Proposals to include engine information in Common Maritime Data Structure for efficient e - Navigation.

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Scope of presentation

- 1. Introduction
- 2. E-Navigation
- 3. Remote Diagnostic System
- 4. Future work
- 5. Conclusion

Ship is a source of Information !







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Engine Information

- Planned Maintenance System (per 1 or 2 weeks)

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🗟 Maintenance Plan	AIR CONDITIONING & REF, PLANT							Interval *		*				
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M-Card	COOLING WATER OVETEM	Category	MAIN ENGINE SYSTEM		- · ·	Due Date	Over(34)	📄 Heavy Iter	n(54)					
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2 Benair	FIRE & BALLAST SYSTEM	Comment			=	New Itemi	(0)	N/A[3000,	XX,XX]	(3)				
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Repair Procession	GENERATOR ENGINE SYSTEM								_					
Popair Processing	GMDSS SYSTEM	C ! Kind	Equipment Component	Subject	Last Date	Interval	Due Date	Assign Date	Man	Hour	Worker			
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Performance/Measurin	H, OUTFITTING	M PCM N	A/E LUBRIC/ NONE	OVERHAU	2014,06,00	H 20000	2015,09,16		2	4	Crew			
Propeller Performance	A H, SIDE SHELL	M PCM N	4/E LUBRIC/ NONE	OVERHAU	. 2014,11,22	H 20000	2017,03,04		2	4	Crew			
M/E Performance	MATER BALLAST TANK	M PCM N	4/E LUBRIC/ NONE	OVERHAL	2014,01,01	H 20000	2016,04,13		2	4	Crew			
G/E Performance	MULL MACHINERY	M PCM N	4/E LUBRIC/ NONE	OVERHAL	. 2014,01,01	H 20000	2016,04,13		2	4	Crew			
📓 M/E Overhaul	* LACHING GEAD	M PCM N	4/E LUBRIC/ NONE	OVERHAU	. 2015, 03, 08	H 20000	2017,06,18		2	4	Crew			
G/E Overhaul		M PCM N	4/E LUBRIC: NONE	OVERHAL	. 2014.01.01	H 20000	2016,04,13		2	4	Crew			
M/E T/C Overhaul	MAIN ENGINE SYSTEM	H PMS N	4/E OIL MIS NONE	CHECK -	2015,08,13	M 6	2016,02,09		1	3	Crew			
G/E T/C Overhaul	NAVIGATION SYSTEM	H PCM N	A/E REMOTI NONE	CHECK -	2013,01,01	M 30	2015,06,20	2016,01,30	2	5	Service			
M/E Crank Deflection	PIPING SYSTEM	H PCM N	I/E REMOTI NONE	CHECK -	2015,04,03	M 6	2015,09,30		2	5	Crew			
G/E Crank Deflection	POWER SYSTEM	M PCM N	I/E TURBOC GENERAL S	CLEAN -	2015, 09, 11	H 100	2015,09,15		1	1	Crew			
I O Cope & Machineru	SAFETY EQUIPMENT	M PCM N	A/E TURBOC GENERAL S	CLEAN -	2015.08.14	H 1000	2015,09,24		1	1	Crew			
Performance History	SHAFTING SYSTEM	M PCM N	A/E TURBOC GENERAL S	F CHECK -	2015.09.12	H 500	2015, 10, 07		1	1	Crew			
Surgeou	💣 STEAM SYSTEM	H PMS N	A/E TURBOC GENERAL S	INSEPCT	2015.03.09	H 15000	2016, 11, 23		4	6	Crew			
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e-booki		M PCM N	AVE TURBUL GENERAL S	HELK -	2015,09,12	H 500	2015, 10,07		-	-	CIEM			
		H PMS N	A/E TURBUL GENERAL S	- INSEPCT	2015.03.09	# 15000	2016, 11, 23		4	6	Crew			
View All		V H PMS N	I/E TURBUUGENERAL S	- UVERHAL	2013,05,28	H 30000	2016, 10, 29		4	10	Mainten			
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Engine Information

- Daily Noon Report

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		(೮)		T/C RPM Low (x100)					(೮)			
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Remark



SHIP











E-NAVIGATION

Collection, integration, exchange, presentation and analysis of maritime information onboard and ashore by electronic means

[IMO NAV 54/WP.2(2008)]



Ashore

Vessel

2. E-Navigation

e-Navigation Key Dates & Road map(IALA e-NAV)



2. E-Navigation

SIP(Strategy Implementation Plan)

S1-Improved, harmonized and user-friendly bridge design

S2-Means for standardized and automated reporting

- S3-Improved reliability, resilience and integrity of bridge equipment and navigation information
- S4-Integration and presentation of available information in graphical displays received via communication equipment
- S9-Improved Communication of VTS Service Portfolio

2. E-Navigation

Common Maritime Data Structure



3. Remote Diagnostic System

Types of Remote Diagnostic System

- ABB (RDS4Marine)
- **GE** (**Predix**)
- WARTSILA (VALMarine)
- MAN B&W (Primserv)

3. Remote Diagnostic System



Designer Ship operator Ship owner

3. Remote Diagnostic System



3. Remote diagnostic system

Functions of remote diagnostic system

- Fault logging and handling
- Data loggers upload
- Signals and Parameters long term monitor
- Alarms and events upload and statistics
- Continuous monitoring of critical signals



3. Remote Diagnostics System

- ***** Received insufficient Engine Information in reality
 - Noon Report & Planned Maintenance System
- Difficulties to diagnose Engine trouble sometimes



- ***** Able to have sufficient Engine Information on real time
- Will guarantee safe of seafarer and ship as well as protection of marine environment through correct and fast analysis of Engine system from relevant expertise's advises

4. Future work

Remote Diagnostic System

E-Navigation



4. Maritime Cloud







4. Introducing SANET



Why SANET?



Why SANET?



4. Future work

Engine Information gained from Remote Diagnostic System

is not involved in CMDS on E-Navigation



 Required to have data of Engine Information in accordance with SIP2 on E-Navigation



Remote Diagnostic System, Be needed to design and develop

in accordance with SQA guideline

4. Future work

Remote Diagnostic System will be needed to design and develop in accordance with Software Quality Assurance (SQA) guideline(MSC.1-Circ.1512)



* SQA is a set of processes that ensures software meets and complies with required quality specifications.

Conclusion

	Current situation	Proposal
1	Currently shore has very limited size of information about vessels' real time condition.	E-Navi will enable shore to have real time check about vessels' condition.
2	Currently information of E-Navi. requires only about Navigation and Network Machineries.	Information regarding engine room machineries shall be included in E-Navi. program.
3	To realize E-Navi. shore and vessels must be connected through internet.	In order to form 'Maritime Cloud', 'SANET' shall be introduced and commercialized.





Thank you for your attention !

