



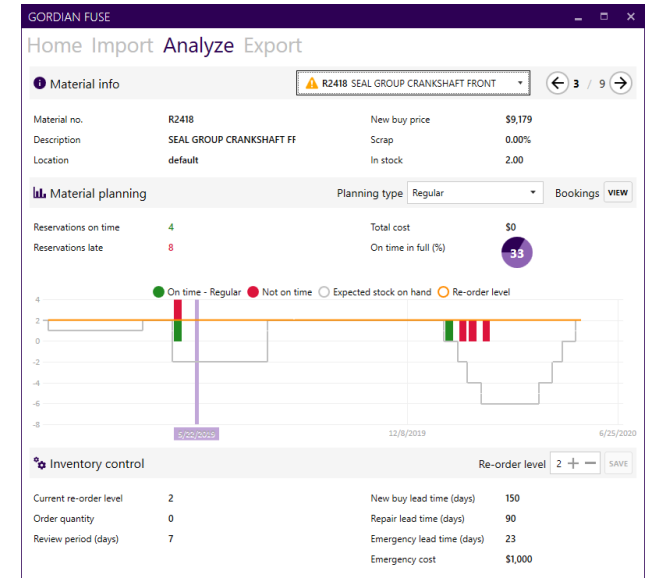
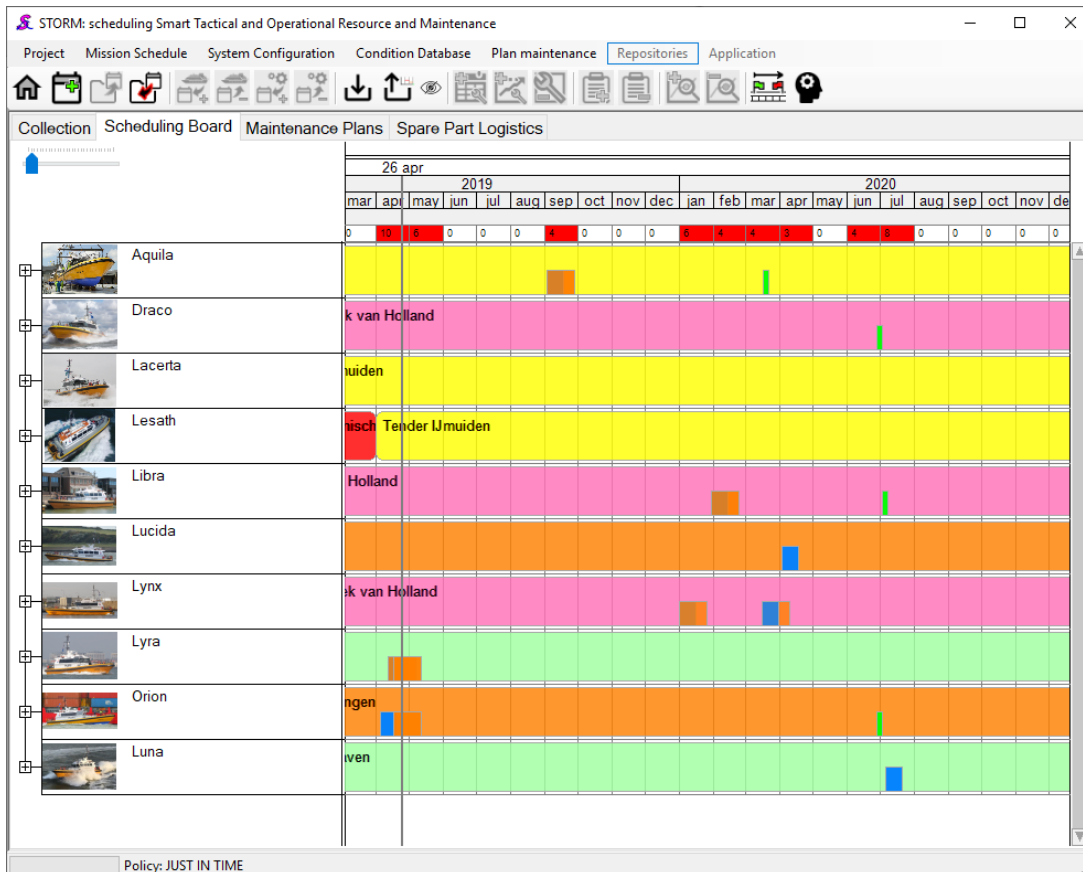
Integrated planning of operations, maintenance & spares

Deliverable PTL06.009.000.D06: Advanced demonstrator (screenshots)



STORM

Smart, tactical & operational resource and maintenance scheduler





Integrated planning of operations, maintenance & spares

Deliverable PTL06.009.000.D06: Advanced demonstrator (screenshots)



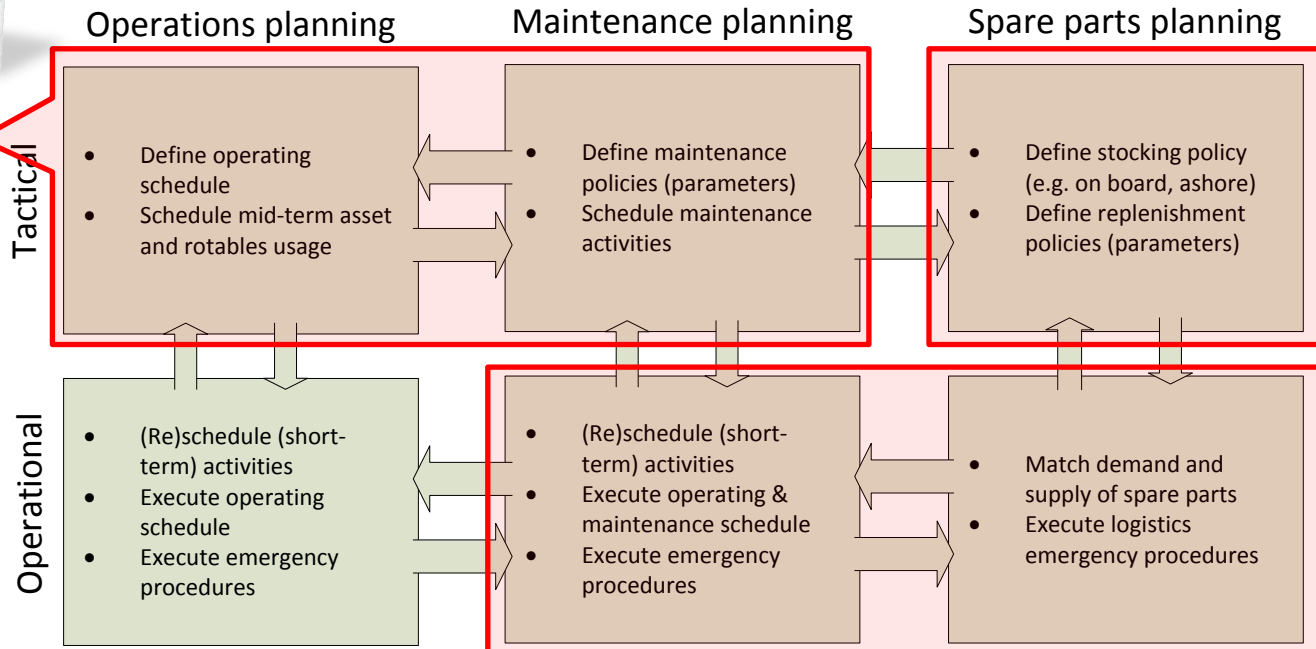
Spare Parts Management Studio

Trade-off spares availability and costs



**ERP not sufficient?
Gordian fuse!**

STORM
Trade-off downtime and maintenance (set-up) costs, under time-phased availability (0/1) of spares





Repository: “create” assets

DialogAssetRepository

Commission date
Wednesday, August 8, 2018

Vessel name
Libra

Commission date
Friday, February 5, 2016

Vessel name
Lucida

Commission date
Tuesday, June 10, 2014

Vessel name
Lyrx

Commission date
Monday, August 4, 2014

Vessel name
Lyra

Commission date
Tuesday, February 5, 2019


Vessel name
Orion

Commission date
Tuesday, February 5, 2019


Vessel name
Perseus

Commission date
Tuesday, February 5, 2019


Caterpillar C32 Acert Tier3
RNY00293




Caterpillar C32 Acert Tier3
RNY00426



Cat C32 Acert Tier3 REC
temp636858102376689392



GMDSS VHF DSC FT-805 A
temp636858102412489452



Degradation variables

Name	Dimension	Description
Draaiuren	Uren	

Component name: Hamilton HM651 waterjet

Degradation variables

Name	Dimension	Description
Draaiuren	Uren	

Component name: GMDSS VHF DSC FT-805 A Class.jpg

Degradation variables

Name	Dimension	Description
Switches	Aantal	

Component name: Cat C32 Acert Tier3 REC

Degradation variables

Name	Dimension	Description
Draaiuren	Uren	
Brandstofverbruik	Liter	

Add vessel
Create component instance
Add component

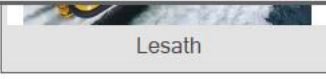










Create a project

STORM: scheduling Smart Tactical and Operational Resource and Maintenance

Project Mission Schedule System Configuration Condition Database Plan maintenance Repositories Application

Collection Scheduling Board Maintenance Plans Spare Part Logistics

 Lesath	 Libra	 Lucida
 Lynx	 Lyra	 Orion
 Caterpillar C32 Acert Tier3 RNY01749	 Caterpillar C32 Acert Tier3 RNY01754	 Hamilton HM651 waterjet temp636880809874877129

Policy: JUST IN TIME



Planning board – set the parameters

Component Operating Mode and Maintenance Level Specifications

Caterpillar C32 Acert Tier3

Inspection info | Degradation | Maintenance | Information

Plan name	Variable	Level	# Days	Reset	Delta	Color
Overhaul	Draaiuren [Uren]	14000	25	YES	NO	FF0080
Intermediate	Draaiuren [Uren]	6000	15	NO	NO	00FF00
Minor	Draaiuren [Uren]	2500	3	NO	NO	0080FF
Filter and valve check	Draaiuren [Uren]	500	1	NO	NO	C0C0C0

Component Operating Mode and Maintenance Level Specifications

Caterpillar C32 Acert Tier3

Inspection info | Degradation | Maintenance | Information

Development of degradation variables by operating mode

Mode	Variable	Degradation
UNDEFINED	Draaiuren [Uren]	C(6.500000)
Tender Hoek van Holland	Draaiuren [Uren]	C(10.000000)
Tender IJmuiden	Draaiuren [Uren]	C(6.000000)
Tender Vlissingen	Draaiuren [Uren]	C(4.000000)
Tender Eemshaven	Draaiuren [Uren]	C(14.000000)
Training	Draaiuren [Uren]	LOGNORMAL
Promotie	Draaiuren [Uren]	CONSTANT
HvH Vessel-A	Draaiuren [Uren]	UNIFORM
HvH Vessel-B	Draaiuren [Uren]	ERLANG
		NORMAL
		GAMMA
		WEIBULL
		LOGNORMAL
		EXPONENTIAL

Component Operating Mode and Maintenance Le...

Caterpillar C32 Acert Tier3

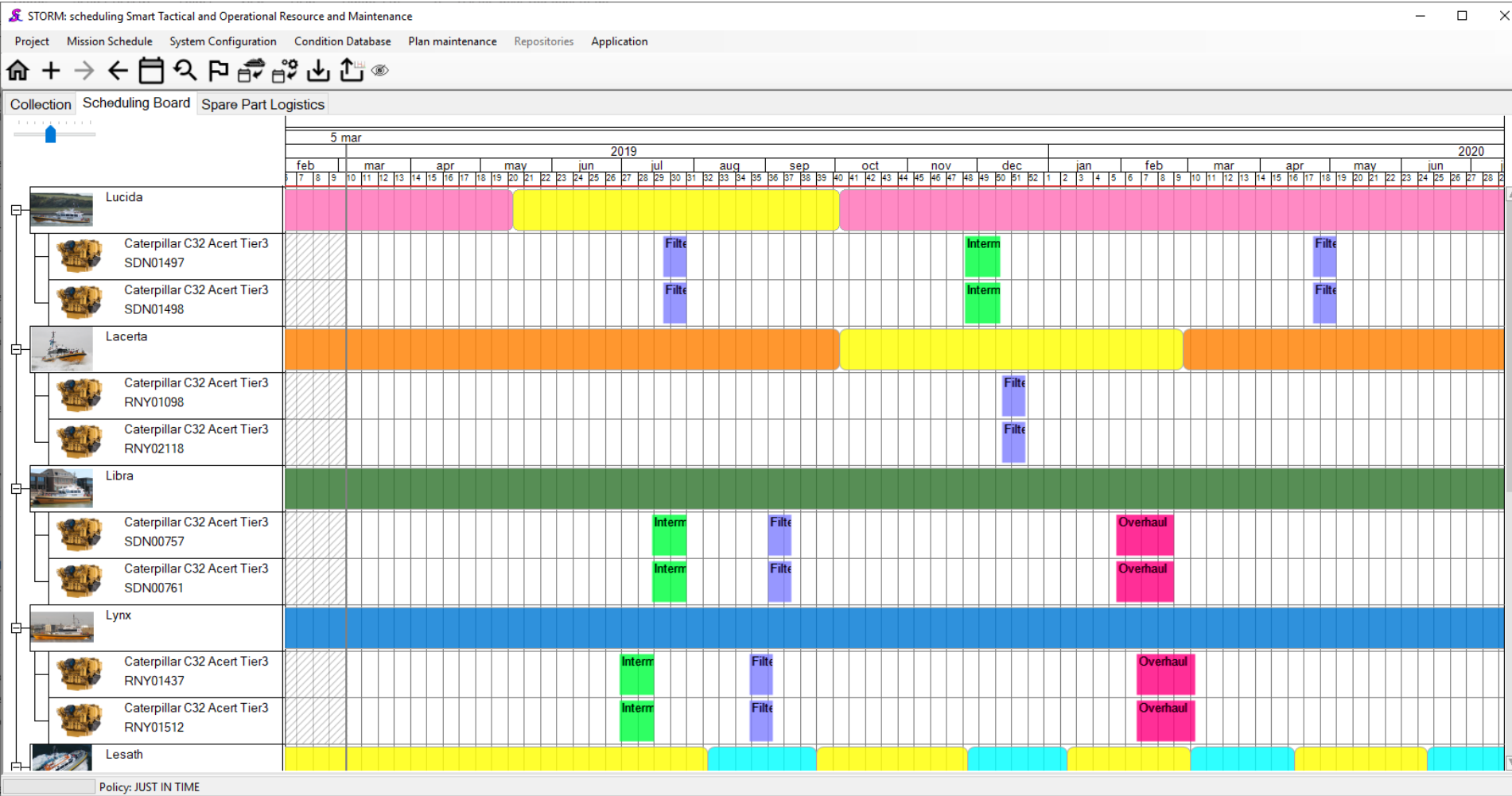
Inspection info | Degradation | Maintenance | Information

Variable inspection data

Component	Variable	Value	Date
RNY02119	Draaiuren [Uren]	12710	2019-02-01
RNY00418	Draaiuren [Uren]	20213	2019-02-01
RNY00419	Draaiuren [Uren]	20213	2019-02-01
RNY01098	Draaiuren [Uren]	8600	2019-02-01
RNY02118	Draaiuren [Uren]	8600	2019-02-01
SDN00762	Draaiuren [Uren]	8806	2019-02-01
SDN00763	Draaiuren [Uren]	8806	2019-02-01
SDN00757	Draaiuren [Uren]	10360	2019-02-01
SDN00761	Draaiuren [Uren]	10360	2019-02-01

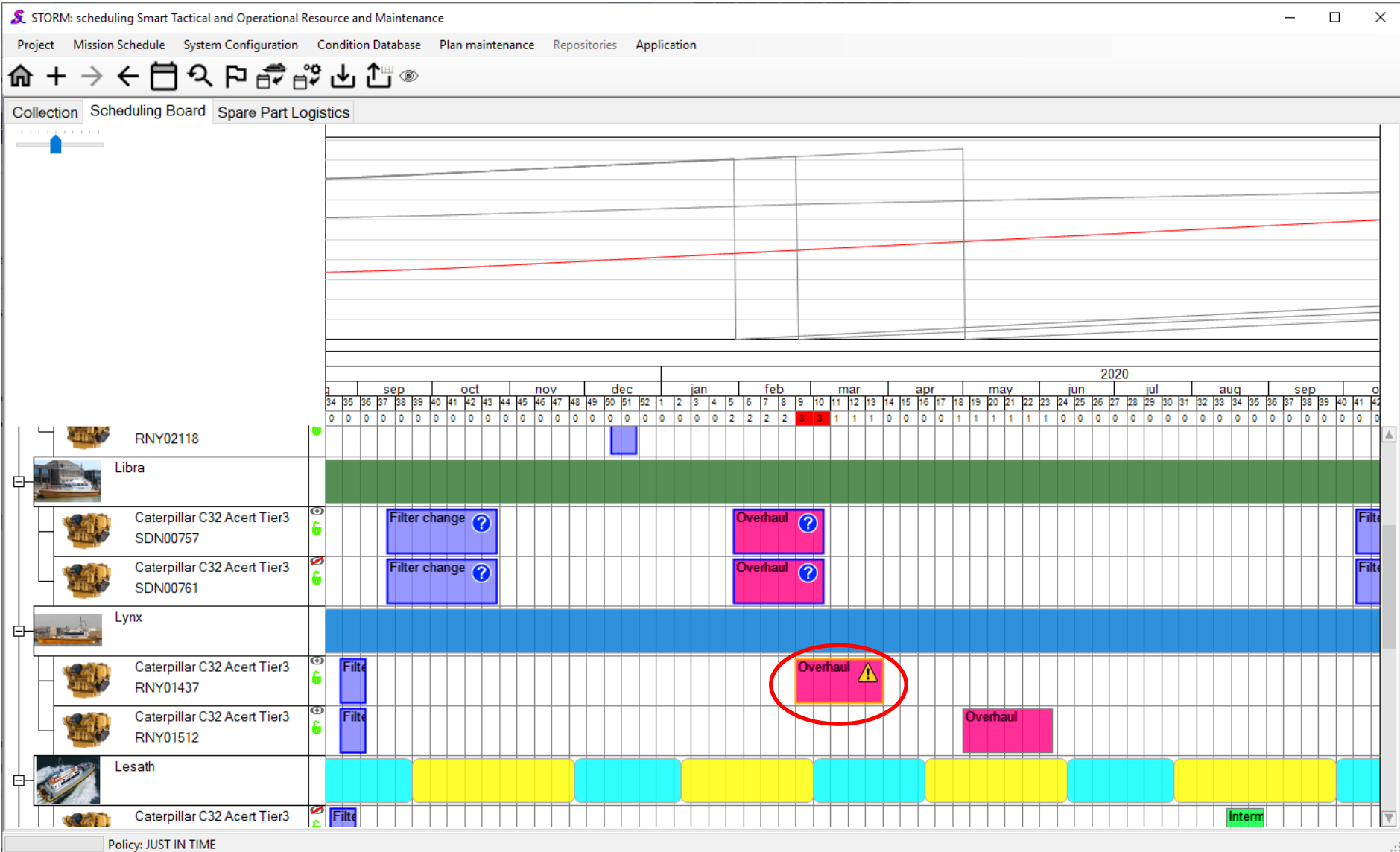


Planning board – create a planning



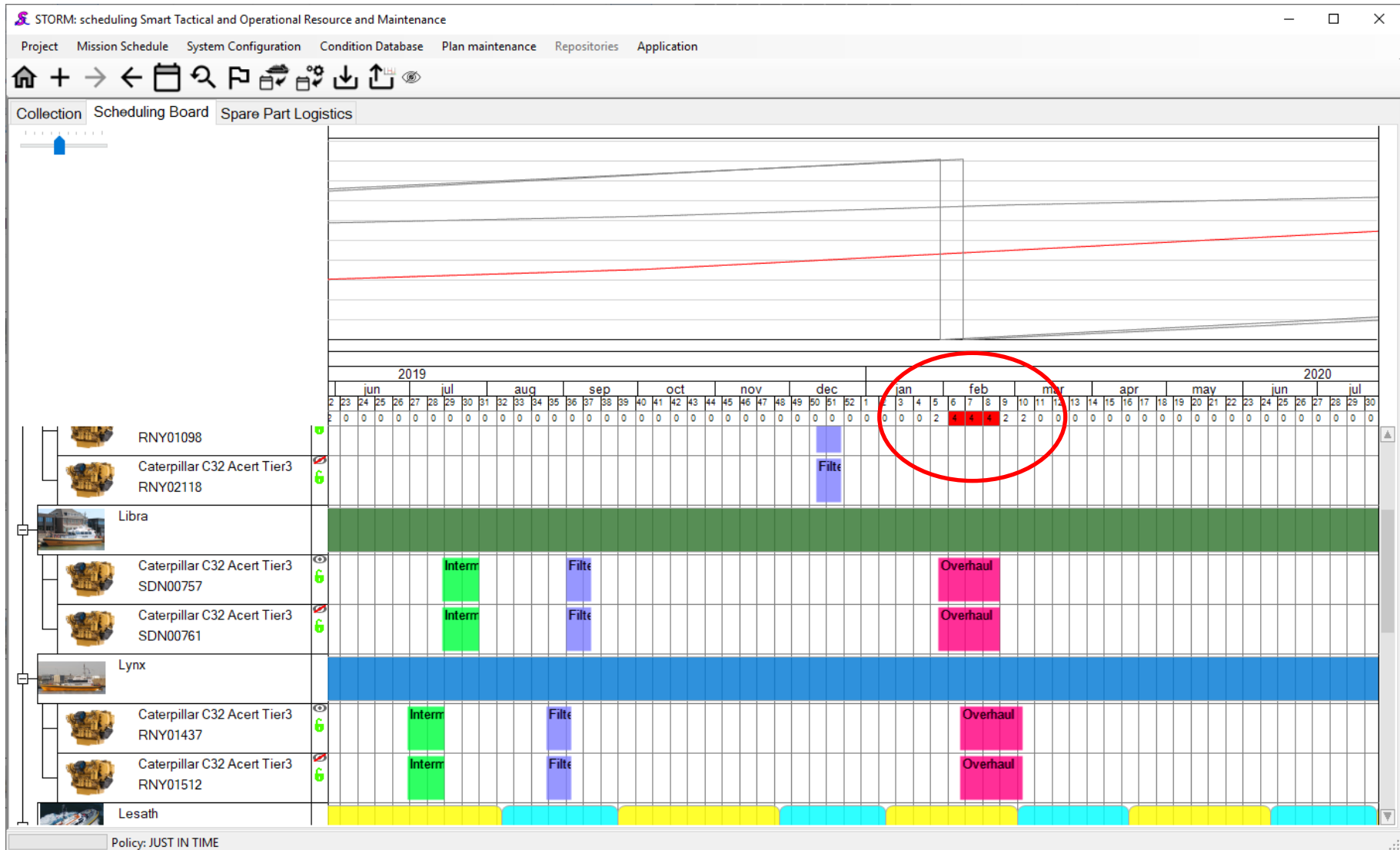


Planning board including “resource check”



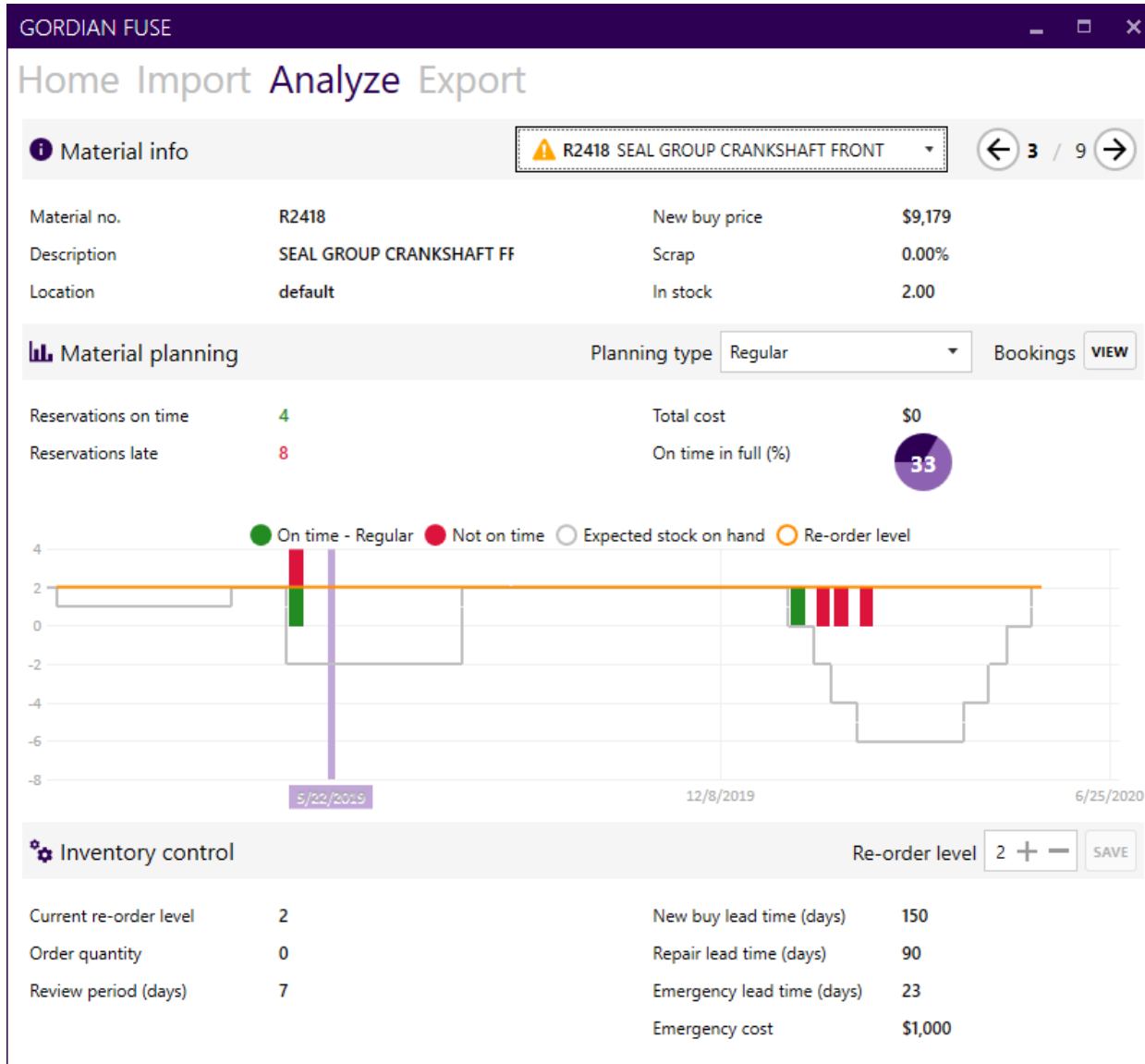


Planning board including “asset availability check”





Planning board “spares availability check”





Forecasting usage per operating mode (e.g. running hours)

Component Operating Mode and Maintenance Level Specifications

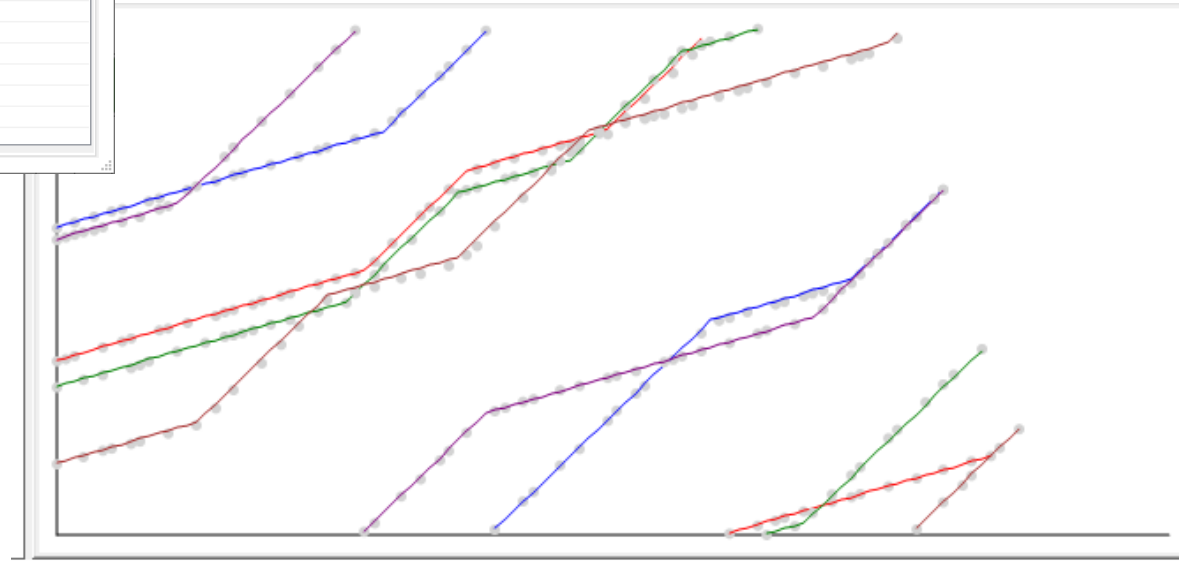
Caterpillar C32 Acert Tier3

Inspection info | Degradation | Maintenance | Information

Development of degradation variables by operating mode

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Tender Vlissingen	Draaiuren [Uren]	C(4.000000)
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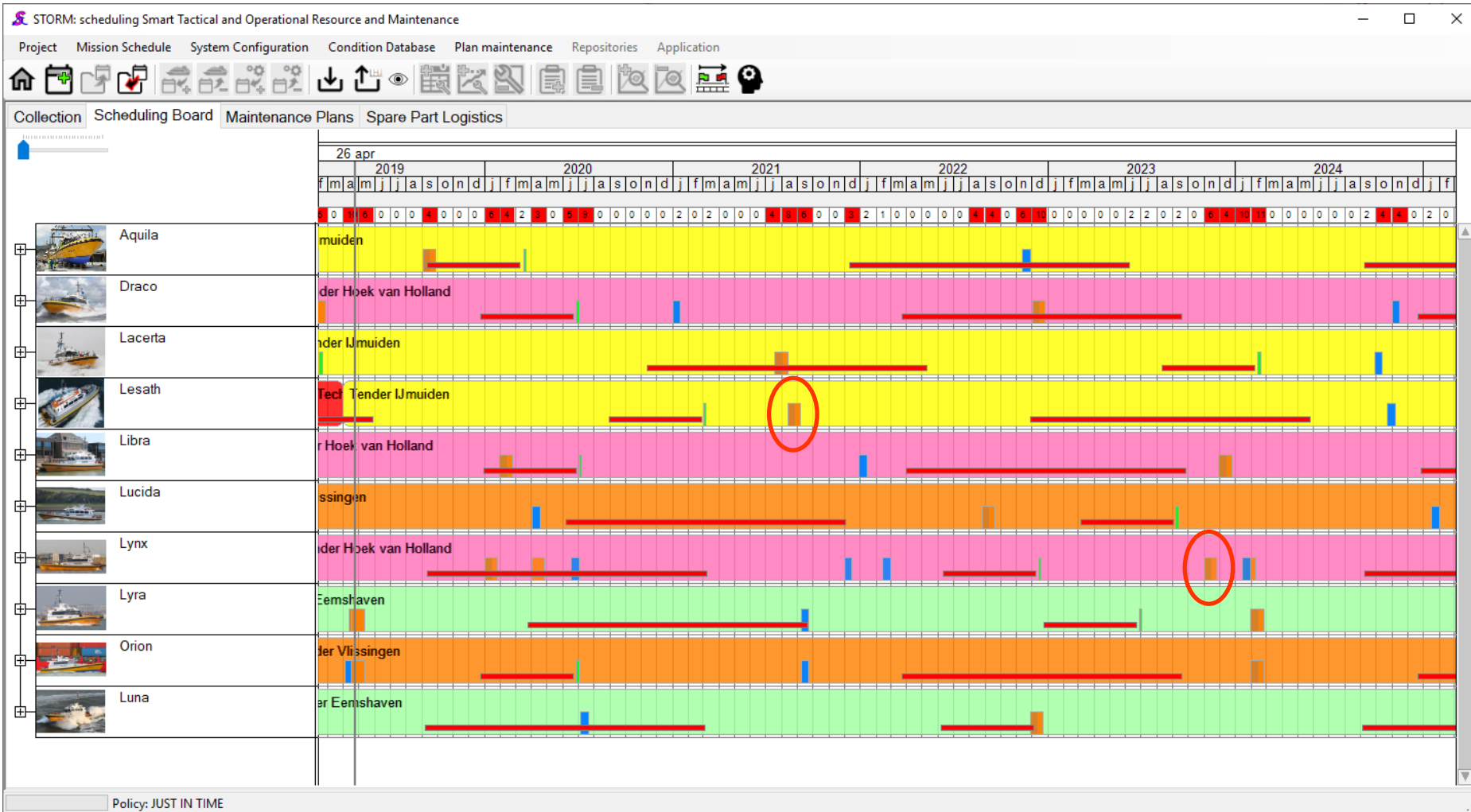
CONSTANT
 UNIFORM
 ERLANG
 NORMAL
 GAMMA
 WEIBULL
 LOGNORMAL
 EXPONENTIAL





Varying asset use to optimize maintenance execution

Changing the operating modes of the Lesath & Lynx






Varying asset use to optimize maintenance execution

Changing the operating modes of the Lesath & Lynx

Tactical optimization of operating schedule



1. Select component
Caterpillar C32 Acert Tier3

2. Select assets

Identifier	Undershoot	Overshoot
Lacerta	231	0
Lesath	480	0
Libra	250	91
Lucida	0	590
Lynx	0	593
Lyra	1317	0

3. Swapping end date: Sunday, December 31, 2023

4. Planning end date: Wednesday, December 31, 2025

Determine solutions

Assets	Swapping ...	Overshoot	Undershoot
Lesath + Lynx	2020-06-25	101	0

Use Cancel



Varying asset use to optimize maintenance execution

Changing the operating modes of the Lesath & Lynx

