



# Revised method for reviewing Human Factors in the design of CCR`S

Adam Balfour

Human Factors Solutions - Norway

# Human Factors Solutions - Norway

Idea  
**ABB – NPD – Safetec**

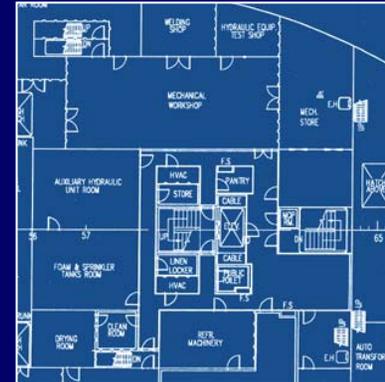
Concept  
**Super Eva – Kristin**

Detailed  
**Grane – Balder – West Future II**

Operation  
**Jotun A**

Modification  
**Eldfisk – Petrojarl – MMI-2**

V & V  
**Kristin – Kvitebjørn – Oseberg C**



# ABBREVIATIONS

## MMI-1

"A method for reviewing Human Factors in Control Centre Design",  
NPD June 2000.

## MMI-2

Revision of "A method for reviewing Human Factors in Control Centre  
Design" , NPD October 2002

# HFW 2002 GOALS

- MMI-2 - October 2002
- Share experience - MMI -1
- Gain YOUR experience - reviewing HF in CCR design

# AGENDA

## MMI-1

Background

Goals

Preliminary results

## MMI-2

Goals

Project plan

Preliminary requirements

Preliminary Concepts

## ISSUES

1. \_\_\_\_\_

2. \_\_\_\_\_

3. \_\_\_\_\_

# MMI-1

# BACKGROUND MMI -1 - NPD - AUDITS

- Too many alarms
- New functions in CCR
- Increased complexity and demand on staff
- New technology challenges established safety philosophy
- Reduced manning in CCR
- Remote control - onshore

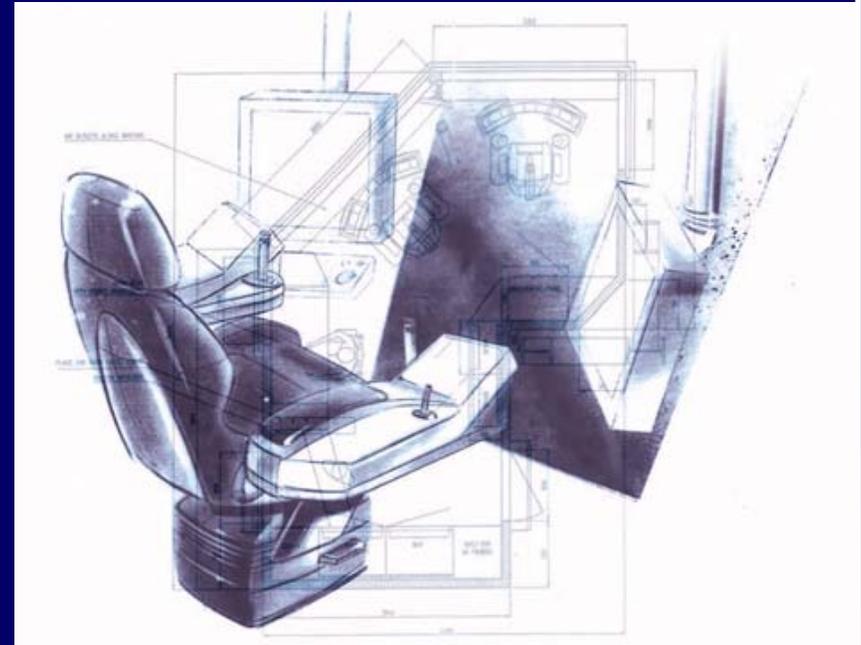


Illustration: Courtesy of Maritime Hydraulics, Norway

# Consoles

- Space for paper, pens
- Location - contrast
- Large fixed keyboards
- Not adjustable



# Alarm systems

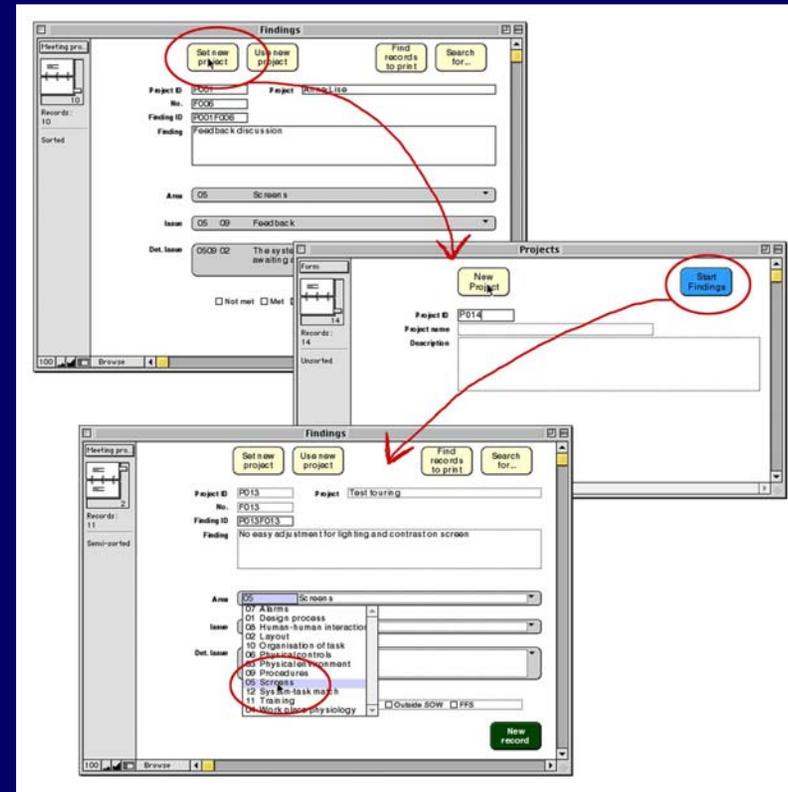
- No philosophy
- Alarm list
- Too many
- Inconsistent
- No priority
- No grouping
- Incomprehensible

Alarm Presentasjon

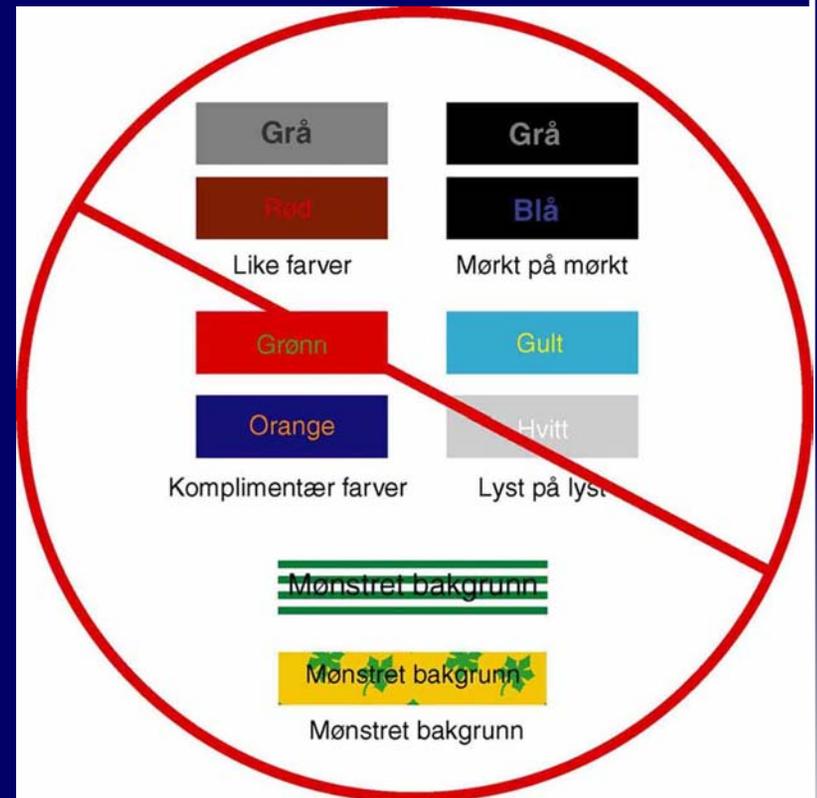
Alarm 1	937848	0000	Alarm 1	937848	0000
Alarm 2	938848	0000	Alarm 2	938848	0000
Alarm 3	924848	0000	Alarm 3	924848	0000
Alarm 4	937658	0000	Alarm 4	937658	0000
Alarm 5	937148	0000	Alarm 5	937148	0000
Alarm 6	937068	0000	Alarm 6	937068	0000
Alarm 7	937848	0000	Alarm 7	937848	0000
Alarm 8	932748	0000	Alarm 8	932748	0000
Alarm 9	832848	0000	Alarm 9	832848	0000
Alarm 10	937838	0000	Alarm 10	937838	0000
Alarm 11	933788	0000	Alarm 11	933788	0000
Alarm 12	932468	0000	Alarm 12	932468	0000

# Navigation

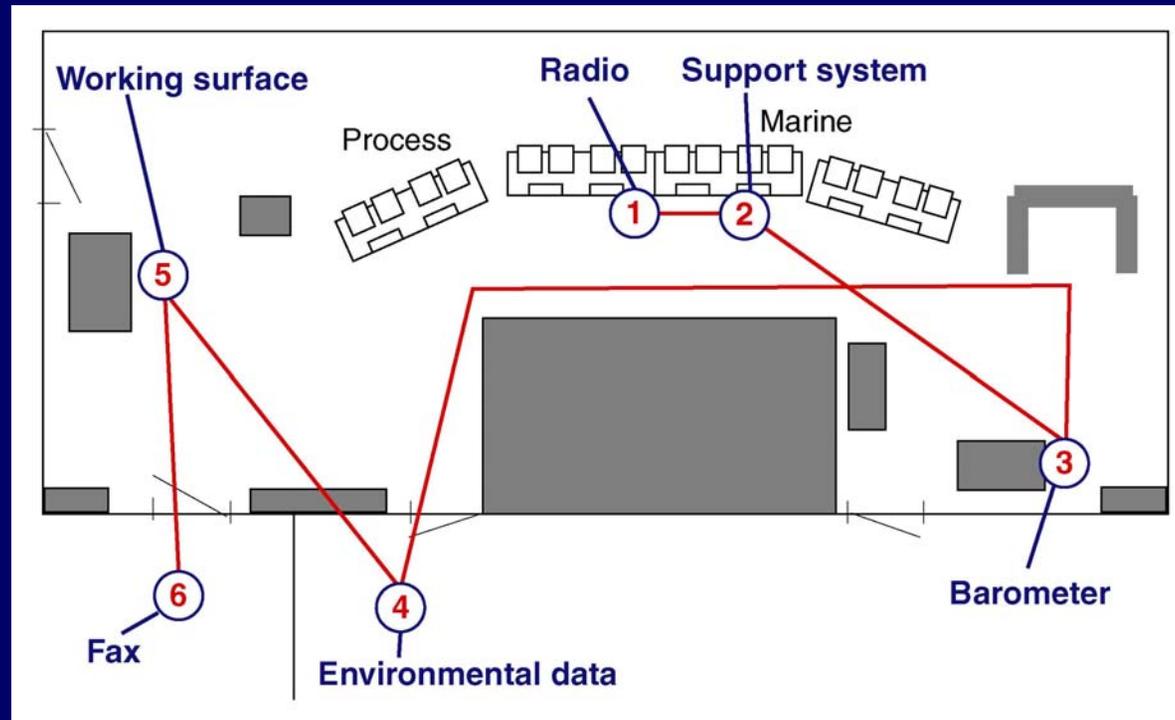
- Inconsistent
- Difficult - hierarchical
- Remember screen nr.
- Limited search functions



# Colour /graphics



# CCR Layout

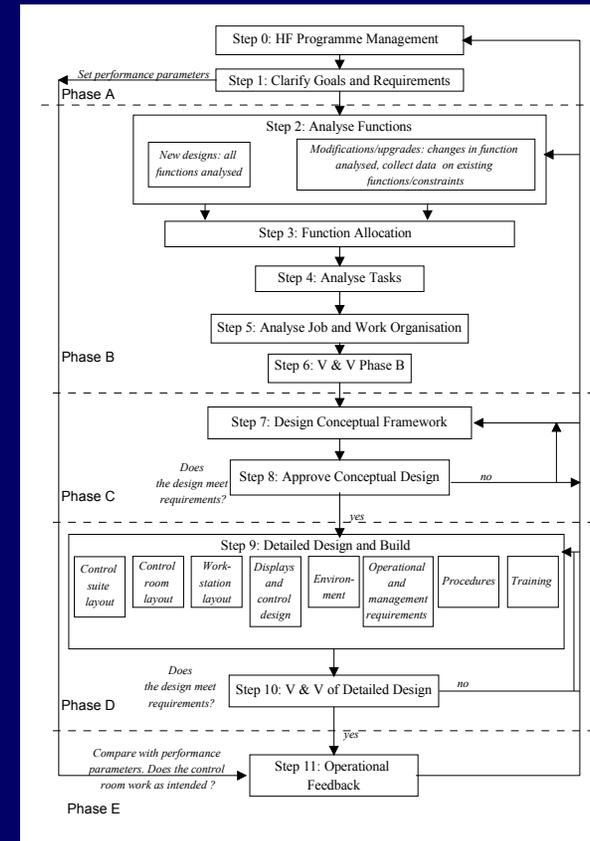


# GOALS MMI-1

- Goals : Provide NPD & industry with common basis for:
- safe working practices in CCR
  - acceptable total workload in CCR
  - reduction - human error
  - structured HF methods
  - evaluation of solutions vs regulations
- Product: Systematic CCR audit tool (design - mod -incidents)
- Users & Use: Authority- revision, incidents
- Industry - management, planing, development  
revision, updates, modification
- Based on: ISO 11064 structure and requirements

# MMI 1 = ISO 11064 +

- Introduction
- Information sources
- Review guidance
- Audit questions
- 167 pages in English



# MMI-2

# GOALS MMI-2

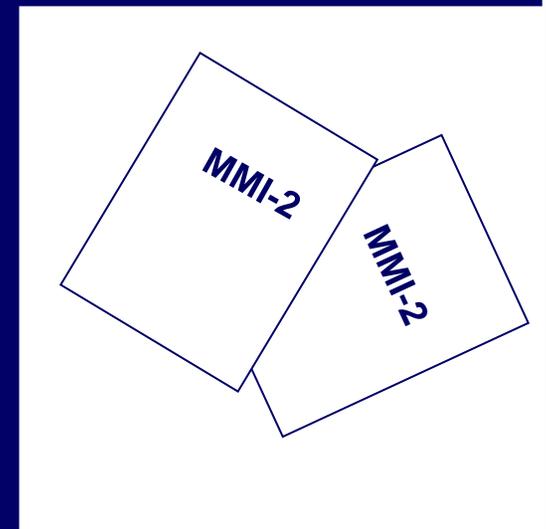
As for MMI -1

Revise and update, simplify and improve



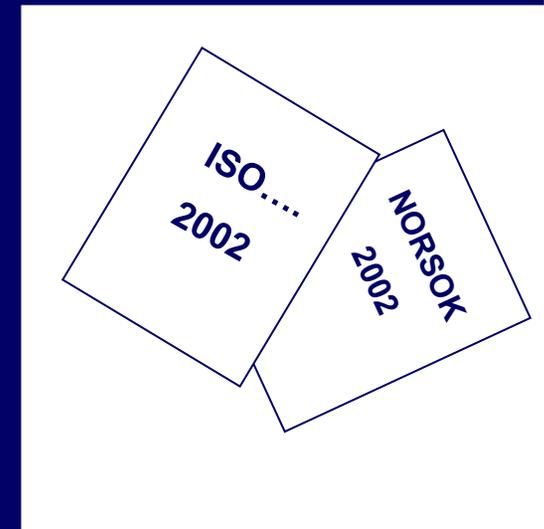
# DELIVERABLES MMI-2

1. Revision - Norwegian and English
2. Presentation material - MMI-2
3. Project plan - other cabins



# PROJECT PLAN MMI-2

1. Clarify goals, requirements and specification
2. Interview stakeholders
3. Observe use/audit of MMI-1
4. Test use of MMI-1
5. Review alternative methods, standards etc.
6. Develop and test concepts
7.
  - Develop MMI-2
  - Presentation material
  - Project plan for other cabins



# PRELIMINARY RESULTS - MMI 1

+

Systematic / useful

Professional content

Checklists useful

Puts HF on map

--

Not easy to use / Too large

Where to start ?

Iterative process unclear

Not related to oil industry

No change - human error

# PRELIMINARY REQUIREMENTS 1/2

## TECHNICAL CONTENTS

- Reduce volume - BUT more examples, checklists, guidance !
- Simplify / userfriendly - navigation
- Process vs results based ?
- Audit tool / design guide ?
- Add Human Error Assessment, HCI, Alarm Philosophy, +++
- MMI-2 - tool to get 1 answer from 10 different operators

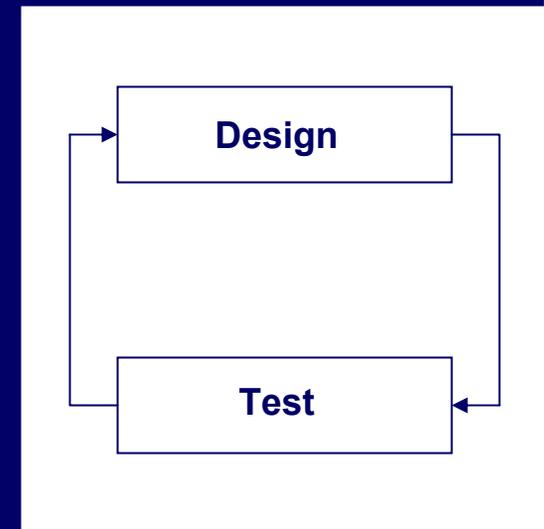
# PRELIMINARY REQUIREMENTS 2/2

## ORGANISATION

- Experience transfer first
- Merge chapters
- Emphasize iteration
- Seperate parts: Users

## INTRODUCTION MMI-2

- Involve industry: (Ref. group)
- Overview & detailed workshops

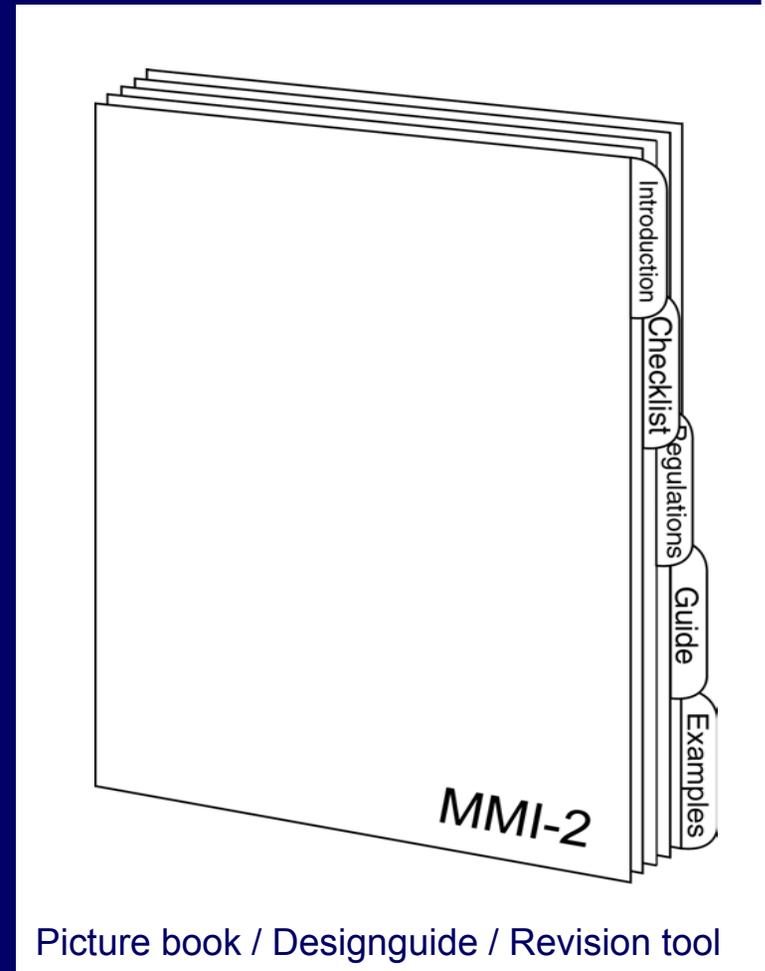


# PRELIMINARY CONCEPTS

## ORGANISATION

- Requirements
- Regulations
- Topic
- Design process
- Users
- Examples

Combinations Etc.



Picture book / Designguide / Revision tool

# DATABASE

CHECKLIST	GUIDE	REGULATIONS	EXAMPLES
<p>1. Was a system developed that can assure the CCR operators are updated concerning relevant regulations and standards?</p>		<input checked="" type="checkbox"/> Documented	
		<input type="checkbox"/> Unknown	
		<input type="checkbox"/> Not documented	

 SHALL

 SHOULD

 MAY

 CAN

# ISSUES

- Who should "own" HF / MMI -2 ?
- How should HF requirements be presented?  
(process, performance criteria, detailed specs.)
- Your experience with ISO 11064 ?
- Your experience reviewing Human Factors in CCR  
design process?

