


DNV·GL



**EMSHIP WEEK**  
Hamburg, Germany, 18-19 February 2019

2019-02-18

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SAFER, SMARTER, GREENER

**We are a global classification, certification, technical assurance and advisory company**

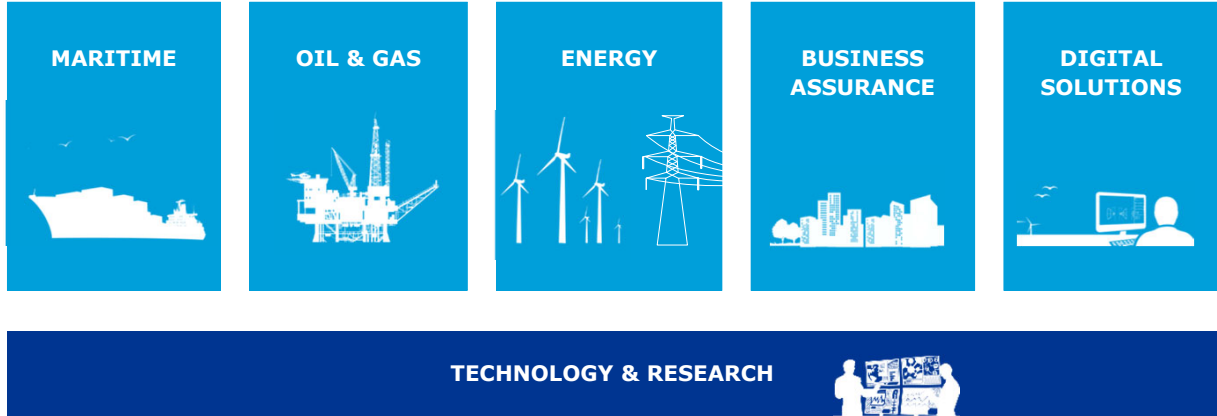
OUR PURPOSE

**TO SAFEGUARD  
LIFE, PROPERTY  
AND THE ENVIRONMENT**

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## Our vision: global impact for a safe and sustainable future



## Global reach – local competence

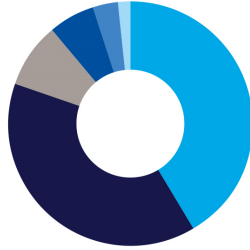


## Highly skilled people around the world

### EMPLOYEES' LEVEL OF EDUCATION

**87%**

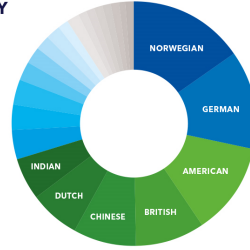
have a PhD, Master or Bachelor degree



Master	41%
Bachelor	40%
Basic education	8%
Doctorate / PhD	6%
2-year college	3%
Technical / professional	2%

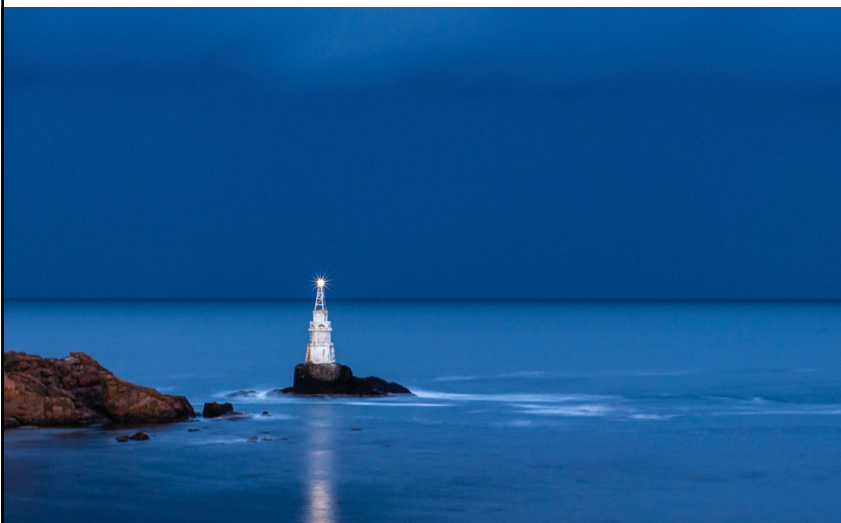
### EMPLOYEES BY NATIONALITY

**117**  
nationalities



Norwegian	1,860	Danish	239
German	1,610	Singaporean	230
American	1,493	Malaysian	184
British	1,109	Swedish	178
Chinese	1,002	French	162
Dutch	829	Japanese	137
Indian	667	Greek	133
Korean	454	Canadian	127
Polish	420	Egyptian	119
Italian	404	Mexican	117
Brazilian	288	Australian	112
Spanish	285		

## What we do?



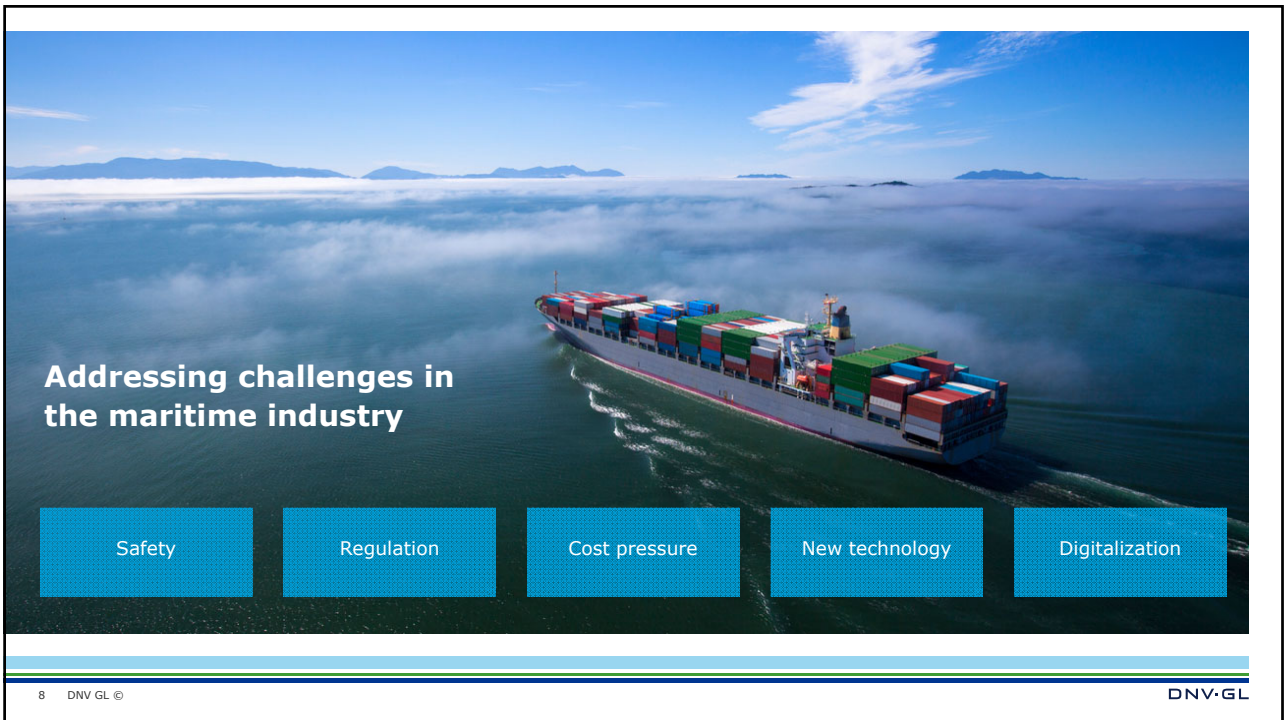
- We **classify, certify, verify and test** against regulatory requirements, standards and recommended practices
- We develop new **rules, standards and recommended practices**
- We **qualify new technologies** and operational concepts
- We give **expert advice** on safety, technology, data management, efficiency, performance, risk management



MARITIME

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Addressing challenges in the maritime industry

- Safety
- Regulation
- Cost pressure
- New technology
- Digitalization

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## Main services to the maritime industry

- Ship and offshore classification
- Statutory services
- Advisory services
- Academy services
- Technology qualification
- Software



## The world's leading ship and offshore classification society

### Global reach

Survey stations in 100+ countries and expertise in all ship and offshore segments

**12,160**

ships and mobile offshore units in DNV GL Class, 282.6 mill GT (January 2018)

**20%**

market share (Gross Tonne) of the world's classed ships and mobile offshore units

### Quality

Among the top ranking societies in Port State Control performance



## Committed to innovation



**5%**

of revenue invested in research and innovation

**Collaborating**

with industry partners and external experts

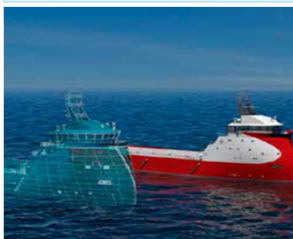
**Sharing**

knowledge through standards and best practices

## Group Technology and Research – Maritime Subject Areas

Projects in the below areas are carried out in collaboration with industry and research institutions for jointly developing efficient, safe and sustainable solutions

### Digital Class and Services



- Model based hull approval data exchange
- Sensor based class framework and sensor reliability
- Dynamic barrier assessment
- Modular / functional class

### Remote Controlled and Autonomous Ships



- Development for autonomous and remotely controlled ships
- Scenarios and requirements for assurance of collision regulation (COLREG) compliance
- Position paper autonomous ships

### Safe and Sustainable Shipping



- Extreme wave warning criteria
- Verification of emission reducing technologies
- Improved fuel consumption models

### Cyber-Physical Systems



- Open Simulation Platform (OSP) Joint Industry Project
- Test environment for cyber-physical systems for on autonomous navigation
- Analysis and verification of cyber-physical systems

## DNV GL – Examples for Maritime R&D Activities in Germany

**ACTRESS** – Architecture and Technology Development Platform for Realtime Safe and Secure Systems



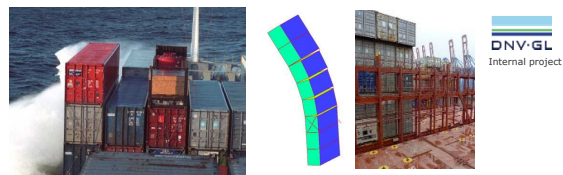
**e4ships** – One of the world's most important development initiatives for fuel cell technology



**ProEIS** – Improve propeller designs and hull shapes for ice going ships, allowing transport in arctic regions



**Modern Deck Container Stowage** – Allow more flexible container stowage through advanced calculation of lashing forces



## Topic 2 – Hamburg Comparative study of requirements for high speed crafts

### Background

- Existing Study of Ship Structure Committee from 2005
- New developed DNV GL HSLC Rules



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**Thank you!**

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