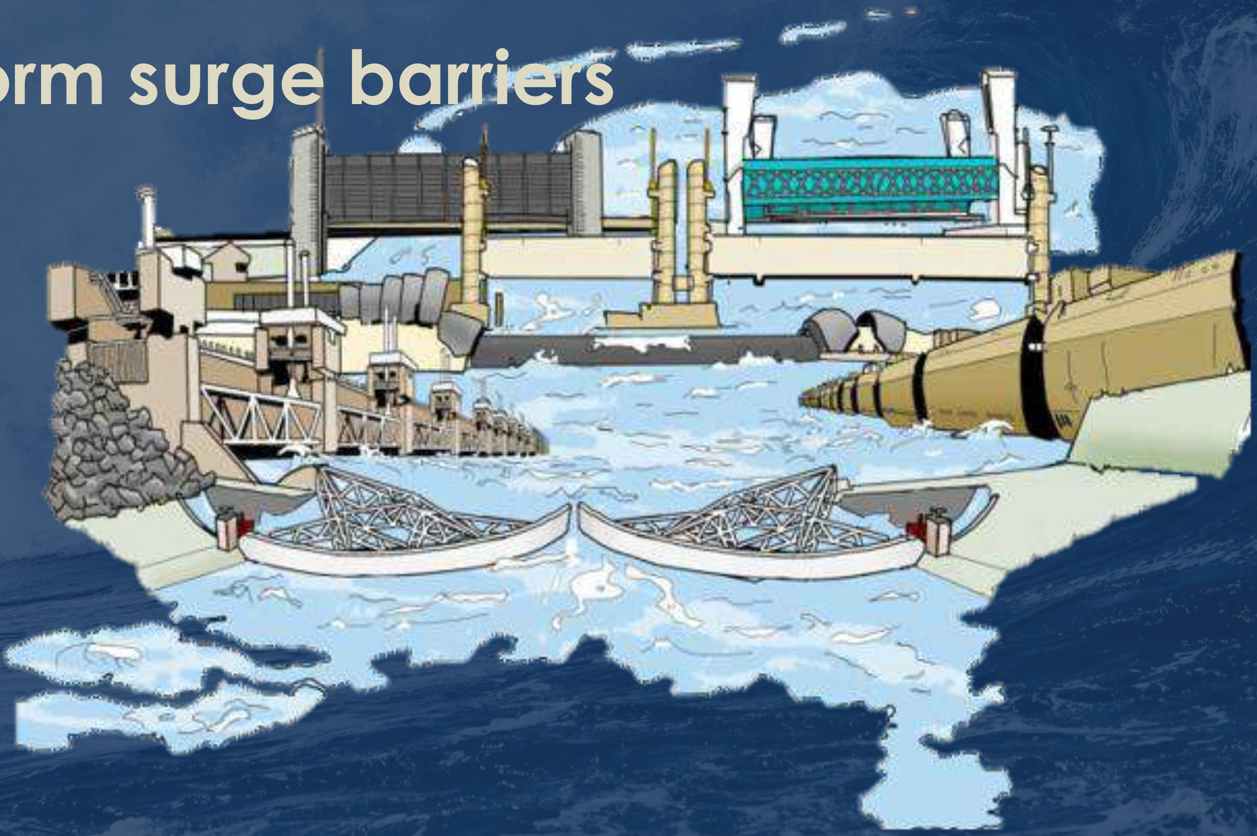
Digital Twin for the Maeslant Barrier

Luc Ponsioen

HydroTwin Engineering · TU Delft · Rijkswaterstaat

01 Storm surge barriers



02 Maeslant barrier

Complex object

- Unique components
- Knowledge and information management important
- Becoming a large problem

ProBO

- Risk based asset management

02 Potential application

Increase in efficiency in knowledge and information management

Better risk management based on model calculations and data-analysis

Avoid unnecessary cost due to better monitoring of the barrier status

Providing (new) insight into the barrier's behaviour

03 Test results

3.8 / 5.0

Increase in efficiency in knowledge and information management

3.4 / 5.0

Better risk management based on model calculations and data-analysis

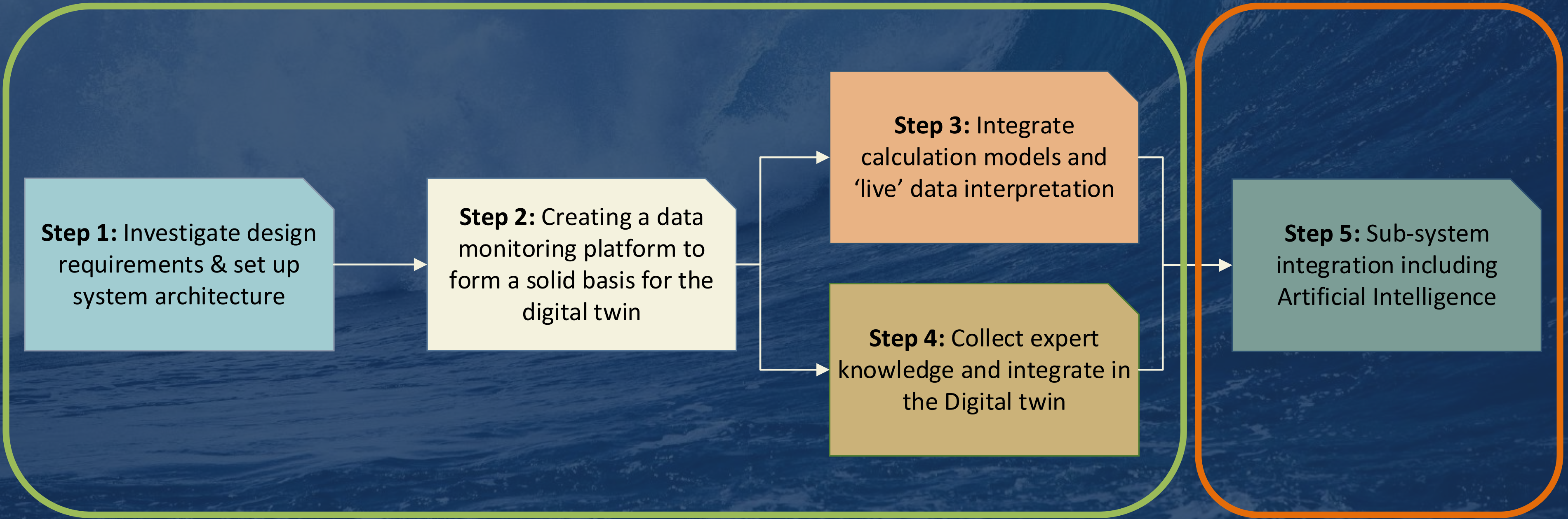
3.7 / 5.0

Avoid unnecessary cost due to better monitoring of the barrier status

4.0 / 5.0

Providing (new) insight into the barrier's behaviour

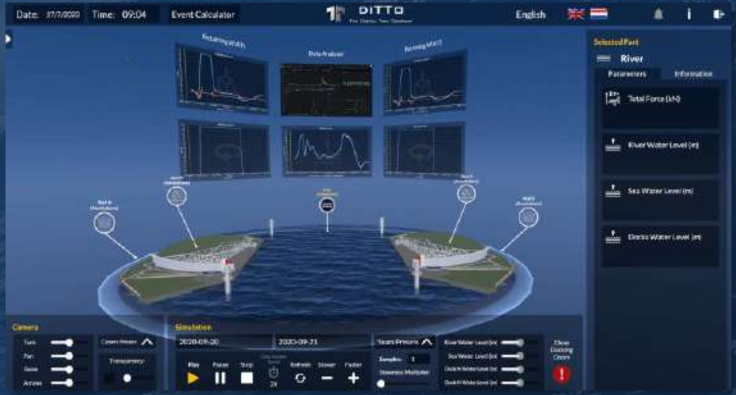
04 Prototype development



05 Testing

Testing panel

- Use cases
- Demo of prototype
- Use prototype themselves
- Questionnaire



06 Succes story

Ramspol barrier

- Started to test operation software
- Based on simulations
- Enriched with 3D modelling for training
- Limited budget
- Future plans:
  - Full PDCA circle in Digital Twin

"How can a digital twin for storm surge barriers strengthen the knowledge and information in support of their maintenance and operations?"

07 Conclusion

Full scale digital twin

1. Visualization
2. (Automated) Data Analysis
3. Scenario simulations
4. Findability of information

Digital Twin for the Maeslant Barrier

Thank you!

Any questions?

HydroTwin Engineering

TU Delft

Rijkswaterstaat