

Infor EAM in the Handling Engineering Group

Cathelijne HAZELAAR-BAL

EDMS no. 2596821



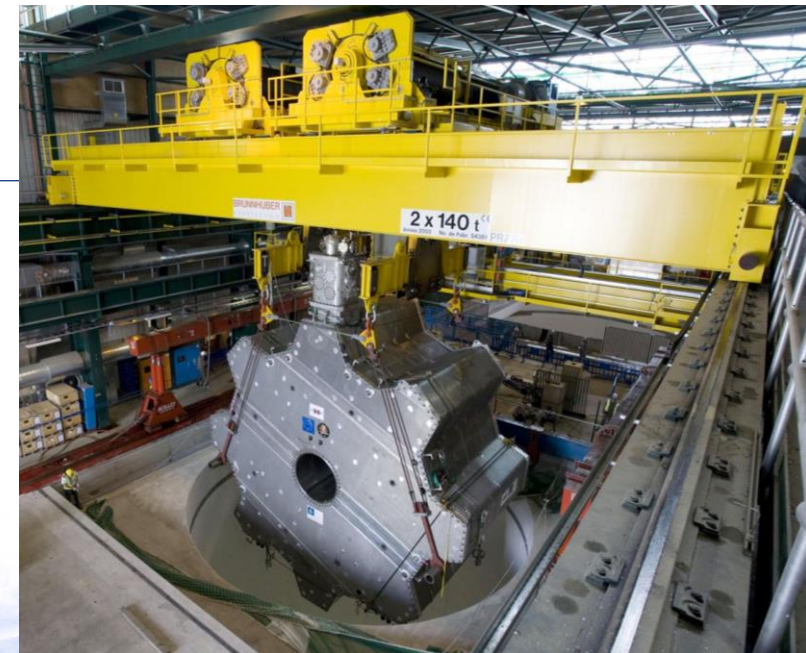
ENGINEERING
DEPARTMENT

Agenda

- Introduction Handling Engineering Group
- Statistics
- Dashboard
- Equipment
- Work Orders
- SAILOR Levage
- PM Schedules
- Pentaho Reporting
- Future Actions

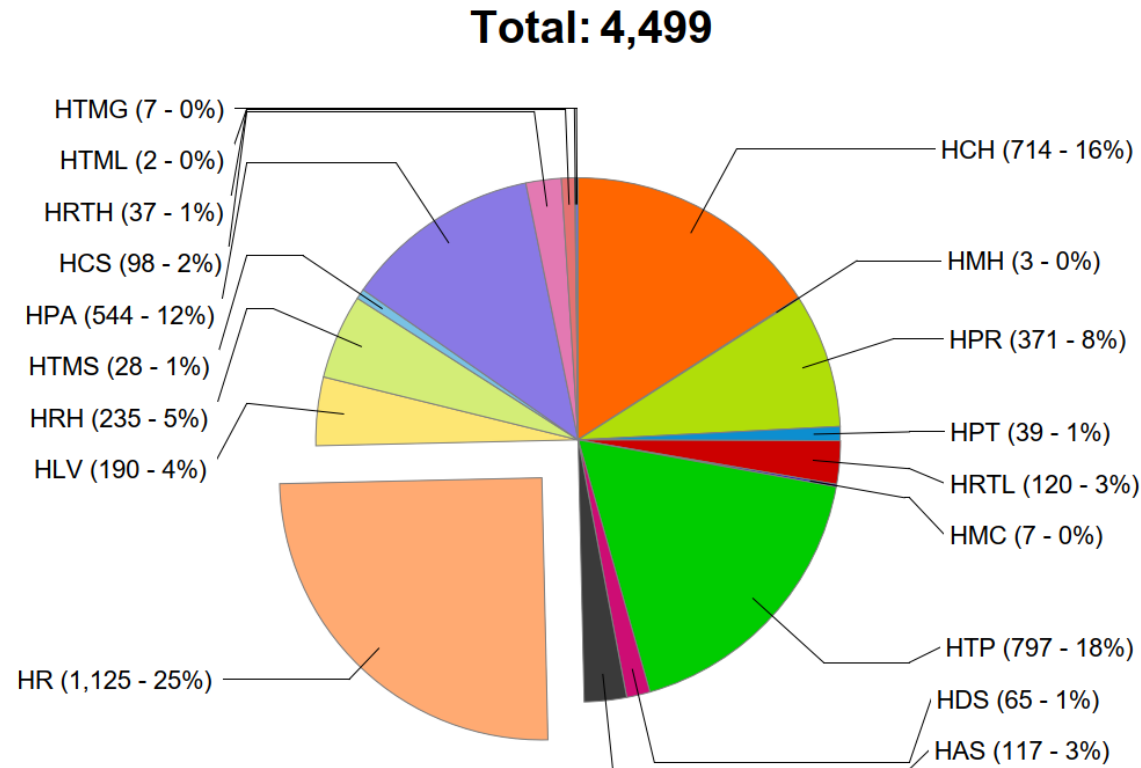
Introduction EN/HE

- Provide transport and handling services
- Design, integration and feasibility studies
- Tendering and procurement, installation, commissioning, operation, maintenance and decommissioning
- Standard industrial and custom-built transport and handling equipment
 - 4 maintenance contracts
 - 1 operation contract



Statistics

Equipment by Class

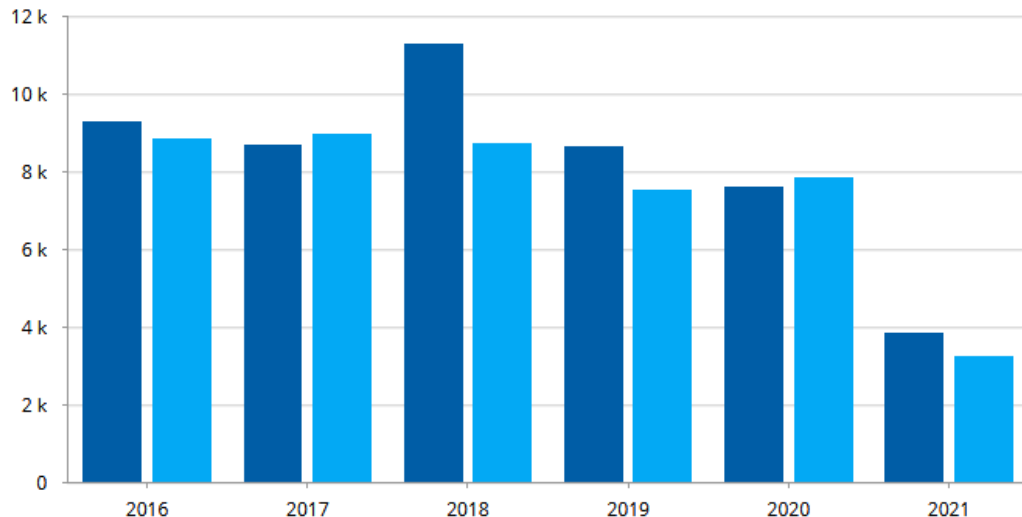


- 127 Lifts
- 371 Overhead Cranes
- 544 Hoists
- 1125 Spreader Beams
- 2300 Transport and Lifting Vehicles

➤ Preventive Maintenance:
28% of total assets

Statistics

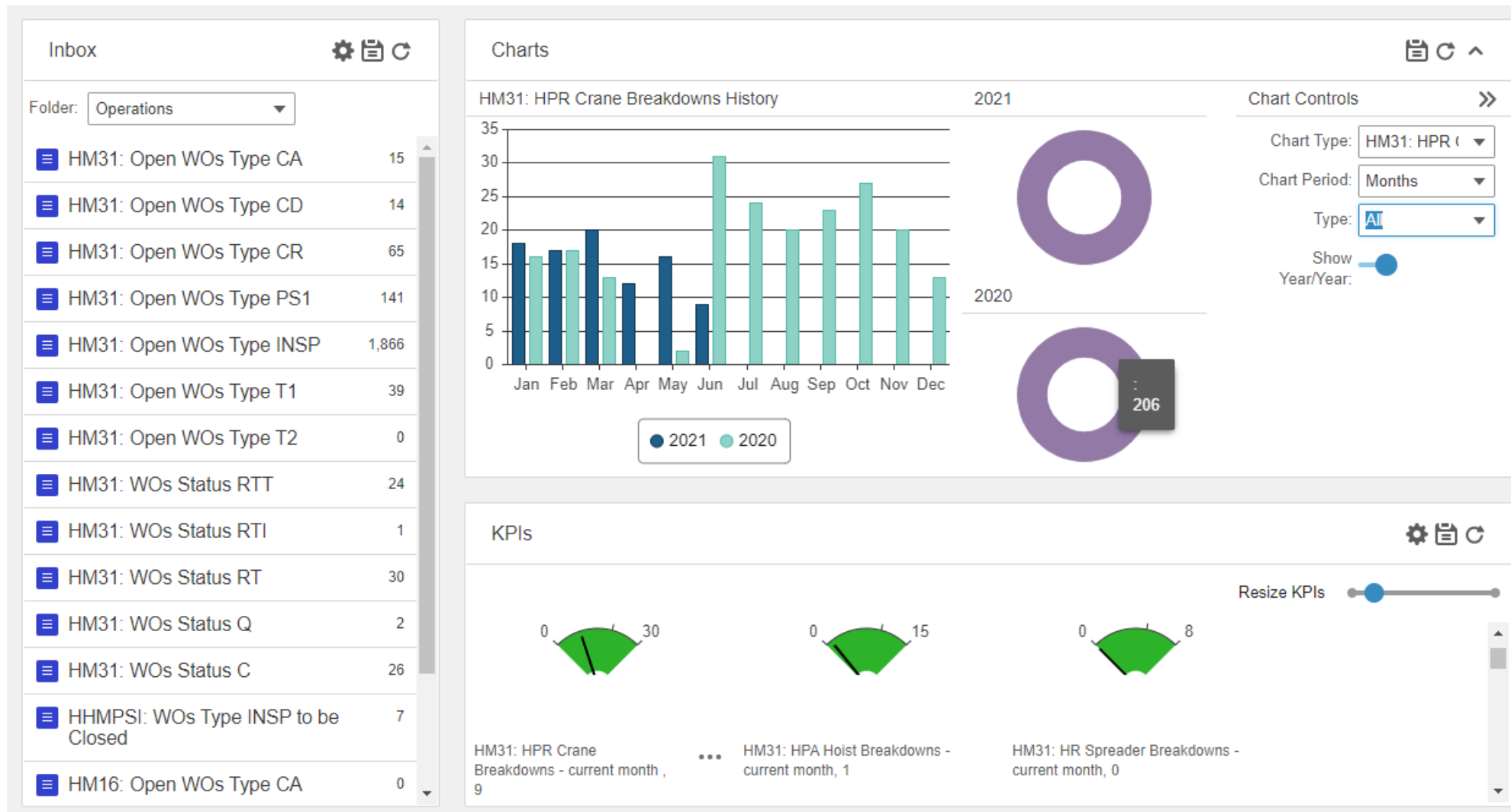
- Work Orders: ~ 9000/year Created and Closed
- Documents: ~ 16.000
- Spare Parts: ~ 4000
 - Parts Tracked by Asset ~ 50
 - Assets ~ 330



- WO Created
- WO Completed



Dashboard



Equipment - Structure

Position HHLRA-0007 RAILS BLD.112 / PR-259 PR-260

Record View Comments × Events × Costs × PM Schedules × **Structure** × EDMS D

Actions ▾

Structure Details

Add Parent

- ⊞ L-112
 - ⊞ P-HHLPR-0085-PONT ROULANT
 - ⊞ A-CRPR-00259-PONT BIPOUTRE BONFANTI 10T
 - ⊞ A-CRPR-00259-LEV-Levage du PR-259
 - ⊞ A-CRPR-00259-DIR-Direction du PR-259
 - ⊞ A-CRPR-00259-TRA-Translation du PR-259
 - ⊞ A-CRPR-00259-ELE-Electricité du PR-259
 - ⊞ A-HCHHZ02863-00000005-RADIO COMMANDE AUTEC
 - ⊞ P-HHLPR-0140-PONT ROULANT
 - ⊞ A-CRPR-00260-PONT BIPOUTRE BONFANTI 10T
 - ⊞ A-CRPR-00260-LEV-Levage du PR-260
 - ⊞ A-CRPR-00260-DIR-Direction du PR-260
 - ⊞ A-CRPR-00260-TRA-Translation du PR-260
 - ⊞ A-CRPR-00260-ELE-Electricité du PR-260
 - ⊞ A-HCHHZ02863-00000006-RADIO COMMANDE AUTEC

- Functional Positions:
Equipment Structure
- Assets:
Equipment follow-up
- Sub-Assets:
Documentation and Part
Structure

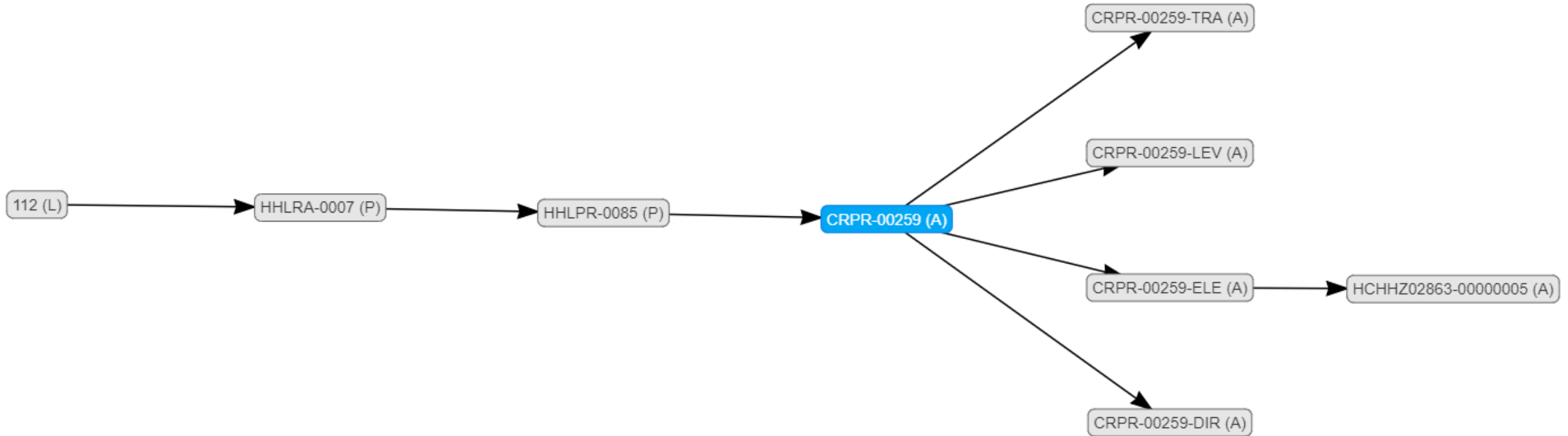
Equipment - Graph

HM Asset CRPR-00259 PONT BIPOUTRE BONFANTI 10T



PM Schedules × Structure × EDMS Documents × Show on Map × Inspections & Readings × Meters × Nonconformities × Open Work Orders × **Equipment Graph** × More ▾

Depth: 3 Included in graph: → Installed In × ▾



Equipment - EDMS Documents

- 16.000 Documents uploaded in EDMS (~40% digitalized Paper Documents)
- Linked to Assets in Infor EAM

The screenshot displays the EDMS interface for asset CRPR-00298. The left sidebar shows a tree view of assets, with 'CRPR-00298-ELE - Electricité du PR-298' selected. The main content area shows a list of documents linked to this asset. The table below is a representation of the data shown in the screenshot.

#	Id	Title	Extern...	Status	Create...
	1907321 v	PROGRAMME PLC PR298 - Program	XTRF BC	Relé	2018-02
	1907636 v	DESCRIPTION ELECTRICAL CABINET PR298 - Ma...	XTRF PR	In Wc	2017-05
	1907637 v	PLAN ENSEMBLE EQUIPEMENTS ELECTRIQUES ...	XTRF PR	In Wc	2017-05
	1907638 v	SCHEMA BORNIERES PR298 - Schematics	XTRF PR	In Wc	2018-02
	1907639 v	SCHEMA ELECTRIQUE PR298 - Schematics	XTRF PR	In Wc	2017-01
	1907640 v	SCHEMA ELECTRIQUE RADIO COMMANDE PR29...	XTRF PR	In Wc	2017-06
	1907641 v	SCHEMA PRINCIPE PR298 - Schematics	XTRF PR	In Wc	2017-05
	1354463 v	NOTICE UTILISATION RADIO COMMANDE HBC S...	XTRF HB	In Wc	2013-12
	1363319 v	OPERATING INSTRUCTIONS REMOTE CONTROL ...	XTRF HB	In Wc	2012-04
	1406118 v	CE CERTIFICATE RECEPTEUR HBC FSE 727 - Re...	XTRF HB	In Wc	2014-04
	1406120 v	NOTICE UTILISATION RECEPTEUR HBC FSE 727 ...	XTRF HB	In Wc	2014-04
	1406121 v	OPERATING INSTRUCTIONS RECEIVER HBC FSE...	XTRF HB	In Wc	2014-04

Equipment - Warranties

- Most equipment 2 year warranty
- During this period maintenance should be done by manufacturer
- Manufacturer often not on-site
- Maintenance done by contractor as additional work
- Warning message when creating WO on Asset under warranty

HM Asset CRPR-00806 PONT BIPOUTRE MUNCK 20T

Warranties

Warranty	Description	Coverage Type	Active	Duration	Threshold	Duration UOM	Threshold UOM	UOM
CERN-2YR	2 year warranty (according to §25.1 General Conditions of CERN Contracts)	Calendar	<input checked="" type="checkbox"/>	730				

Records: 1 of 1

Record View

Warranty Details

Work Order: <Auto-Generated>

Equipment: CRPR-00806 PONT BIPOUTRE MUNCK 20T

Location: SXA5 3579-BATIMENT ATELIER ET STOCKAGE

Type: CD - Correctif Depanna Status: R - Lance

Dep./Service Unit: HM31

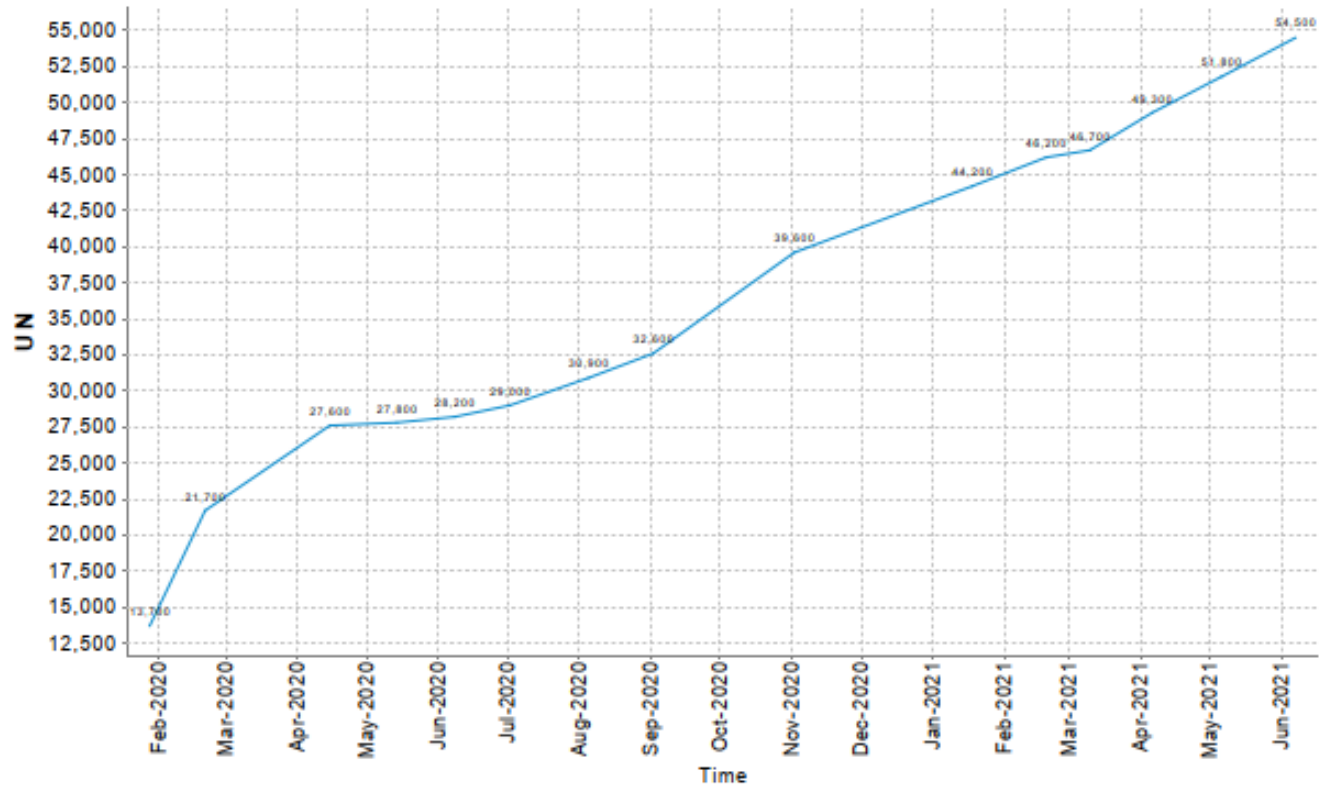
Multiple Equipment:

Warning: ⚠ This Equipment is currently under warranty.

OK

Equipment - Meter Readings

Readings of Compteur de courses du CRAS-00152
between 20/12/2019 and 16/6/2021



- Hours
- Strokes
- Meter readings entered manually during each maintenance

From tab "Meter Readings Graph" within Assets

Equipment - Meter Readings

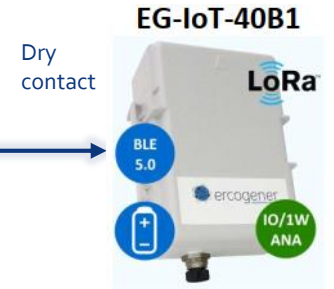
Analyze equipment usage for maintenance and consolidation:

- ~60% of Overhead Cranes are used less than 10h per year and another 20% between 10h and 30h per year
- Manufacturers consider 120h/year as normal usage, with maintenance every quarter or 30h
- Currently classic preventive maintenance once per year and twice per year for critical cranes (~500 interventions or 3500h)

Equipment - Meter Readings

New maintenance strategy as from 2022 for Cranes:
(following manufacturer's instructions and in agreement with HSE)

- New battery operated LoRa sensors on lifting part of Cranes (wireless **Long-Range** transmission with low power consumption)
 - Automatic read-out 1x per day
 - Data pushed to Infor
 - Estimated battery lifetime of 10 years
- Preventive Maintenance every 30h (minor) and 120h (major) or 5y
 - Nesting function in Infor for Type Variable?
- Most equipment only once per 5 year (still tested every year during periodic safety inspection!) and some equipment up to 4x per year
- Savings: at least 100 kCHF per year!



Equipment - Safety

HM Asset BV-A-001 Demo objet

Record View Comments × Events × Costs × PM Schedules × Structure × Safety × Meters × Noncor

Review Details

All Records Edit Hazard

Hazard	Hazard Description	Hazard Type	Precaution	Precaution Description	Unit Of
HM-CH01	Essence	Biological Hazards	NONE	No precautions specified.	LTR
HM-CH02	Diesel	Biological Hazards	HM01	Handling & Manutention	LTR
HM-CH03	Huile Moteur	Biological Hazards	NONE	No precautions specified.	LTR
HM-CH04	Huile Hydraulique	Biological Hazards	NONE	No precautions specified.	LTR
HM-CH07	Plomb Pur Batterie	Biological Hazards	NONE	No precautions specified.	LTR
HM-CH08	Liquide de Refroidissement	Biological Hazards	NONE	No precautions specified.	LTR

Records: 7 of 7 123

Actions

Safety Details

Hazard: HM-CH02 Diesel

Precaution: HM01 Handling & Manutention

Timing: [Dropdown]

Sequence: [Input]

Apply to Children:

Hazard Type: Biological Hazards

User Defined Fields

Quantity: 10

Unit Of Measure: LTR

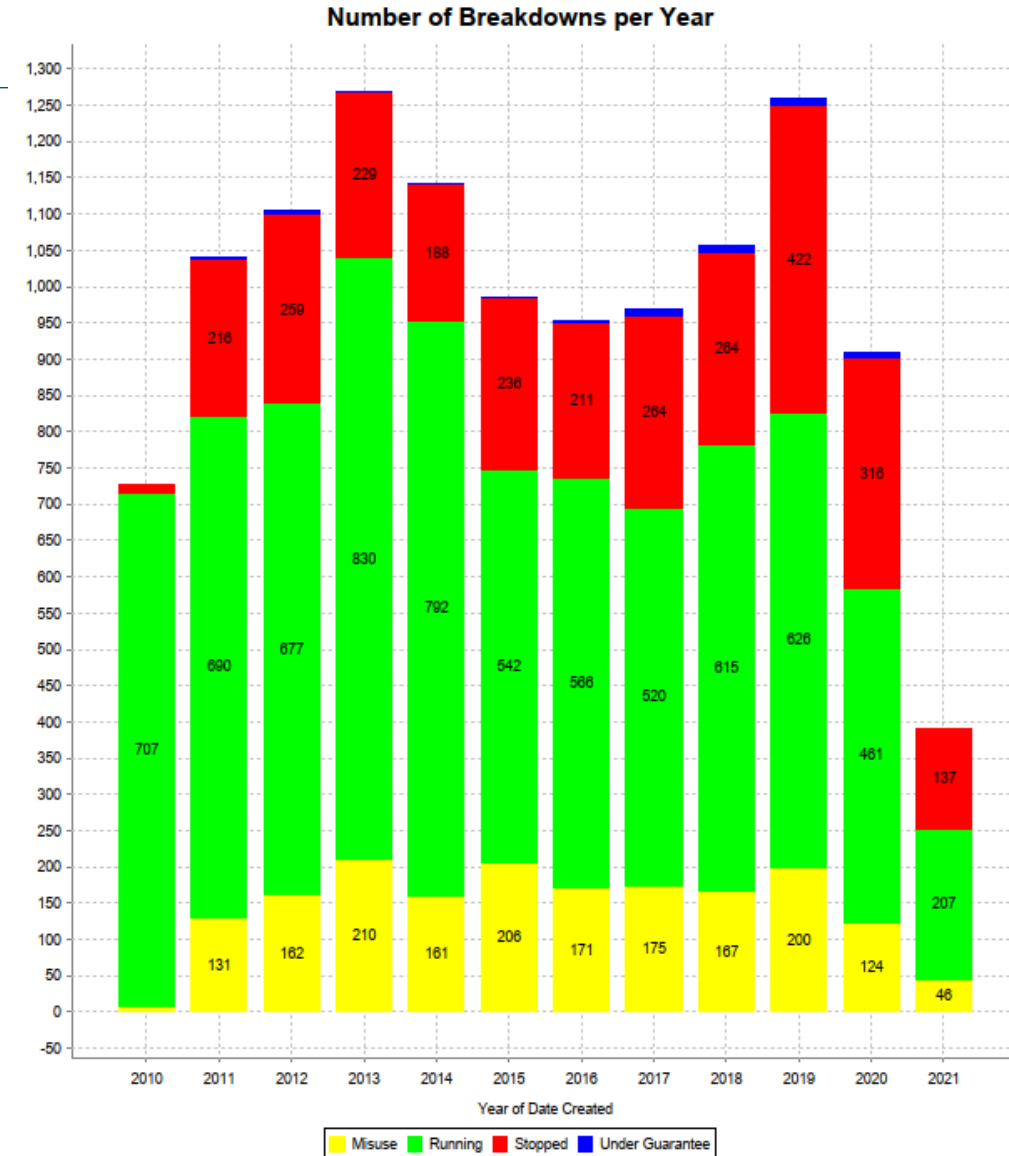
Autres: [Input]

- New ADR Regulations* effective as from 2022
- Identify hazards and its quantity present in transport equipment (petrol, oil, battery...)
- Following identification define equipment that falls under ADR Regulations
- Make information ADR Yes /No available in EDH SIT Document when selecting equipment
- This may concern other groups!

*ADR = Accord européen relatif au transport international des marchandises Dangereuses par Route

Work Orders

- 4 Maintenance Contracts
- ~ 9000 WOs Created and Closed per year
- 7 WO Types
- 7 PM Schedules
- Standard WOs
- Usage Spare Parts
- Booked Hours
- Closing Codes
- Downtime Hours



SAILOR Levage

Periodic Safety Inspections (PSI):

- In-house development by HSE to improve follow-up of observations
- Link EDMS Reports of Periodic Safety Inspections to WOs
- PSI WO created by PM Schedule
- Observations in report automatically generate child WOs (one for each observation)
- Observation text copied to Comments of child WOs
- Link between child WO status and Report status

The screenshot shows the SAILOR v2.1.2 SAFETY REPORTING interface. The main header is blue with the CERN logo and the user 'cbal'. The page title is 'Inspection'. Below the title, there are filters and a search bar. The main content area shows a 'Work Order' for '29431394 Reception Safety Inspection'. Below this, there is a table of 'Child WOs' with columns: Child WO, Description, Dependent, Status, Type, and Equipment. The table contains one row: 29431395, Remark following PSI, (blank), RAR - Accepté en Basé et Clarifié, CR - Correctif Reproduction en, and CRPR-00315. Below the table, there is a section for 'HM Work Order 29431395 Remark following PSI'. This section shows a 'Record View' with tabs for 'Comments', 'Activities', 'Book Labor', 'Closing', and 'Meter Readings'. The 'Comments' tab is active, showing a comment in French: 'Le pont a tendance à se mettre en crabe en translation. Les galets de pression des moteurs de translation ont été resserrés. A revoir si le phénomène s'amplifie (coincement de la poutre).'

Child WO	Description	Dependent	Status	Type	Equipment
29431395	Remark following PSI		RAR - Accepté en Basé et Clarifié	CR - Correctif Reproduction en	CRPR-00315

Preventive Maintenance Schedules

- Lifts: 4
 - 127 Assets
 - Every 1, 2, 3 or 6 Months
- Cranes & Hoists: 1
 - 482 Assets
 - Every 6 or 12 Months
- Spare Parts: 1
 - 36 Assets
 - Every 24 Months
- Periodic Safety Inspections: 1
 - 3160 Assets
 - Every 3, 6 or 12 Months

PM Schedule HHM12PR Maintenance préventive annuelle

Record View Comments x Activities x **Equipment** x Work Orders x Automatic Release x EDMS Documents x More v

Copy of All Equipment Edit Equipment [R] [Q] Run

Equipment	Description	Dep./Service Unit	Location	Due Date	Perform Every	Pe
CRR-02863	PALONNIER MOTORISE BONFANTI 28T	HM31	ECX5	01-MAR-2021	1	Y
CRPR-00313	PONT MONOPOUTRE VISAN 3T	HM31	129	01-DEC-2023	1	Y
CRPA-01270	PALAN ELEC TAIM 5T (SUR PR-758)	HM31	SX5	01-AUG-2021	6	M
CRPA-01272	PALAN ELEC TAIM 5T (SUR PR-759)	HM31	SX5	01-AUG-2021	6	M
CRPA-01582	PALAN TISSOT	HM31	157	01-SEP-2021	1	Y

Records: 50 of 100+ (123) Show Filter Row: [Q] [Q]

Equipment Details

Equipment: CRPA-01270 PALAN ELEC TAIM 5T (SUR PR-758)

Dep./Service Unit: HM31 [Q] PM Type: Fixed v

Location: SX5 [Q] WO Class: HME121P [Q]

Route: [Q] Budget Code: [Q]

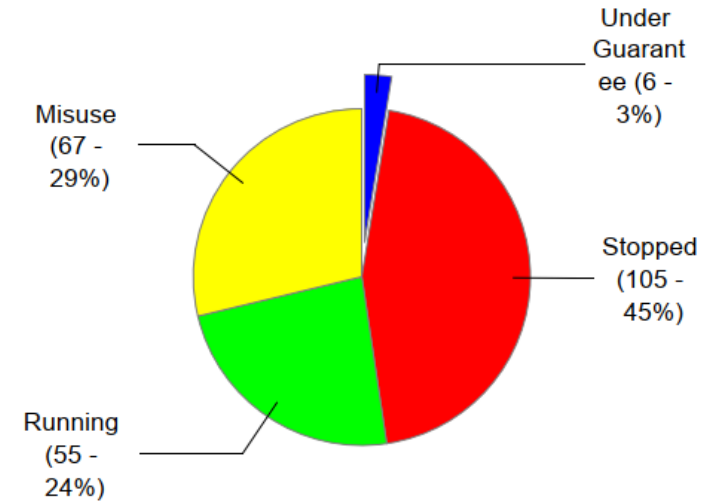
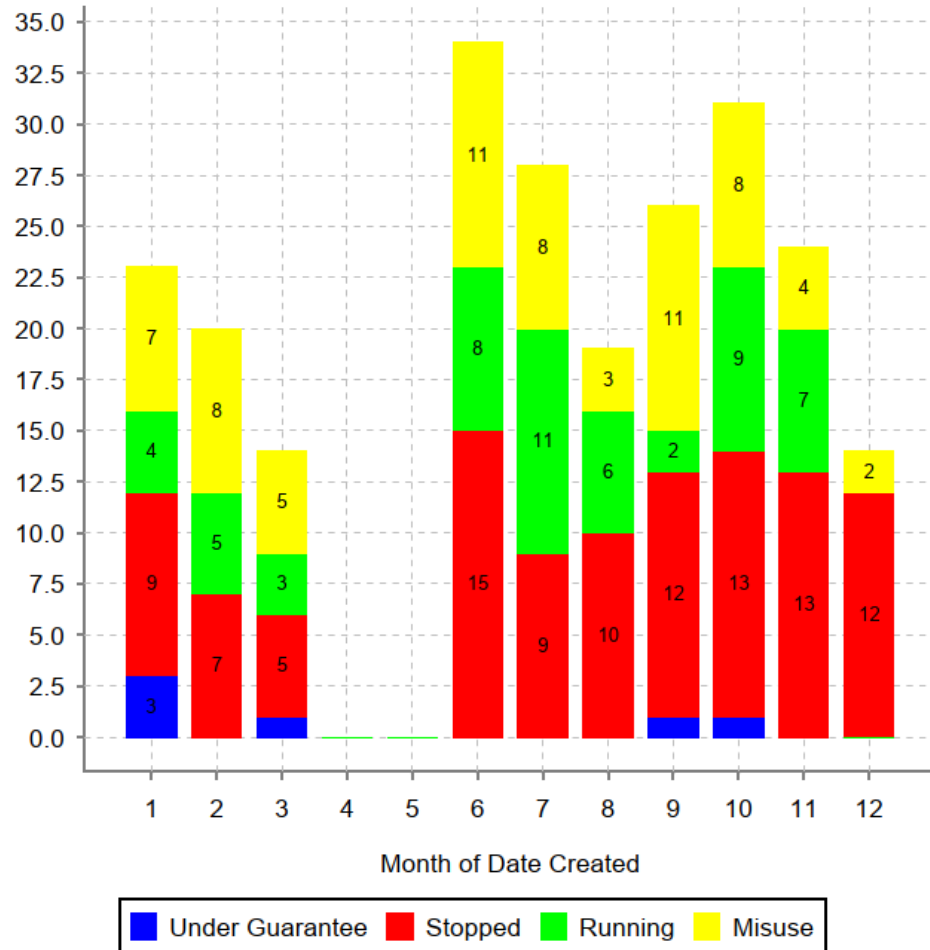
Perform Every: 6 Months v Assigned To: [Q]

Due Date: 01-AUG-2021 [Q] Date Deactivated: [Q]

Work Order: 29355403 Meter Interval: [Q]

Pentaho Reporting

Number of Breakdowns in 2020
Total: 233



Pentaho Reporting

Number of Breakdowns
in 2020

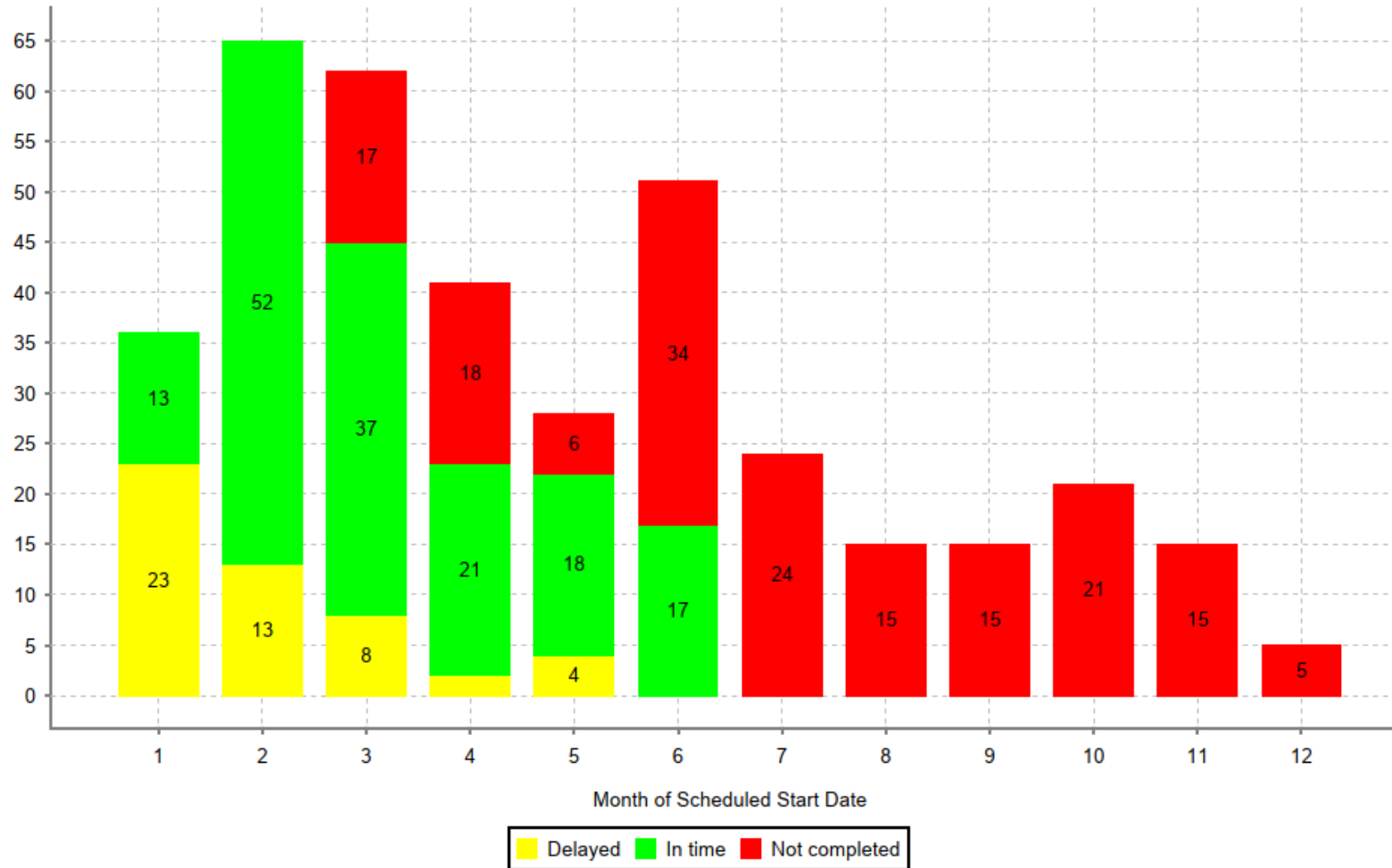
Equipment	Loc.	Number of Breakdowns
CRPR-00091	180	10
CRPR-00714	SX4	10
CRPR-00799	SD2	9
CRPR-00759	SX5	6
CRPR-00205	276	6
CRPR-00538	EHN1	5
CRPR-00067	157	4
CRPR-00298	311	4
CRPR-00758	SX5	4
CRPR-00709	SX2	4

Number of Breakdowns
in 2021

Equipment	Loc.	Number of Breakdowns
CRPR-00091	180	4
CRPR-00615	EHN2	4
CRPR-00806	SXA5	3
CRPR-00714	SX4	3
CRPR-00759	SX5	3
CRPR-00067	157	3
CRPR-00719	SX6	2
CRPR-00311	129	2
CRPR-00039	157	2
CRPR-00534	EHN1	2

Pentaho Reporting

Preventive Maintenance in 2021



Future Actions

- Standardize procedures and Pentaho Reports amongst different contracts within EN/HE
- Daily meter read-out via LoRa
- Safety – ADR Regulations
- Scheduling
- Cost Summary

HM Work Order 28307361 Réparation rail de la guirlande

Cost Details

Currency: Swiss Franc

Estimated: Asset Audit × Meters × Meter Readings Graph × EDMS Documents × **Costs** × Show on Map × More

Planned: Work Order [R] [Q] Run

Invoice Differences:	Material Cost	Labor Cost	Tool Cost	Total Cost	Hours Worked	Status	Sched. End Date	Description
Actual:						Planifie		
Total Cost:	950.00	140.00	0.00	1,090.00	4	T - Termine	08-JAN-2021	Remplace PROSAFI
Remaining Balance:	540.00	315.00	0.00	855.00	9	T - Termine	09-JUN-2016	Suite ODI Remplace M604
	316.40	1,750.00	0.00	2,066.40	50	T - Termine	16-AUG-2018	révision n

Refresh Cost Data

Show Filter Row: [Menu] [Menu] [Menu] [Menu]

Total Material Cost: 2,414.40

Total Labor Cost: 73,064.75

Total Tool Cost: 0.00

Total Overall Cost: 75,479.15

Maintenance Management...

A photograph of a long, straight asphalt road stretching into the distance under a cloudy sky. The road has a yellow dashed center line and white solid edge lines. The surrounding landscape is a flat, open plain with sparse, dry vegetation. The sky is filled with large, grey clouds, suggesting an overcast or stormy day.

Thank you for your attention!

...is like a never ending road