Al in business

Andy Rowland

Head of Customer Innovation – Energy, Resources and Manufacturing

70% IoT value in industrial (McKinsey) only 5% is being monetised (Cisco) – AI is Key





Case Studies:

- Supply Chain Risk
- Energy Efficiency
- Predictive Maintenance
- Smart Service

Supply Chain Risk



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Red Funnel is a ship operator with a fleet of vessels operating in the English Channel.

Our client is commissioned to analyse ship operation and produce reports which form the basis of updated operation guidelines from the vessel operators for ship captains.



The reports are based on historical journeys, take approx. 1 month to produce and use a subset of journeys to control the variability in external conditions, such as tide.



Predictive Energy - Marine





6 © British Telecommunications plc 2019

Fuel Saving Case Study – Journey Report





Fuel Saving Case Study – Best Peer Comparison





© 2017 Lloyd's Register

Fuel Saving Case Study – Worst Peer Comparison





Fuel Saving Case Study – Optimal Based on Machine Learning





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Detailed Analysis - Optimal Voyage Requires Higher Gear and Lower Propulsion Angle



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Predictive Energy - Buildings





Repair Recommendations – Landing Page



Predicted Loss of Pressure in Centrifugal Pump 08 1/16/2019 5:03 AM (1st Alert) | Predictive Alert

Status	Time Horizon	Line
New	3-5 Days	Paint

Related Assets

Centrifugal Pump 08, Paint Reservoir 003, Pressurized Tank 012, Boiler 09

Description

Vibration and/or noise detected in Centrifugal Pump 08. Predicted loss in pressure in the next 3-5 days.

U	

Status Scheduled

Tank 015

1-2 Days

Line

Assembly B1

Related Assets

Pressurized Tank 015, Boiler 02, Paint Reservoir 008, Centrifugal Pump 24

9/24/2018 4:45 AM (3rd Alert) Equipment Failure

Time Horizon

Overheating in Pressurized

Description

Unusually high temperature detected in Pressurized Tank 015. Expected equipment failure in the next 1-2 days.

	U	Predicted Loss of Pres	S
Reduced Ca	pacity in B	oiler 02	Ð
9/23/2018 11:32 AN	И (3rd Alert)	Equipment Failure	
Status	Time Horizon	Line	
New	2-4 Weeks	Assemb	ly B2
Related Assets			
Boiler 02 , Paint Res Centrifugal Pump 1	servoir 005, Pre 2	ssurized Tank 015,	
Description			
Noticeable reduction review of asset in the second	on in capacity ir he next 2-4 wee	Boiler 02. Recomm ks.	ended

View Dismiss Assign

View Dismiss Assign



NEW DEDICTIVE ALEDT

Maintenance Planning and History: Detailed View

Pred	licted Lo	ss of Pressure in Centrifugal Pum	р 08		Dismiss
Status New	Event ID PA-13782	Criticality	Related Assets		See full asset structure
			Asset	Asset Type	
Description	and/or noise detec	ted in Centrifugal Pump 08. Predicted loss in pressure in the next 3-5 days	Centrifugal Pump 08	Pump	
VIDIATION			🤣 Paint Reservoir 003	Resevoir	
			Pressurized Tank 012	Tank	
			🤣 Boiler 09	Boiler	
Event	lictory				More history

Event	History
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More history

Outcome	Criticality	Alert Date	Resolved Date	Time Spent for Repair	Work Order(s)	Repair Technician
() Unresolved	Warning	9/24/2018				
Sixed	Notice	8/22/2018	8/24/2018	2hr 13min	WO-72938	Felix Townsend
Sixed	Notice	8/5/2018	8/6/2018	1hr 42min	WO-83729	Jamie Villarreal
S Fixed	Warning	7/1/2018	7/12/2018	0hr 33min	WO-28394	Marcus Perkins



Predictive Maintenance – Data Signatures





Repair Recommendations

Recommended Action

Create a different Work Order

Confidence Score: 80%	Confidence Score: 19%	Confidence Score: 1%
Clear Obstructed Impeller	Replace Contaminated Oil	Check Shaft for Bends Predictive Maintenance
Related Assets	Related Assets	Related Assets
Centrifugal Pump 08	Centrifugal Pump 08	Centrifugal Pump 08
Description	Description	Description
Impeller may be obstructed with foreign material. Check	Oil may be contaminated. Check oil for contamination and	Shaft may be bent. Check for bends, straighten if possible,
the impeller and clear any obstructions.	replace oil if necessary.	and replace shaft if necessary.

Schedule selected Work Request



Repair Readiness

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	Description			
w WR-38421	Impeller may be obstruary obstructions.	ucted with foreign mater	ial. Check the	impeller and clear
ated Assets ntrifugal Pump 08				
ts Required parts in stock 📀				
hedule Recommendations	Prioritize:	OEE	Cost	Speed
Three days from now	Four days from now	Next w	1/24/2019:0	18.00
Three days from now Saturday, 01/19/2019; 08:00	Four days from now Sunday, 01/20/2019; 10:00	Next w Thursday,	/eek 01/24/2019; (08:00
Cost OEE \$5,870 0EE	Four days from now Sunday, 01/20/2019; 10:00 \$ Cost \$6,255	Next w Thursday, \$	veek 01/24/2019; 0 t 495	08:00 OEE 98%
Saturday, 01/19/2019; 08:00 Image: State of the state of	Four days from now Sunday, 01/20/2019; 10:00	Next w Thursday, \$ Cos \$6, Cos \$6,	veek 01/24/2019; 0 t 495 nician ise Sasho	08:00 OEE 98%
OFFESaturday, 01/19/2019; 08:00Saturday, 01/19/	Four days from nowSunday, 01/20/2019; 10:00Image: Sunday, 01/2019; 10:00Image: Sunday, 01/2019; 10:00Image: Sunday, 01/2019; 10:00 <t< td=""><td>Next w Thursday, s Cos \$6, Cos \$6, Lou On-c Saig</td><td>veek 01/24/2019; 0 t 495 nician ise Sasho all expert ge Pollard</td><td>08:00 OEE 98%</td></t<>	Next w Thursday, s Cos \$6, Cos \$6, Lou On-c Saig	veek 01/24/2019; 0 t 495 nician ise Sasho all expert ge Pollard	08:00 OEE 98%

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Work Request sent

A work request for Clear Obstructed Impeller on Centrifugal Pump 08, completed by Jeremy Bolton on Saturday 01/19/2019 starting at 08:00 has been sent to your scheduling system.

The Work Order will appear in your Schedule once it has been accepted.

Close See request

See on schedule



Smart Service





