
IMEMG
MURAT
EUROPEAN MANUFACTURERS GROUP

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The 3rd European IM Day

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Session chair
James Padfield

SESSION 2

REGULATION & LEGAL FRAMEWORK

IM Policies & Implementations

National implementation

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Insensitive Munition Policy - Norway

Lt Col Morten Kjellvang

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Organization

The Norwegian Defence Sector Organization and management

MINISTER OF DEFENCE

MINISTRY OF DEFENCE

NORWEGIAN ARMED FORCES

NORWEGIAN DEFENCE ESTATES AGENCY

NORWEGIAN DEFENCE RESEARCH ESTABLISHMENT

NORWEGIAN NATIONAL SECURITY AUTHORITY

NORWEGIAN DEFENCE MATERIEL AGENCY

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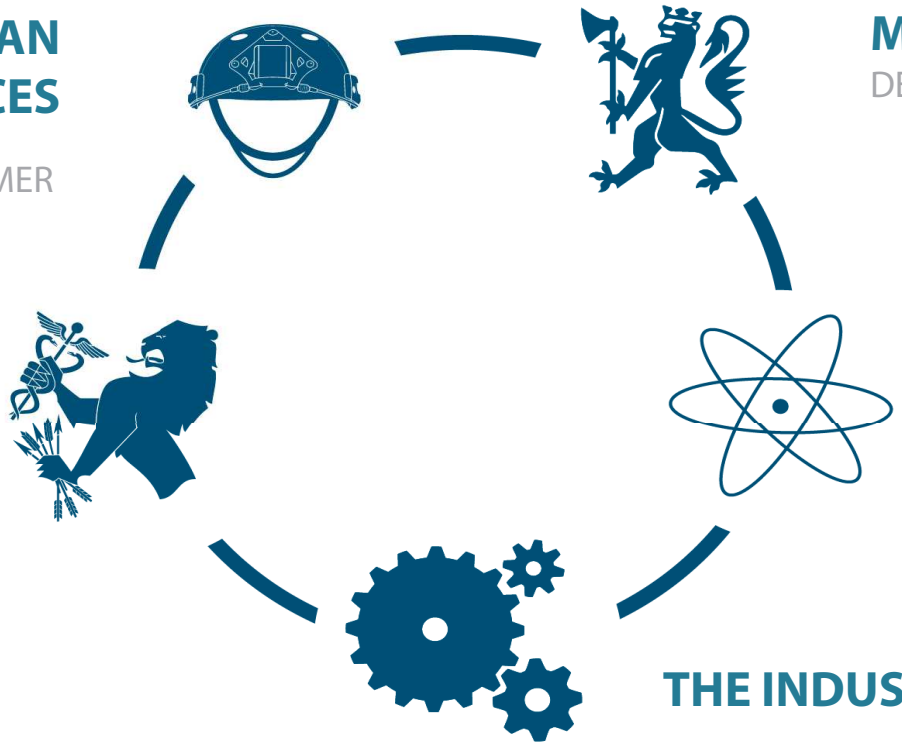
The Norwegian Defence Sector

NORWEGIAN ARMED FORCES

USER & MAIN CUSTOMER

MINISTRY OF DEFENCE

DECISION MAKER



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RESPONSIBLE FOR PROCUREMENT

NORWEGIAN DEFENCE RESEARCH ESTABLISHMENT

RESEARCH AND DEVELOPMENT

THE INDUSTRY

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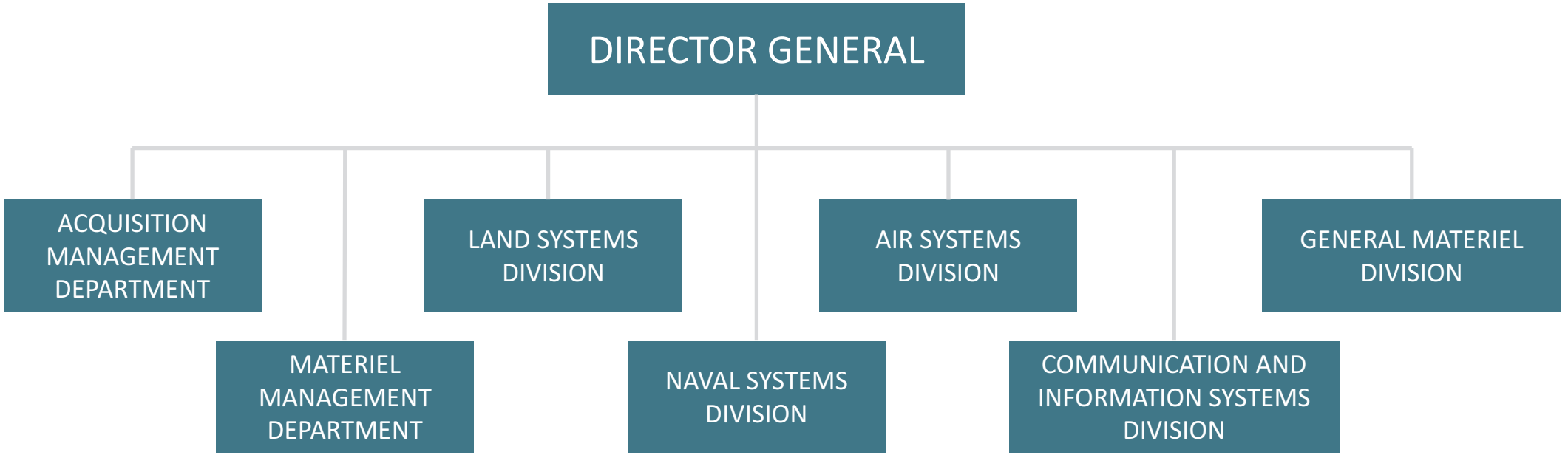
Norwegian Defence Materiel Agency (NDMA)



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Development of IM-policy

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Advantages of IM

- Enhance the survivability of logistical and tactical combat systems, platforms and stockpiles.
- Minimize the risk of injury to personnel.
- IM provide for more cost effective and efficient transport, storage and handling of munitions.
- Maintain performance with improved safety compared to standard ammunition.

STANAG 4439 – AOP-39

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Two columns of safe management of ammunition

Safe article

- Safety and suitability for service
  - Environment threat analysis
  - Procurement requirements
  - Approval
- Life cycle planning
  - Research and development
  - Production
  - In-service use
  - In service surveillance
  - Demilitarization

Safe handling

- Procedures
  - In-service use
  - Competence
  - Supply chain to user
- Transport
  - ADR/ RID/ IMDG/ ICAO
  - Military regulations
- Storage
  - National regulations
  - AASTP-1 and AASTP-5

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Basis for policy development

- Assessment of ratified NATO documents
- Assessment of other policy documents
- Experience from participation in MSIAC
- Combined effort by Norwegian Defence Research Establishment (FFI) and NDMA

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AASTP-4 Considerations

- 10^{-3} lowered probability of event than comparable stocks not tested to IM-properties - individual risk no longer an essential criteria.
- Dependencies on mix of HD - If mixed with substantial quantities of 1.1, IM might contribute to the effect.
- Mixing IM with 1.1 stocks not tested to IM-properties - The NEQ of IM should be taken into account.

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AASTP-4 Considerations

- Munitions on weapon platforms
  - Easy to have configuration control mechanisms involving munitions on a platform
  - Benefit of lowered event likelihood and reaction effect obvious
- Ammunition in stock and handling
  - Mixing of HD and Compatibility groups - Limitations

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EOD considerations

- Marking of IM munitions
  - Positive ordnance and filler ID can make a difference between successful and unsuccessful disposal
  - Minimum marking according to AOP-2D, table I-1-3
- Disposal of IM UXO
  - Attacking the fuze/ booster area causes (always?) the munition to detonate as designed

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IM-policy

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Aim

- Applies to the Defence Sector
- Formally state the Norwegian Defence IM-Policy
- To give guidance on the requirement for IM compliance during munition procurement
- To give information on the IM waiver process for the procurement of new munitions that does not meet the IM policy.
- To establish the Norwegian Defence IM Implementation Plan

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Statement of Compliance

- All procurement of ammunition must include a statement of compliance with the IM-requirements goals specified in STANAG 4439 and AOP-39
- Approval of non-compliance is to be sought from the NDMA and the Chief of respective military branch of the Norwegian Armed Forces in the form of a IM waiver request

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Handling of waivers

- IM Policy defines a process for handling of waivers
- Threat hazard assessment
  - Enemy threat
  - Environmental factors
- Size of article (unit reaction and effect)
- Weapon platform (size and vulnerability)
- Value considerations and IM development costs

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Defence IM implementation plan (DIMIP)

- Applies to in-service munitions
- Identify IM-status of in-service munitions
- Identify the possibility to incorporate new IM technologies into the Defence inventory
- Description of Defence and single service IM implementation objectives and priorities

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Defence IM implementation plan (DIMIP)

- Prioritization of munitions to be addressed for IM implementation
- Identify the resources required to achieve the plan
- Roles and responsibilities of organizations providing resources
- DIMIP is to be incorporated in the IM-policy

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Examples of practicing IM-policy

- 120mm IM-HE-T
- 70 mm
- 155 mm IM-HE-ER

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155 mm IM-HE-ER

Insensitive Munition High Explosive Extended Range

- IM-requirement satisfied - close to be qualified
- IM - properties obtained by
  - Selection of an insensitive main filler
    - MCX-6100 – DNAN/NTO/RDX
  - Mitigation techniques

	FCO	SCO	BI	FI	SD	SCJ
MCX-6100	**V**	**Evaluation not finished**	**V**	**V**	**V**	**Not tested**

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155 mm IM-HE-ER

Fast Cook-off

Test setup FI/BI velocity measurement

Fragment Impact

Centre

Fuze well

Bullet Impact

Centre

Entrance

EXIT

Fuze well

Entrance

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