

When the cup is full! ? When technology becomes an obstacle - how can resilient systems contribute?

Elisabeth Vaagen
Risk Management and HSE



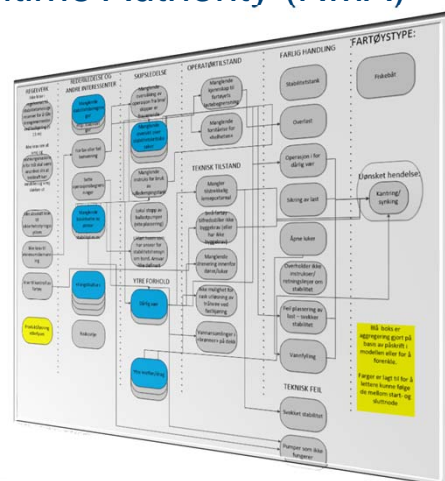
NIS//NOR

25.10.2016

Sammen for økt sjøsikkerhet i rent miljø

The main task of the Norwegian Maritime Authority (NMA)

- Work for safe shipping and the lowest possible negative impact on the environment from shipping.
- the NMA has chosen to have special focus areas based on the findings from our annual risk assessment
- The goal is to use the available resources in the most effective manner possible and so that efforts are directed at the areas that can yield the best results



NIS//NOR

25.10.2016

Sammen for økt sjøsikkerhet i rent miljø

Focus on **RISK 2016**



NIS//NOR
25.10.2016

Sammen for økt sjøsikkerhet i rent miljø

Rest periods and manning

Large workload, negative stress, inadequate sleep and poor sleep quality negatively affects the individual's ability to concentration and alertness, and increases the likelihood that an accident will occur.

Factors recur as the underlying causes of the annual risk analyzes



NIS//NOR
25.10.2016

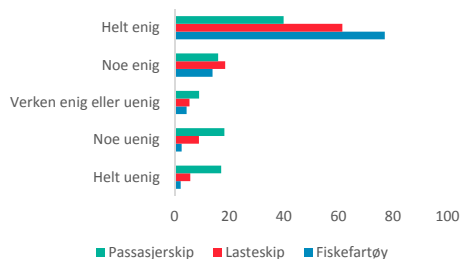
Sammen for økt sjøsikkerhet i rent miljø

Områder for utvidet tilsyn i 2016	Formål
Bemanningsoppgave	- å sjekke at minimumskrav til bemanning er ivaretatt og at ledelsen er bevisst kravene i bemanningsoppgaven.
Kvalifikasjoner	- å kontrollere at fartøyet er bemannet med mannskap som innehar de riktige sertifikater og ellers kvalifikasjonene for stilling og funksjon om bord. Avdekke bruk av ukvalifisert mannskap til å dekke inn mannskapsbehov i stillinger med særskilte kvalifikasjonsbehov.
Utkikk	- å kontrollere om fartøyet er bemannet tilstrekkelig for å ivareta krav til utkikk uten å bryte hviletiden.
Rutiner for registrering og oppfølging av hviletid om bord	- å avdekke om hviletiden føres korrekt og sjekke i hvilken grad ledelsen om bord er pådriverer for at hviletiden blir ført på daglig basis og iverksetter tiltak dersom en ikke evner å overholde hviletiden til enkelte av mannskapet.
Skipsførers ansvar for å melde fra til rederiet om behov for tilleggsbemanning, dersom brudd på hviletid er et mønster om bord	- å adressere skipsførers ansvar for å melde fra om behov for tilleggsbemanning i tråd med driftsmønster, sesongvariasjoner, vedlikehold etc. Fokus på holdninger til sikkerhetsbemanning kontra driftsbemanning.
Rederiets ansvar for å følge opp melding om behov for tilleggsbemanning	- å adressere rederiets ansvar for å fortløpende vurdere bemanningsbehovet og ta hensyn til skipsførers anbefaling ved bemanningsfastsettelse

25.10.2016

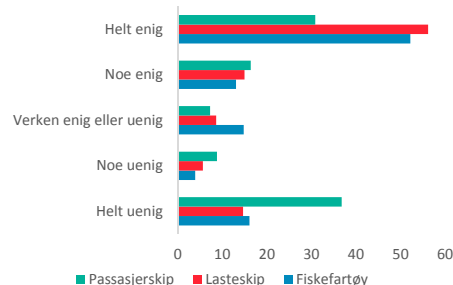
What you seek, you will find

Manning is adequate to ensure the safety



Contact: vegar.berntsen@sjofartsdir.no

The manning on board usually exceeds the safety manning



FOCUS ON RISKS 2017 Safety management

Lack of procedures for work operations and weaknesses in organisation, management and communication are recurring causal factors in reports following marine casualties.

- increased focus on safety management systems.
- <https://www.sjofartsdir.no/sjofart/ulykker-og-sikkerhet/sikkerhetsutredninger-rapporter/fokus-pa-risiko-2017/>



Photo: Steinar Haugberg

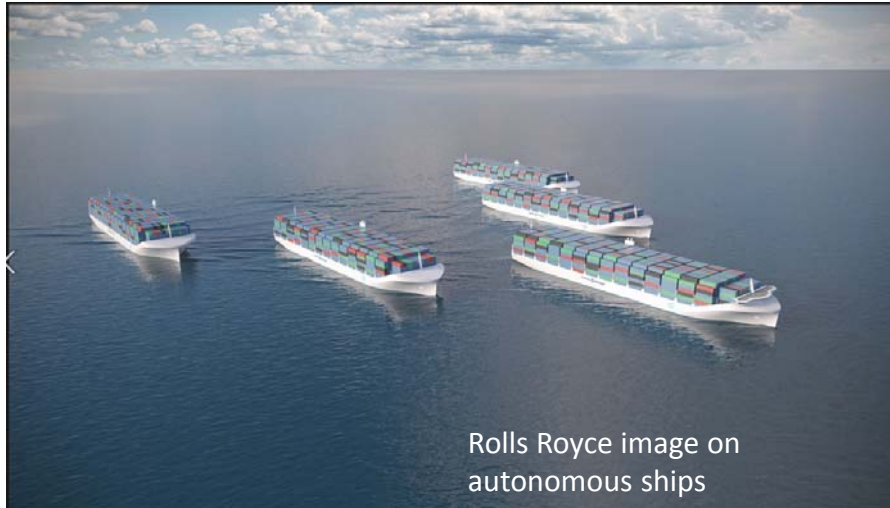
Norwegian Maritime Authority THE PREFERRED MARITIME ADMINISTRATION

The aft view of the future of
shipping





THE FRONT VIEW OF THE FUTURE OF SHIPPING



Rolls Royce image on autonomous ships

The fjords of Trondheim

The world's first official civil testarea for Autonomous and remote operational vessel.



The future of Shipping

TU – mars
2016

Project team – Autonomous and remote shipping

- To foresee by participate
 - To Include instead of exclude
 - To be Pro-active
 - Search and learn
 - Solution oriented
- **NMA have activated a internal project team.**
 - A team which shall prioritize autonomous and remote concerns.
 - Dedicated project leader
 - Subject related participants :
 - Nautical, machinery, automation, electro, coalification, inspections, **Human element, Human-machine interface**, communication, legally and legislation

WHEN THE CUP IS FULL! ? WHEN TECHNOLOGY BECOMES AN OBSTACLE



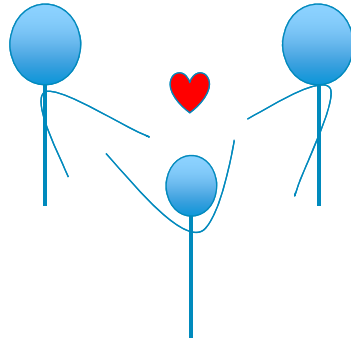
THE GREATEST INVENTION OF ALL- ?



Vision of the Fjords i Nærøyfjorden
Design: Seasight, konstruksjon: Brødrene Aa
Batteri/diesel hybrid
Foto: Steinar Haugberg

THE GREATEST INVENTION OF ALL; THE HUMAN BEING

....and yes I am shouting it



anyone wants to challenge how the foetal heart starts to beat?
Keeping the human in the loop

The complex nature of human beings

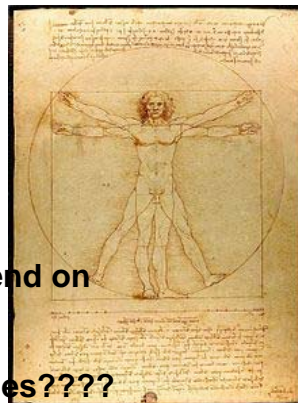
Plastic & malleable
Adaptable & resourceful

learn and transfer knowledge

good maintenance manual

The reliability will anyhow depend on humans

forgotten the man and his abilities????



Limitations
surroundings

characteristics

Physiological & psychological

http://en.wikipedia.org/wiki/Vitruvian_Man

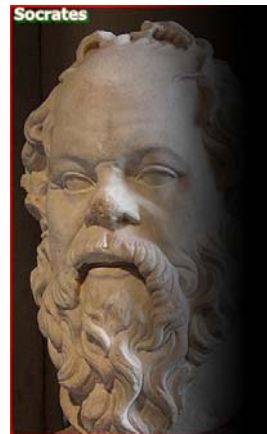
Errors

- Complex ... **We get accidents**
- How do we ultimately act on too much stimuli ?... **We get accidents**
- **Humans impact**

Logical, why is it so difficult?

Socrates apprentices

- Complicated innovations the solution?
- **Real innovation is to do what is essentially, the simplest possible safest way**



how can resilient systems contribute?

New Guideline on Fatigue

- ***“state of feeling tired, weary, or sleepy that results from prolonged mental or physical work, extended periods of anxiety, exposure to harsh environments, and/or loss of sleep.”***



- Very comprehensive, repetitive, and need to be updated relative to new research

Australia has produced a draft, Norway has participated in this work.

Correspondences group established in 2016. **Scheduled for completion in February 2017**

IMO: Guidelines on Fatigue

- More information?

Michelle Grech, PhD
Australian Maritime Safety Authority

Associate Professor - Adjunct
University of Tasmania & University of Queensland
michelle.grech@amsa.gov.au

How to define?

- Human error?
- **Fatigue?**
- Foreign vessels?

History recording and reporting of accidents

1986
Krav til innrapportering av arbeidsulykker kom i forskrift 2. mars 1986 om miljøarbeid på skip

1988
DAMA opprettet. Registrering av saker som etterforskes av Sjøfartsinspektøren.

Ca. 1989
Sjøfartsdirektoratet begynner å registrere arbeidsulykker i databasen PUS (Person-Ulyke Systemet).

1995 - 1999
Krav til sikkerhetsstyringssystem etter ISM konvensjonen

2012
Forskrift om sjøveien for innføring av direktiv EU 2009/18. Definisjonen på Sjøulykke mm endres.

2015
Kvalitetssjekk av registrerte hendelser avdekket at selvmord hadde blitt registrert som ulykke. Kontrollen avdekket også hendelser registrert tidligere.

advanced vessels...

What you seek you will find... or not?

How do we make decisions?

Fleet development, reporting, human factors, understanding of the relationship between a cause and its effect etc.

NIS // NOR
25.10.2016

Sammen for økt sjøsikkerhet i rent miljø

A clear message is the ultimate goal of any presentation

The greatest invention is the human being

let's start building boats for them, instead of adapting them

NIS // NOR
25.10.2016

Sammen for økt sjøsikkerhet i rent miljø