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TECHNICAL CIRCULAR No. 679 of 7th April 2021

To	All Surveyors/Auditors. All flags
Title	**Safety risk-digitalization and decarbonization**
Reference	Digitalization and decarbonization strategies

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New safety risks associated with digitalization and decarbonization

The two ongoing transformations related to digitalization and decarbonization are having a major impact on future operations in shipping industry.
Digitalization is speeding up wider use of data, data-driven models and remote shipping inspection.
To manage decarbonization, new technologies and fuels are being leveraged.
The shipping industries may manage the associated safety risks.
Digitalization will enhance efficiency, safety, and cost controls. Software sensors and machines will control systems that depend one another. Low performance and interapted operations will compromise the results.
Traditional risk management methods become insufficient and will be a need to focus on system performance. This is because an unreliable system may be safe and a reliable system unsafe.
Product and process verifications are one means to ensure safe and reliable systems.
Digitalization also affects how people will work. Increasing automation and remote operation come together with growing centralization of operations.
Complex and integrated systems involve many different stakeholders to contribute to smooth operations.
As digitalization enables safety risk management but also creates new risk, organizations need digital strategies with processes to manage changes resuting from the transformations.
When comes to decarbonization, existing and pending targets create pressure to make timely choices about realistic pathways to 2050 that means new alternative carbon-neutral fuels and the associated fuel systems and infastructure. International shipping may have greenhouse gas (GHG) emissions by 2050 to meet IMO targets and fully decarbonization by 2100.
New and alternative fuels posses properties that pose new , specific safety challenges when

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compared with conventional ones, which means that a new understanding and different safety systems and operations are necessary.
Amonia is an excited alternative, but it is highly toic and flammable and requires low temperature.
Hydrogen demands extremely low temperature(-253^{0}C) if storred as a liquefied gas and high pressure (250-700 bar) if stored as a compressed gas.
Regulatory frameworks cannot keep up with technological development.
Regulatory institutions must be proactive in undestanding, defining and meeting the challenges that we need to overcome in order to achive greater digitalization and decarbonization in shipping industry.

REFERENCES:

- DNV

ATTACHMENTS: No

Kindest Regards,

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