



*A new engaging E-learning  
course in Submarine Safety*

*ADL conference 2016*

*Tuusula, Finland*

Submarine Service

24. mai 2016

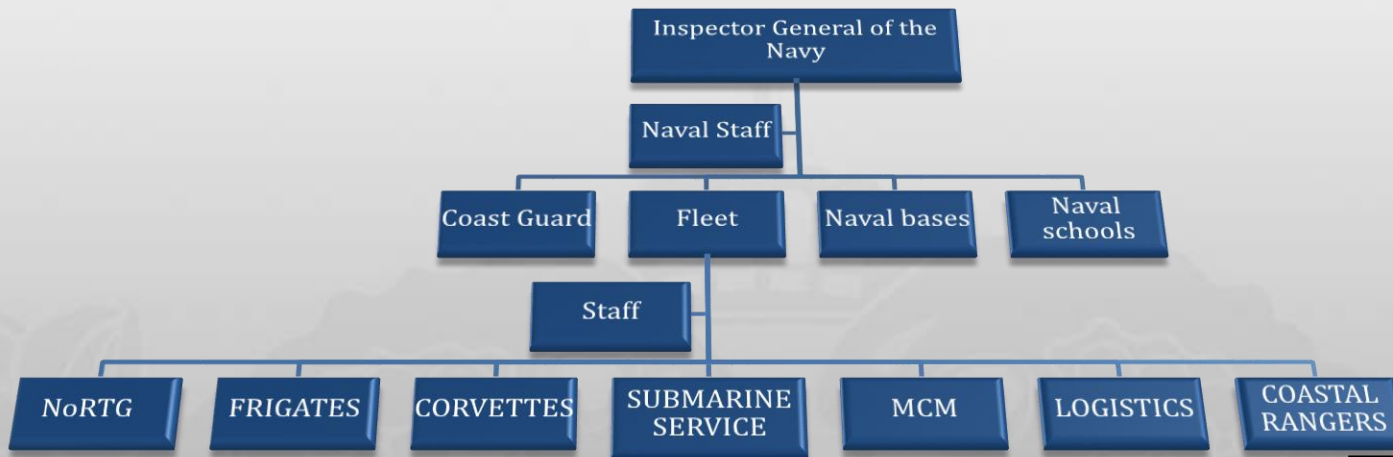
## *A new engaging E-learning course in Submarine Safety*

### *Agenda*

- Introduction
- Why e-learning within a pre-existing course?
- What`s in the future?

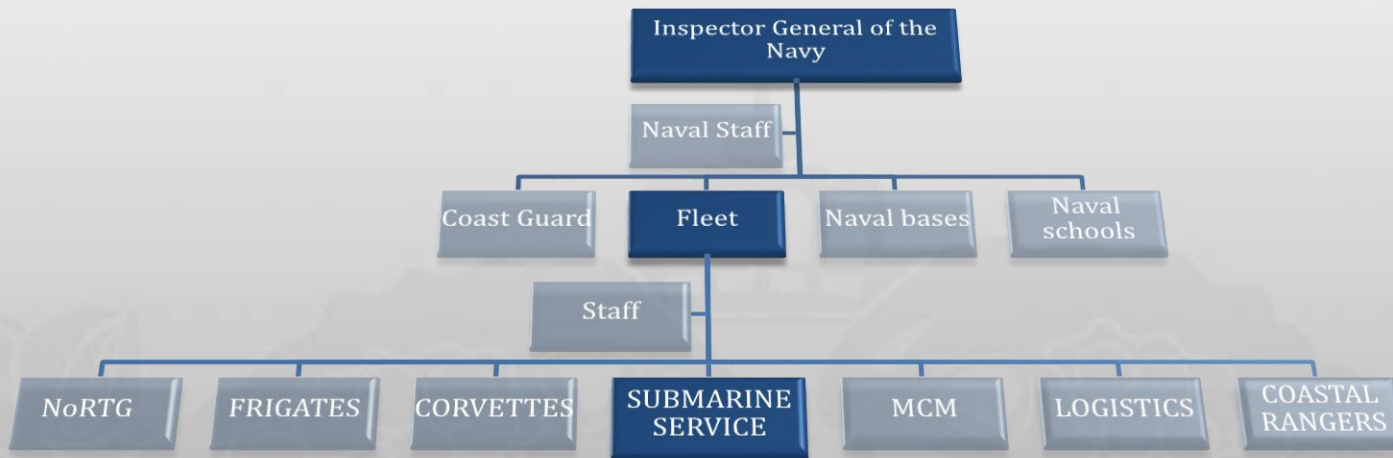


# Royal Norwegian Navy



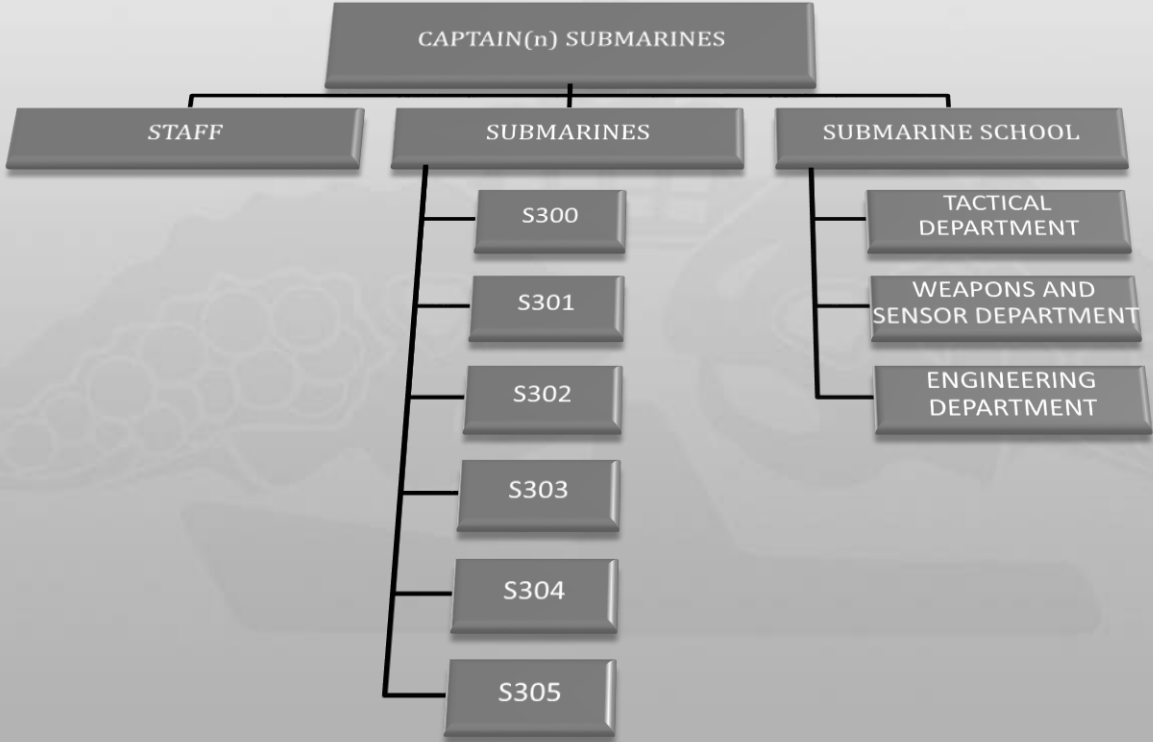


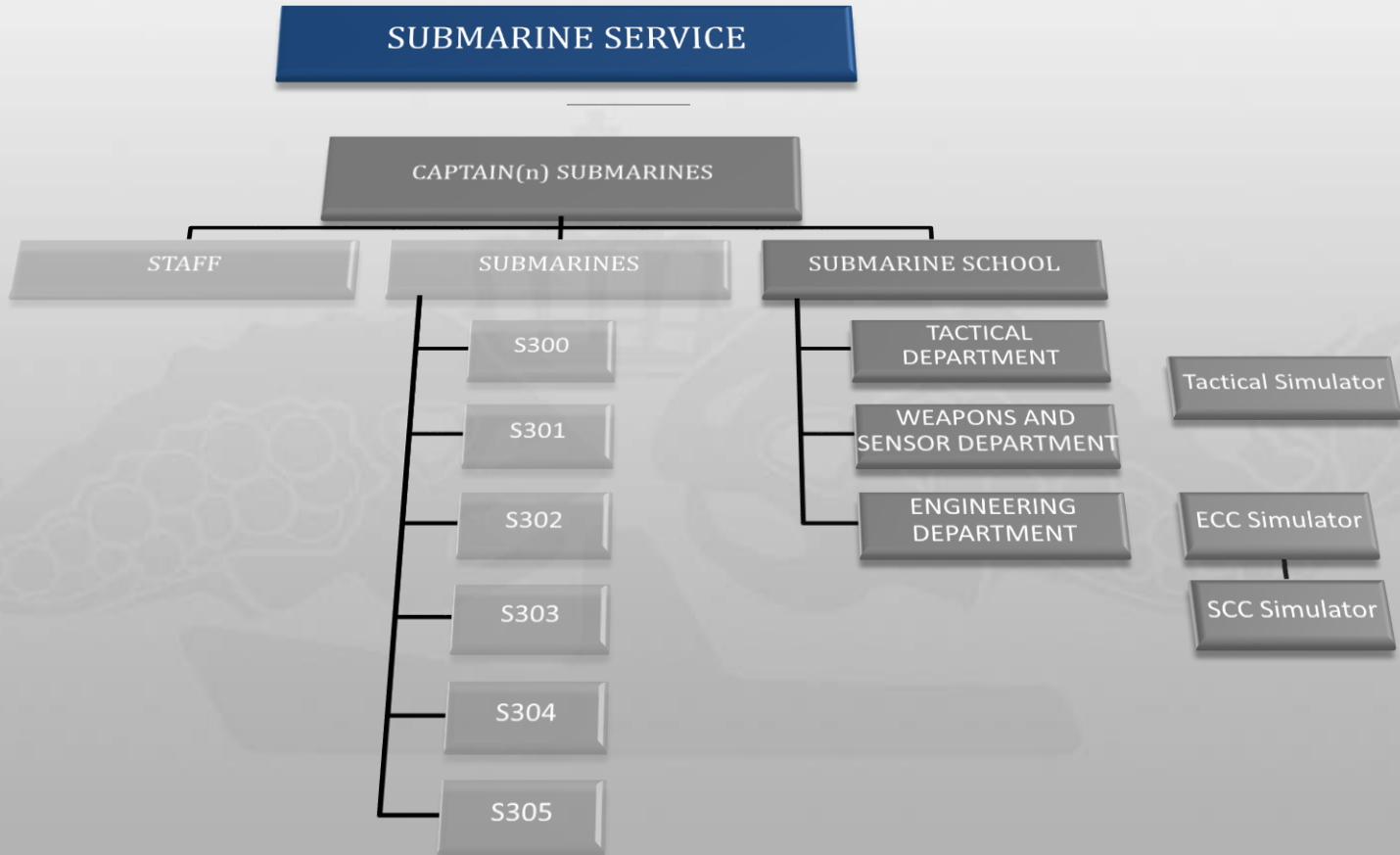
# Royal Norwegian Navy





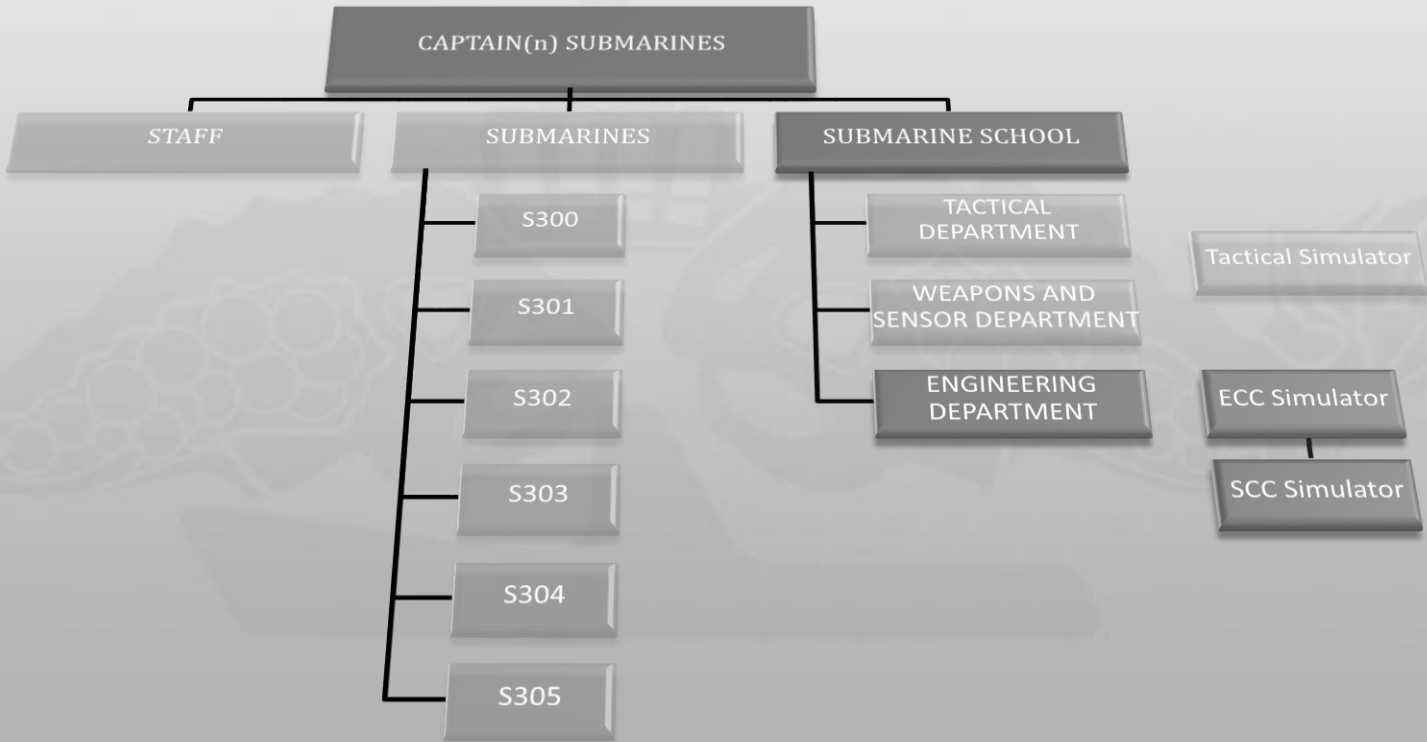
# SUBMARINE SERVICE



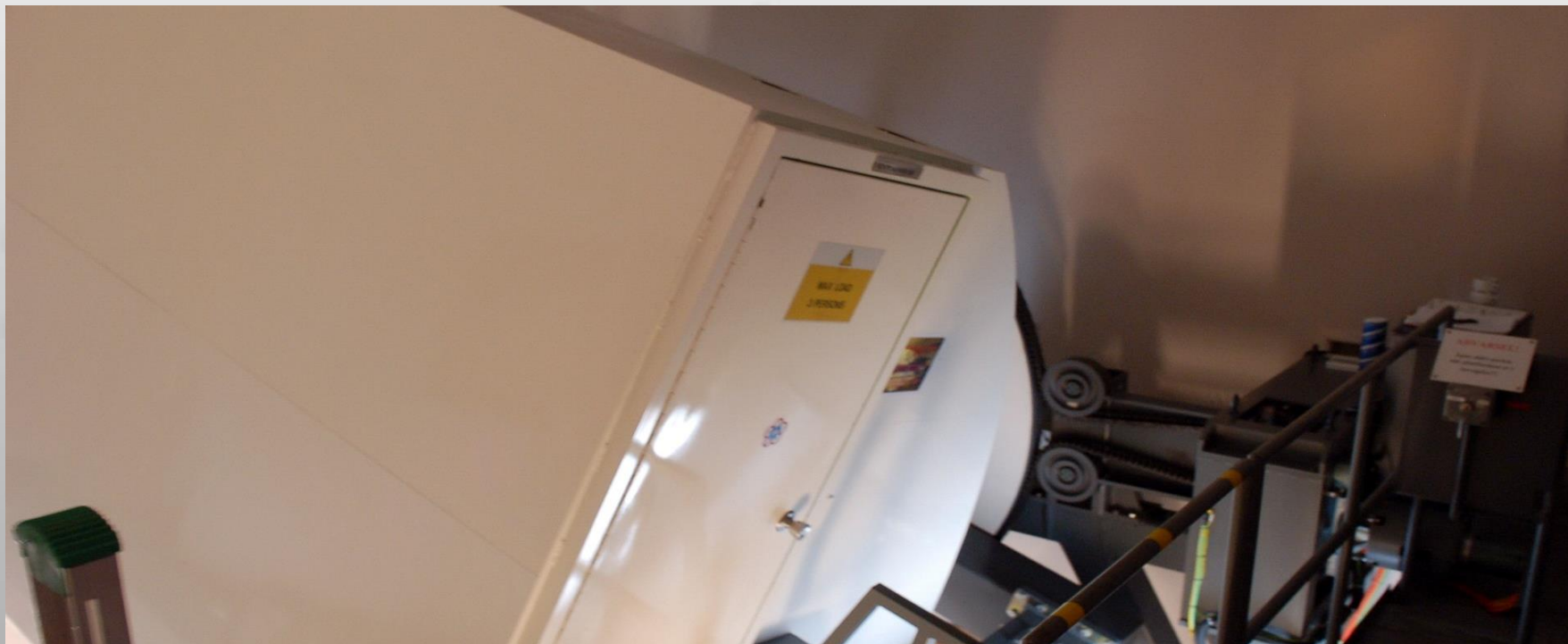




# SUBMARINE SERVICE



## *Steering console (Platform with motion)*





## *Steering console (individual training and annual test)*





## *Technical simulator*





## *Instructor operating console*





## *Mission – What?*

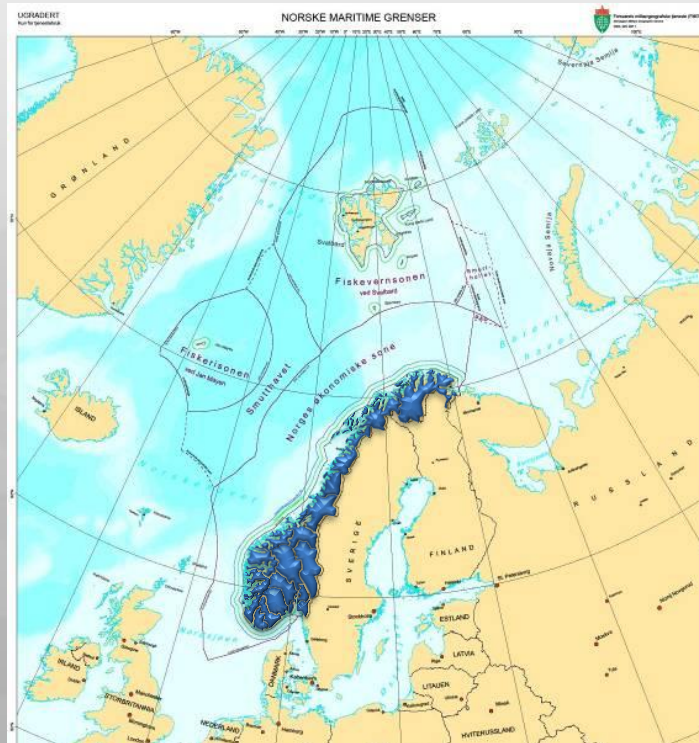
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- Combat ready submarine crews
  - Shortest possible time
  - As cost effective as possible.
  - With the highest of performance quality
  - With continuously crews at sea



## Mission – Why?

- Deterrence – Esse Non Videri
- Influencing an opposing force use of its own military instruments





## *Training philosophy*


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- Education
- Training
- Qualification program



## How do we train?

### Individual

- One course for each position onboard
- Qualification program
- Dolphins 
- Annual personal Watchkeeping tests

### Sub Team

- Annual team training
  - Command team
  - Damage control team
  - Shiphandling

### Crew

- Safety muster
- General muster





## *Blended learning*

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### *Assets*

- Classrooms
- Simulator
  
- Debrief room
  
- Submarines
- Submarine Drydock
  
- CBT –Classroom

### *Tools*

- PowerPoint, models, parts
- Scenario training, system interaction
  
- Preparation and evaluation of training
  
- 1:1 Hands-on instruction
- 1:1 Hands-on instruction, component understanding
  
- E-learning

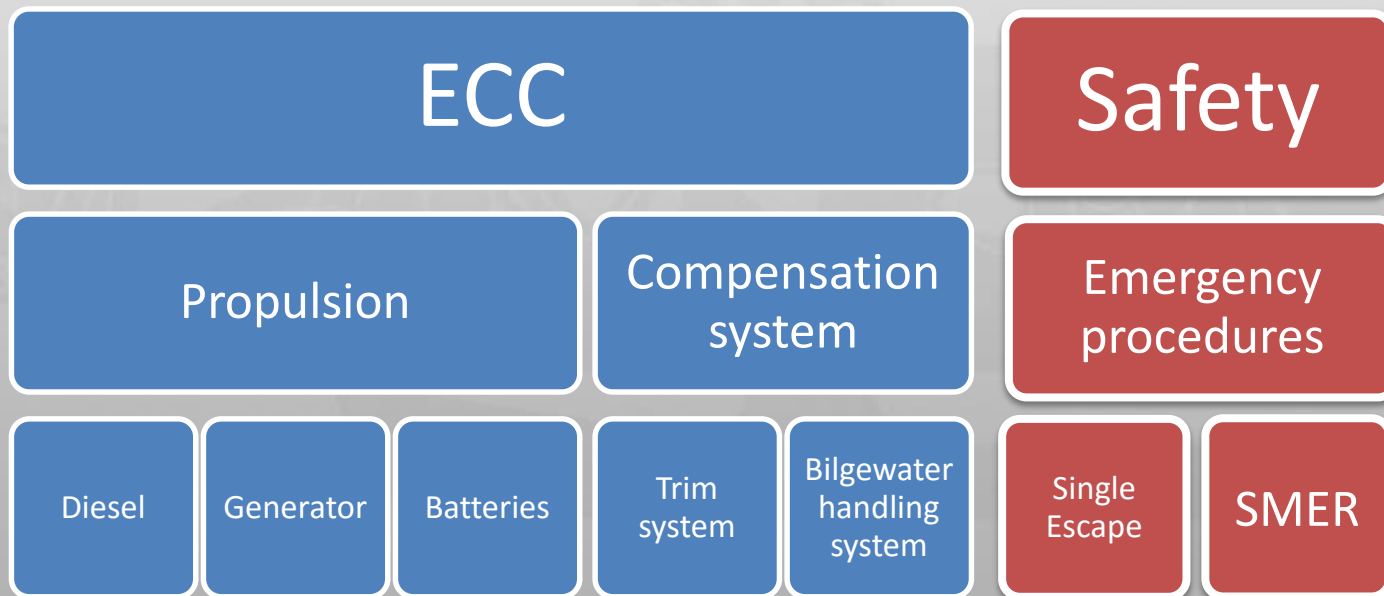


## *Submarine safety course*

- Give students basic knowledge of relevant systems, procedures and instructions on the Ula -class
- Provide the students with an introduction to Submarine safety and emergency procedures at sea and quayside
- Time: 3 week
- Topics: 48
- Evaluation: 2 tests and an exam
- Prerequisites: none
- Students: 40 approx pr year
- 3-4 courses a year
- Man hours: 8 weeks

## *From PPT to E-learning*

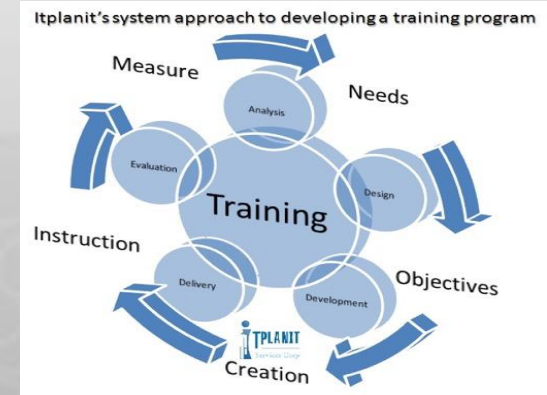
- Original course setup:





## *PROJECT START of submarine safety course.*

- (TNA) Training needs analysis is the first step in a training process of identifying the gap in training and related training needs. The Norwegian ADL office are using a special model and TNA standard as a minimum to produce an e-learning course.
- Effect?
- Learning objectives?
- Description of current training method/- alternative methods?
- The professional content and analysis of audience?
- Organizational culture?
- Instructor qualifications/-Description of the instructor's skills needs?
- Framework factors/-financial, personnel and physical framework?
- Description of the organization/- what personnel is the SME?
- Evaluation of course, project and achievement (what, who and how?)





## *Preliminary evaluation of the TNA/-project*

### **Effects / Benefits:**

- Norwegian submarine school will introduce e-learning into something positive, it's future- and an interesting learning method.
- Submarine school believes that e-learning has a large potential. All future subprojects and systems will be supplied with electronic training media and digital technical manuals.
- In the future it will probably be easier and cheaper to coordinate all these deliveries to function, both for training purposes and for maintenance and technical changes.
- There are also great opportunities for further exploitation of e-learning courses.
- E-learning courses will be included in the "Blended Learning" concept. This will include e-learning, instructor in classroom and practical exercises in the simulator.

## *Result of e-learning project*

### ▪ Storyline setup:



#### Introduction (Motivation)

- Submarine service – History
- Expectations to the students



#### Welcome on board (module 1)

- How to navigate in the program and navigate in the submarine by Google street view.
- Submarine systems and capabilities



#### Submarine structure and function (module 2)

- Mooring      Safety on deck
- Colour coding of pipeline
- Valves /-Hatches and escape possibilities



#### Diving (module 3)

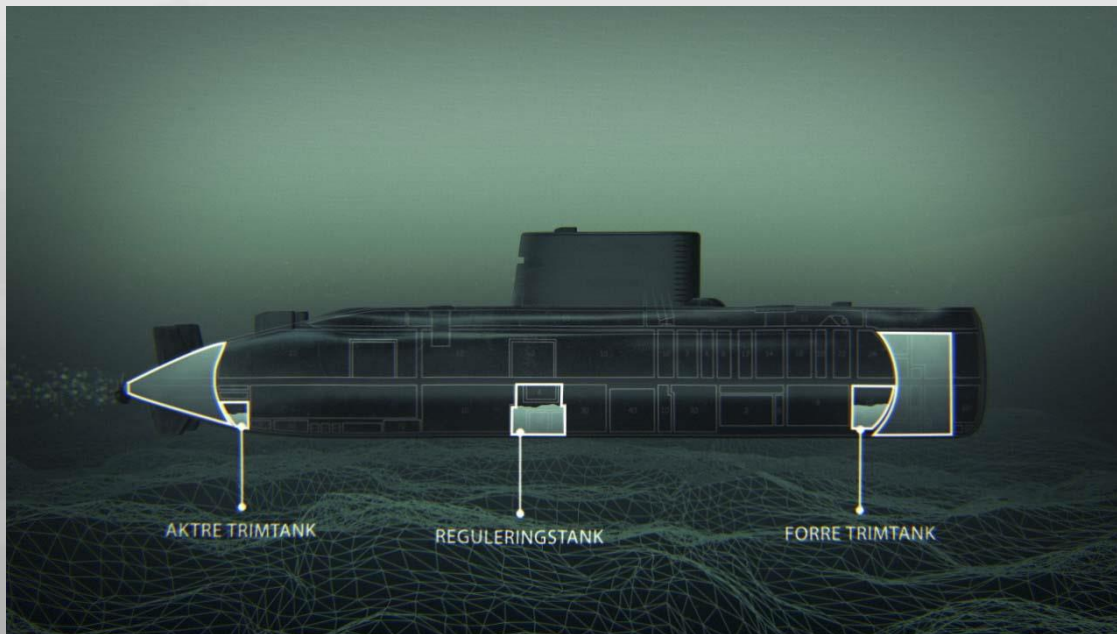
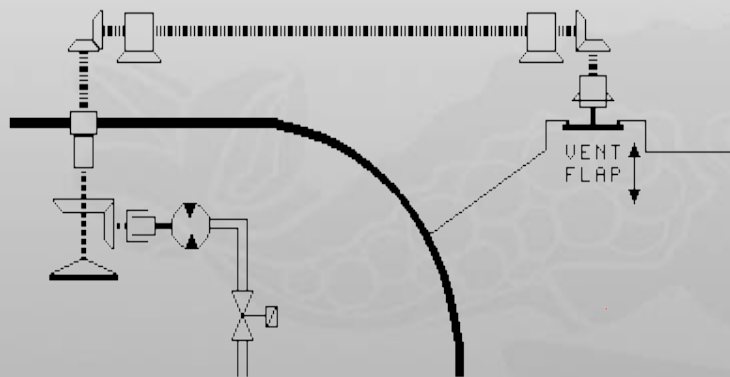
- Propulsion/ -Battery /-Diesel-engine/-Generators
- MBT /-How to dive a submarine/-Trim and ballast principle
- **FINAL TEST OF MODULE 1,2 and 3 (80% to pass the course)**



## *Effects used to achieve the world's best submarine e-learning courses...*

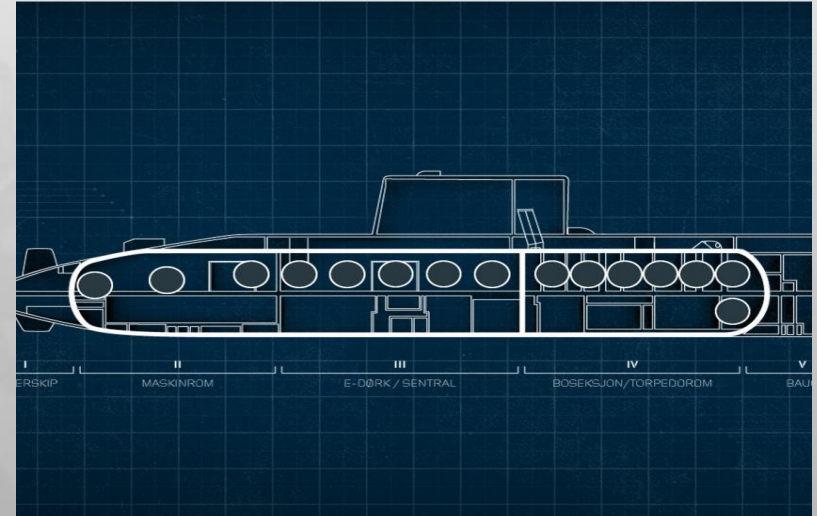
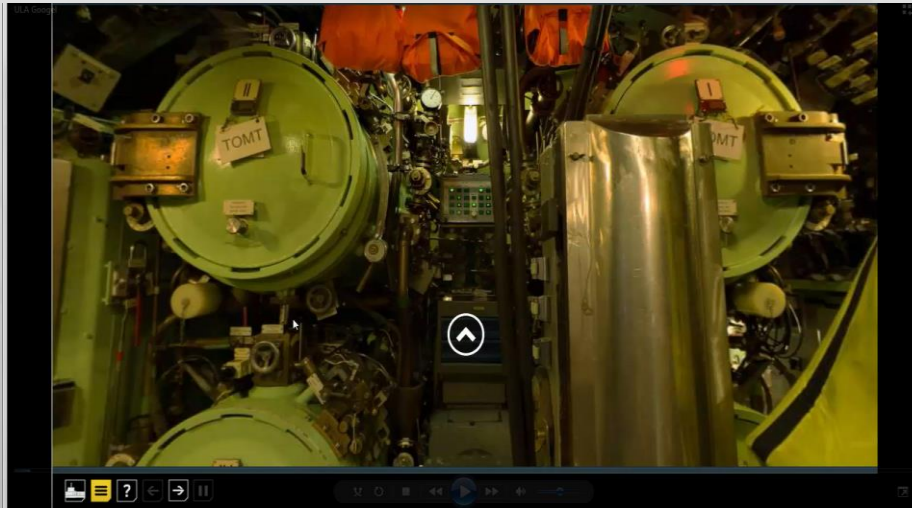
- Introduction film (Motivation)
- Google street view (Submarine street view)
- Innovation of 360 degrees of immersing interaction
- 3D model
- Animation and pictures
- Movie, voice, text, navigation,
- Quiz, drag and drop, visual tasks
- Professional actor (Commanding Officer) and real submariners.
- Motivation, humor, inspiration, positiv feed back, situation awareness, relevance, confidence, attention, variation and satisfaction.

## *Something old, something new...*





## *Google street view and navigation map.*





*“Submarine street view” to walk around in the submarine ?*





*"Submarine street view"*





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## *3D animation*





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## *Actors*

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## Visual tasks

**REDNINGSUTSTYRSMATERIELL**

**BIBSFLASKE**

**BRANN ALARM SENTRAL**

**REDDNINGSFLÅTEN**

**BIBS-MASKE**

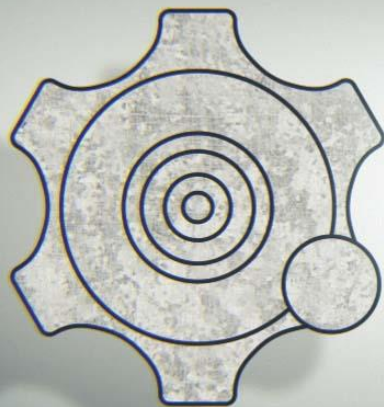
**RØYKDYKKERUTSTYR**

**BRANNAPPARATER**

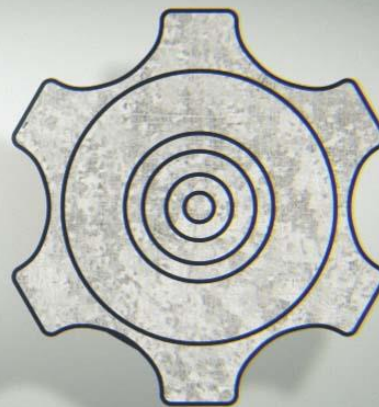


## *Valve and pipe system*

### SKROG- OG MELLOMVENTIL



SKROGVENTIL



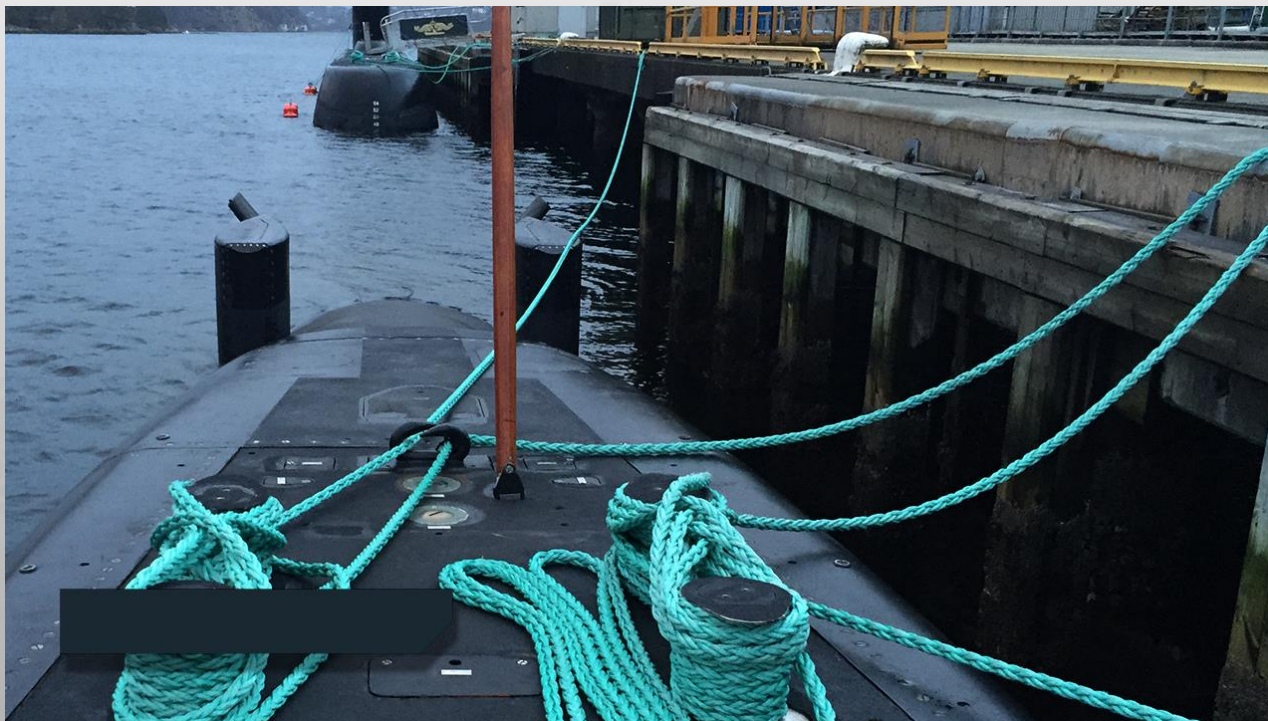
MELLOMVENTIL



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## *Picture*





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## *Movie*

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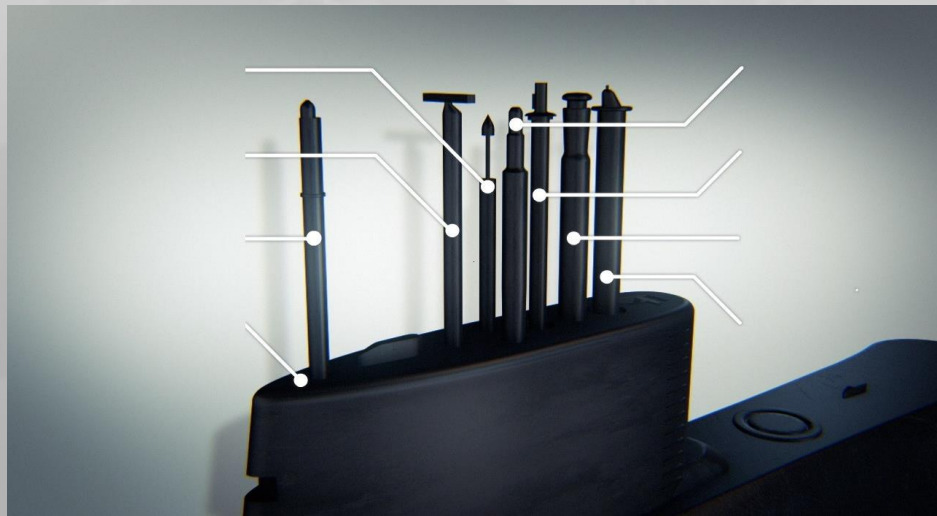
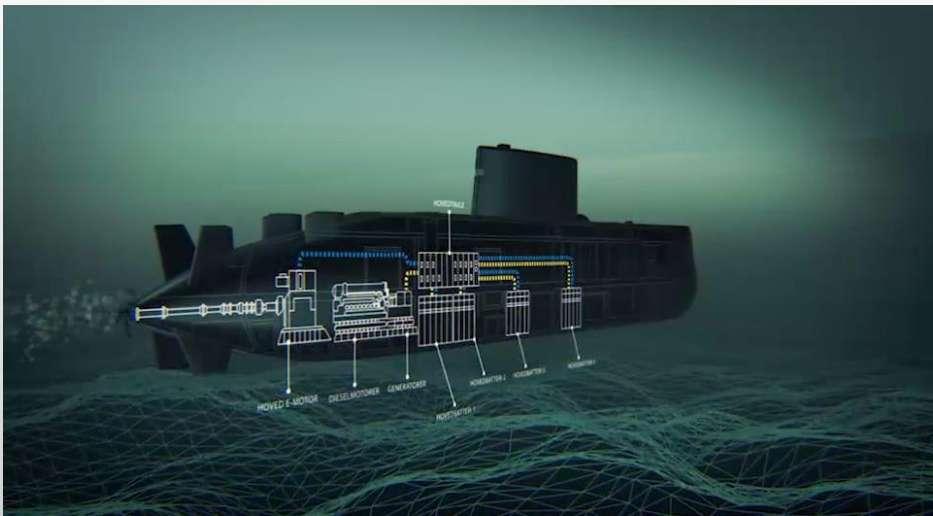


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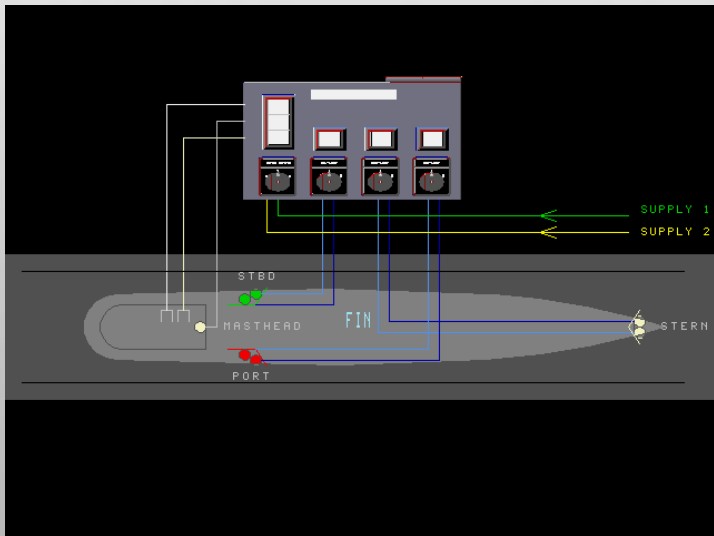
## *360 degrees panoramic view*







# *Something old, something new...*

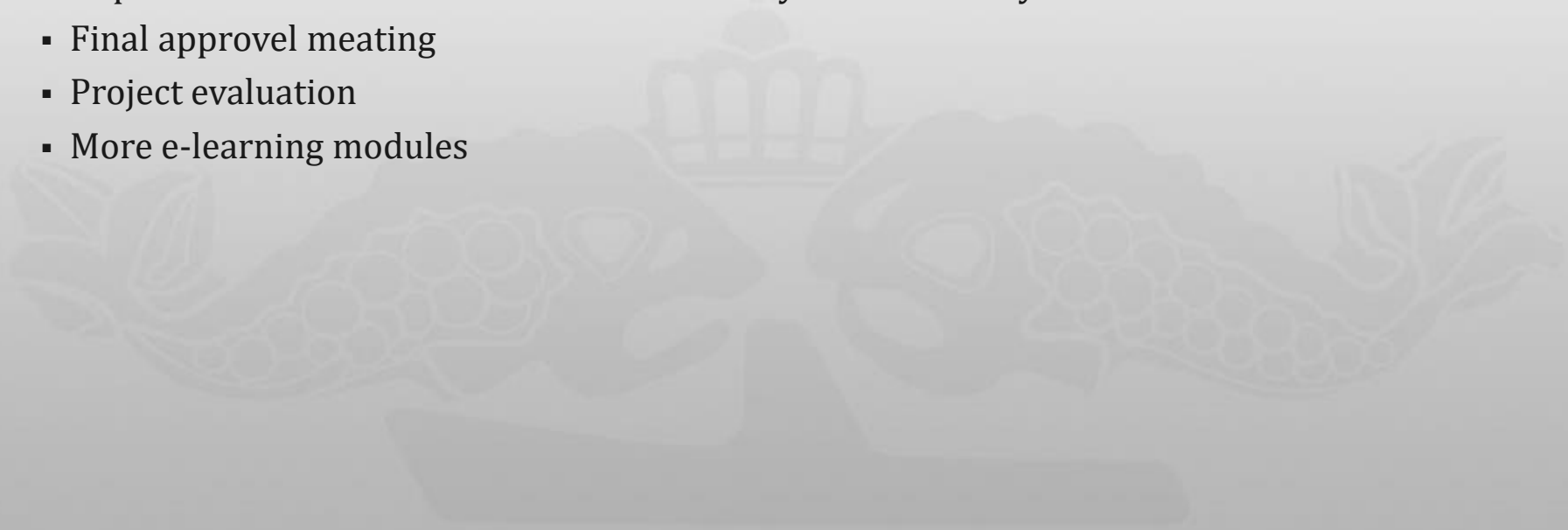




## *The future..*

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- Implementation in the basic submarine safety course – ready for the next course
- Final approval meeting
- Project evaluation
- More e-learning modules





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## *Summary*

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Thank you for your attention!

Questions?

**Dolphin code 34?**

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# Submarines

*What most people will ever see....*

*Dolphin code 34:  
Submariners think deeper...*

24. mai 2016

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