Experiences practicing safety II in the maritime domain

Safety II in Practice 2018

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A?

NTNU
Norwegian University of
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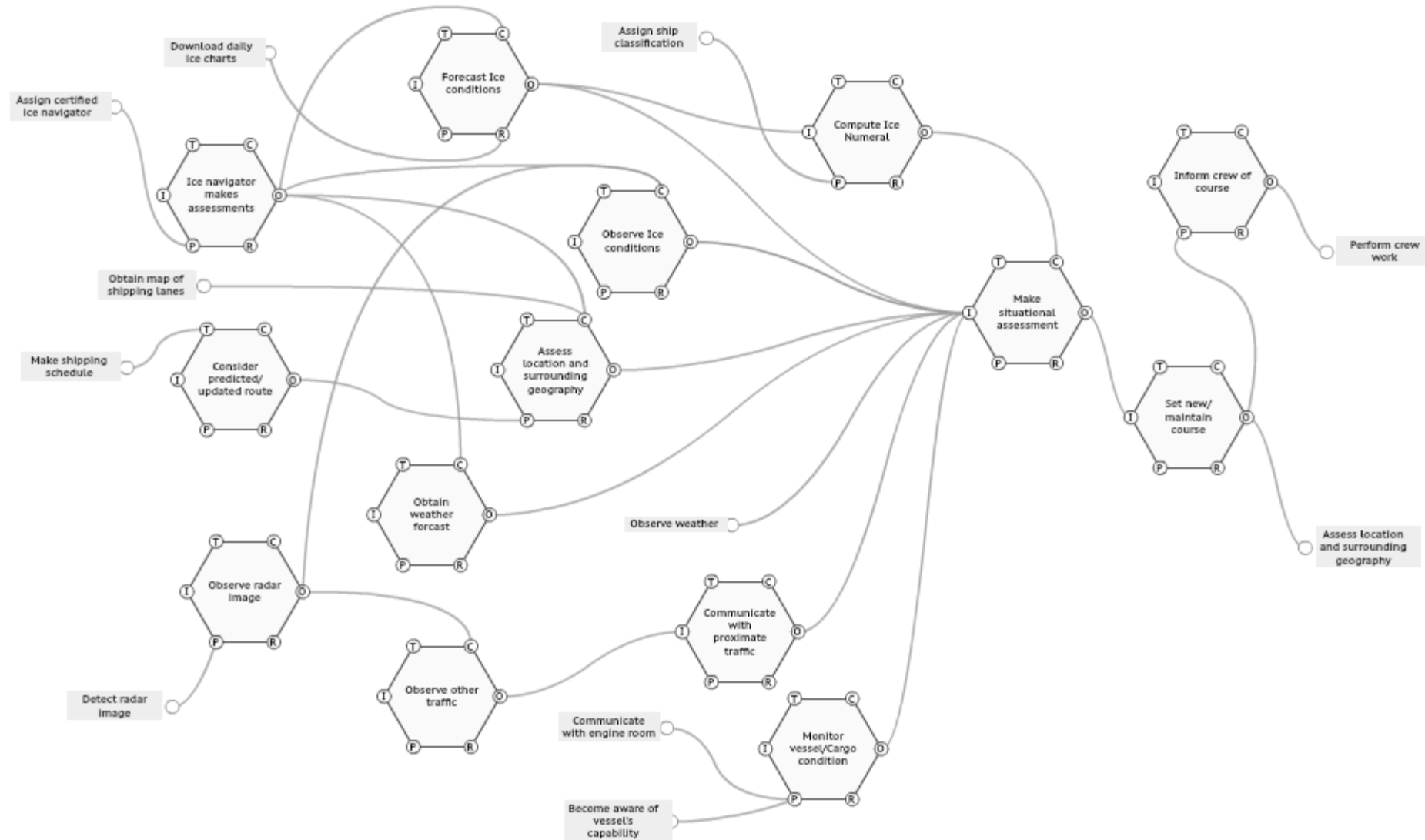
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My perspective

I am a PhD candidate working on a safety project for Arctic shipping

- I am using FRAM as the basis for safety assessments where I am engaging industry (maritime) to understand work-as-done (Captains, Seafarers, Managers, Class and Regulators)
- I will share a couple experiences related to obtaining data for work-as-done

  - Publishing a scientific journal article
  - An "experiment" with a shipping company
  - An trial FRAM exercise with an ice management operation for an offshore hydrocarbon installation

- Using ship simulators to obtain work-as-done data

Publishing a Journal Article

Publishing a Journal Article
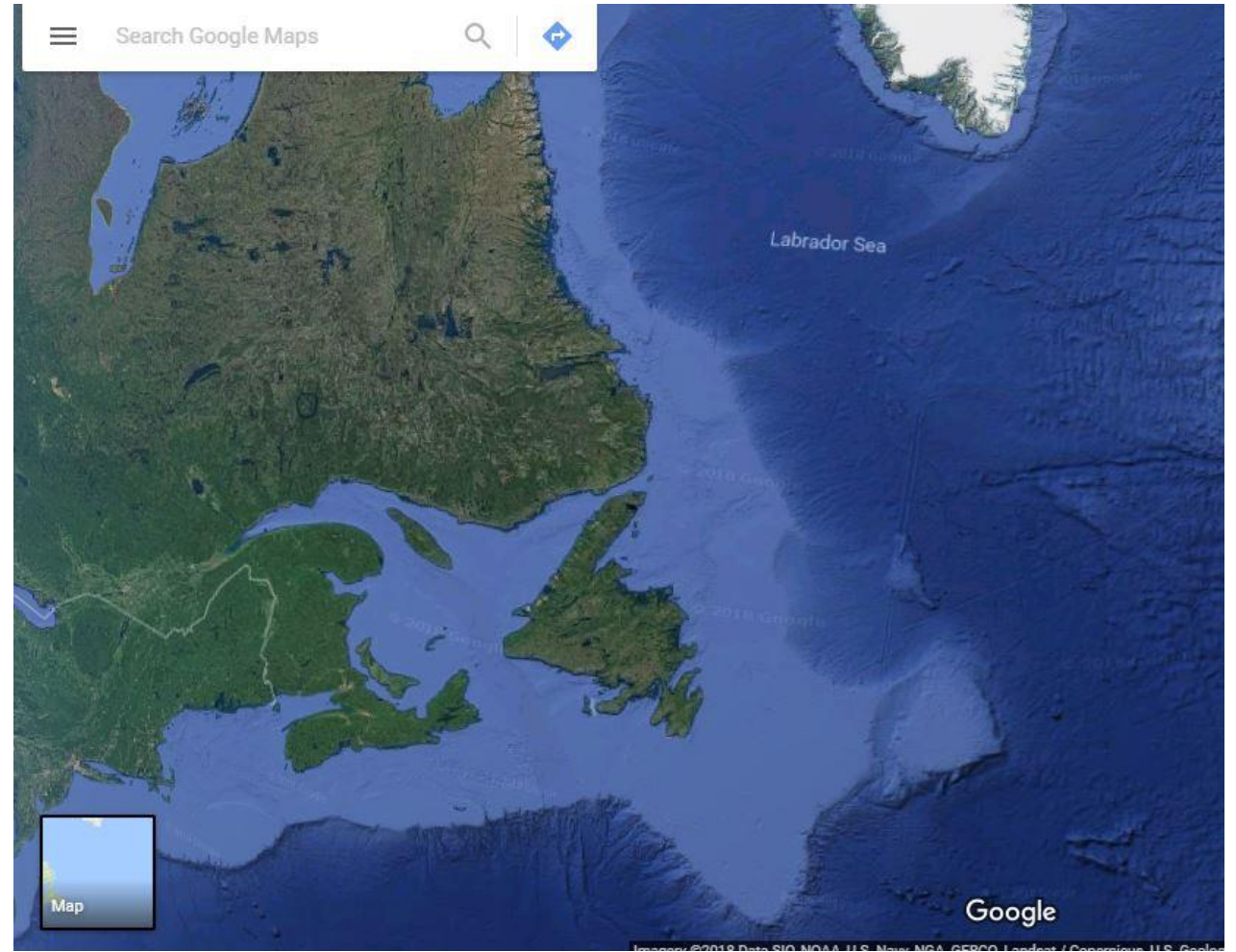
Describing building the model

- We talked to 4 ship captains (work-as-done)
- Got them to describe the work that they did and any variations
- Also used an imagined "FRAM" model to help guide the discussion

- Reviewer criticism
- "Talking to captains is hardly scientific"

- Maybe if I said "obtained data from subject matter experts" there might not be an issue
- "Talking to captains" seemed more true what we were actually doing
- Captains seemed to respond better to the informal discussion

Experiment with Shipping Company

- We got a meeting with a shipping company
- Made a "sales pitch" about using FRAM
- The ship managers/captains agreed to perform this experiment with us

- Formal interviews would require us to file an application to an ethics committee for review
- In ethics review, it was ensured that we outline all potential risks to potential participants
  - One of the risks is that a participant could reveal a policy/regulatory violation when describing variability in their work
  - While we would anonymize the data, an informed reader (manager) could infer who performed the violation
  - We could not control how the manager might interpret such information
- Also, the ethics committee required that participation should be voluntary
  - As a result, we had to remove the manager from the recruitment process, and contact the ship directly with a recruitment letter
- We had zero participants
- Potential participants were not required to give reason for declining

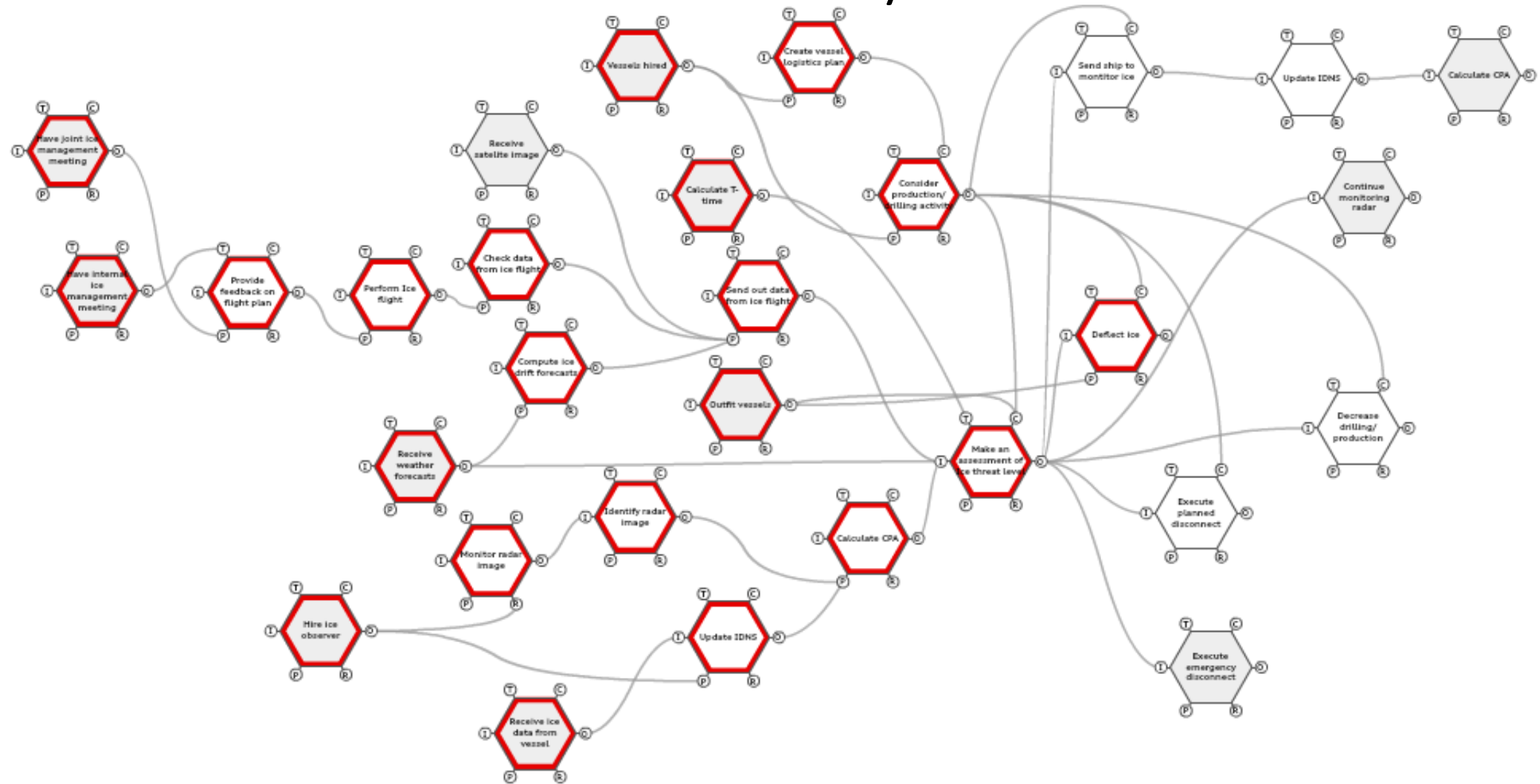# FRAM exercise for an Ice Management Operation

- An offshore hydrocarbon operator was auditing their ice management system

- They were interested in FRAM and asked us to sit in on audit interviews and "FRAM" their operation

- In order to participate in this study we had to adhere to a non-disclosure agreement

- This approach had a better outcome, but the NDA does affect our ability to share results
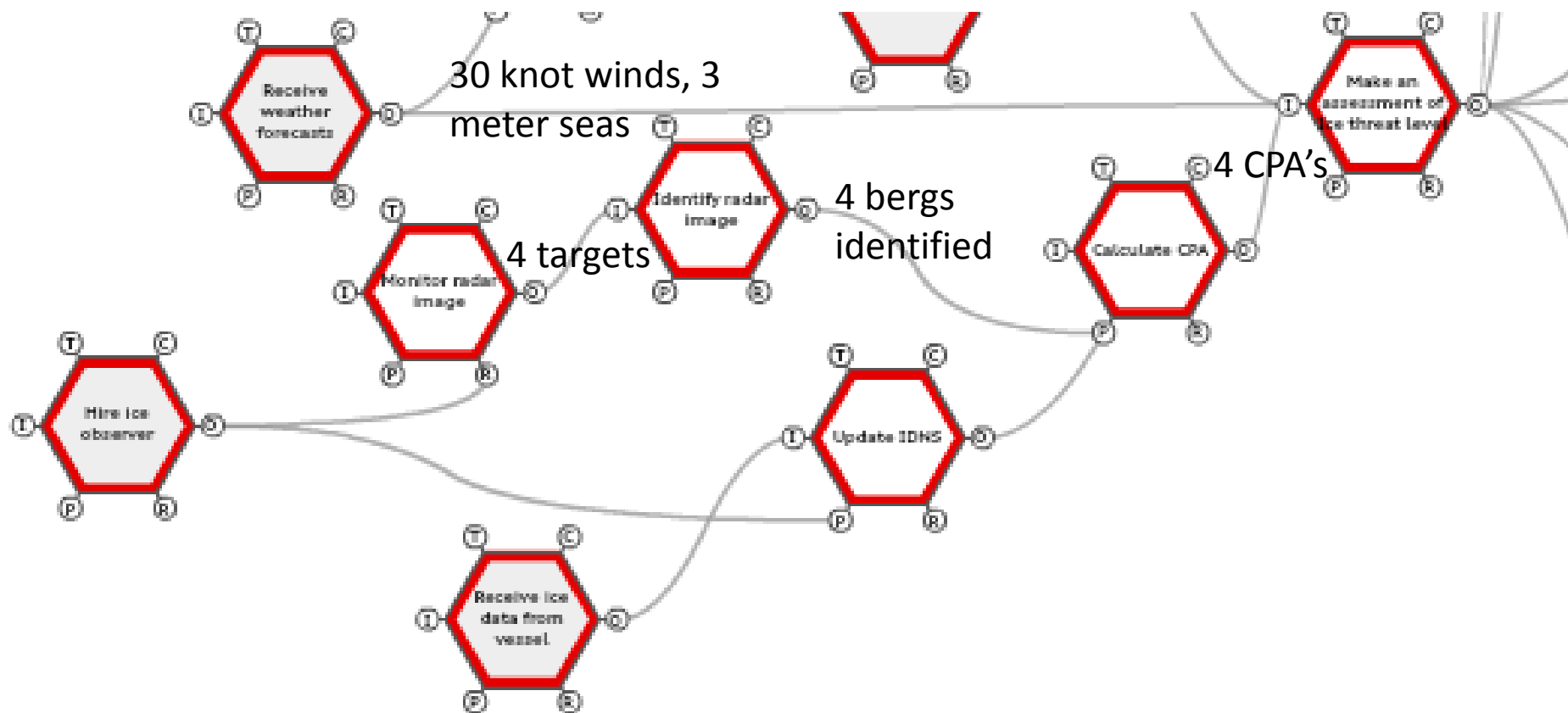
What-if Analysis

- You have 4 icebergs with closing CPA's, 1 is 4 hours away, another is 6 hours away, and the other 2 are 7 and 8 hours away. The wind speed is 30 knots generating 3 meter seas. What if all these bergs will need to be towed?
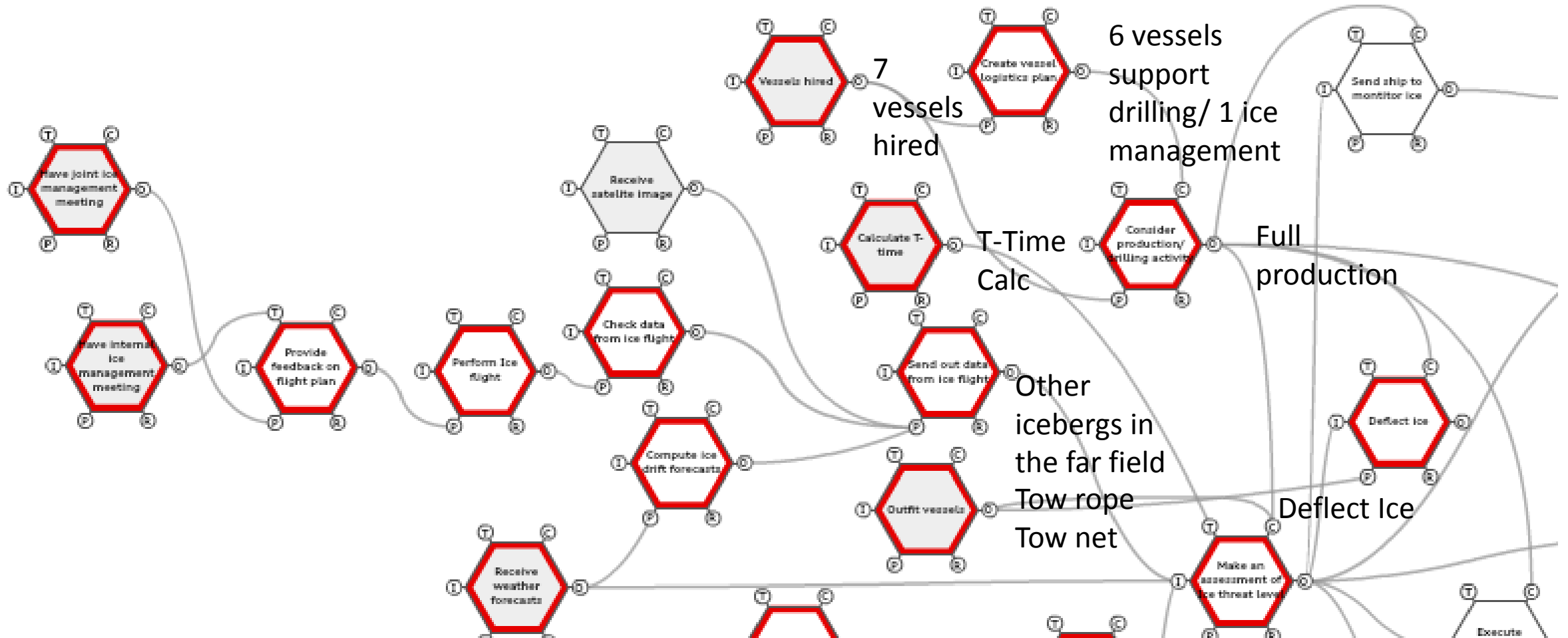
What-if Analysis

What-if Analysis

30 knot winds, 3 meter seas

4 targets

4 bergs identified

4 CPA's

What-if Analysis

7 vessels hired

6 vessels support drilling/ 1 ice management

T-Time Calc

Full production

Other icebergs in the far field
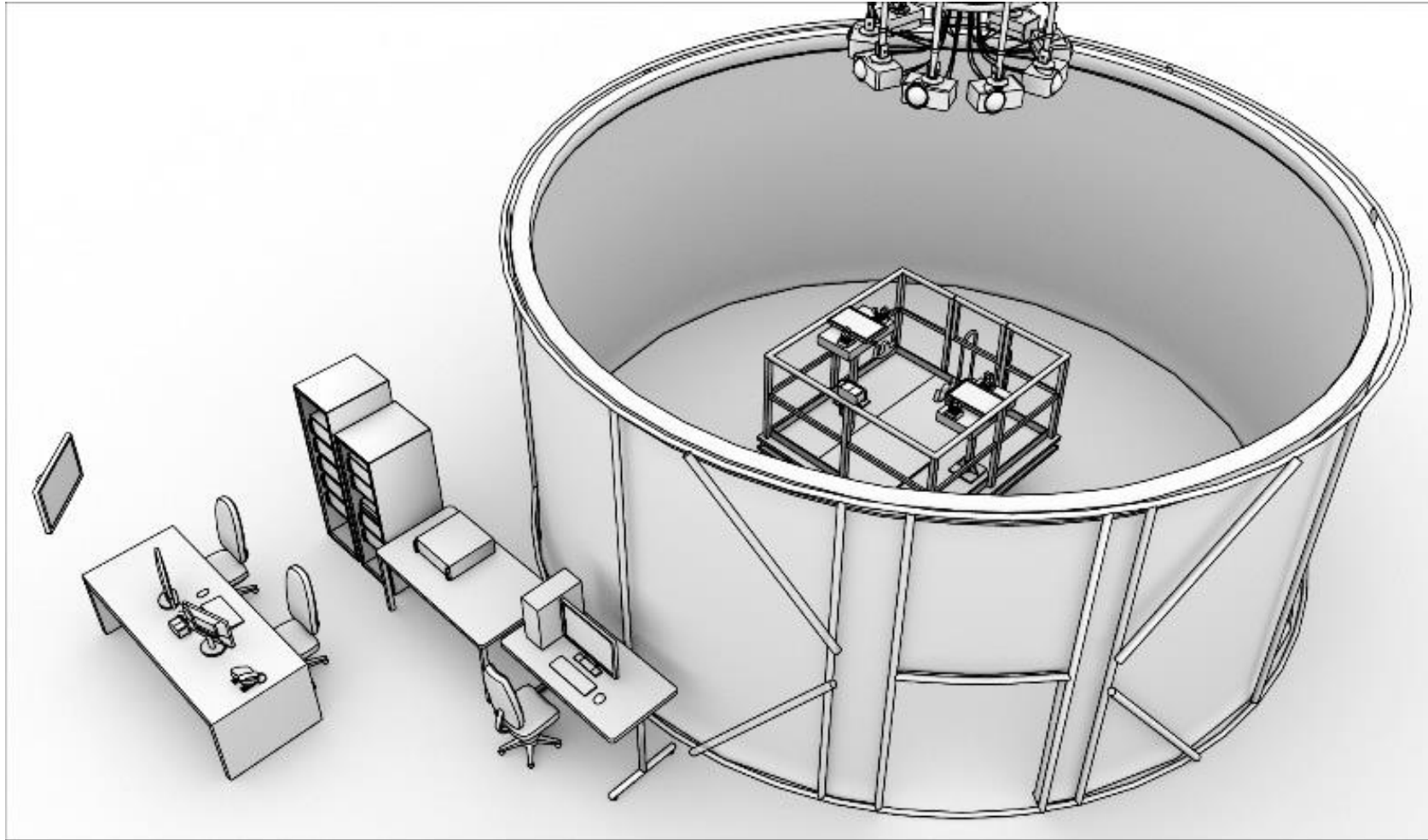Tow rope
Tow net

Deflect Ice

What-if Analysis

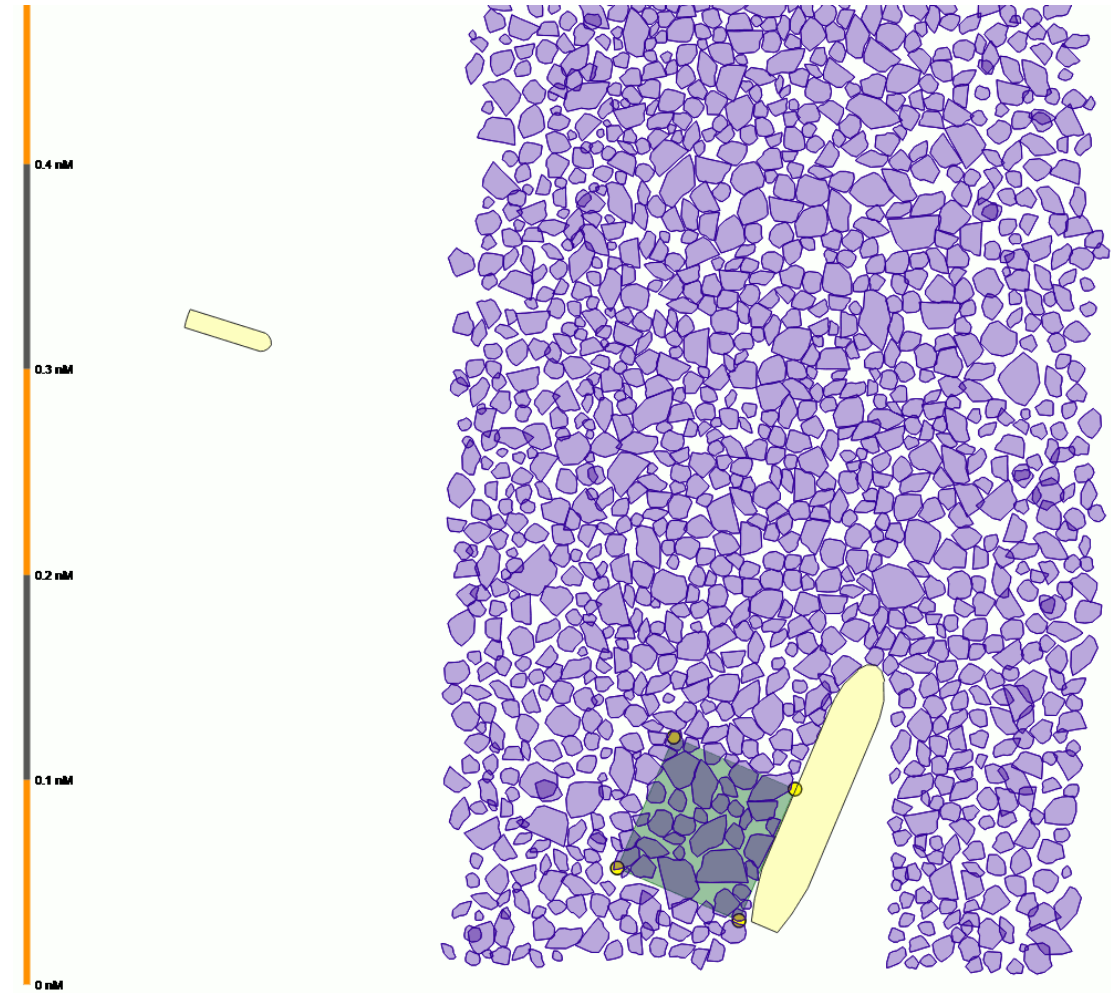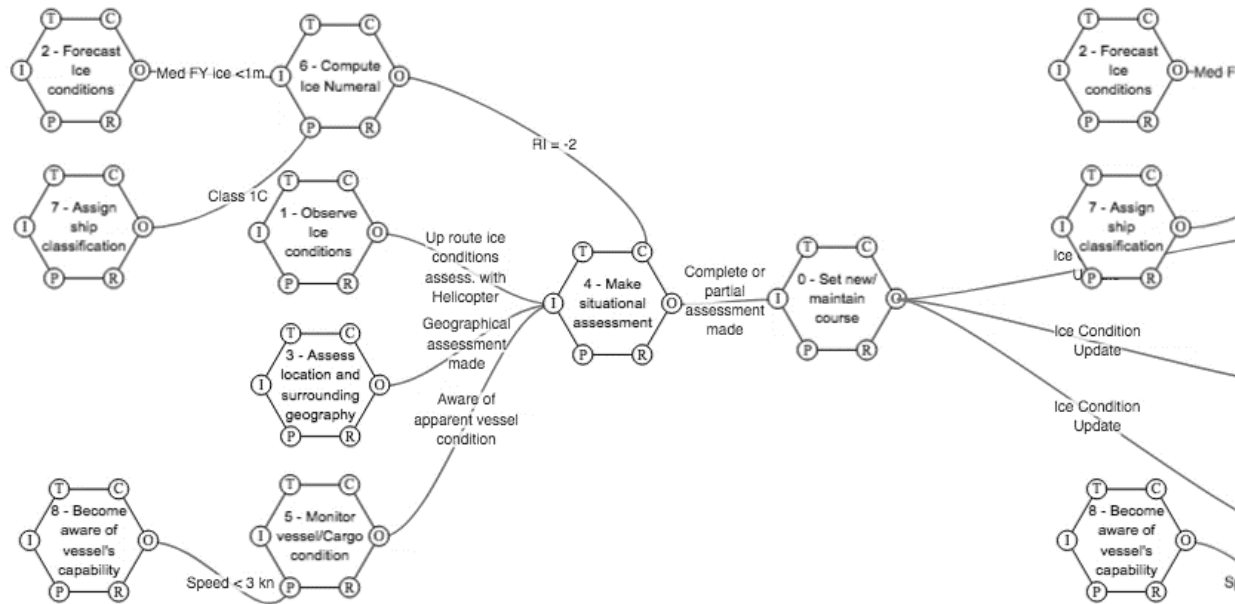It takes 2-3 hours to tow 1 berg – vessels will have to be taken from production work

If tow net is used it may reduce time but a second vessel is required to connect net

If additional vessels are required how will this affect production
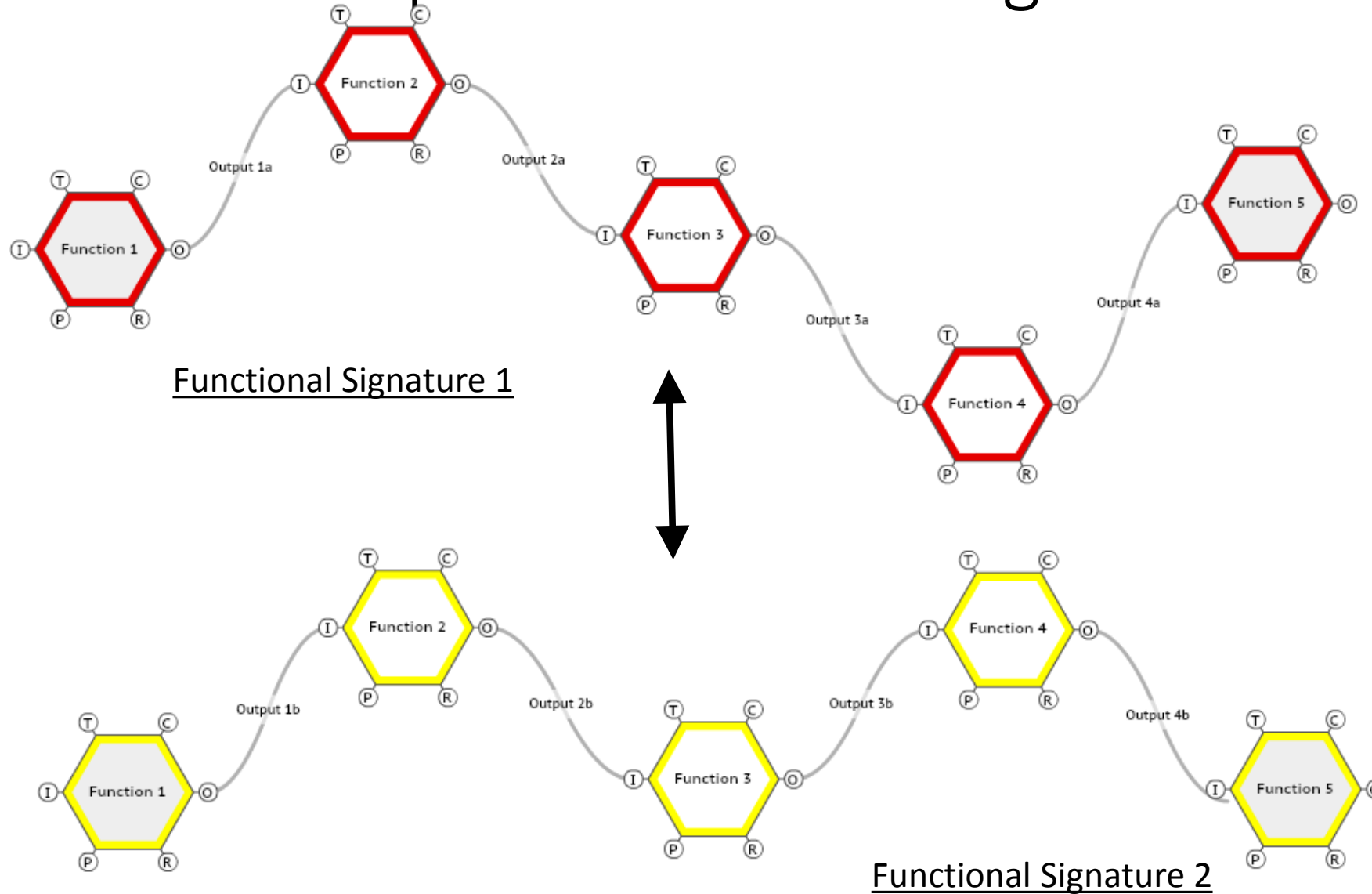
Example – Ice management simulator

Example – Ice management simulator

Compare Functional Signatures

Functional Signature 1

Functional Signature 2

Concluding Remarks

- This presentation is just intended to initiate discussion
- Sharing experience of getting work-as-done data in the maritime domain
- Have you had similar experiences in your work?
- Have you addressed some of these challenges in your applications?

Acknowledgements

The Lloyd's Register Foundation