

# NATO Naval Mine Warfare Centre of Excellence



**LtCdr Hans van IJzerloo RNLD N, [nmwcoe-cde-sme1@mil.be](mailto:nmwcoe-cde-sme1@mil.be)**

*Subject Matter Expert Concept Development & Experimentation*

# AGENDA



- NATO NMW COE in Ostend (BEL)
- The continuous transition and foreseen inclusion of all Under Water Warfare's
- NATO NMW Concept
- Reducing risks by un- & manned mine countermeasures
- Transition into the future of Naval Mine Warfare



# NMW CENTRE OF EXCELLENCE



FN – Framework Nations:



SN – Sponsoring Nations:



Temporary contribution:



Interest in participation:



# THE 4 PILLARS of NATO COE's



## Education and Training



## Concept Development and Experimentation



## Analysis and Lessons Learned



## Doctrine Development and Standards



# The continuous transition and foreseen inclusion of all Under Water Warfare's

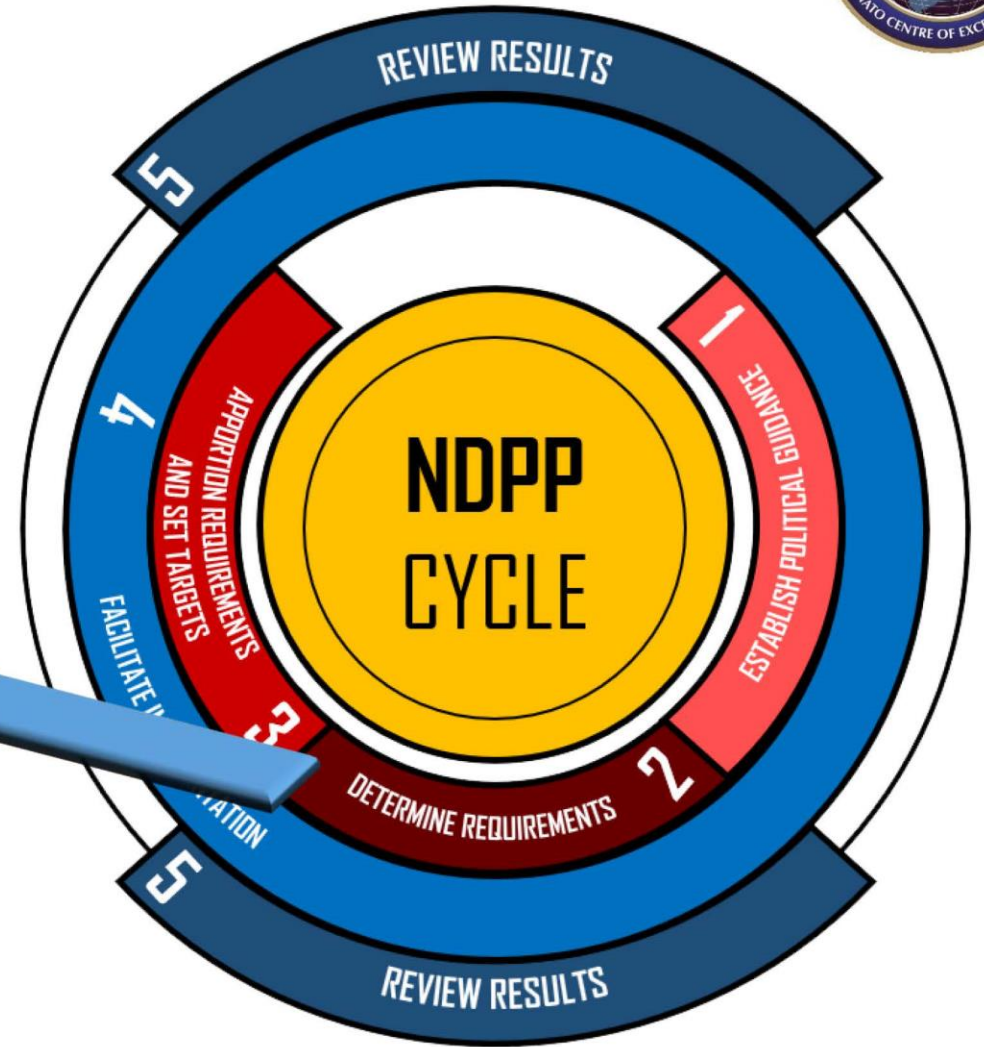
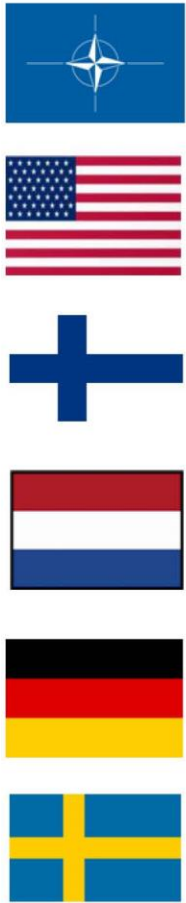


- All pillars involved
- REPMUS – NATO NMW COE cycle

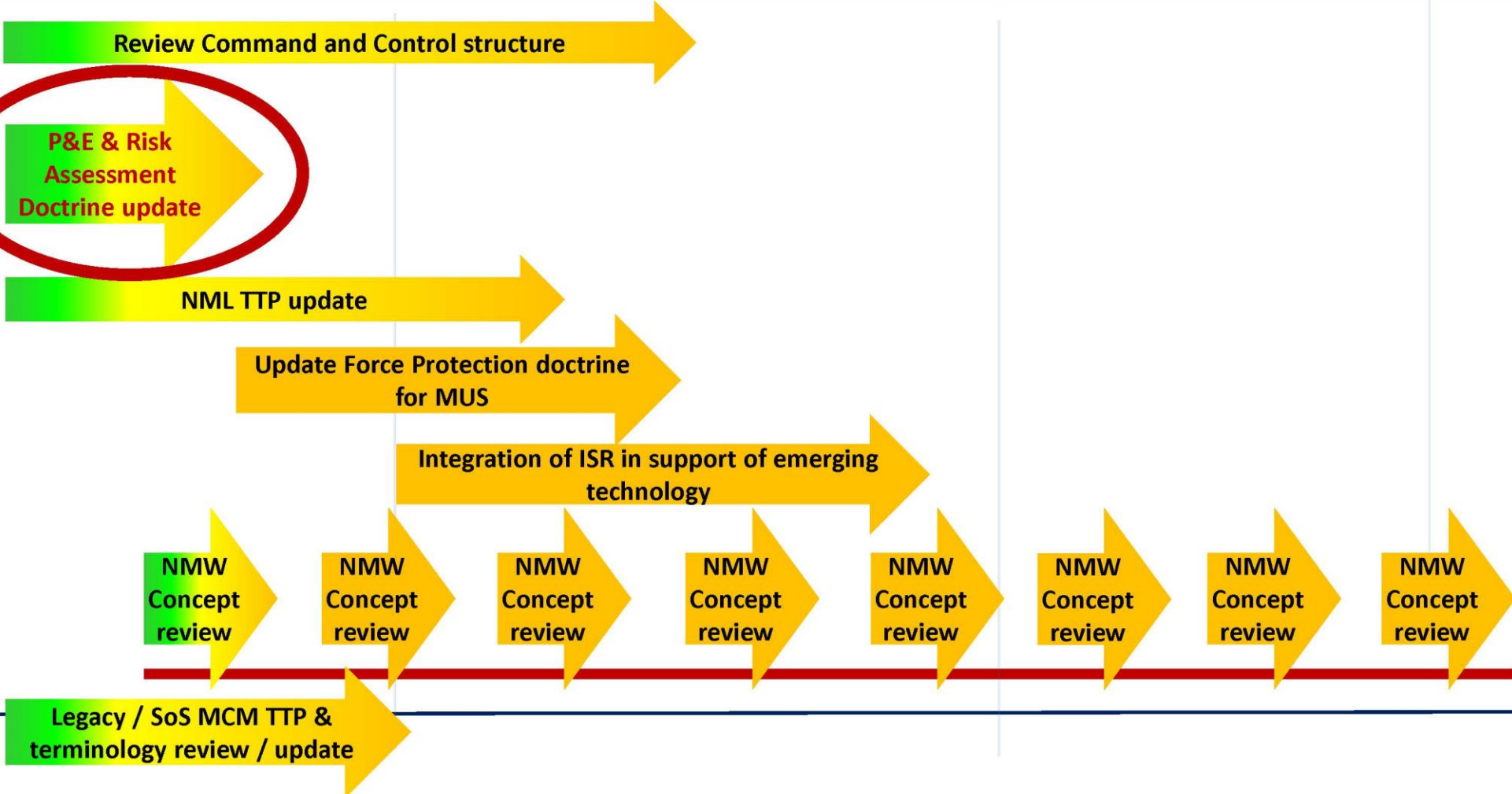
## Cooperation is intensifying with:

- Rapid Environmental Assessment (REA)
- Anti Submarine Warfare (ASW)

# NATO NMW Concept



# Future NMW Roadmap



# Planning & Evaluation and Risk Assessment



- **RISK MAPPING** (EXTAC 885, Risk Mapping)
- NMCM **Command & Control**  
(EXTAC 886, Standards for Command & Control)
- NMCM **DATA HANDLING**  
(EXTAC 887, Standards for Data Handling)
- ST-BI (the **environment** in figures)
- NATO **SONAR REFERENCE TARGET** (SRT)

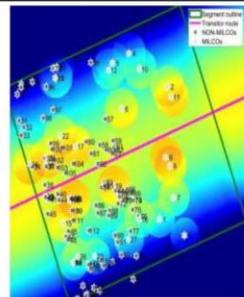
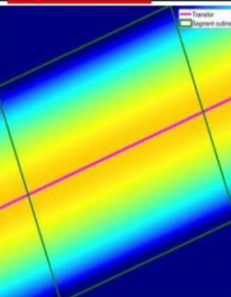


# TRANSFORMATION

CONCEPT DEVELOPMENT  
& EXPERIMENTATION



By TNO



DOCTRINE DEVELOPMENT  
& STANDARDS



ANALYSIS & LESSONS  
LEARNED

environment

EDUCATION & TRAINING



system

sea mine



# EXTAC 885

## Financed by the Netherlands



Ministry of Defence

# More improvement is needed!

environment

ST-BI

Specialist Team on Biological Impact  
Environment in figures

Command  
& Control



MCM  
EXPERT

DATA  
Handling

SRT  
Sonar Reference Target

system

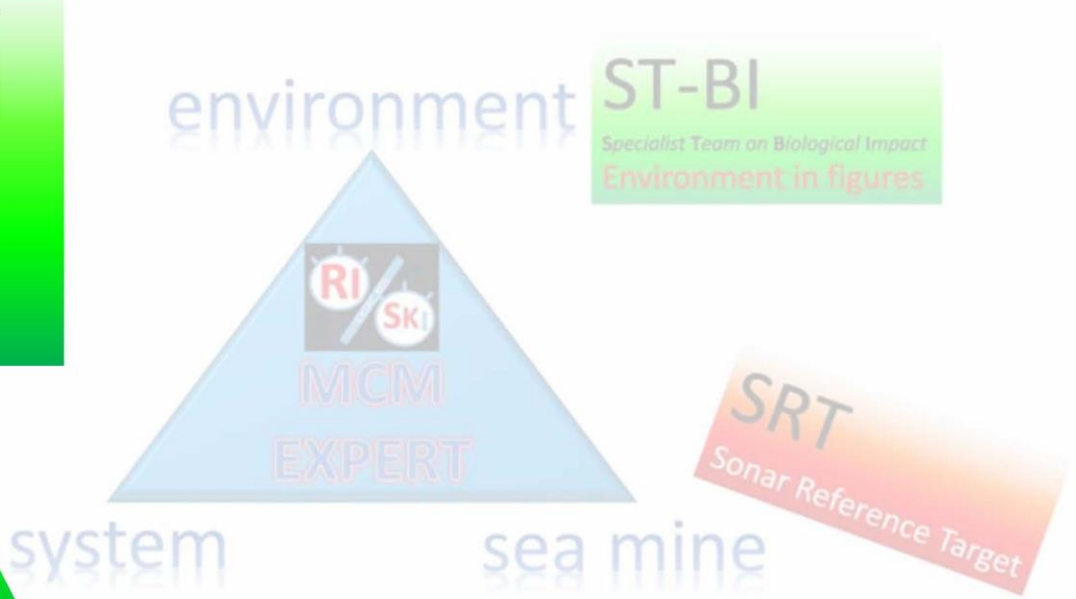
sea mine

# Please join!

"EXTAC 886 &  
EXTAC 887  
Research  
Task Groups"

## Command & Control

## DATA Handling



**Industry through national representative.  
Military through CMRE:  
[Thomas.Furfaro@cmre.nato.int](mailto:Thomas.Furfaro@cmre.nato.int)**



# FUTURE MCM EXPERT for all



environment



ORACLE



## MCM EXPERT



**ST-BI**  
*Specialist Team on Biological Impact*  
**Environment in figures**

Command & Control

DATA Handling

SRT

Sonar Reference Target

system

sea mine

TNO



WTD 71

seebyte



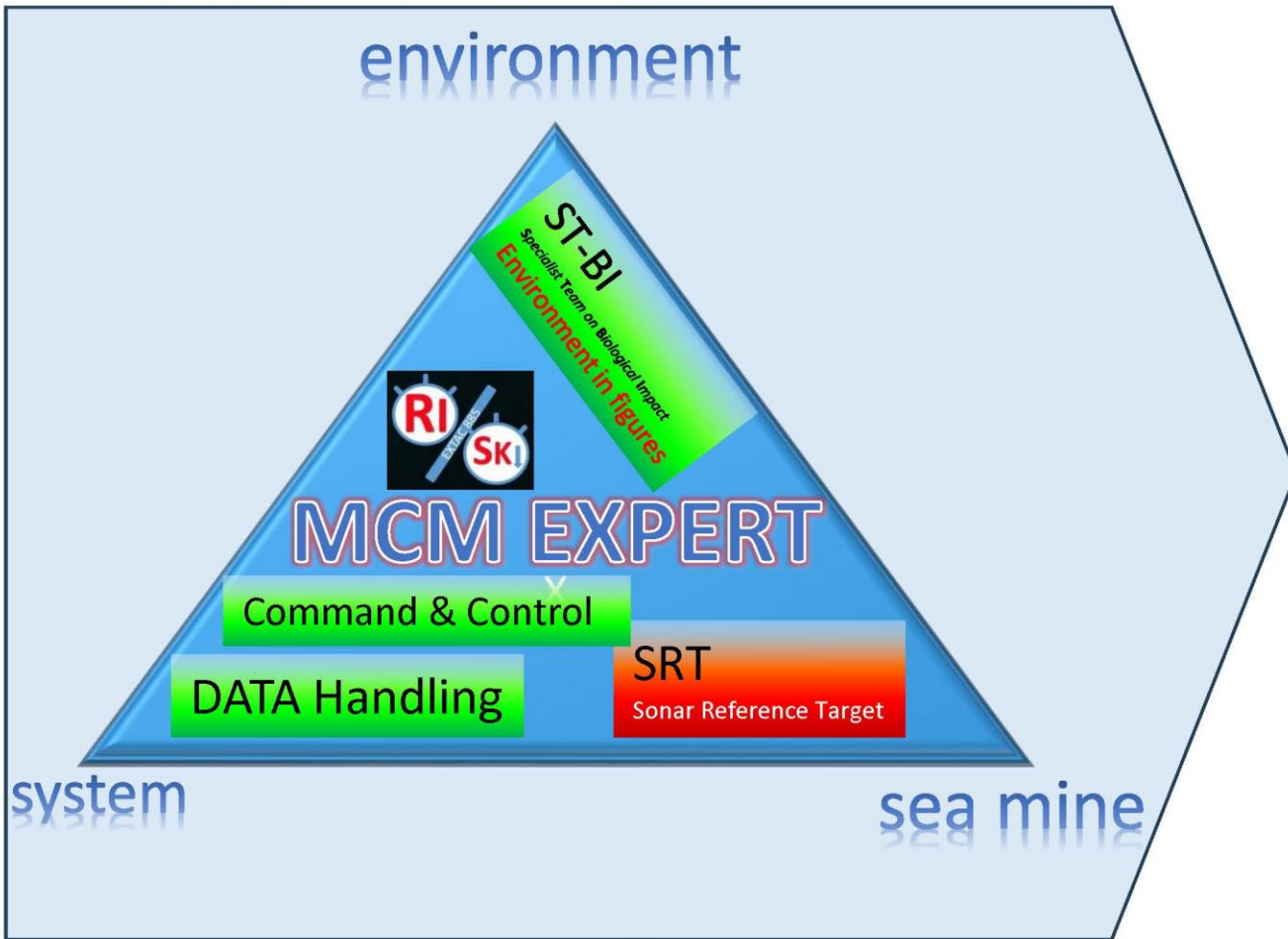
THALES



benntec.



# Naval Mine Warfare Transition into the future





# Questions?



Command & Control

Research Task Groups

DATA Handling

Together we can!!!



We Need **YOU** to deliver the best possible support in MMW to NATO, Allied Nations and Partners

