

TRANSITION

VOLKER BERTRAM, ULRICH BERNHARDT

Effektive digitale Trainingsumsetzung zur
Unterstützung der maritimen Dekarbonisierung

Navigator

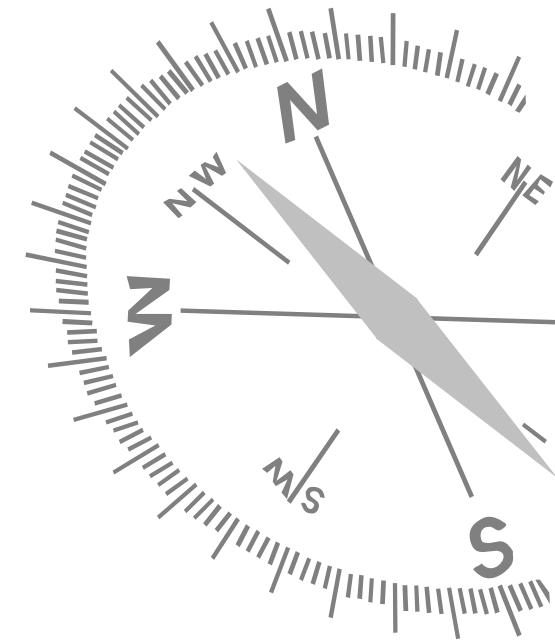
→ Dekarbonisierung ist das Ziel

Human Factor als Schlüssel

Training in (Post)-COVID Zeiten

Decarbonizing Shipping Projekt

Zusammenfassung

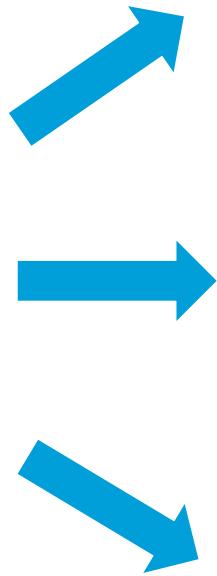


Ambitioniertes IMO Ziel

Schrittweise zum “Zero Carbon Footprint” in diesem Jahrhundert



Dazu müssen wir alle Hebel in Bewegung setzen



“Wir müssen...” – Wer ist “wir”?



OGP

Navigator

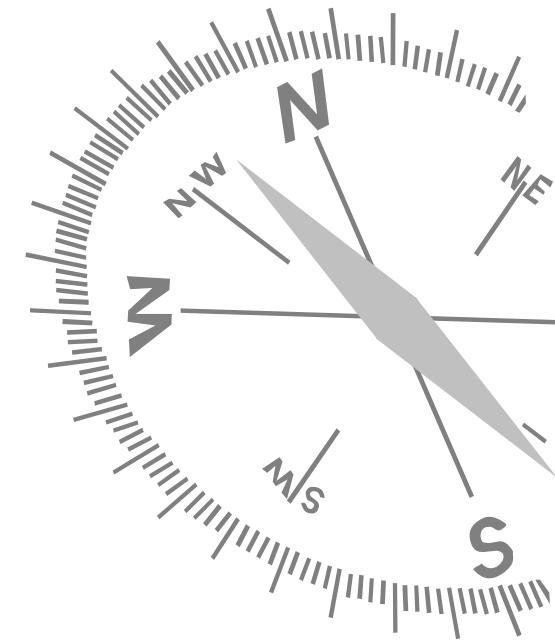
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Zusammenfassung



Wir alle sind angesprochen / gefordert

“Von der Putzfrau bis zum CEO”



“Human Factor” ist Schlüssel zur Umsetzung

Sensibilisierung und Know-how

erschließen (oder auch nicht) das
technische und operative Potenzial



Ich würde ja gern, aber...

... ich weiß nicht wie genau.



Da brauchen wir dann Training, um die
(Wissens)Lücken zu schließen.



Navigator

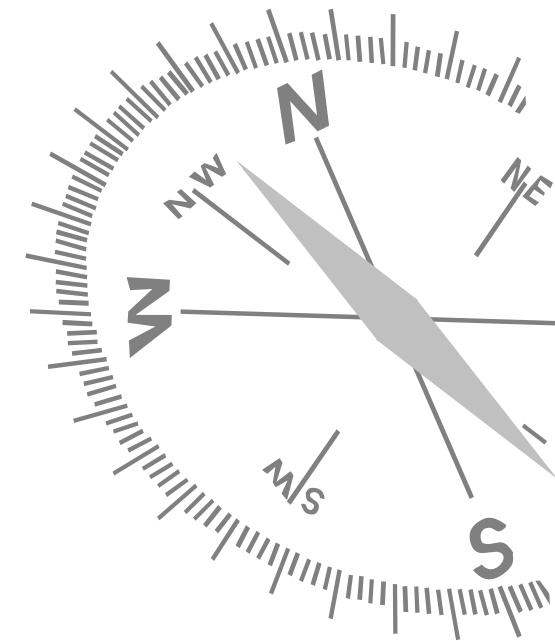
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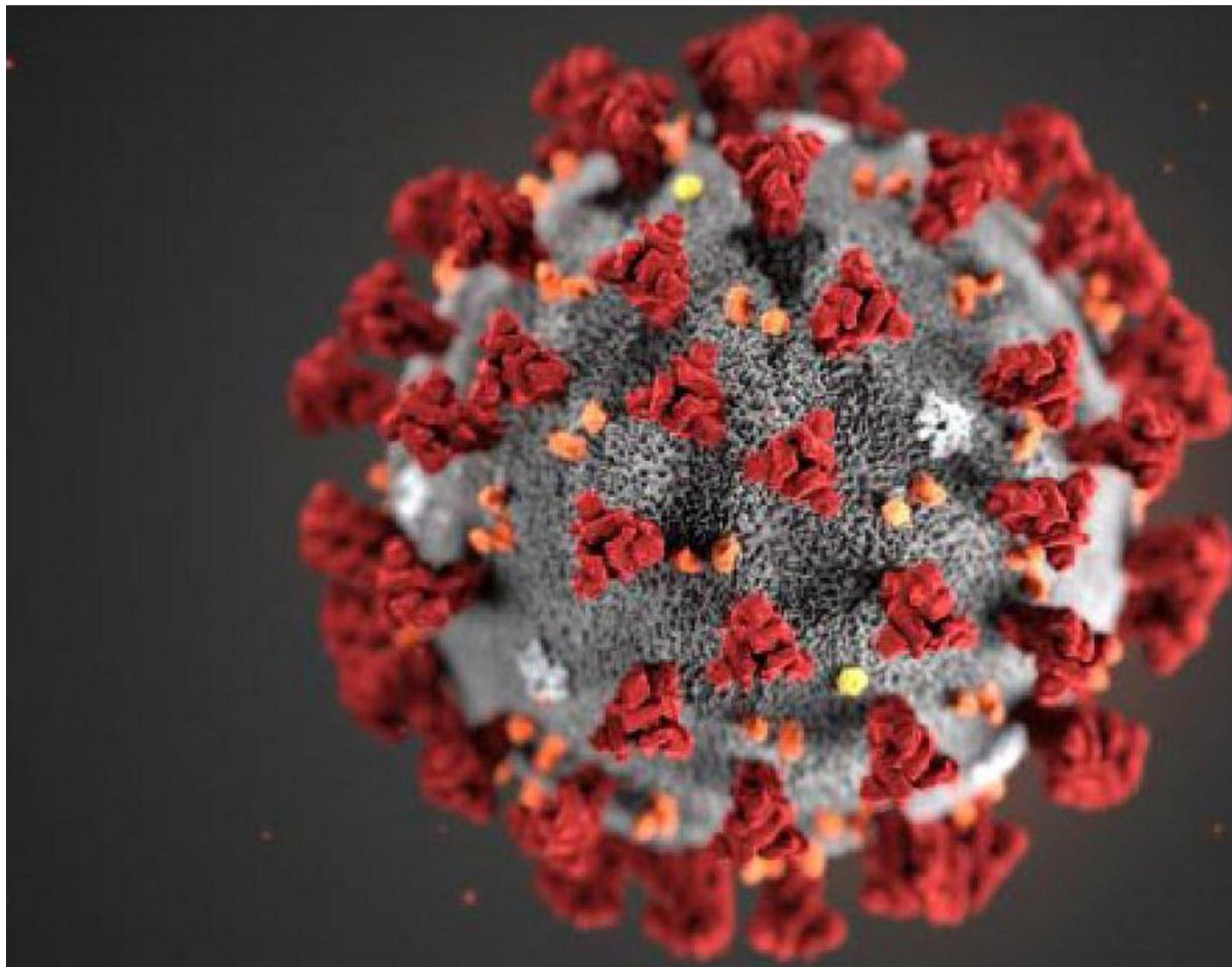


Traditionell – Training im “Klassenzimmer”

- Trainer-basiert
- Interaktiv
- Häufig mit Reisen



Dann kam COVID-19...



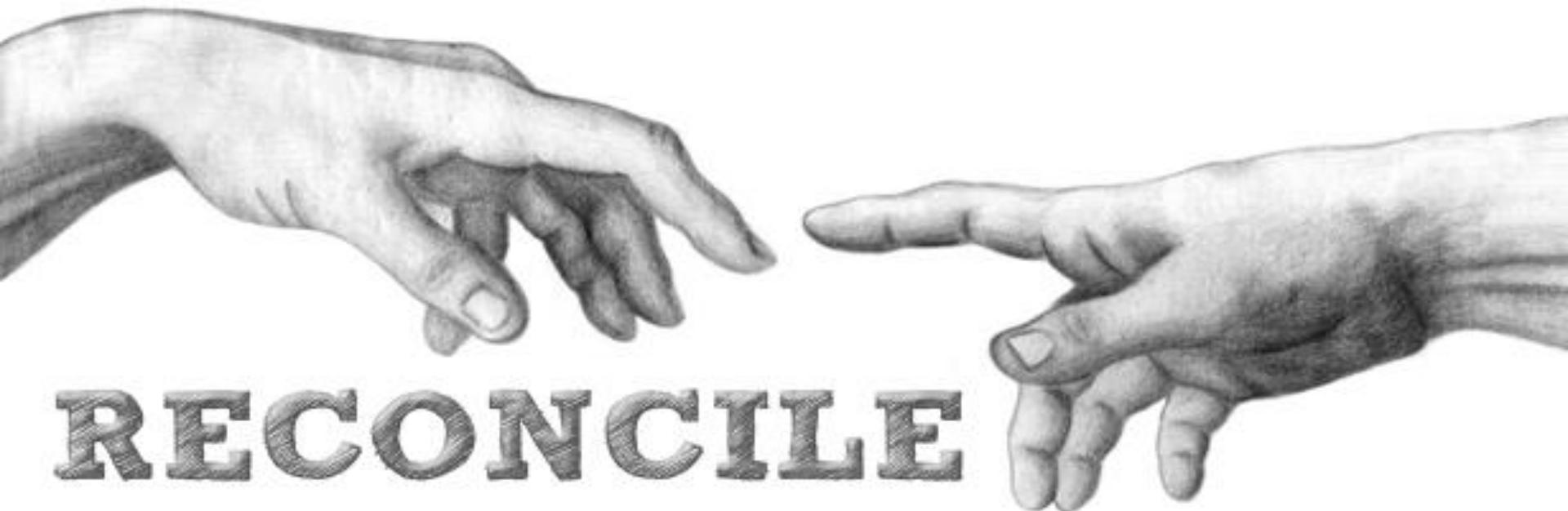
... und krempelte unsere (Trainings-)Welt um



Wir mussten in eine neue Trainings-Galaxie vorstossen



Budget und Anspruch müssen zusammenkommen



Training
Wünsche

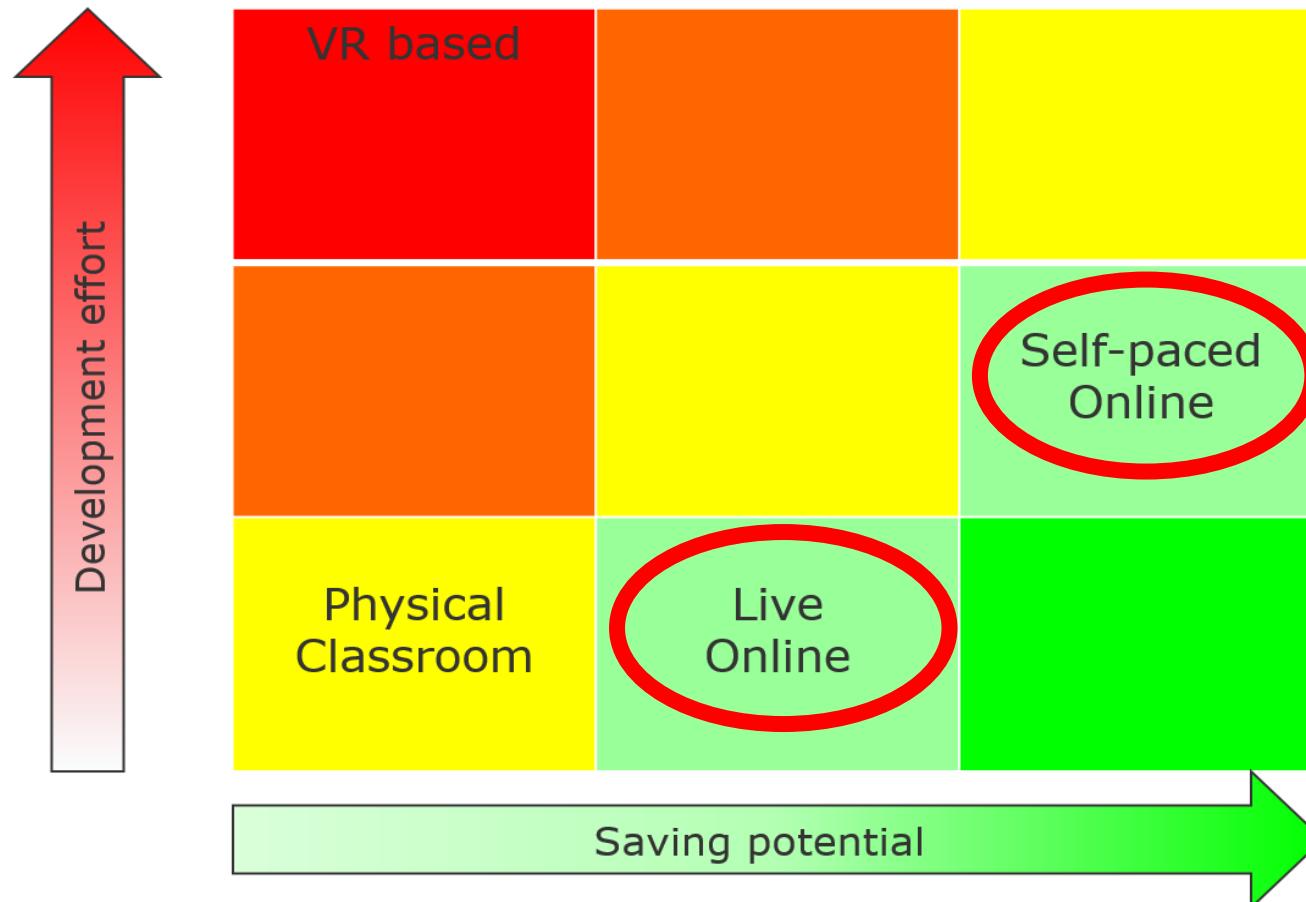


&



Budget
Beschränkungen

Zwei Schlüssel-Elemente tragen unser Training jetzt



“Zoom Fatigue” kann man vermeiden

Es muss nicht das übliche
clickety-click sein...



Grundphilosophie: Abwechslung ist Trumpf

Who accredits divers for underwater inspection according to the IMO guidelines?

- Kurze Videos
- Interaktion
- Referenzwissen als Anhang



- classification society
- IMO
- regulatory authorities
- ship owner

Who accredits divers for underwater inspection according to the IMO guidelines?

CERTIFIED BY
DNV-GL
MARITIME

Page 15 of 24
3 NON-PLANAR FLAWS
3.1 Uniform porosity

Clouds of cavities, usually inside the weld

Source: Kahr (2012)

Causes:
Contaminants (moisture, rust, grease, ...) on consumables or parent metal
Gas evolution from primer paints / surface treatment
Insufficient gas shielding
Too high voltage or arc length
Insufficient de-oxidant in electrode, filler or parent metal
Too high voltage or arc length
Insufficient de-oxidant in electrode, filler or parent metal
Prevention:
Eliminate sources of harmful gases, e.g. dry electrodes
Protect arc from draughts when MAG/MIG welding
Clean edge preparations
Short imperfections for quality levels:^{1,2}

D	C	B
Short imperfections 0.5 - 3 mm	Short imperfections > 3 mm	Not permitted
Not permitted	Not permitted	Not permitted

1) May also apply as surface porosity. Special case "revert porosity" or reheat of weld (root welder or use thin plates for mechanical welding).
2) Only short imperfections are allowed. Smooth transition is required.

ClassificationRules.pdf

Navigator

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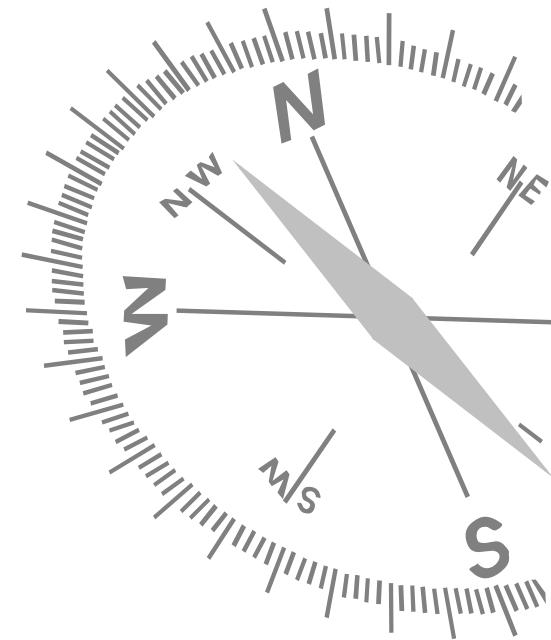
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Zusammenfassung



Blended learning

- 2 Tage
- 50% Live per MS Teams
- 50% e-Learning inkl. pdf & Video Bibliothek



Resource Library

Frameworks

- IMO ECDIS Energy Version Guidelines.pdf
- IMO ECDIS Energy Toolkit.pdf
- IMO ECDIS Energy Toolkit.pdf

Fuel & E-Technology

Feature 2 | GERMANY

Trim Optimisation – Don't blind me with science!

Volker Bertram, from the Department of Mechanical and Mechatronic Engineering at the University of Stellenbosch and DNV GL sheds some light on the dark arts of trim optimisation

As standard references for ship energy efficiency, such as the IMO greenhouse gas (IGG) report or the Oil Companies International Marine Forum (OCIMF) study on emissions mitigating measures, rank trim optimisation highly as a research and development measure.

Indeed, trim optimisation is easy to roll and generally gives short payback times, typically in the order of several months. But, customers are faced with an ever increasing array of vendors which use incomprehensible jargon. Should I take a "dynamic performance model based on advanced machine learning technology" or rather the "RANSE with VoF"?

Simple advice: Don't be blinded by scientific jargon. Instead, look at the screen of jargon. You don't need to programme the software; you just want to understand the basic principles and the pros and cons of the different approaches.

The following gives an introduction to available options, explains some of the jargon and discusses strengths and weaknesses of the different approaches.

A knowledge base is crucial

There are several commercial trim optimisation tools on the market. These vary in price, user friendliness, fundamental approach and performance. However, they all combine two key elements:

1. A ship specific database (often called the hydrodynamic "knowledge base") for resistance or power as function of speed and draft values. Its range should cover all feasible operational combinations. Typically this requires 300 data sets (speed, water depth, draft) for deep water, and 3-5 times as many if also shallow water variations are to be covered. The discrete data sets are connected by smooth interpolation (multi-dimensional response surface in jargon), allowing consistent interpolation for whatever operational conditions are specified by the user.
2. A user interface displaying the trim recommendation. Virtually all systems use an intuitive traffic-light scheme for good, acceptable and poor trim options.

Key operational parameters considered are speed, displacement (respectively draft) and in rare cases also water depth.

While each trim optimisation tool must have a hydrodynamic knowledge base, the chosen approach to generate this knowledge base decides costs and performance of a trim-optimisation system.

First school, then work

There are two fundamentally different approaches to develop trim optimisation tools. The first group of systems is based on a "theoretical" hydrodynamic model which creates the knowledge base systematically and completely, before the trim optimisation software is used.

The system goes to school first and learns the hydrodynamics base before being sent out to the real world. This school training may be through model tests or numerical simulations. As this approach does not require interfacing with onboard systems or sensors, it makes installations much more cost effective on most ships, especially for fleets of sister vessels. However, the

DNV GL - The Group Analyst September 2014

“Virtual Classroom” edutaining

Finally...

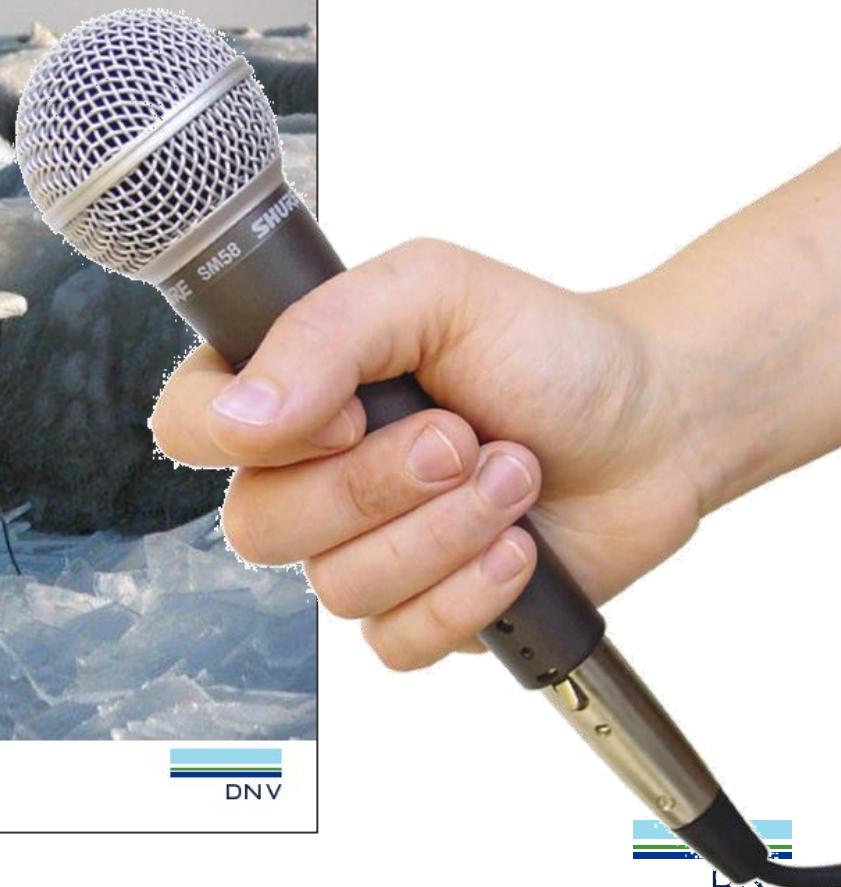
What is cold ironing?



111 © DNV

DNV

- Stark visuell
- interaktiv



E-learning in RISE + vertiefende Videos “on demand”

Beispiel:

FLETTNER ROTORS

The next step – further reducing coating roughness

Palfinger Hubert with Hempagard X8
www.maeglide.eu

HEMPEL

KITES

E-SHIP 1

SAILS

Quiz on Fuels & Converters

03 What is (realistically) an alternative fuel?

Media Picture3.png

Correct Choice Text Multiple Choice

Algae

Corals

Fish

Whales

QUESTION ORDER

What is not true? Longer chains in hydrocarbons lead to...

What is the main component in natural gas?

What is (realistically) an alternative fuel?

What is true for ammonia? [More than one box may need to be ticked]

The volume ratio between LNG and natural gas is...

Low-temperature fuel cells...

ADD QUESTION

Navigator

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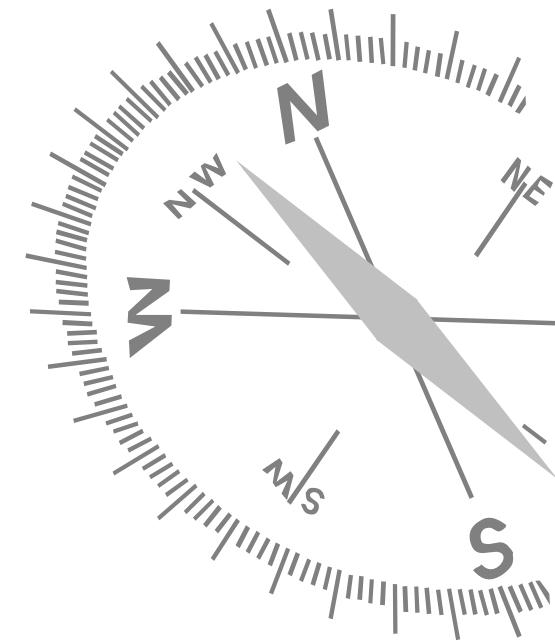
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Zusammenfassung



Digital oder analog - Training hat die gleichen Erfolgsfaktoren

- Mach es relevant
- Mach es kurz
- Mach es unterhaltend

Vielen Dank

