

World Class performance analyses for waterfront assets

Port & Terminal Conference, Miami, April 22nd 2015

Port of Rotterdam: some facts

- Largest port of Europe
- Total surface: 12,500 ha
- Depth 24 meter
- 80 terminals
- 8th port in the world
- 3,000 companies
- 70.5 km berth length



Maasvlakte 2

Port in figures

Port of Rotterdam: engine of the economy

- Total employment 180,000 people
- Total added value € 21 billion (3.5% GNP)
- Throughput approx. 450 million tons; containers: 12 million TEU





Port development



Port of Rotterdam



Waterfront assets @ PoR

- Waterfront assets are the pivot in our business model
- 70,5 km berth length (44 miles); up to 24 m deep (75 ft)
- Approx. 95% of the asset is submersed
- Asset replacement value: € 1,45 billion



Amazonehaven, Rotterdam

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From Vision to RPI²



- The Port of Rotterdam's vision is to ensure sustainable economic development and growth and strengthen its competitive position
- One of the efforts to achieve this is by investing in its infrastructure and in effective maintenance and repair of its marine waterfront structures
- To be able to measure the level of asset management, the Port of Rotterdam has been working on a benchmark called RPI², the Rotterdam Port Infra Index



- A fact-based and realistic benchmark that will be developed to compare asset management performance against others with the same or similar waterfront assets
- It will help the asset managers to:
 - Confirm competitive position
 - Gauge the opportunity for improvement
 - Track performance trends
 - Identify best practices

Lessons learned



- Continuing to do what you have always done, will give you the results that you have always achieved.
- Cost cutting will not result in better performance overall
- Not the age but the condition as well as the maintenance performance determines the availability

RPI² should answer these questions



- Where can availability and maintenance performance be improved at the company, the site and the processes ?
 - On what level of maintenance costs (as percentage of the asset replacement value), are we needlessly spending too much money ?
 - On what level of availability (as percentage), are we needlessly losing too much valuable capacity ?
- How much improvement is reasonable, stated in quantifiable terms ?
- What are likely the causes of performance gaps with others and how can they be effectively addressed ?
- The metrics used in RPI² should ensure valid comparisons

What metrics ?



Benchmark on costs? Difficult because:

- Contract versus in-house maintenance
- Production rate
- Support costs (maintenance/reliability engineers)
- Age / condition of the asset
- Site footprint (geographic size), scale influence on procurement
- Asset replacement value
- Local labor rates and material costs

What metrics?



Benchmark on Availability ? Yes, if

- Availability < ?? %
- Unreliability (characterized by asset failures) is your largest downtime contributor
- Asset failures are driving maintenance behaviors
- Breakdown maintenance is your normal mode of operation
- Increased availability would provide much needed capacity



Benchmark on Maintenance performance ? Yes if

- Maintenance costs are > ?? % of ARV
- Maintenance costs are your highest fixed cost
- Maintenance costs are not effectively controlled
- Maintenance activities are predominantly corrective in nature (something broke, now you must repair it)
- Corrective maintenance costs exceed preventive and predictive maintenance costs
- Reactive maintenance is your normal mode of operation

Benchmark on level of Asset management !



"Asset Management: systematic and coordinated activities and practices through which an organisation optimally and sustainably manages its assets and asset systems, their associated performance, risks and expenditures over their life cycles for the purpose of achieving its organizational strategic plan."

Short: To get the most optimal contribution from your assets to support the primary proces and goals.

Not only by monitoring costs, but also by managing actively on revenues due to availability, reliability, maintenance performance, productivity, utilization and eco efficiency

Culture in Asset Management

Traditional culture

- "Assets are going to fail"
- Expert in reactive maintenance
- 80% of maintenance is reactive
- Failure is a normal event
- Organization is ineffective
- Reward who is good in reacting
- Risk-averse
- Costs go up, reliability goes down

• Proactive culture

- "Failure free operation is normal"
- 75% of maintenance is condition monitoring to predict the point of failure
- Thus no costly time based preventive maintenance
- Failure-averse
- Low maintenance cost and high reliability due to failure avoidance

Asset Management



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Four Focus Areas





Asset Management Analysis



	INNOCENCE	AWARENESS	CONTROL	COMPETENCE	EXCELLENCE
Asset Organisation Management • strategy and implementation • organisation and structure • streamlining of business processes • communication and training • contract management	 description description description description description 	 description description description description description 	 description description description description description description 	 description description description description description 	 description description description description description
Asset Data Management • arranging information systems • initiation and continuation of IT-systems • creating historical data • creating interfaces with related IT-systems	 description description description description 	 description description description description 	 description description description description 	 description description description description 	 description description description description
Asset Management Control • controlling cost effectiveness • performance measurement and reporting • continuous improvement	 description description description 	 description description description 	 description description description 	 description description description 	description description description description 100%
Asset Baseline Management • foundation of Asset Management • using risk analyses as a starting point • e.g. creation of maintenance concepts	 description description description 	• description • description • description	6 • description • description • descriptio	0% • description	0076

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The concept RPI²



Summary



• RPI² is in development

- Focus on asset management level in stead of costs
- Several Port Authorities in North-West Europe joined:
 - Port of Ghent
 - Port of Gothenburg
 - Hamburg Port Authority
 - Port of Southampton (BPA)

Thanks for your attention !

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