Prepared for:

PLATFORM BRUGGEN

Provincie Zeeland

Royal HaskoningDHV
Enhancing Society Together

C-Cube International bv

C-Cube International BV

2021

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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

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

RIMA
ROBOTICS FOR INSPECTION AND MAINTENANCE

Markten

Offshore
Bagger
Opslag
Wind

Infra
Burggen
Sluizen
Spoor

Industrie
Shipbuilding
OEM
Processing

Institutions
Research Firms
Universities

Coating Quality Measurement

Coating Quality Measurement (CQM) geeft inzicht in:

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

CQM voldoet aan ISO 16773

Port of Rotterdam inkoopvoorwaarde/moederbestek

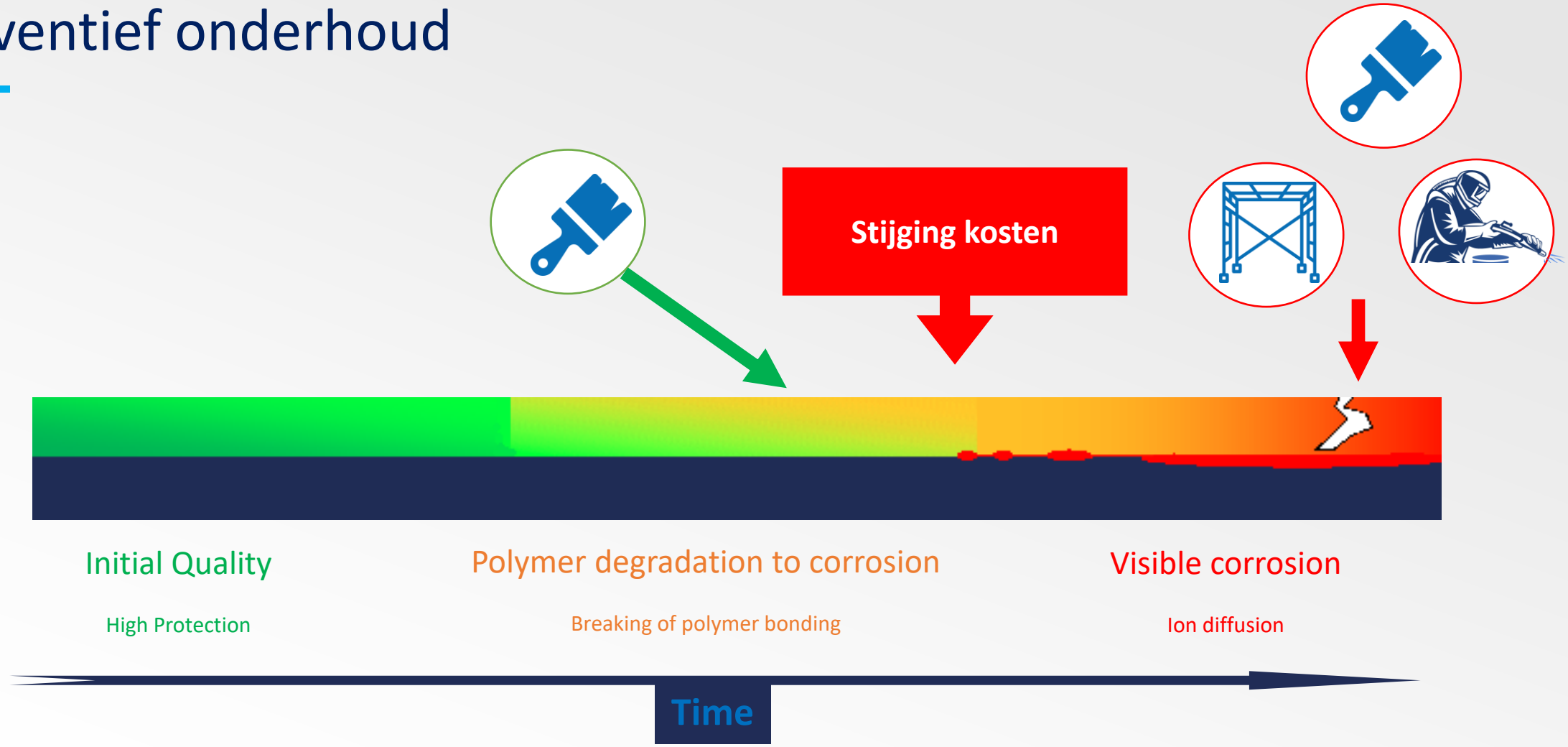
Coating Degradatie

Kostenstijging

Initial Quality	Polymer degradation to corrosion	Visible corrosion
High Protection	Breaking of polymer bonding	Ion diffusion

Tijd

Monitoring & Preventief onderhoud

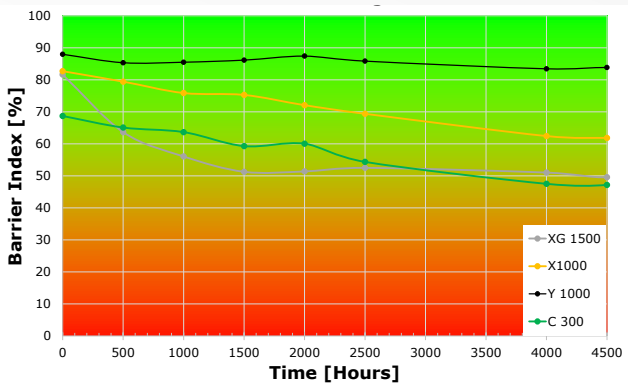


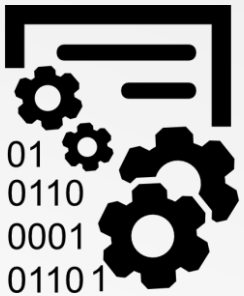
CQM Technologie

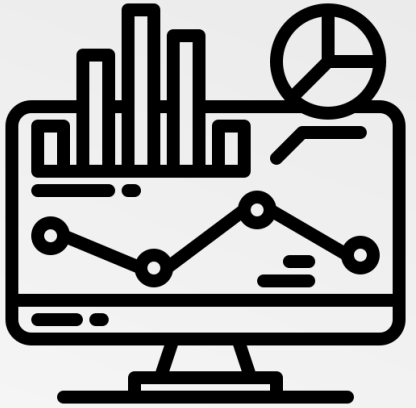
Database + Sensoren + Algoritme → Dashboard

- ISO 12944-9
- ISO 9227
- Degradatie modellen

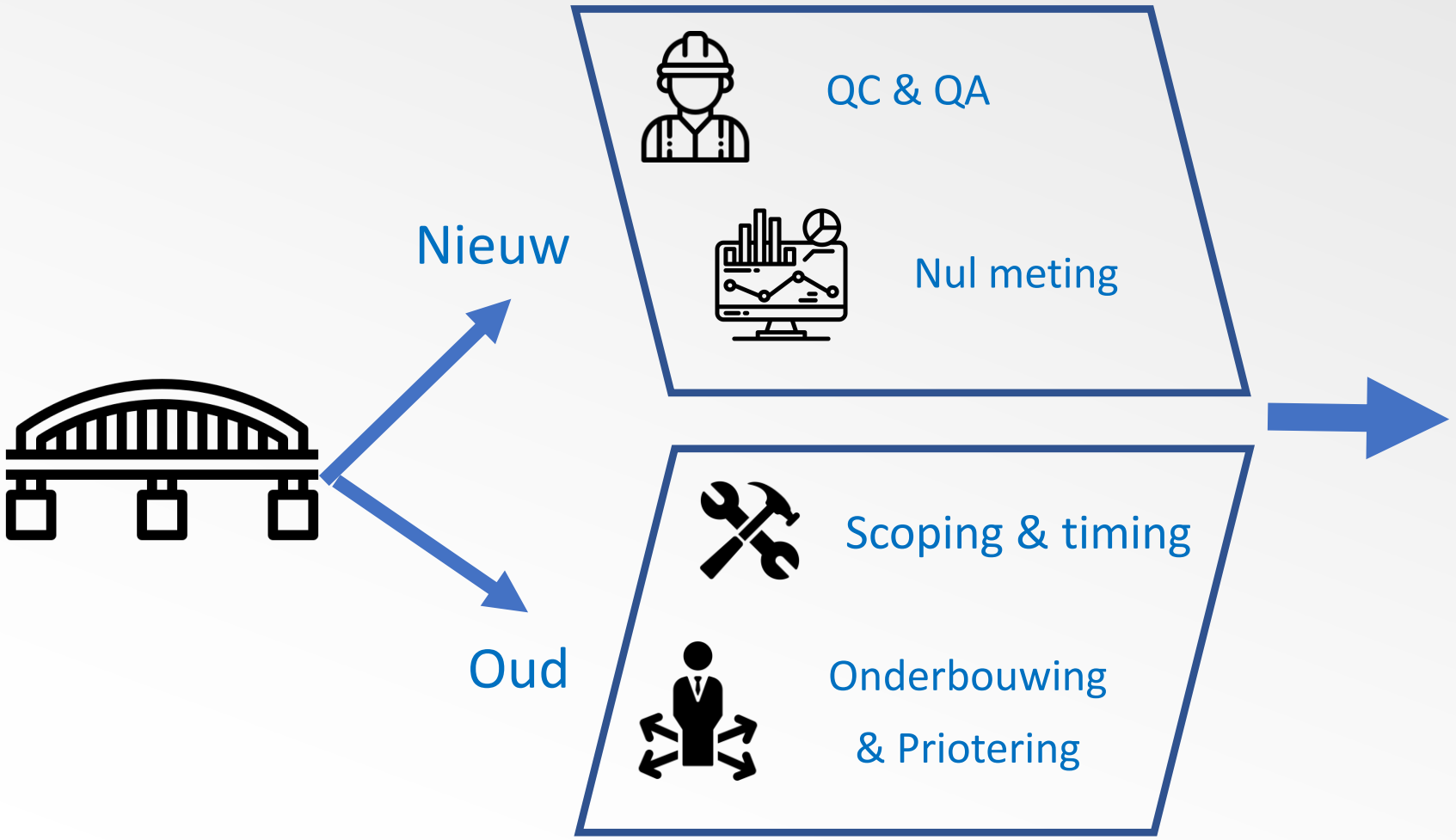
- ✓ Kwantificeerbaar
- ✓ Objectief
- ✓ Prognose







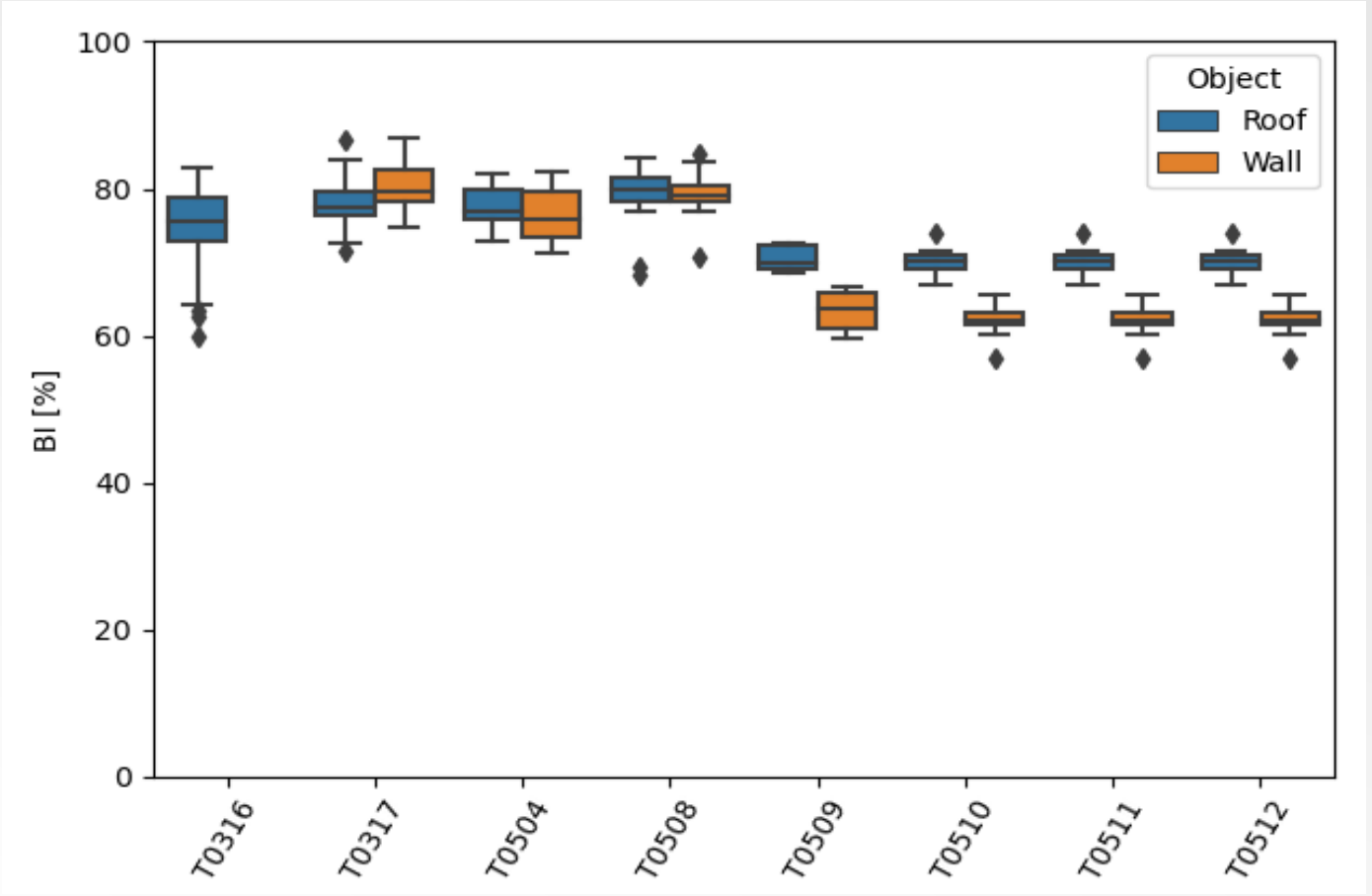
Use case & Business Case



- Zekerheid
- Kosten besparing (50%)
- Minimalisatie stremmingen
- Duurzaamheid

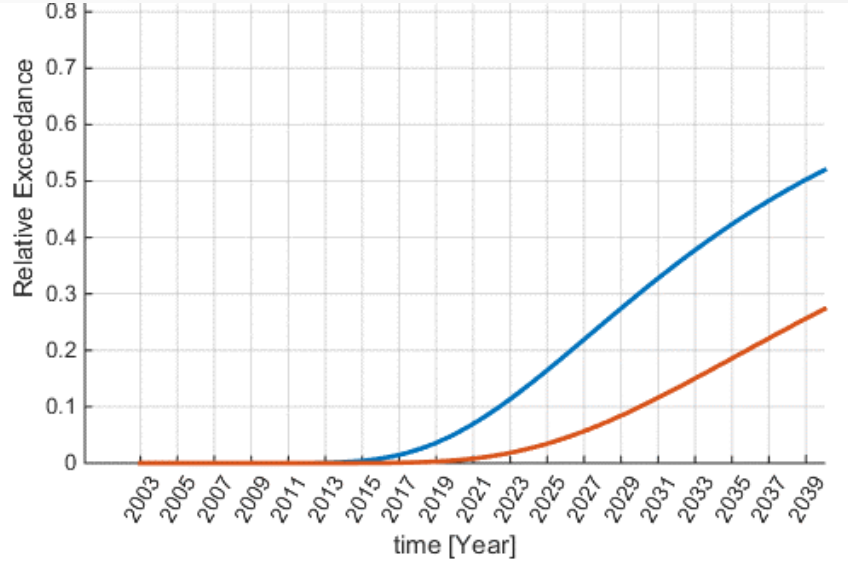
Field Tests: Quick Scan

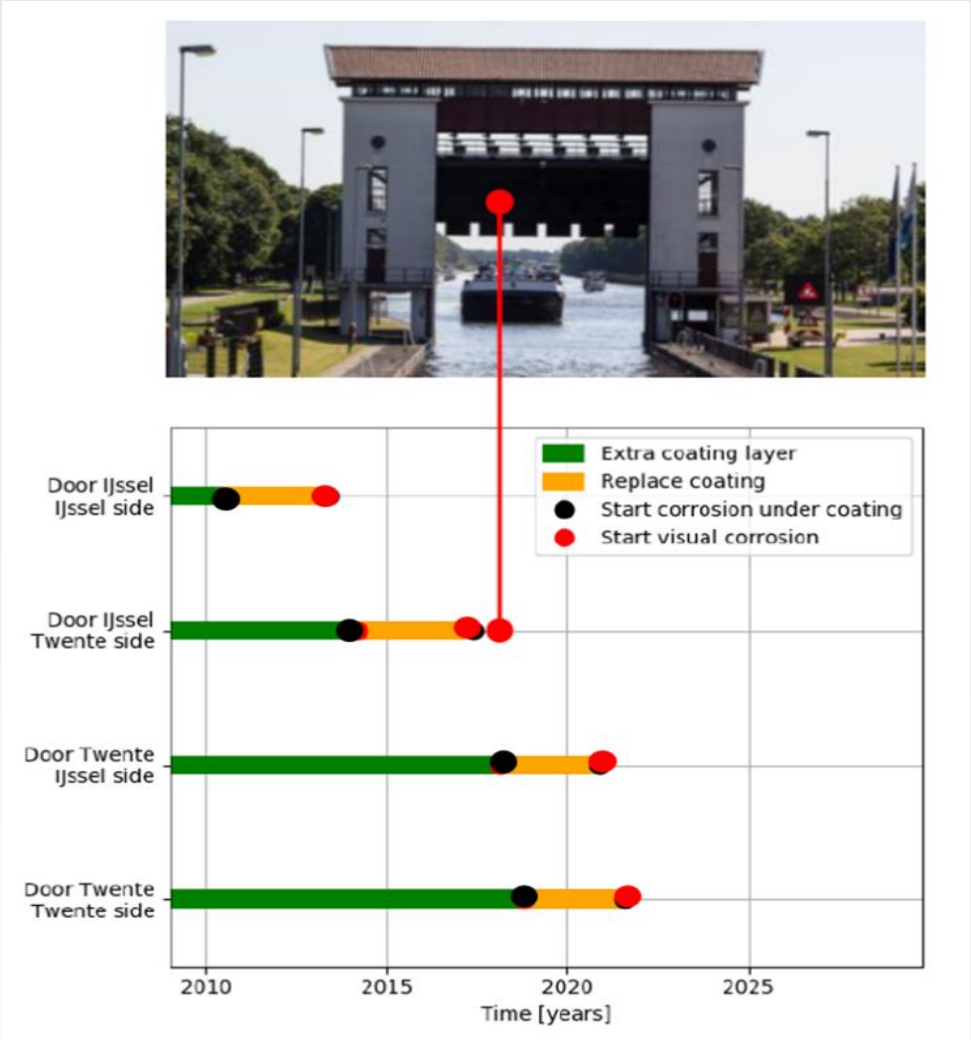
Conditie van meerdere assets



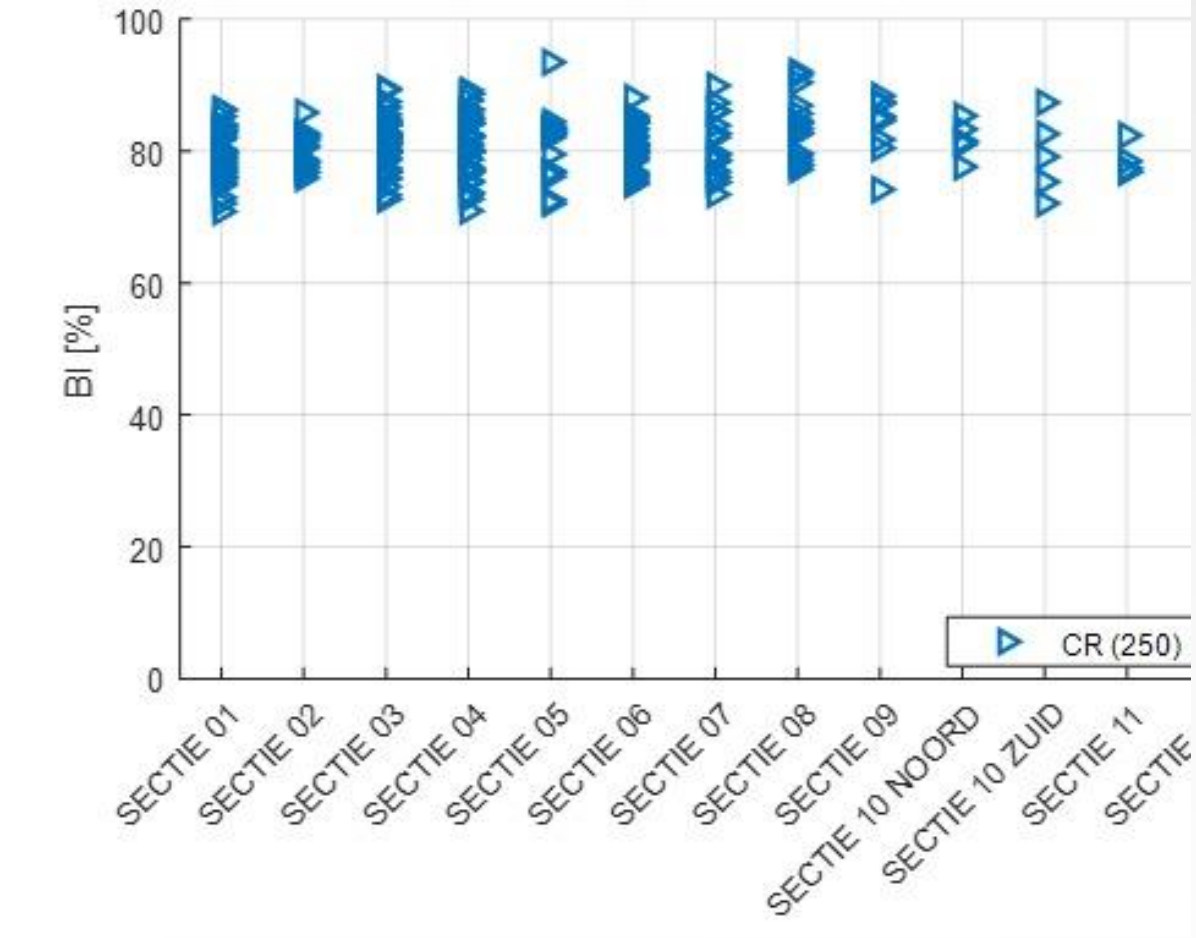
Field Tests: Full Scan

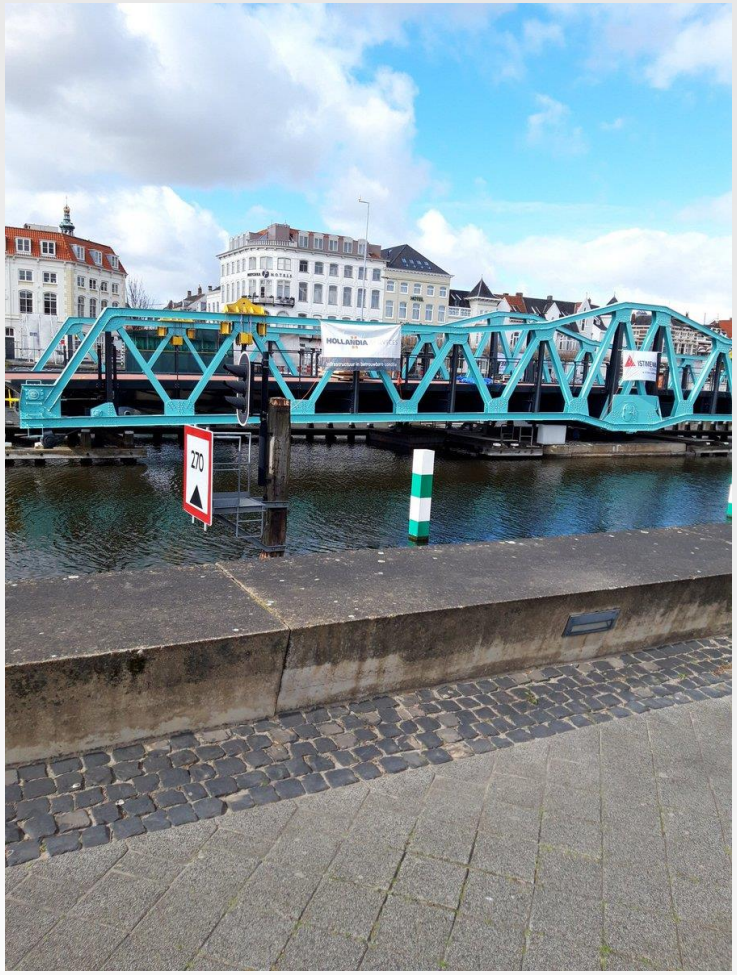
- Conditie en prognose per sectie
- Onderhoud optimalisatie





Stationsbrug Middelburg





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

Overlagen??

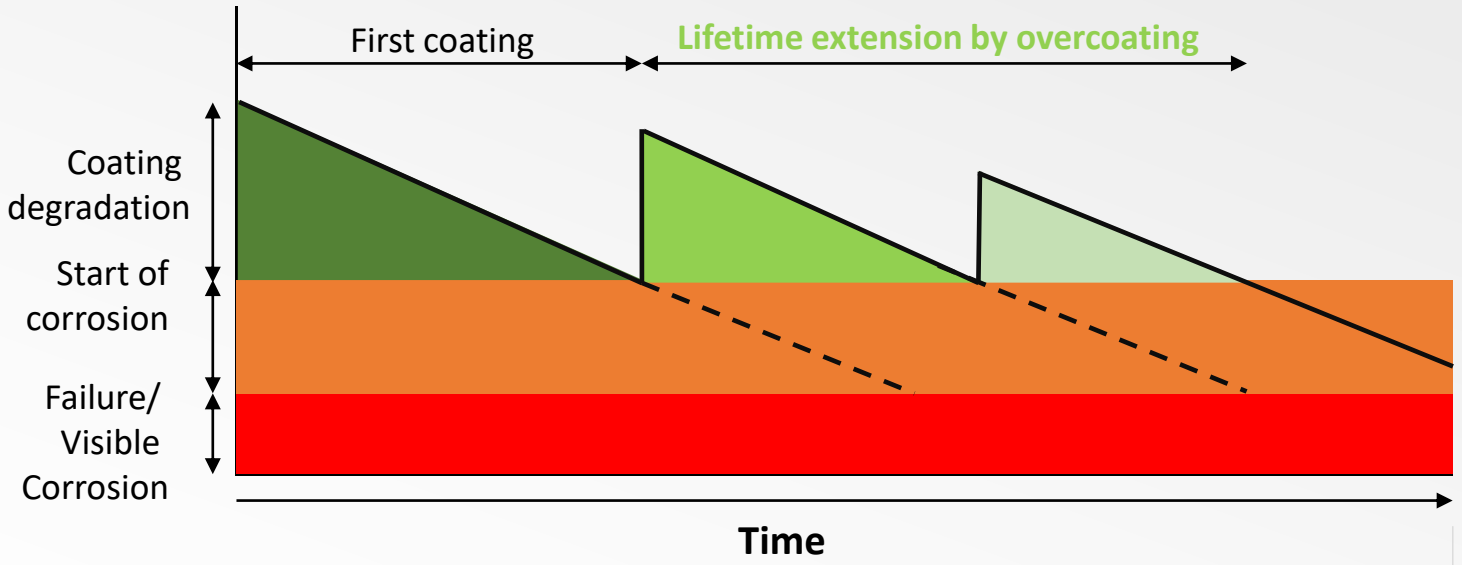
Meting	Timing van onderhoud	Gevolgen voor overlagen en advies
• Geen corrosie onder de coating • Lage permeabiliteit	Te vroeg	Uitstellen en monitoren
• Geen corrosie onder de coating • Hoge permeabiliteit	Op tijd	Levensduur overlaging optimaal
• Wel corrosie onder de coating • Hoge permeabiliteit	Te laat voor overlagen	Levensduur overlaging beperkt (tot wel 75% minder)

Heroverweging

Strategie	Advies
Kosten	Uitnutten (lokaal repareren)
Duurzaamheid	Stralen (per sectie, geheel)

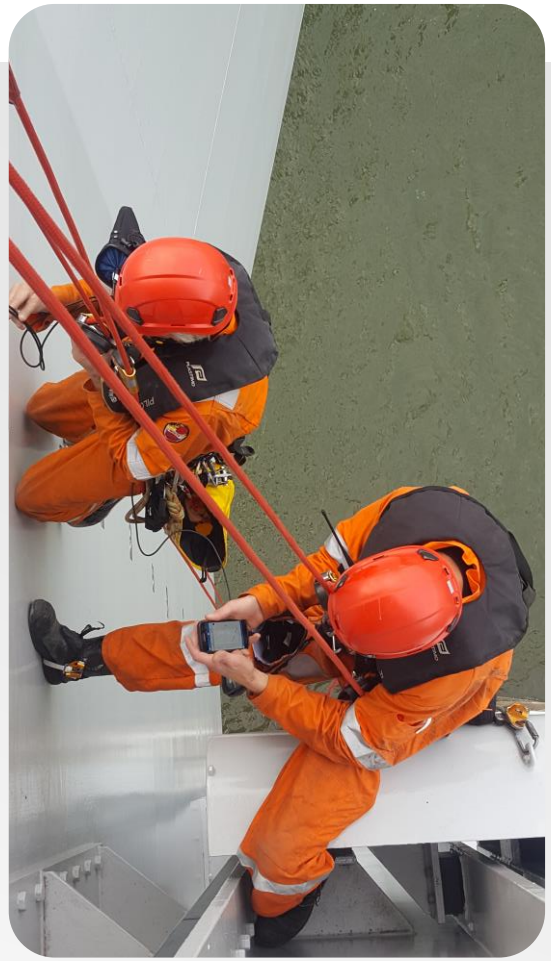
CQM Benefits

- Inzicht hoe coating degradeert (geen verassingen)
- Prognose overlaagbaarheid & % van corrosie in de tijd
- Kosten reductie in combinatie met preventief onderhoud
- Beheersing van corrosie risico



Secure tomorrow, today

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



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