



Asset management framework for flood defences, with baseline for North Sea Region

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Motivation for the FAIR project

Across the North Sea Region (and globally):

- + **Infrastructure is aging:** Sunk investment in the England alone is estimated at £20bn.
- + **Performance is uncertain:** Climate change and deterioration mean performance may no longer be at the desired level.
- + **But money is limited:** How can we ‘best’ protect people and the economy from flooding with the resources we have?





Challenges for asset managers

- + **Where to act:** Which asset would yield the greatest benefit (and reduce risk most)?
- + **When to act:** Is action required now, or can investment be postponed?
- + **How to act:** Should we collect more data or intervene? If we intervene what approach is best?

By **sharing experience and knowledge** FAIR will promote improved practice across the NSR



What FAIR sets out to achieve?

- + Help ***do more for less*** – through better targeting of investment
- + Encourage ***multi functionality*** – through collaborative planning and connecting investments
- + Extend ***asset life*** – through smarter maintenance and renovation



How we will achieve these results?

The **proof is in the eating** ... FAIR includes Asset Owners (AO) and Science Partners (SP), which provides the opportunity to share and improve 'real world practice'.

AGENTSCHAP
MARITIEME
DIENSTVERLENING en
KUST



Vlaanderen
is maritiem



Rijkswaterstaat
Ministerie van Infrastructuur en Milieu



Länstyrelsen
Skåne



**Ministry of Environment
and Food of Denmark**
Coastal Authority



Hoogheemraadschap van
Schieland en de Krimpenerwaard



HELSINGBORG



Monitoring and evaluation

- + Monitoring the degree to which organisations have implemented AM strategies supports AOs to identify strengths and weaknesses in current methods.
- + This enables AOs to identify the optimization potential, and supports them in linking the strategic, tactical and operational stages of AM.

Maturity models offer a structure to monitor the maturity level of AM for a country / organisation.

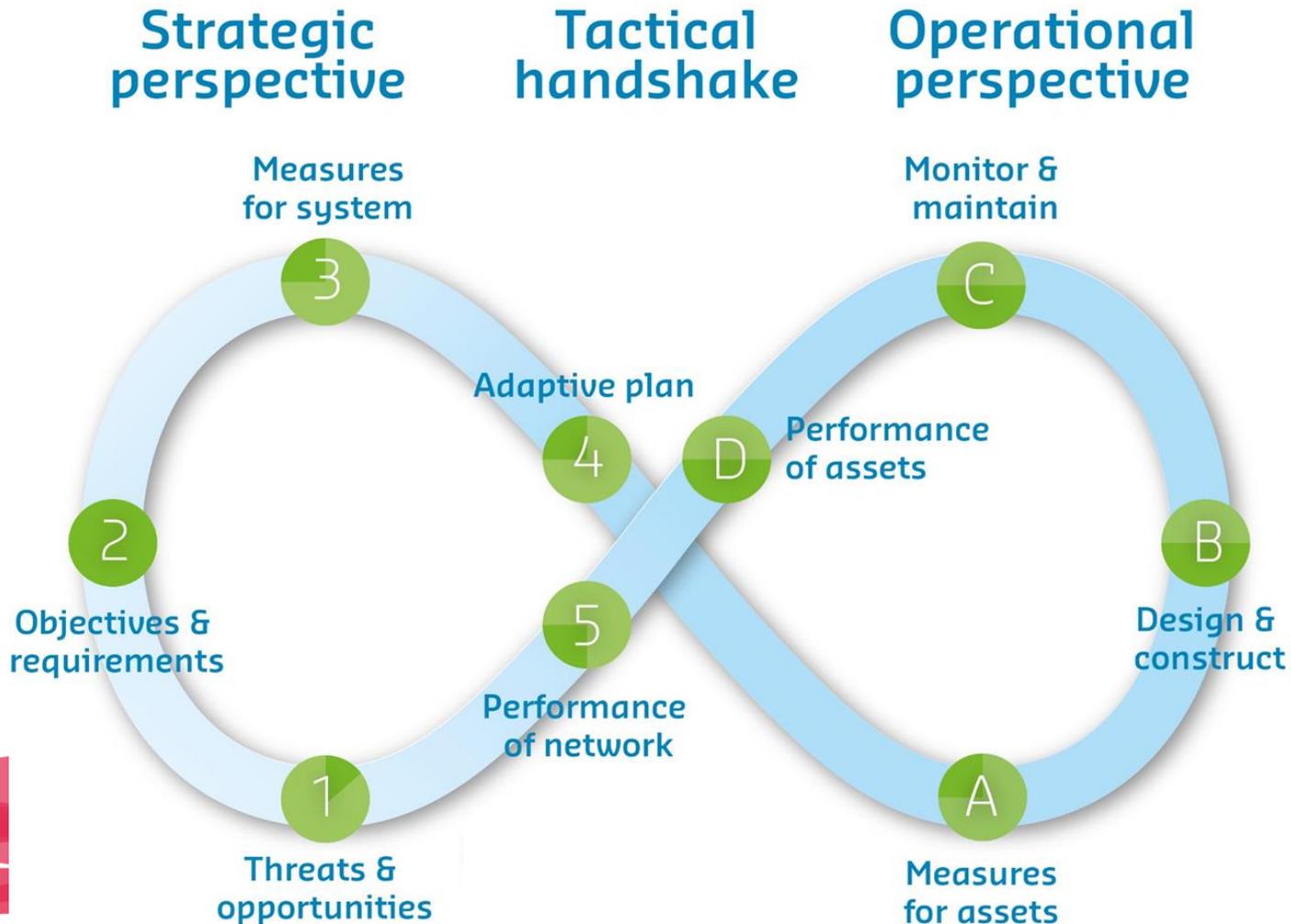


Steps of the maturity analysis

1. From a desk study, we developed a common framework for AM of flood defences.
2. Based on the framework, we included in our maturity matrix 3 Qs on the stages of AM and 6 Qs on the underlying and connecting factors.
3. AOs assessed their own maturity in interactive session with employees in various roles (strategic advisors, programme managers, operational managers).
4. SP analysed and compared the findings and presented these to AOs in a validation workshop.



Framework for AM of flood defences





Maturity levels throughout stages

Maturity level	Strategic (Steps 1-3)	Tactical (Steps 4, 5, A)	Operational (Steps B-D)
Optimal			
Managed	<p>A long term vision is present, and a consistent method is applied to translate this vision into well-defined AM strategies, based on cost, risk and performance.</p>		
Standard			
Repeatable			<p>Performance of assets is not measured. Interventions are based on daily issues. There is no connection between maintenance, larger interventions and performance.</p>
Ad hoc			



Maturity levels of underlying factors

Maturity level	AM decisions	Information management	Internal coordination	External coordination
Optimal				
Managed				
Standard				
Repeatable				
Ad hoc				

Life cycle costing is embedded in strategic, tactical and operation decisions and forms the basis of the evaluation of risks and opportunities.

The water authority informs both end users and other asset owners on the execution of maintenance of objects (before and after maintenance).



Maturity levels of underlying factors

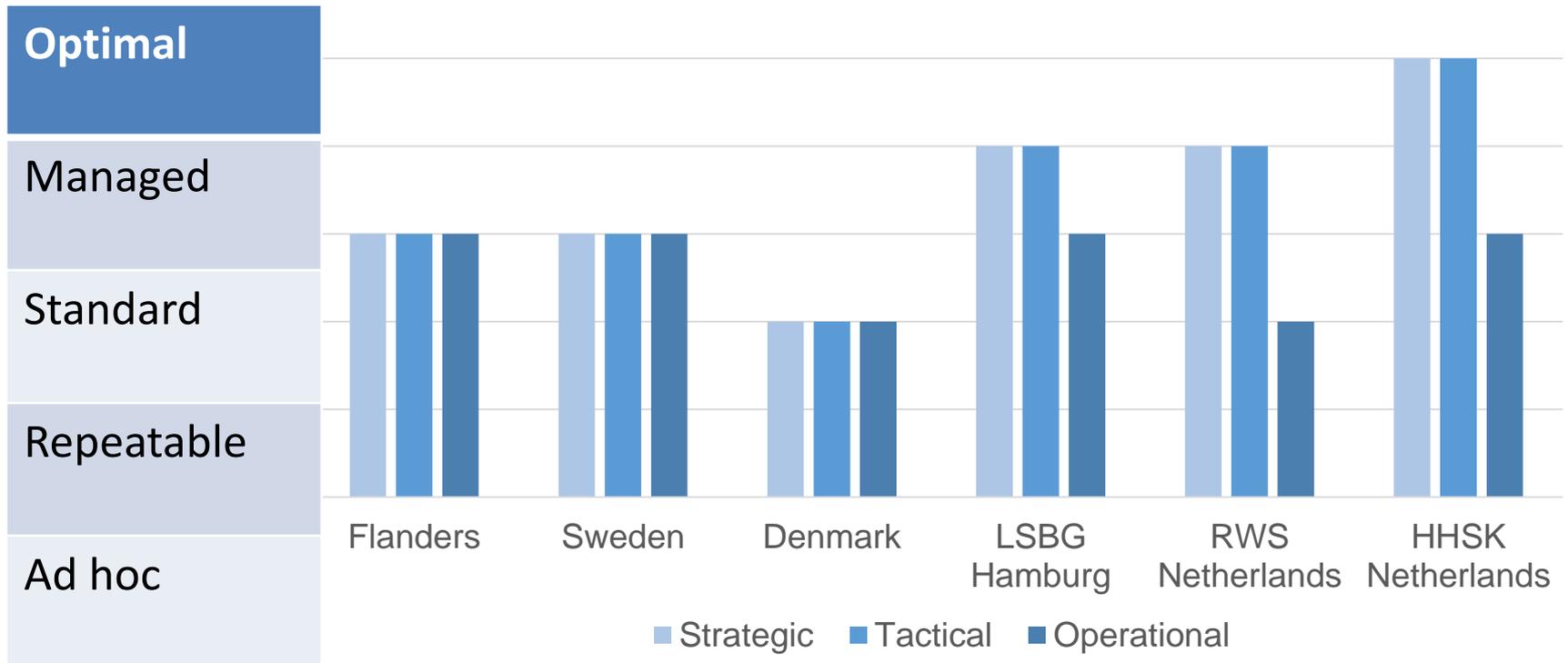
Maturity level	Outsourcing activities	Processes and roles	Culture and Leadership
Optimal			
Managed			
Standard			
Repeatable			
Ad hoc			

A combination of internal expertise is maintained on programming and execution with some activities and assets outsourced to deliver added value .

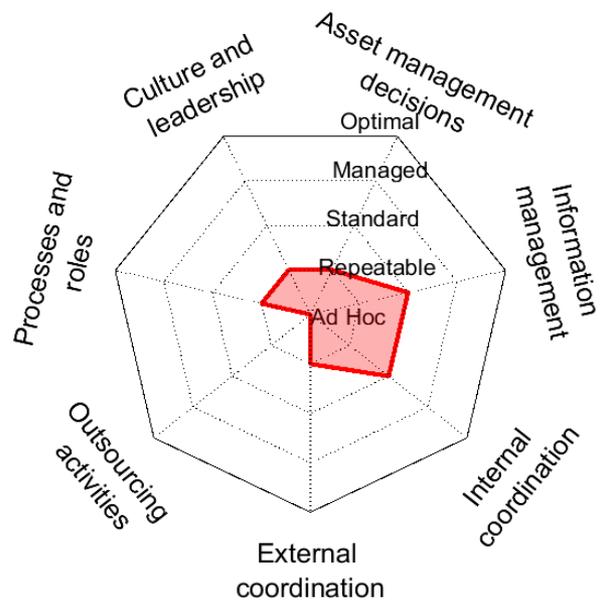
AM is one of the targets, but the is no formal route for employee driven innovation and few employees given the opportunity for AM specific training.



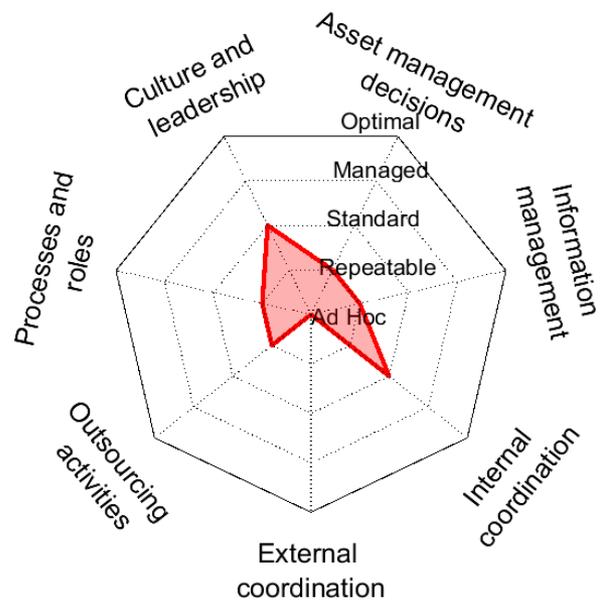
Maturity levels throughout stages



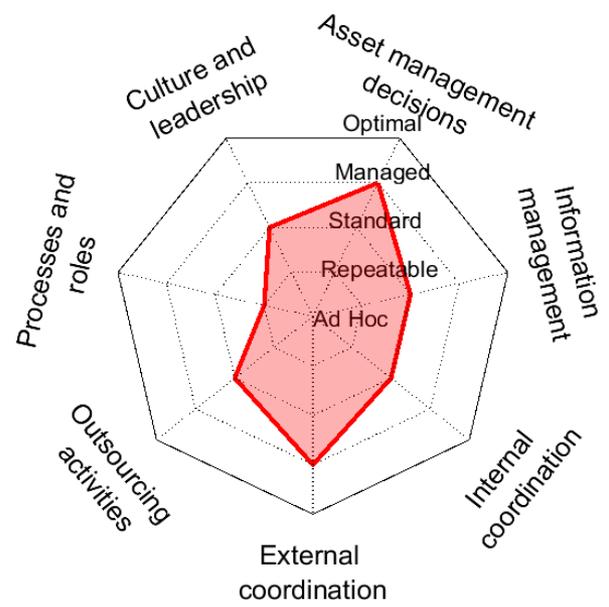
Flanders



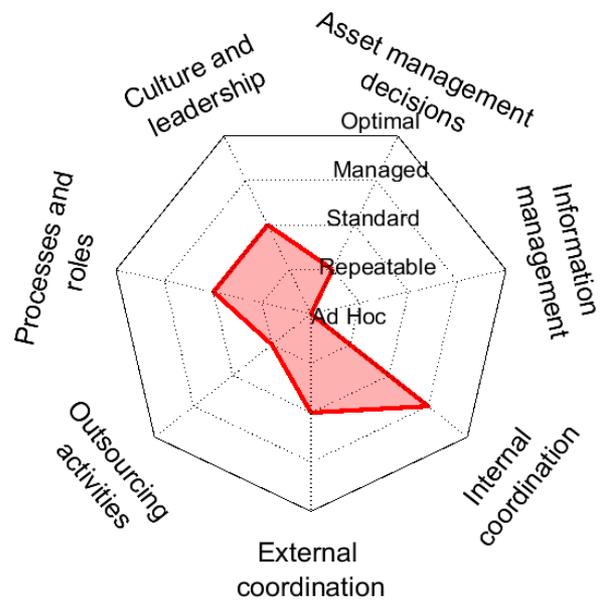
Danmark

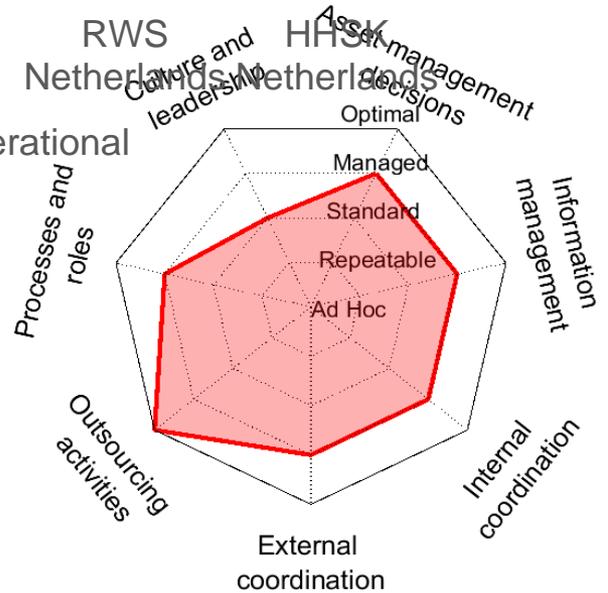
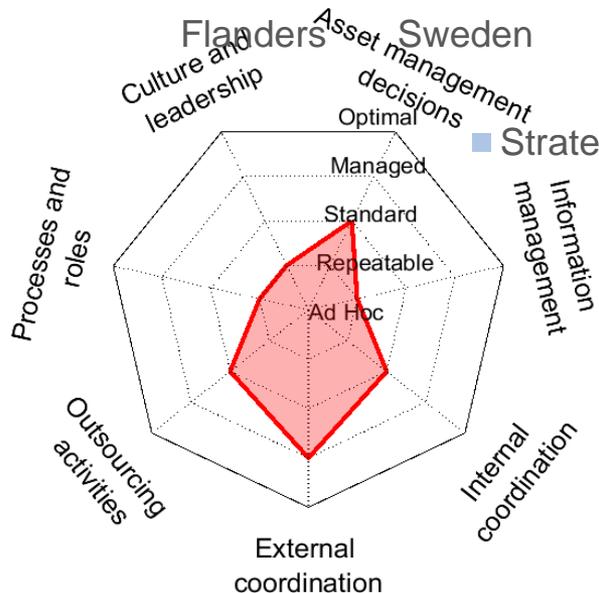
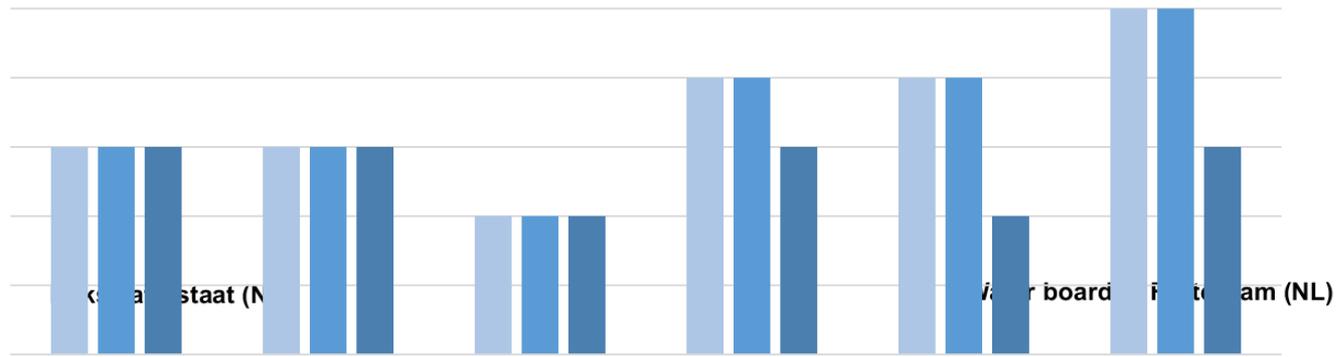


LSBG Hamburg



Sweden







Reflection

- + The results show significant progress on all dimensions, and continued learning and widespread awareness of asset management in the organisation.
- + where are the weakness and the strengths, where are the opportunities for improvement
- + tool to measure the progress in each of the asset owner organisations (which is a result indicator that is required by Interreg NSR). It is explicitly not intended as a tool to compare between countries

- + All countries have an operational AM process in place
- + Only NL and BE have developed a strategic AM process; SE and DK would like to develop this process through FAIR (justification of our focus)
- + Tactical handshake is relevant for NL and DK (larger system; many actors), but less for BE and SE (smaller system; fewer actors)
- + Responsibilities of actors differ between countries