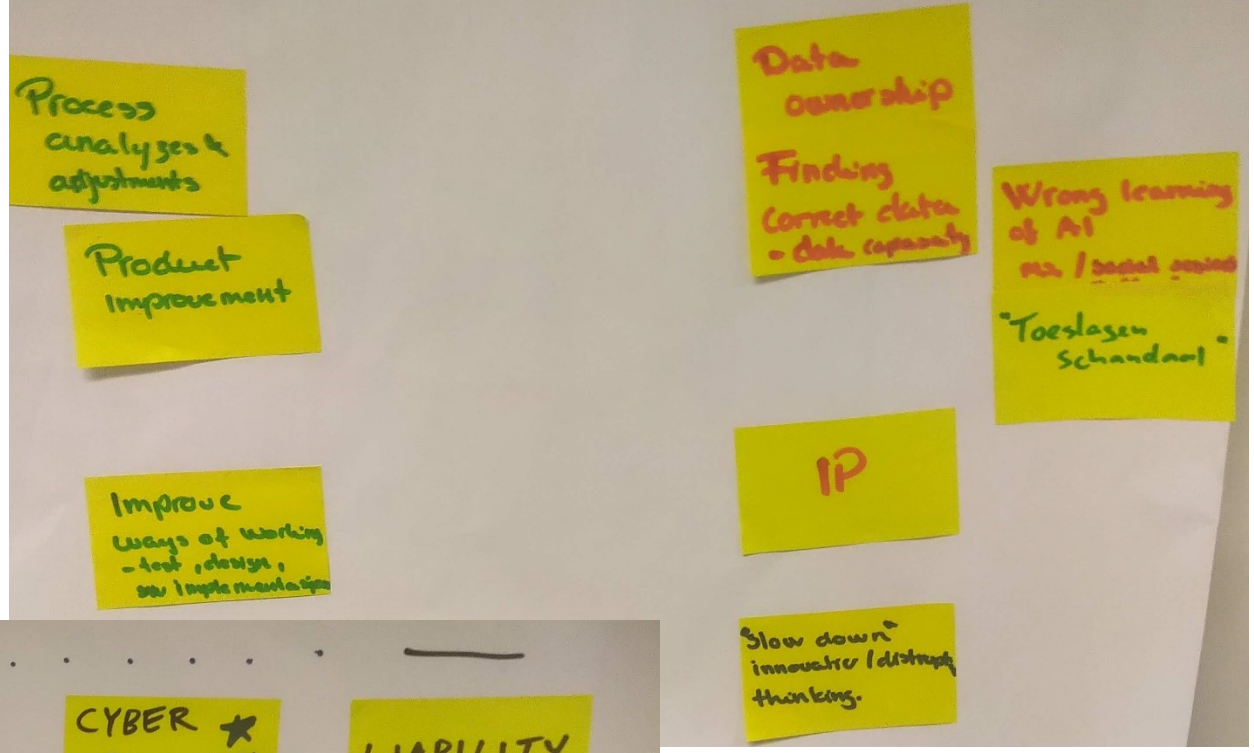
Initiating questions for group work

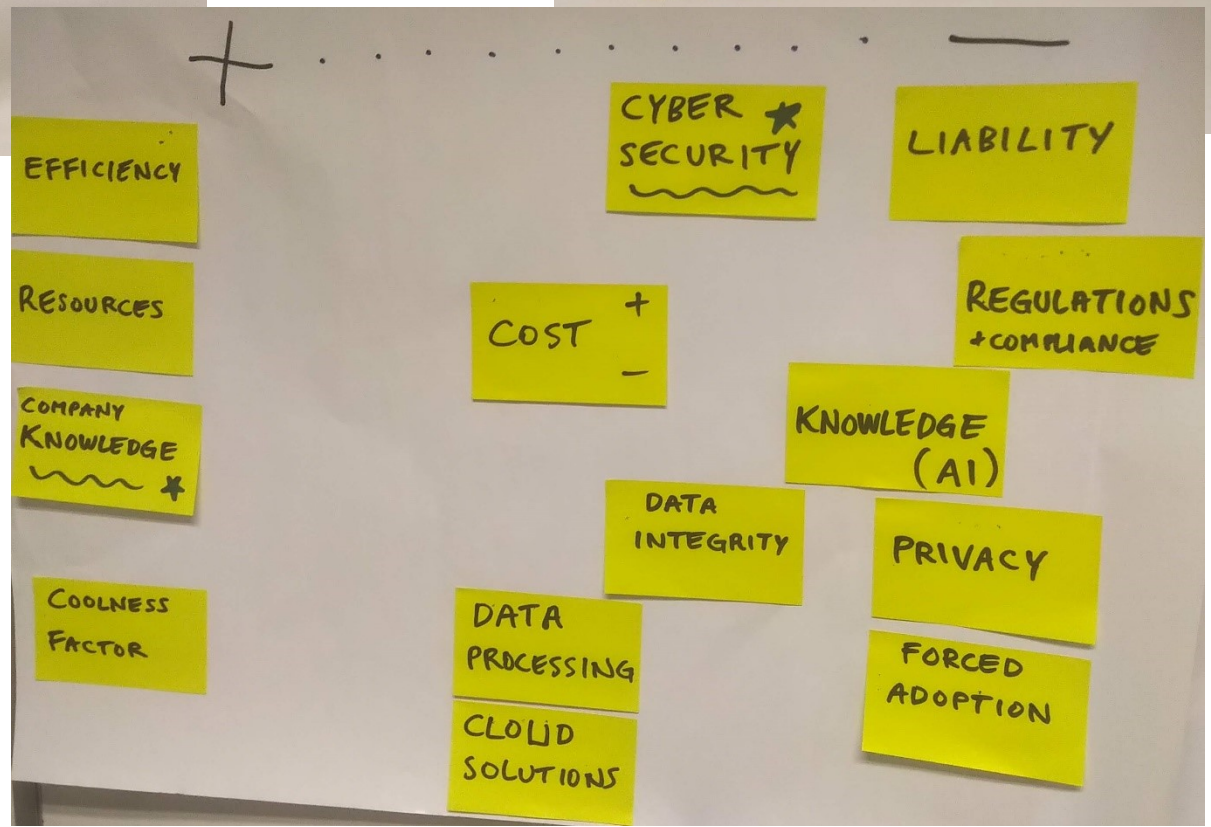
What are **opportunies** in your company and domain?

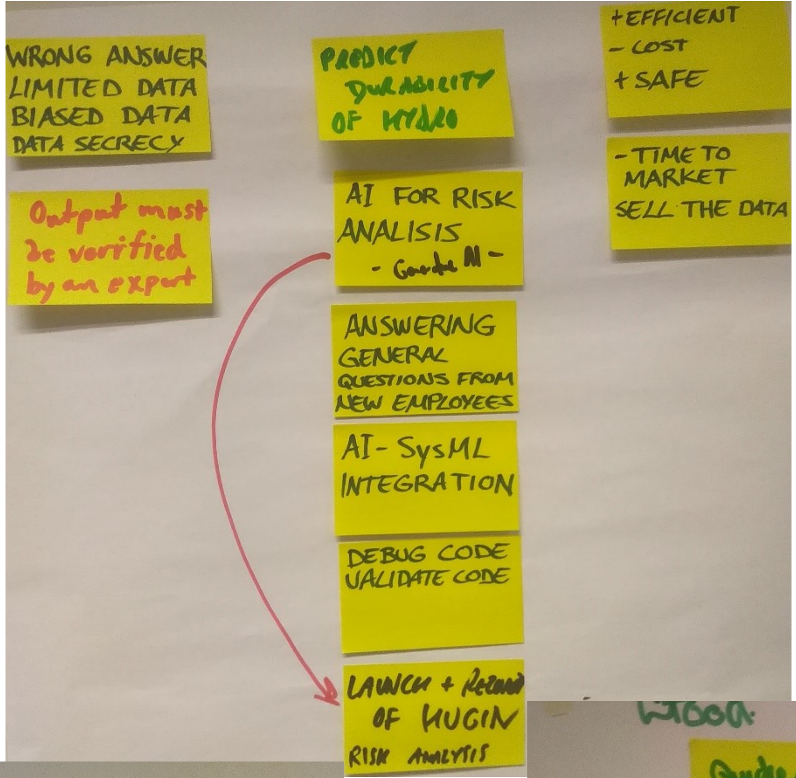
What **limitations** play at your company and domain?

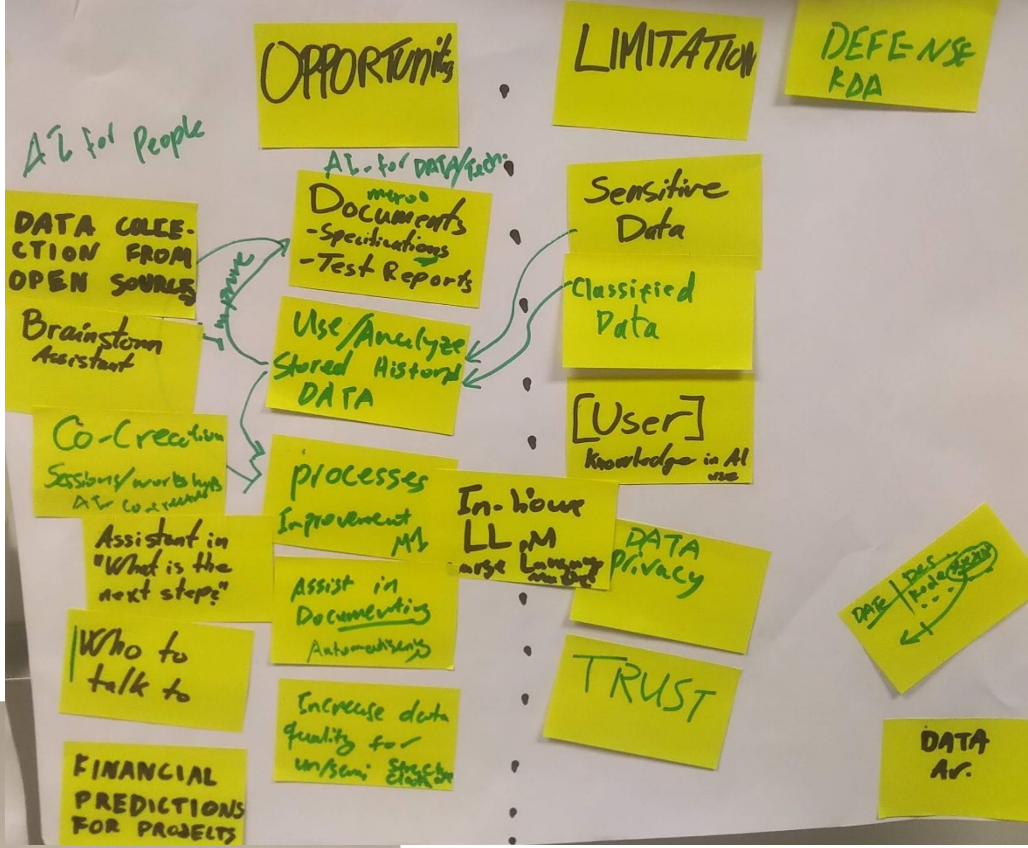
Next slides show the flips of the breakout teams

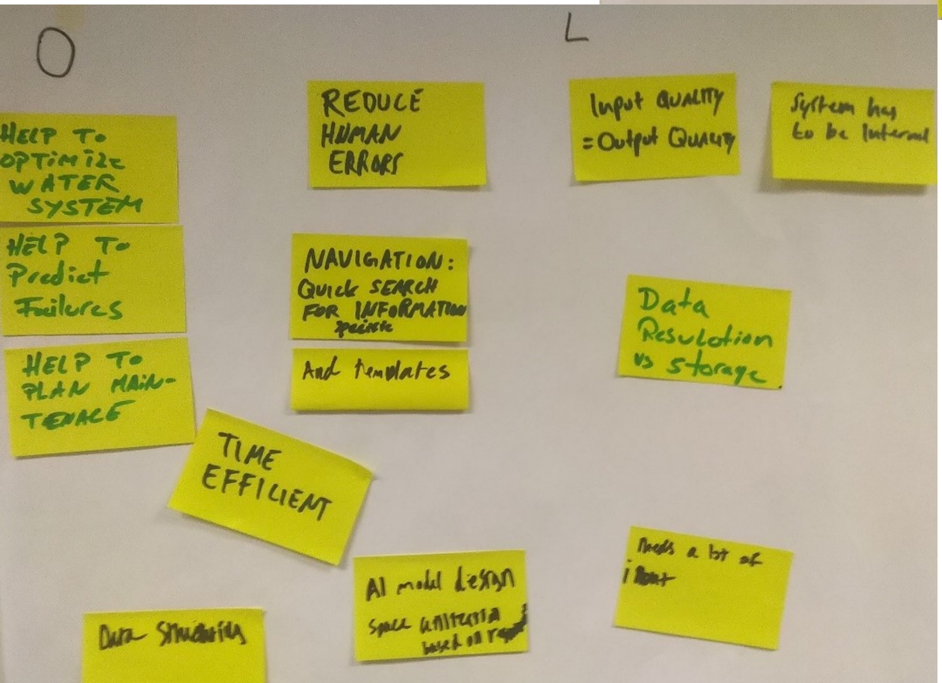

Opportunities
Limitations
Predictive Maintenance
Energy saving (advised)
Data (log) Analysis
Efficient customer support (routing to the right person)
Local LLM
Classified data (army) military
Competance in the domain
Closed IT-System
relevant data (cleaning)
Preprocessing
NSM (REGULATION)
Useful data (Filtering) (range)


Process analyses & adjustments
Product improvement
Improve ways of working - test, design, dev / implementation
Data ownership
Finding correct data - data capacity
Wrong learning of AI
"Toeslagen schandaal"
IP
Slow down innovation / disrupt thinking.


+
—
EFFICIENCY
CYBER SECURITY
LIABILITY
RESOURCES
COST + —
REGULATIONS + COMPLIANCE
COMPANY KNOWLEDGE
KNOWLEDGE (AI)
DATA INTEGRITY
COOLNESS FACTOR
PRIVACY
DATA PROCESSING
FORCED ADOPTION
CLOUD SOLUTIONS


WRONG ANSWER
LIMITED DATA
BIASED DATA
DATA SECRECY
Output must be verified by an expert
PREDICT DURABILITY OF HYDRO
AI FOR RISK ANALISIS
ANSWERING GENERAL QUESTIONS FROM NEW EMPLOYEES
AI-SysML INTEGRATION
DEBUG CODE
VALIDATE CODE
LAUNCH + RERUN OF HUGIN
RISK ANALYSIS
+EFFICIENT
- COST
+ SAFE
- TIME TO MARKET
SELL THE DATA


OPPORTUnity
LIMITATION
DEFENSE
AI for People
Documents
-Specifications
-Test Reports
DATA COLLECTION FROM OPEN SOURCE
Brainstorm Assistant
Use/Analyze Stored History DATA
Co-Creation
processes
Assistant in "What is the next steps"
Assist in Documenting
Who to talk to
FINANCIAL PREDICTIONS FOR PROJECTS
Sensitive Data
Classified Data
[User] Knowledge in AI
In-house LLM
DATA Privacy
TRUST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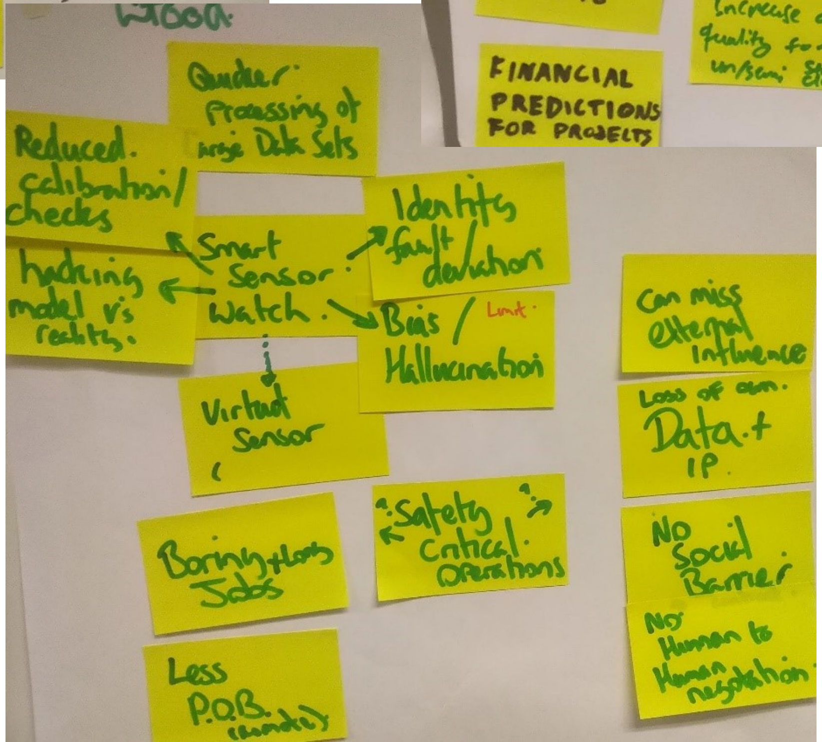
HELP TO OPTIMIZE WATER SYSTEM
HELP TO Predict Failures
HELP TO PLAN MAINTENANCE
TIME EFFICIENT
REDUCE HUMAN ERRORS
NAVIGATION: QUICK SEARCH FOR INFORMATION
And templates
AI model design
Input Quality = Output Quality
System has to be Internal
Data Resolution vs storage


Quicker Processing of large Data Sets
Reduced calibration/checks
Smart Sensor Watch
tracking model vs reality
Identify fault/deviations
Bias/Hallucination
Virtual Sensor
Boring Jobs
Safety Critical Operations
Less P.O.B.
Can miss external influence
Data + IP
No Social Barrier

Gerrit's Conclusion(s)

AI is at the top of the Gartner curve: high expectations, with many of them unfounded. Recent progress in **Large Language Models** and **Generative AI** will open up many new options for systems, applications, and the way we develop and manage systems. At the sam time, both speakers and participants still see many hurdles