

Prepared for:



# C-Cube International BV

2021



# C-Cube



**YES!** DELFT

**Tanks**  
Innovation by Collectivity



Horizon 2020  
European Union Funding  
for Research & Innovation

**Interreg**   
North-West Europe  
**OPIN**  
European Regional Development Fund



Rijksdienst voor Ondernemend  
Nederland

 **Climate-KIC**  
Climate-KIC is supported by the  
EIT, a body of the European Union 

**R I M A**  
ROBOTICS FOR INSPECTION  
AND MAINTENANCE



**Offshore**

Bagger  
Opslag  
Wind




**Infra**

Burggen  
Sluizen  
Spoor

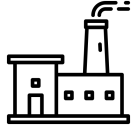



# Markten



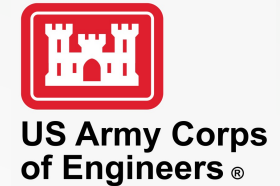
**Industrie**

Shipbuilding  
OEM  
Processing



**Institutions**

Research Firms  
Universities

# Coating Quality Measurement

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## Coating Quality Measurement (CQM) geeft inzicht:

1. Hoe goed beschermt visueel intacte coating: barriere eigenschap
2. Coating degradatie
3. Aanwezigheid van corrosie onder de coating
4. Prognose wanneer corrosie start
5. Prognose van % zichtbare corrosie

CQM voldoet aan ISO 16773

Port of Rotterdam inkoopvoorwaarde/moederbestek



# Coating Degradatie



Kostenstijging



Initial Quality

High Protection

Polymer degradation to corrosion

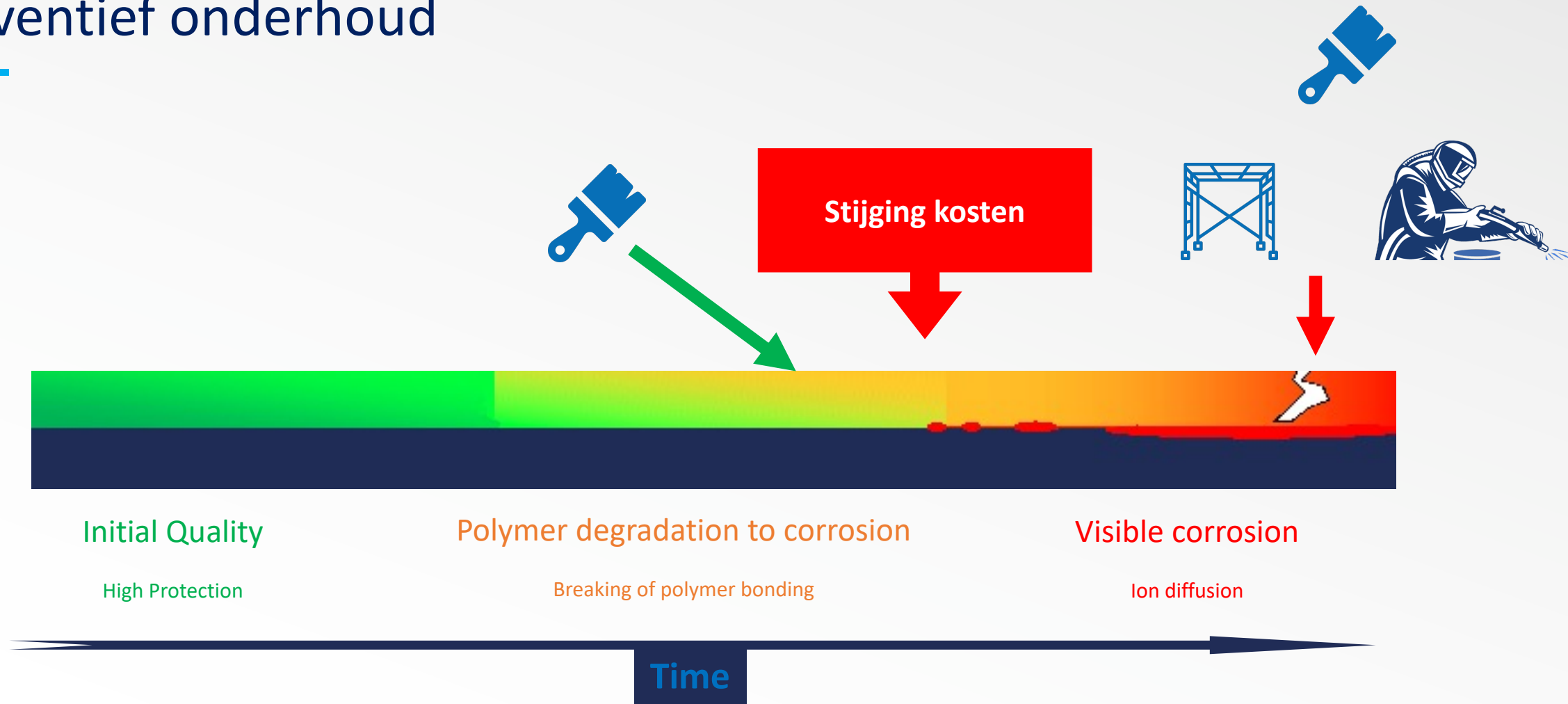
Breaking of polymer bonding

Visible corrosion

Ion diffusion

Tijd

# Monitoring & Preventief onderhoud

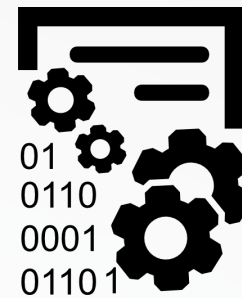
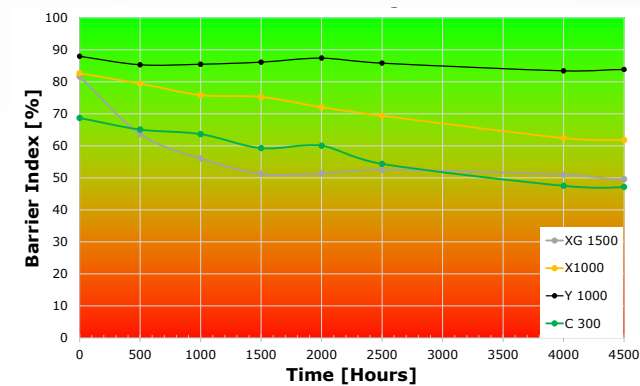


# CQM Technologie

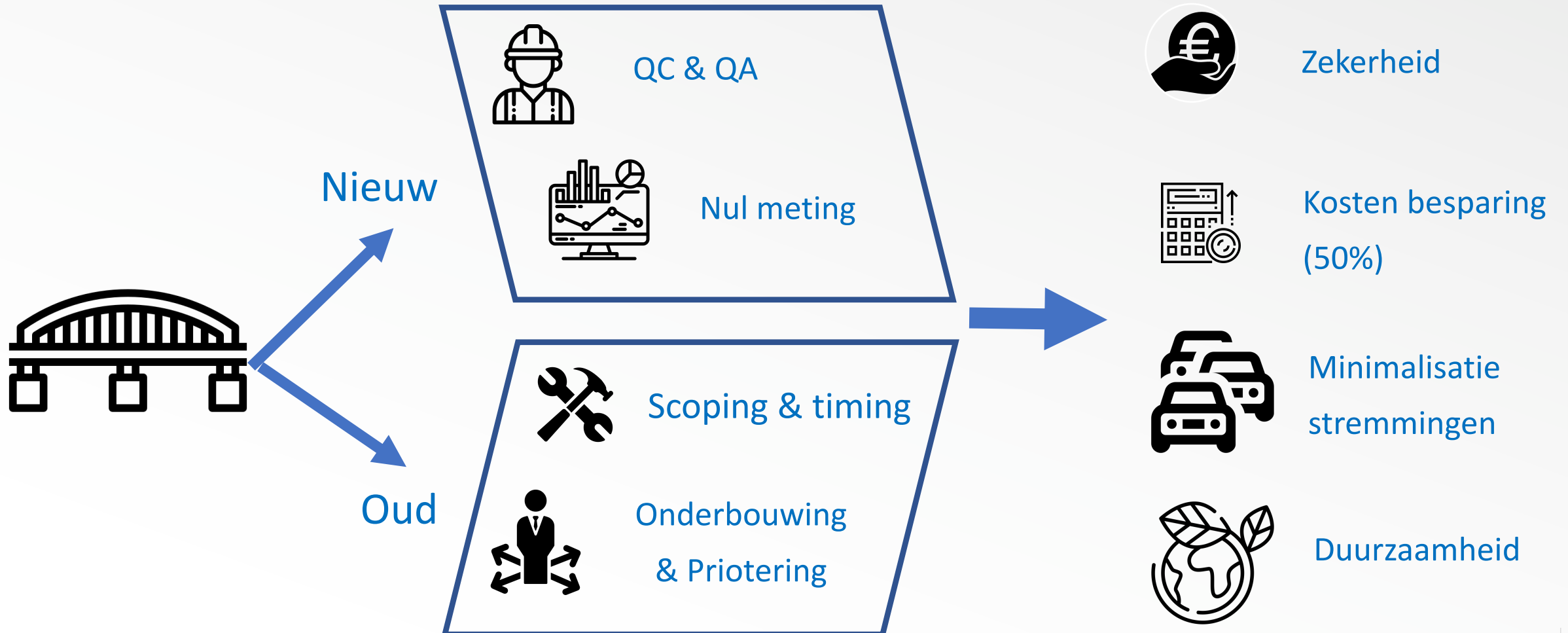
Database + Sensoren + Algoritme → Dashboard

- ISO 12944-9
- ISO 9227
- Coating degradatie gedrag

- ✓ Kwantificeerbaar
- ✓ objectief



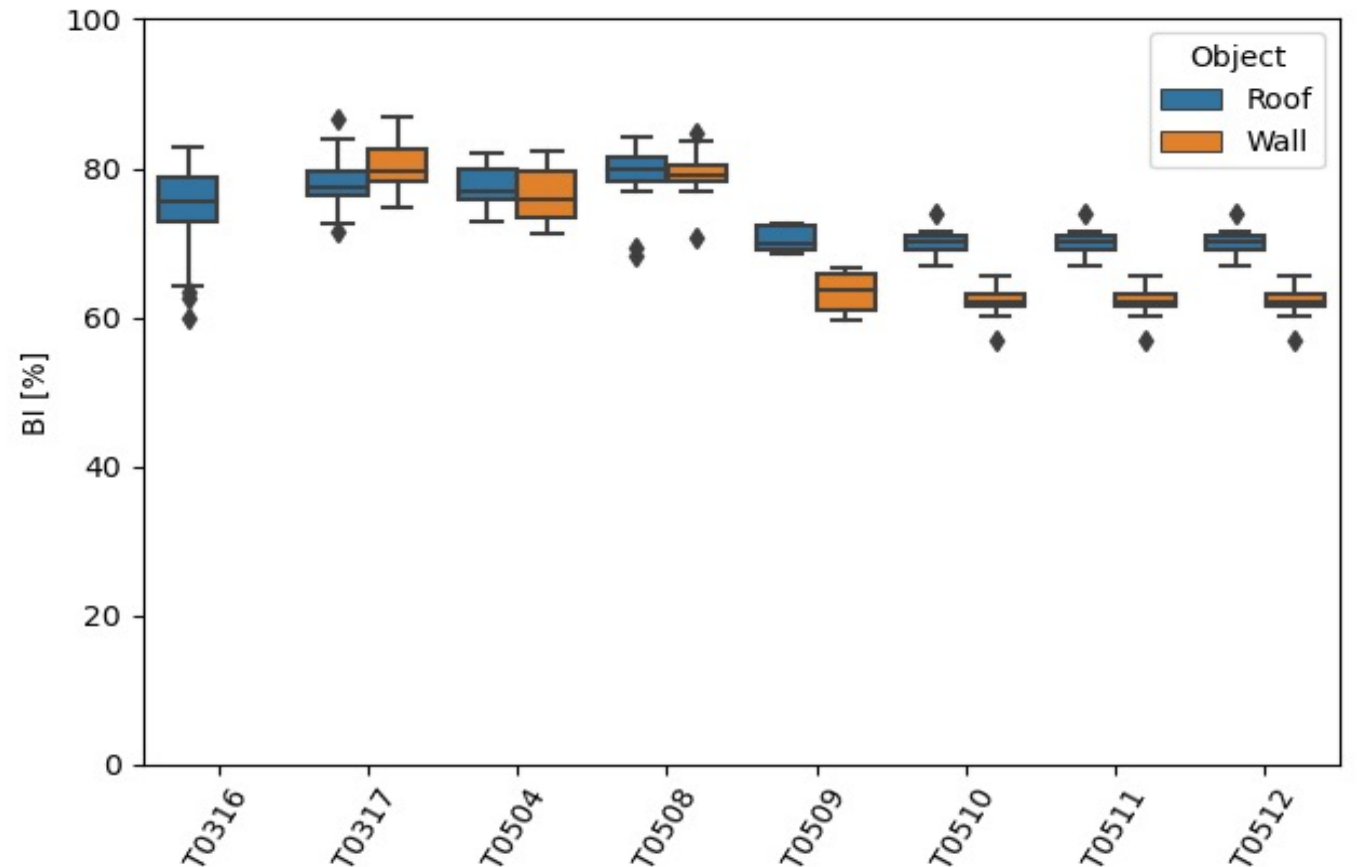
# Use case & Business Case





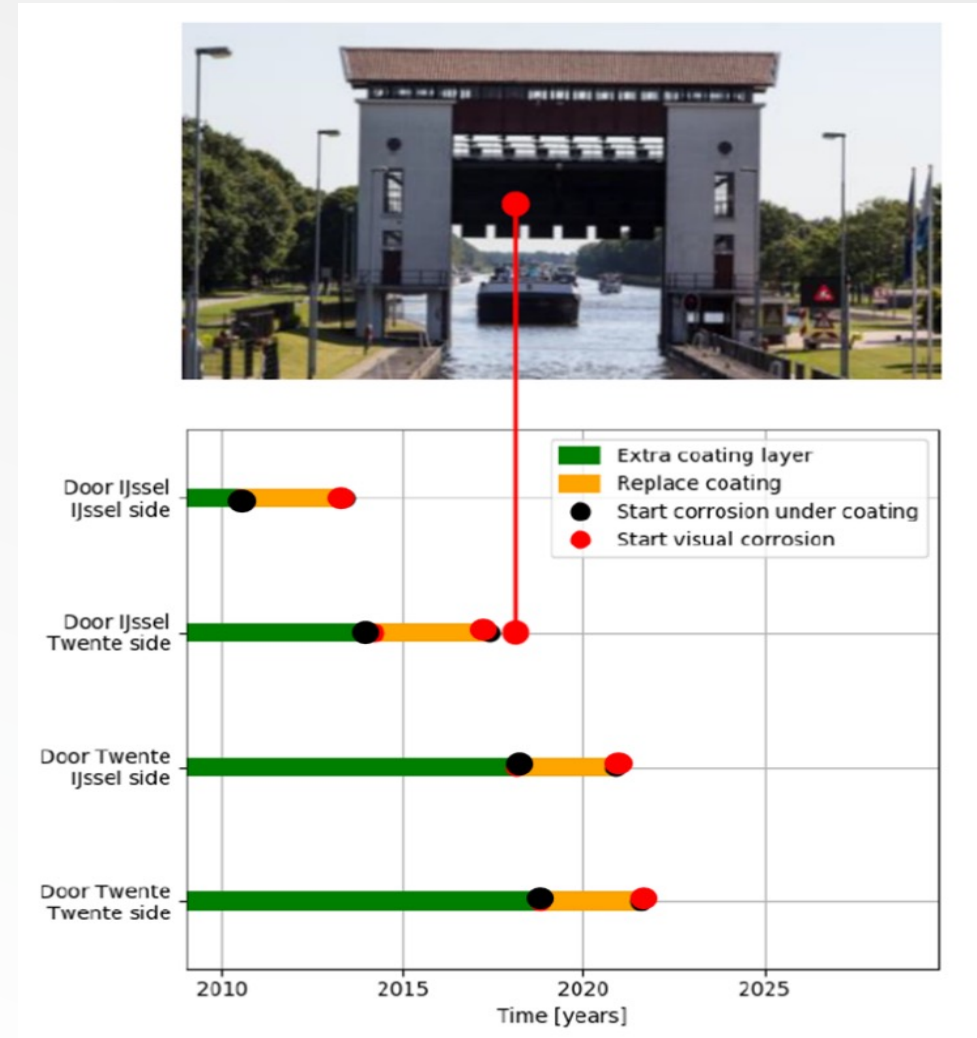
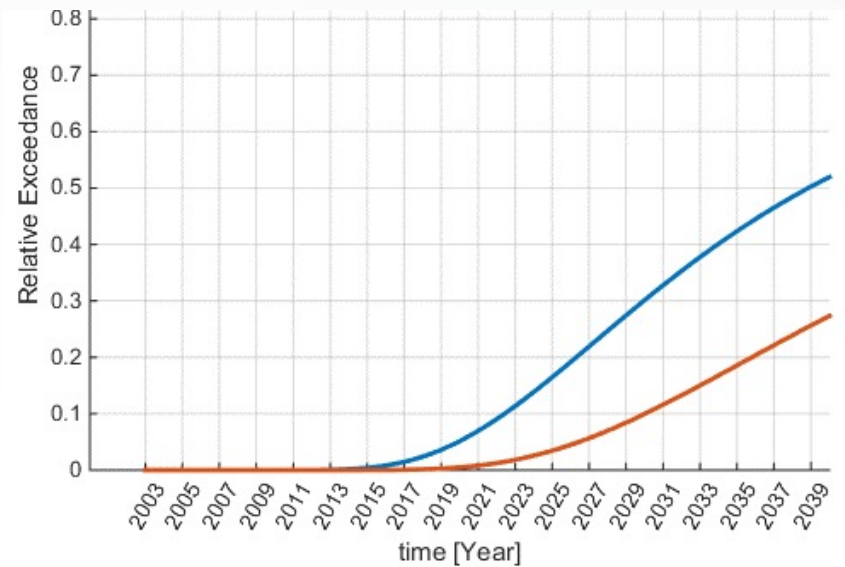
# Field Tests: Quick Scan

Conditie van meerdere assets

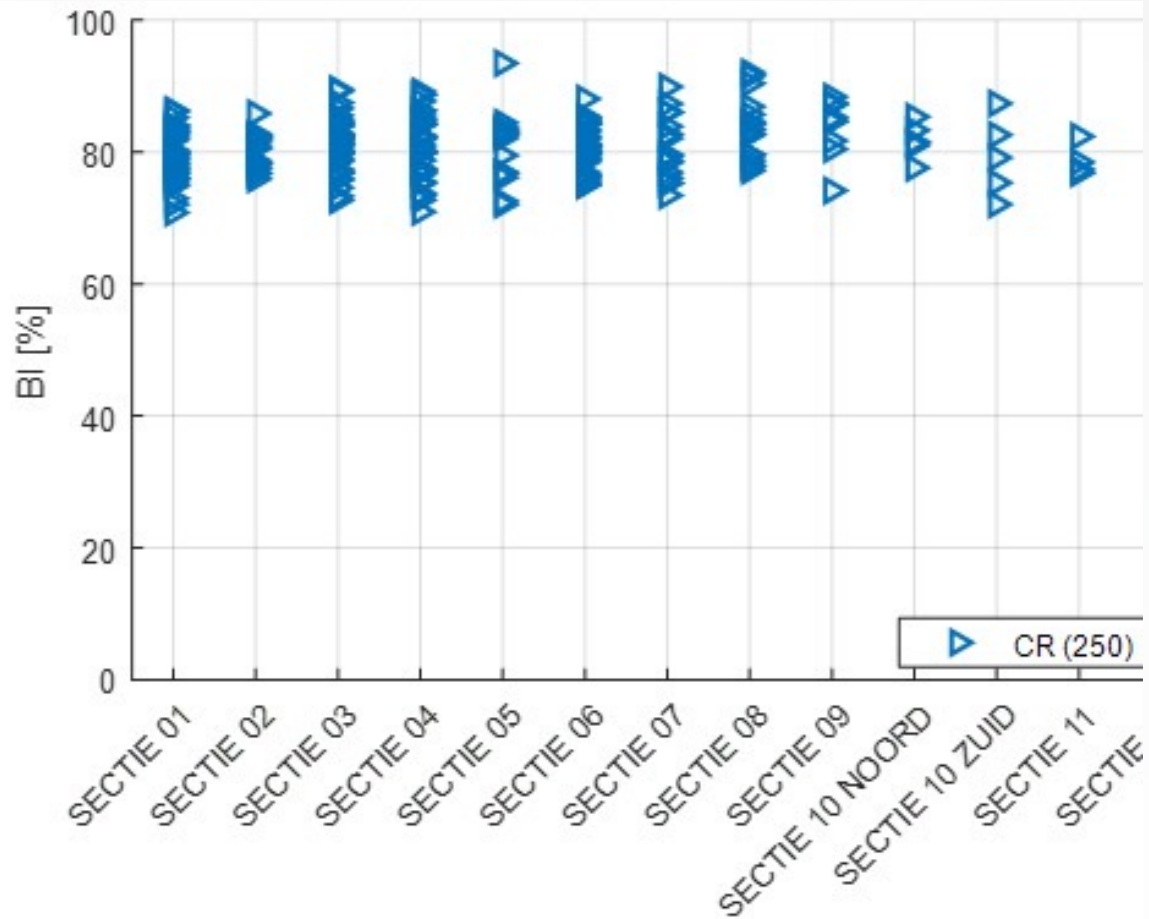


# Field Tests: Full Scan

- Conditie en prognose per sectie
- Onderhoud optimalisatie



# Stationsbrug Middelburg



# CQM Benefits



Inzicht hoe coating degradeert (geen verrassingen)



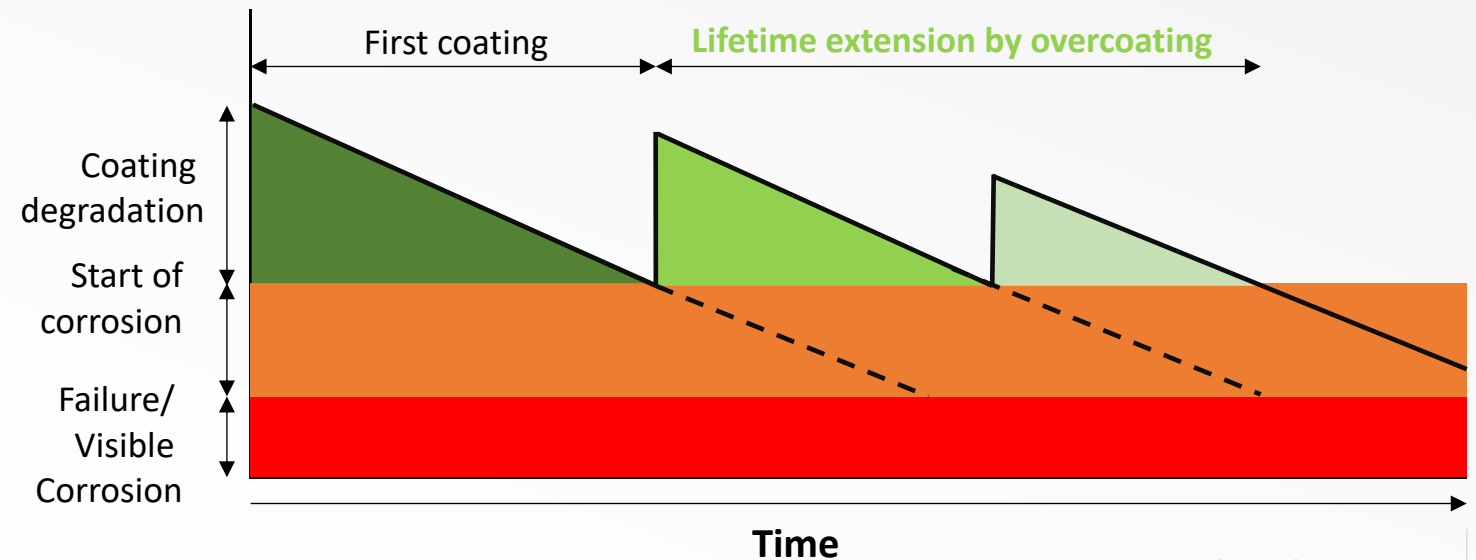
Prognoses of overcoating period & % of corrosion over time.



Kosten reductie in combinatie met preventief onderhoud



Beheersing van corrosie risico



# Meerwaarde CQM (just in time maintenance) Toestand afhankelijk onderhoud te doen



Overlagen??



- Geen corrosie onder de coating
- Lage permeabiliteit

Te vroeg

Uitstellen en monitoren

- Geen corrosie onder de coating
- Hoge permeabiliteit

Op tijd

Levensduur overlaging optimaal

- Wel corrosie onder de coating
- Hoge permeabiliteit

Te laat voor overlagen

Levensduur overlaging beperkt (tot wel 75% minder)



Heroverweging

Kosten

Uitnutten (lokaal repareren)

Duurzaamheid

Stralen (per sectie, geheel)

# Secure tomorrow, today

Let's assess together how we can get your assets ready for the future

**Guus Coolegem**

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