



KONGSBERG MARITIME AS
Simulation & Training
Tone-Merete Hansen
Area Sales Manger



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KONGSBERG Simulation & Training

Simulator Business Unit

A brief introduction:



We provide simulation as it should be!

Who

KONGSBERG's Simulation & Training business unit is a leading supplier of simulators to the maritime & offshore industry.

What

We offer scalable and flexible high quality simulators for training of maritime and offshore personnel . In addition our simulators are used for e.g. research and development, ships and port studies.

Which

Our product range comprise of ship handling, engine room, cargo handling, crane, anchor handling and dynamic positioning simulators including applications e.g. communication/GMDSS, vessel traffic system, ice navigation and search & rescue.

Where

We offer our simulators through the world-wide network of Kongsberg's offices, agents and local sales representatives. Customer support and service are available 24-7 through our many service centres around the world.

POLARIS Ship's Bridge Simulator

A complete training system:



+



+



Instructor station

- up to 8 instructor stations in connection

Students own ship

-up to 26 own ships in connection

Debriefing & Assessment

Bringing out the best in each student!



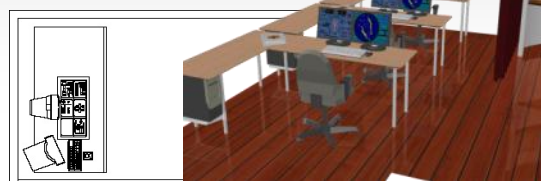
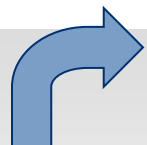
POLARIS Ship's Bridge Simulator

From Desktop to Full Mission System

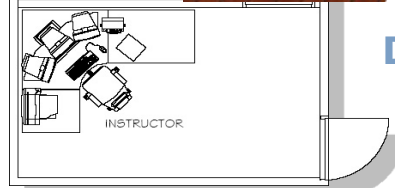
- E-learning/Web-enabled
- Desktop
- Part Task
- Full Mission



Web-enable



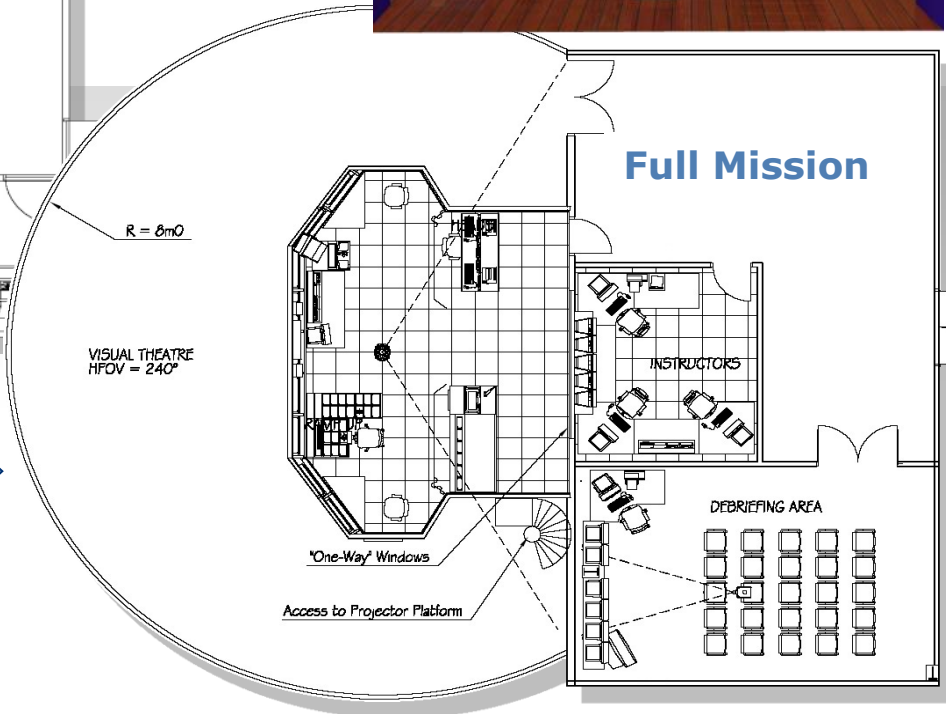
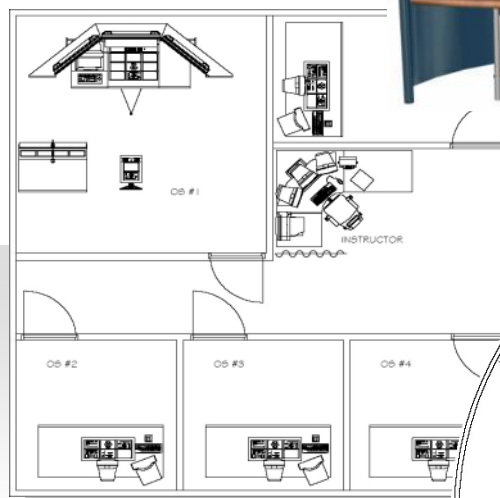
Desktop SBS



Part Task



Full Mission



KONGSBERG Simulation & Training's Simulator Portfolio



Ship's Bridge Simulator



Offshore Vessel Simulator



Dynamic Positioning Simulator



Crane Simulator



Engine Room Simulator



Cargo Handling Simulator



GMDSS Simulator

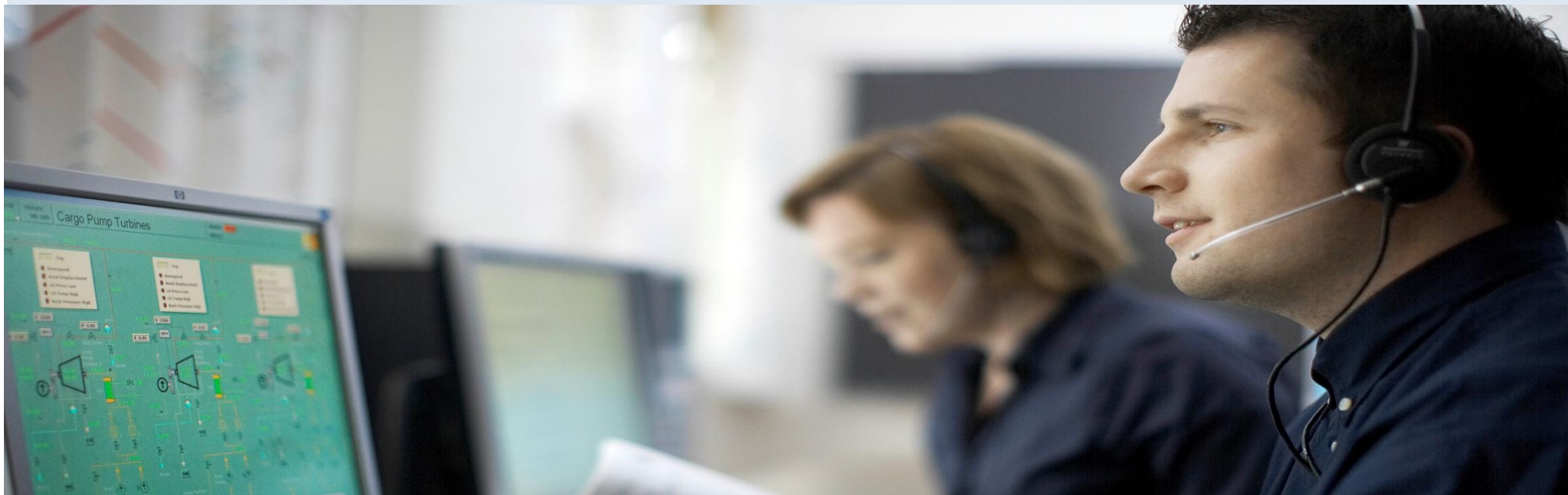


VTS Simulator



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Simulation Customer Support





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Engine Room Simulators



Touch Screen use in Engine Control Room



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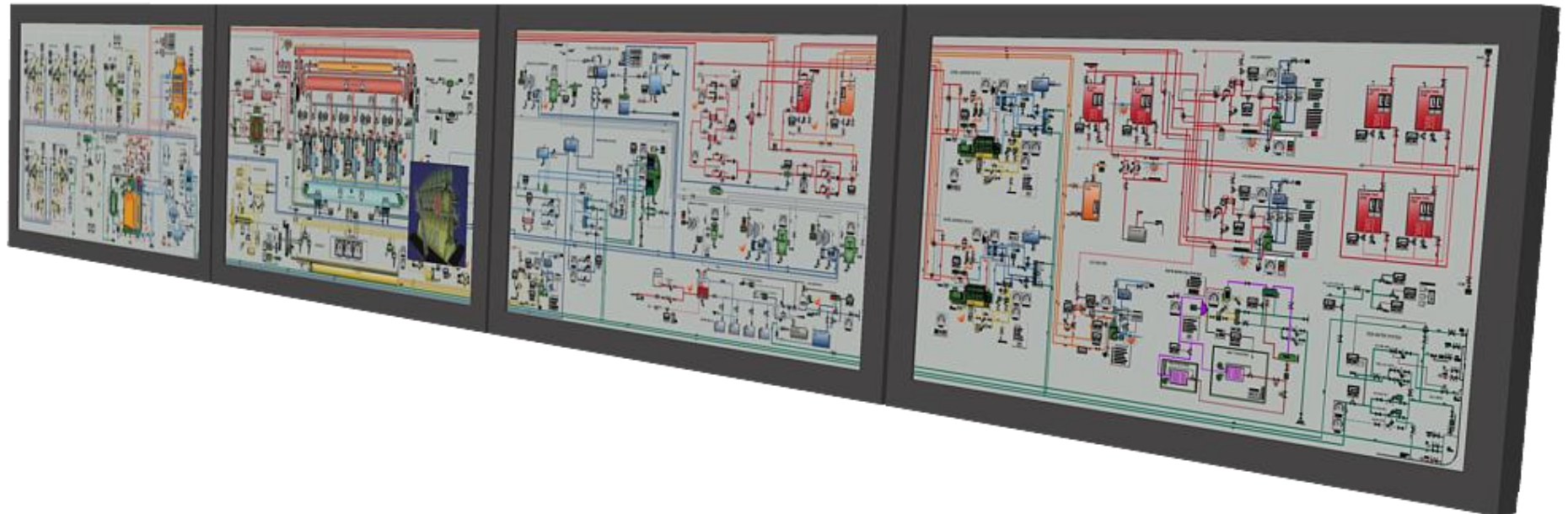


BigView Touch screen.



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- The BigView is a combination of interactive Schematic mimic of all relevant engine room compartments: The System Diagrams provides students with sufficient information to recognize interactions between systems and sub-systems and identify component statuses.
- Screen size: 58-65 "





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LocPanBoilerControl

BURNER 1 ON-OFF ON ON

BURNER MANAGEMENT Ready ON OFF Low Settings INFO LOW High Settings INFO HIGH

BURNER 2 ON-OFF ON ON

BOILER Fan Stopped, Low W Level, Low Atm Pres., Flame Out, Furnace Expl., High W Level, Remote Em.Stop

SMOKE IND. 0-100 %

OXYGEN 0-4 %

STEAM PRESSURE 0-20 bar

AIR FAN START PURGE START

Ndx g/kg: 18.20
HC g/kg: 0.123

WATER LEVEL 250 mm

MASTER CONTROLLER CTR AUTO LOWER RAISE

OIL FLOW CONTROL CTR AUTO LOWER RAISE

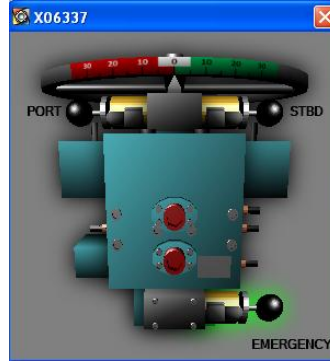
AIR FLOW CONTROL CTR AUTO LOWER RAISE

OXYGEN CONTROL CTR AUTO LOWER RAISE

MC90-Y: Electric Pump

Pump ID: R04721
Main Condensate pump

Pump Control: RUN PUMP STOP START SOURCE



LocPanRefrigCompr

START INHIBIT

Auto Load Ctr., High Load Set., Low LO Press.

START STOP

COMPRESSOR TRIP

Low LO Press., High LO Temp., High Disch. T., High Disch. P., El. Overload

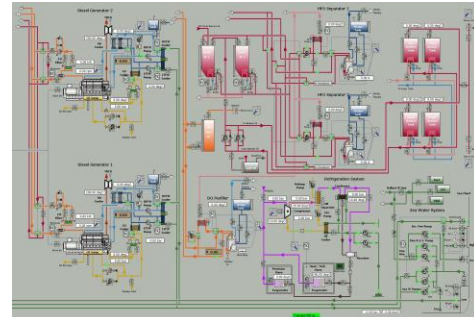
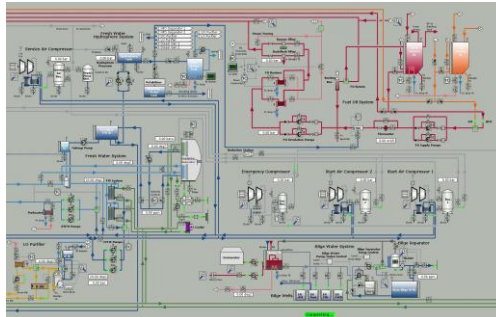
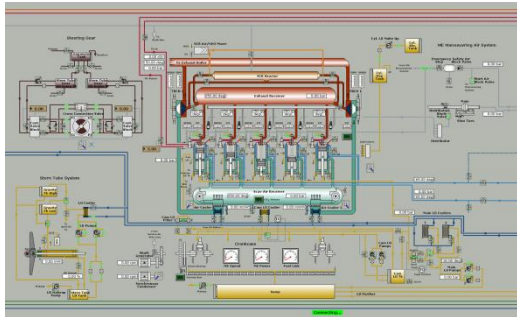
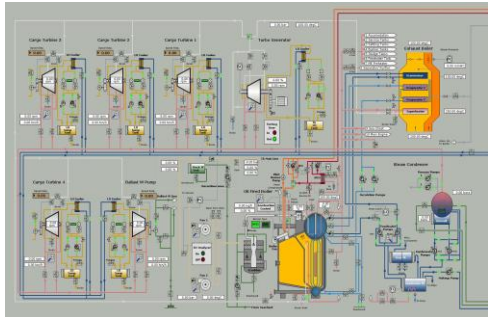
RESET TRIP

V03145

DG 1 LO filter 2

OPEN CLOSE

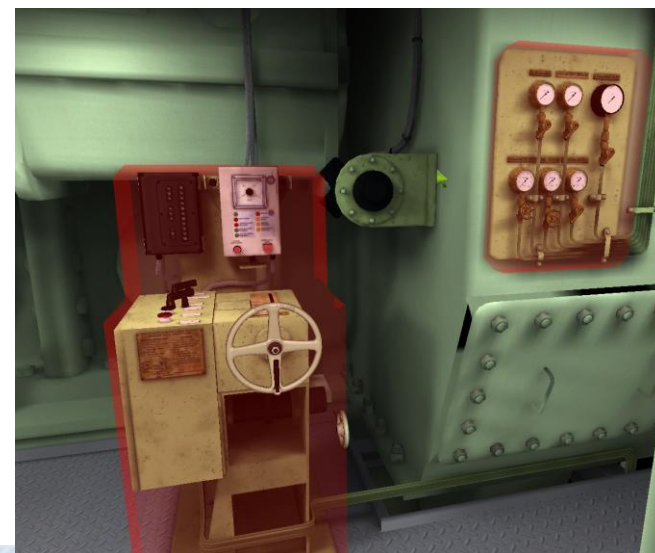
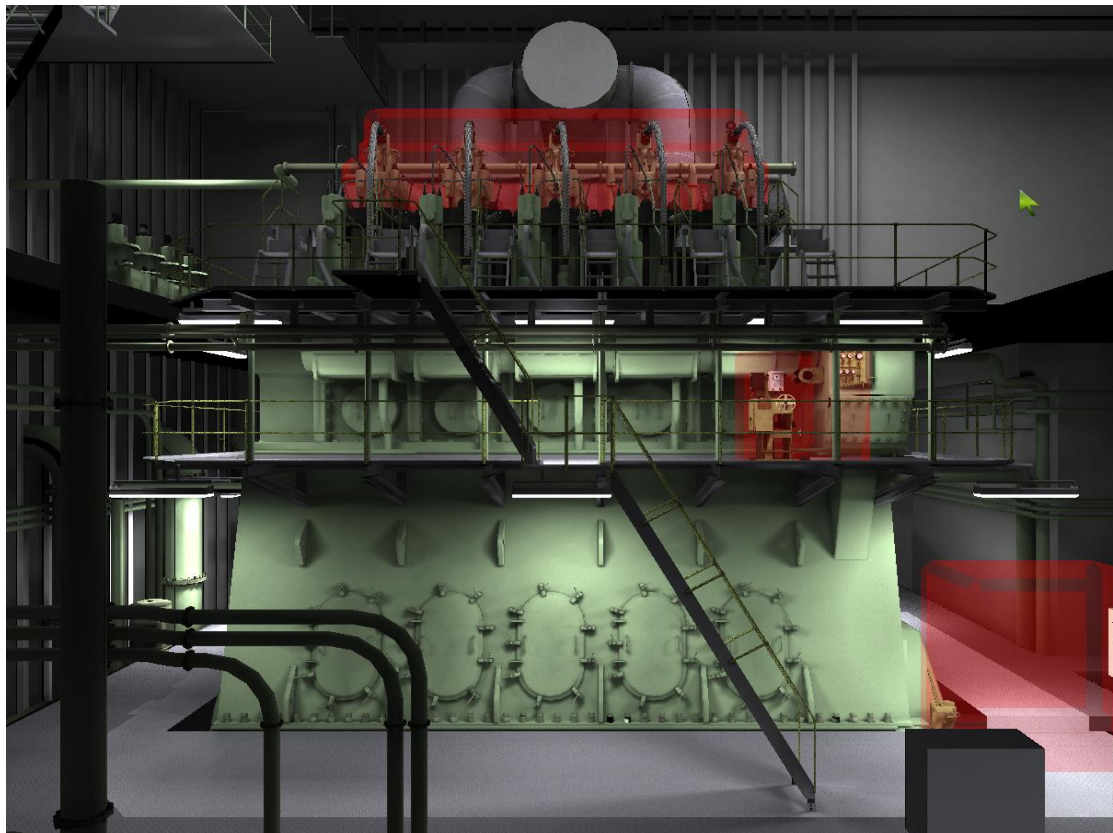
EXIT



Interactive 3D



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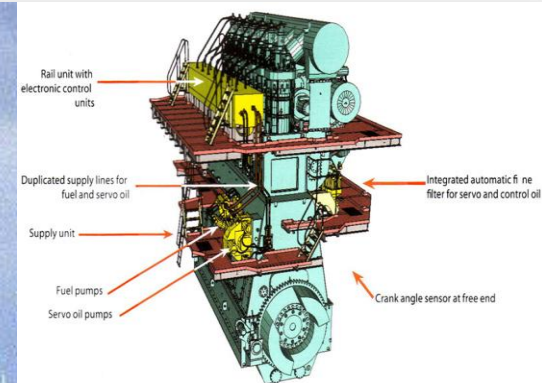
New Engine Release: Sulzer RT-FLEX Model



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Electronically-controlled common-rail systems instead of the usual mechanical camshaft.

Fuel oil and control oil are delivered at regulated pressures to rail pipes along the side of the cylinders.



Electronic control units then regulate delivery volume to fuel injection and exhaust valve operation.

Gives complete flexibility in the setting of fuel injection timing, rate and pressure.



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POLARIS Ship's Bridge Simulator



Trening i simulator

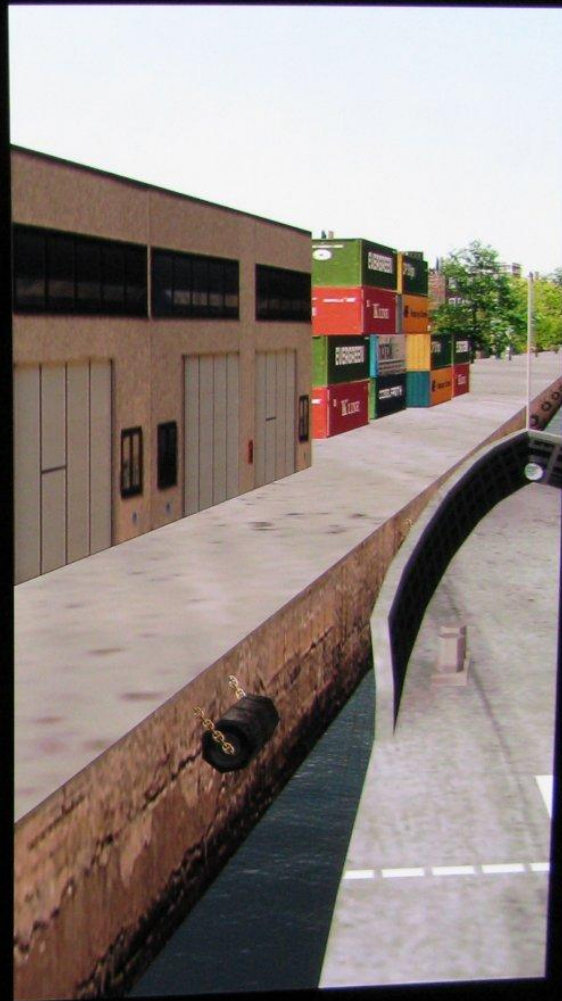
- Enkel teknologi- enkel trening
 - Individuelt nivå
 - Kognitiv-kunnskap-fakta
 - Skills-ferdigheter
 - STCW
- Avansert teknologi- mer kompleks trening
 - Fysisk realisme
 - Visuelle muligheter
- Individuelt nivå
 - Holdninger-motivasjon-ekspertise
- Team trening
 - Dynamisk
 - Interaksjon mellom individer med ulike oppgaver og ferdigheter i et skiftende scenario
 - Kommunikasjon og samhandling





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Simulation



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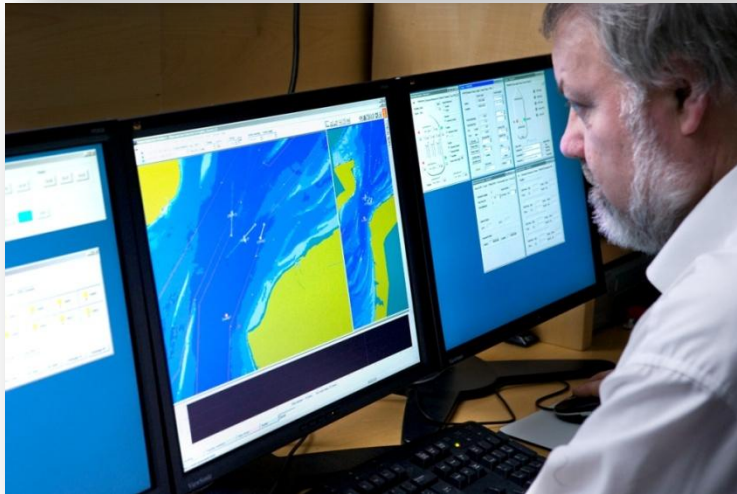
- Vi kan simulatorer (HW, SW, maritim kompetanse, STCW, DNV, navigasjon, maskinrom osv)
 - Simulatortrening lavere ulykkesfrekvens
- Teknologi og innovasjon gir nye muligheter, faren er at man bli teknologistyrt
 - Økt teknologi uten fokus på Menneske-Teknologi-Organisasjon gir ikke alltid positiv effekt
- Vi ønsker mer kunnskap om:
 - Læringsprosessen i simulator
 - Menneskelige faktorer
 - Pedagogisk og psykologisk tilnærming til evalueringsverktøy og brukergrensesnitt
- Vi vil utvikle verdens beste simulatorer



SIMAR delmål:



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1. Utvikling av menneskelige prestasjonsmål i simulatoren
2. Optimalisering av scenariobygging i instruktørsystemet
3. Kunnskap om læringsprosesser i simulatorøvelser
4. Strategi for implementering av kunnskap om menneskelige faktorer i simulator

Simulering av krevende maritime operasjoner

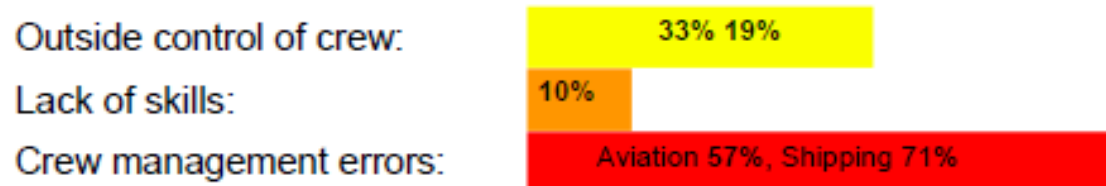
- Gir helt nye muligheter for trening av kritiske operasjoner
 - Ankerhåndtering
 - DP operasjoner med drillskip
 - Manøvrering nær plattformer
 - Arktiske farvann
 - Trange farvann, høy fart
- Er ikke rom for feil i virkeligheten, simulatorentrening må være
 - Realistisk, korrekt,
 - Gi positive læringsopplevelser, mestring
 - Målbar
- Hva er god trening?
 - Feil i simulator kan være god trening



Hvorfor er dette viktig?

Management errors

(Source: NTSB)



- Preoccupation with minor technical problems
- Failure to delegate tasks and responsibilities
- Failure to set priorities
- Inadequate monitoring
- Failure to utilize available data
- Failure to communicate intent and plans
- Failure to detect and challenge deviations from SOP's, Rules and safe actions



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Offshore Vessel Simulator





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