



# **Energetics Business**

## **Brief Overview**

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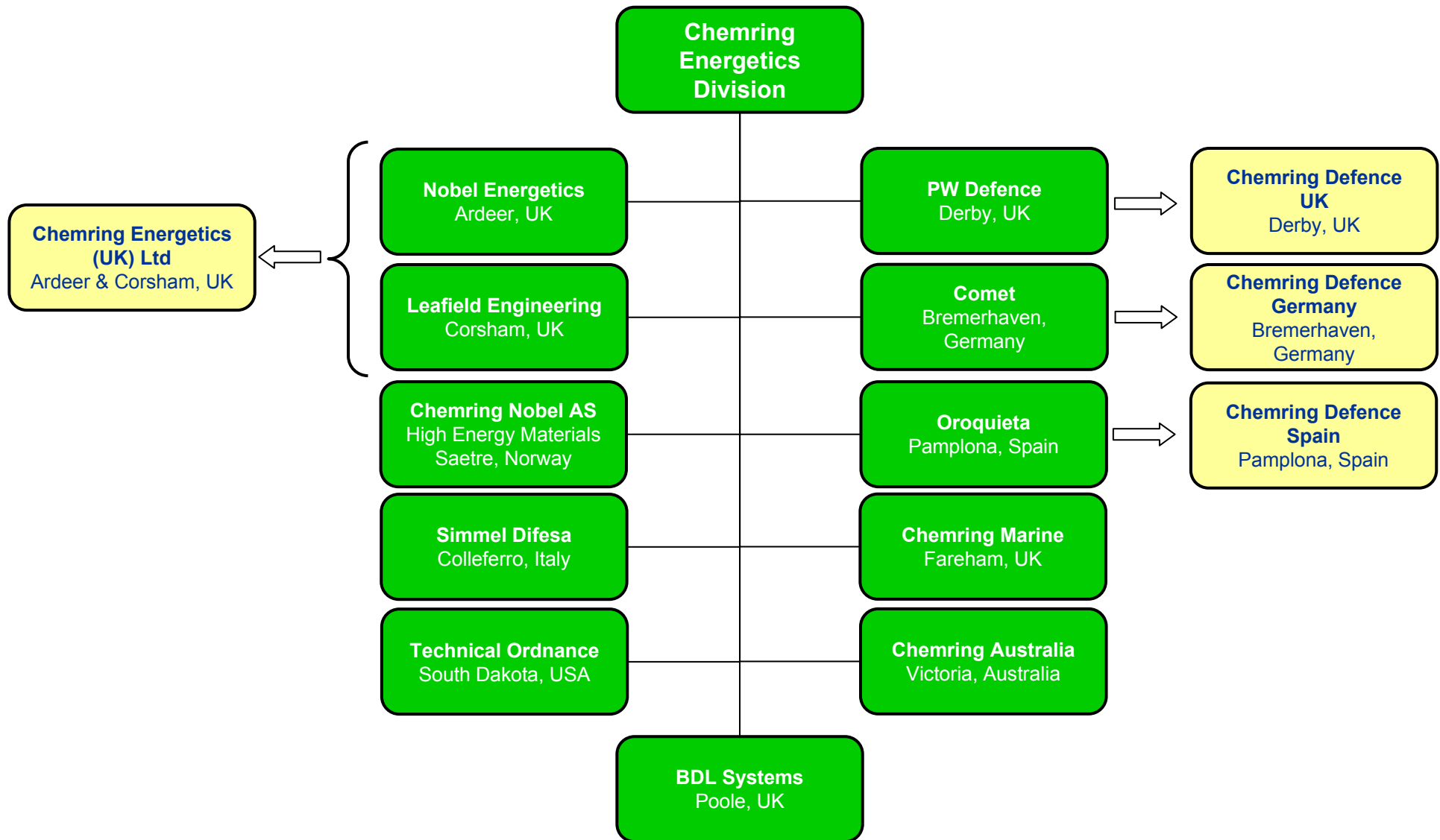
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# Energetics Business – Brief Overview

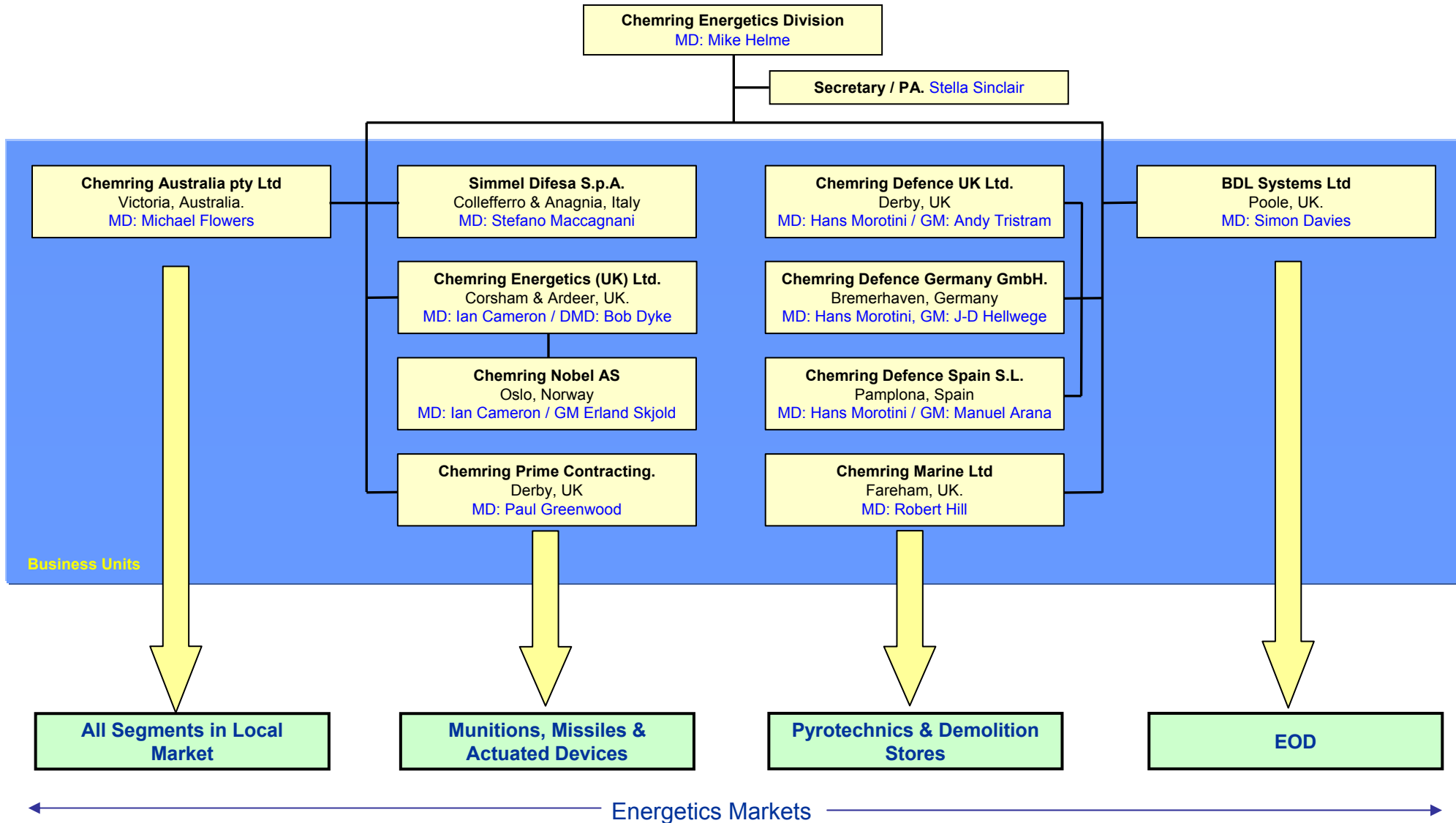
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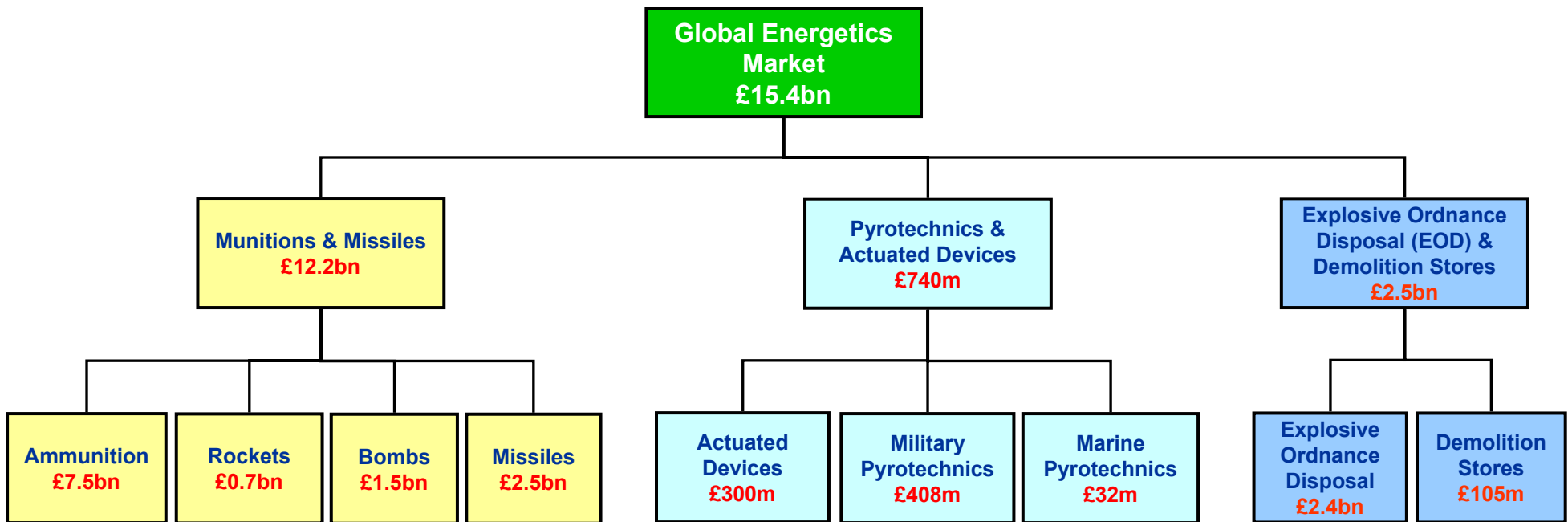
# 1. Chemring Energetics Division



# 1. Chemring Energetics Division



# 2. The Global Energetics Market



# 3. General Defence Drivers

## ➤ Changing worldwide threat

- Traditional – long established conventional conflicts - declining
- Irregular – unconventional, e.g. urban, terrorism, insurgency - rising
- Catastrophic – terrorist / rogue state use of WMD - rising
- Disruptive – increased use of technology by unfriendly states/regimes - rising

## ➤ Deployed forces

- Trend from conventional to flexible, rapidly deployable forces
- Trend from platform based forces to capability approach
- Maintain / develop combat capability at personal level
- Covert / special forces operations

## ➤ Equipment

- Flexible, tailorable weapon systems to match targets
- Safer equipment operating over longer periods with reduced logistics costs
- Reduced size and weight with increased performance



# 4. Pyrotechnics & Cartridge / Propellant Actuated Devices

# 4. Pyrotechnics & Cartridge / Propellant Actuated Devices – Products

## Military Pyrotechnics

## Marine Pyrotechnics

## Actuated Devices



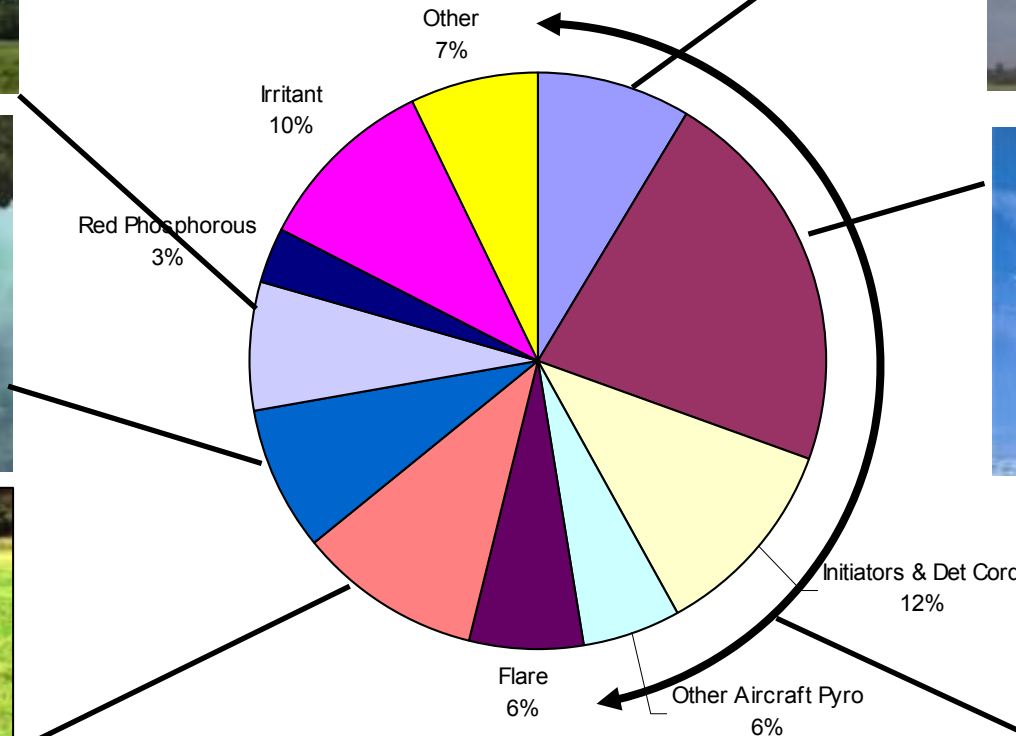
Smoke Grenades  
Signalling and Illumination  
Vehicle Discharge Grenades  
Battlefield Simulation  
Law Enforcement Products

Rockets  
Flares  
Man Overboard Markers  
Line Throwing Apparatus  
Lifsmokes

Ejection Seat Rocket Motors  
Ejection Seat Initiation  
Canopy Cutting Cords  
Stores Ejection Cartridges  
Impulse Cartridges  
Fire Suppression Cartridges



# 4. Pyrotechnics & Cartridge / Propellant Actuated Devices – Market



**Aircraft Pyro  
47%**

**Total US & EU market c.£600m**

# 4. Global Pyrotechnics & Cartridge / Propellant Actuated Devices Market

## ➤ Marine Pyrotechnics market

- Mature & essentially flat (growth p.a at 5%)
- No significant movement between Leisure and Commercial sub-segments

## ➤ Military Pyrotechnics market

- Mature & essentially flat (growth p.a at 5%)
- Based on balanced need between training and wartime

## ➤ Cartridge / Propellant Actuated Devices market

- US market has grown over recent years
- European market has remained flat

## ➤ Market Drivers:

- Value for money
- New legislation
- Effective simulation for training
- Evolving threat to land based platforms
- Battlefield illumination
- Less than lethal effect
- Increased range & low signature rocket motors
- Lower toxicity
- Clean burn propellants
- Insensitive Munitions (Safety)
- Size & weight (Logistics)
- Reduced environmental impact

# 4. Pyrotechnics growth – training & simulation

Training and simulation will be an important element of future growth, based on further penetration of advanced markets, including the US



**Force on Force Simulation**



**Micro-pyro card**

- Current conflicts have highlighted the need for realistic training and simulation, including pyrotechnic effects
  - Bang
  - Flash
  - Smoke
- Steady market with growth opportunities in more sophisticated effects simulators
- New warfare creates new training requirements
  - MOUT drives need for micro-pyro
  - IED simulators

# 4. Pyrotechnics growth – aircraft

Aircraft pyrotechnics (CAD / PAD) offer growth, based on Chemring's strong position as a key energetics supplier to Martin-Baker

- Maintain position on ejector seat rocket motor grains, cords and igniters
- Grow by manufacturing CAD / PADs currently produced in house
- Extend international foot-print to match Martin-Baker's global reach
- Win other opportunities through new clean burn cartridges



**Cartridge / Propellant Actuated  
Devices (CAD / PAD)**

# **5. Explosive Ordnance Disposal & Demolition Stores**

# 5. Explosive Ordnance Disposal & Demolition Stores Products

## Explosive Ordnance Disposal



Hardwire Initiators  
RF Initiators  
Time Delay Fuzes  
Minefield Breaching Systems  
Under Vehicle Surveillance Systems  
Disruptor Cartridges  
EOD Services  
Demilitarisation

## Demolition Stores



High Explosives  
Demolition Charges  
Bangalore Torpedo  
Initiators  
Detonating Cord  
Fuzes



# 5. EOD Market

Demolition Stores, 4.2%



Plastic Explosive, 0.6%



Initiators, 2.6%



Demil, 4.2%



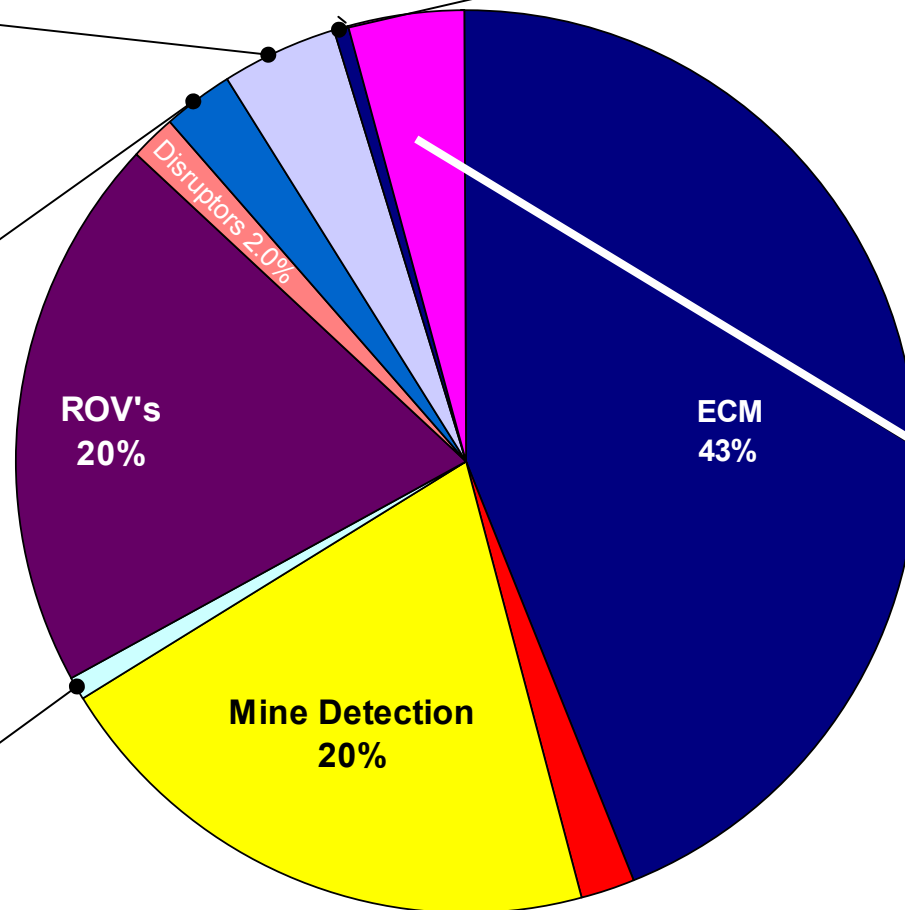
ROV's  
20%

Disruptors 2.0%

ECM  
43%

Mine Detection  
20%

Detectors, Tools etc  
2%



Total US & EU market £2.5bn

## 5. EOD Growth



**RF Initiator Kit - Breach**



**Minefield Breaching - PEMBS**

**EOD is growth opportunity, by extending the geographic markets for radio controlled initiators and minefield breaching systems, and maintaining bundled sales of EOD products**

- Full range of RF initiator products enables long-range remote, secure initiation of demolition explosives for EOD
- Leading edge products with strong potential for US and other markets
- Exploit PEMBS minefield breaching system in international markets, including Eastern Europe and Asia
- Joint development of a vehicle mounted minefield breaching system
- Bundled sales of Chemring and third party products exploit well established channels to market



## 5. EOD Growth - Demilitarisation

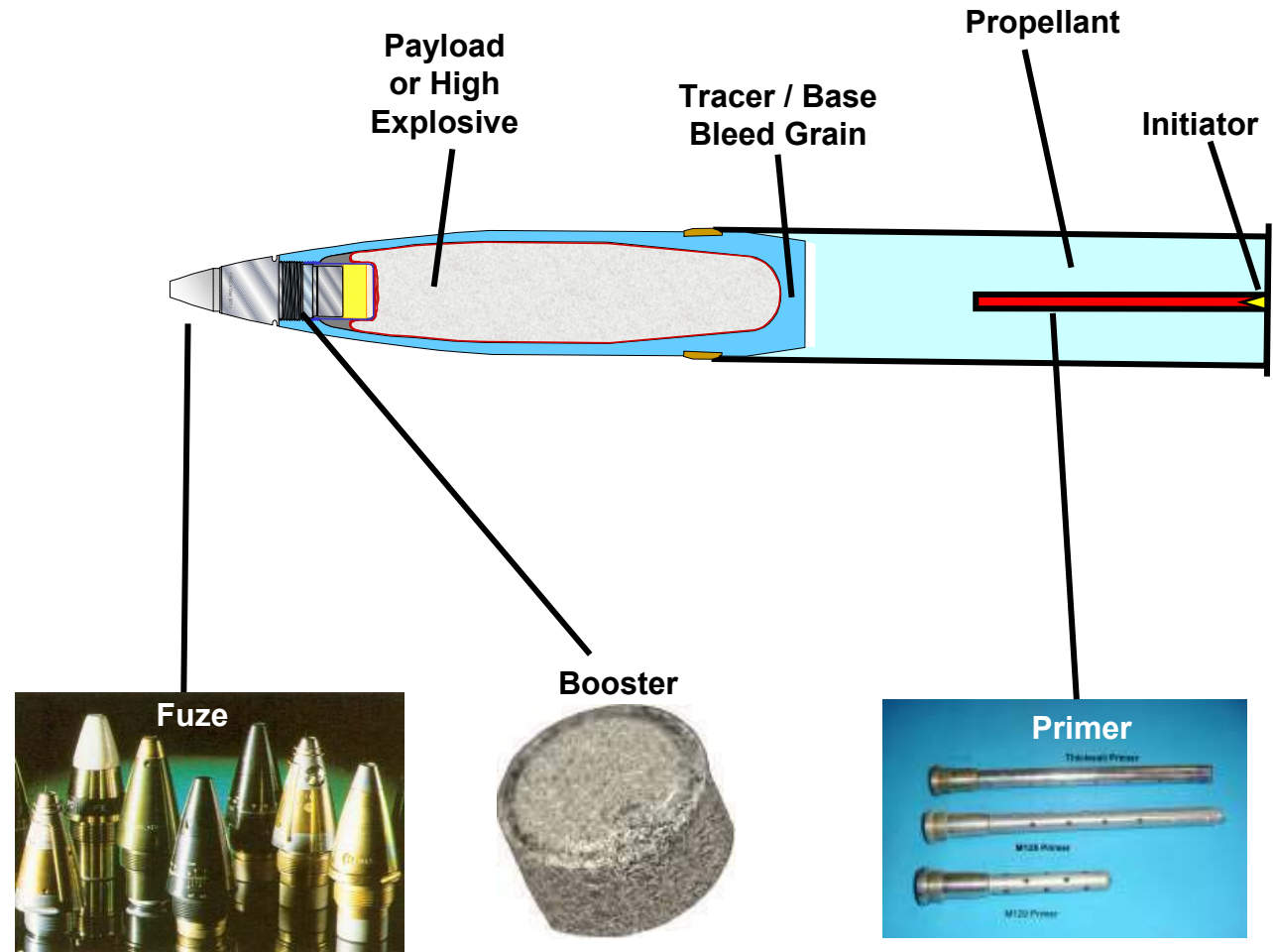


**Simmel is developing a capability to satisfy a growing requirement for demilitarisation of time expired munitions**

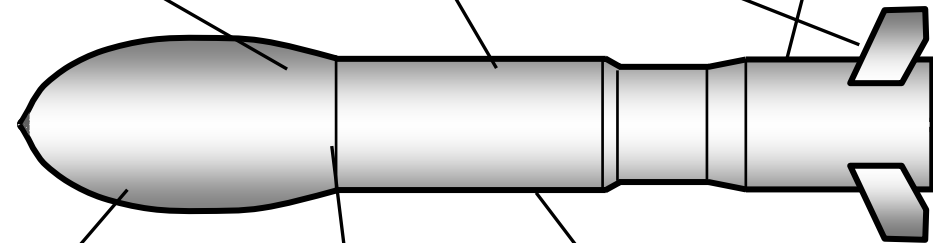
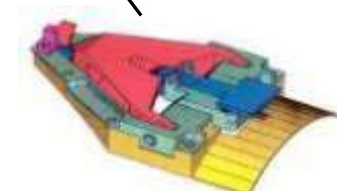
- **Developing customer requirement for demilitarisation services as part of ammunition supply**
- **Simmel demilitarisation facility at second site in Italy:**
  - **Target capacity 5,000 tonnes per year**
  - **Dismantle rounds and melt / burn off explosive material**
  - **Additional revenue opportunity from sale of recovered metals and explosive materials**

# 6. Munitions

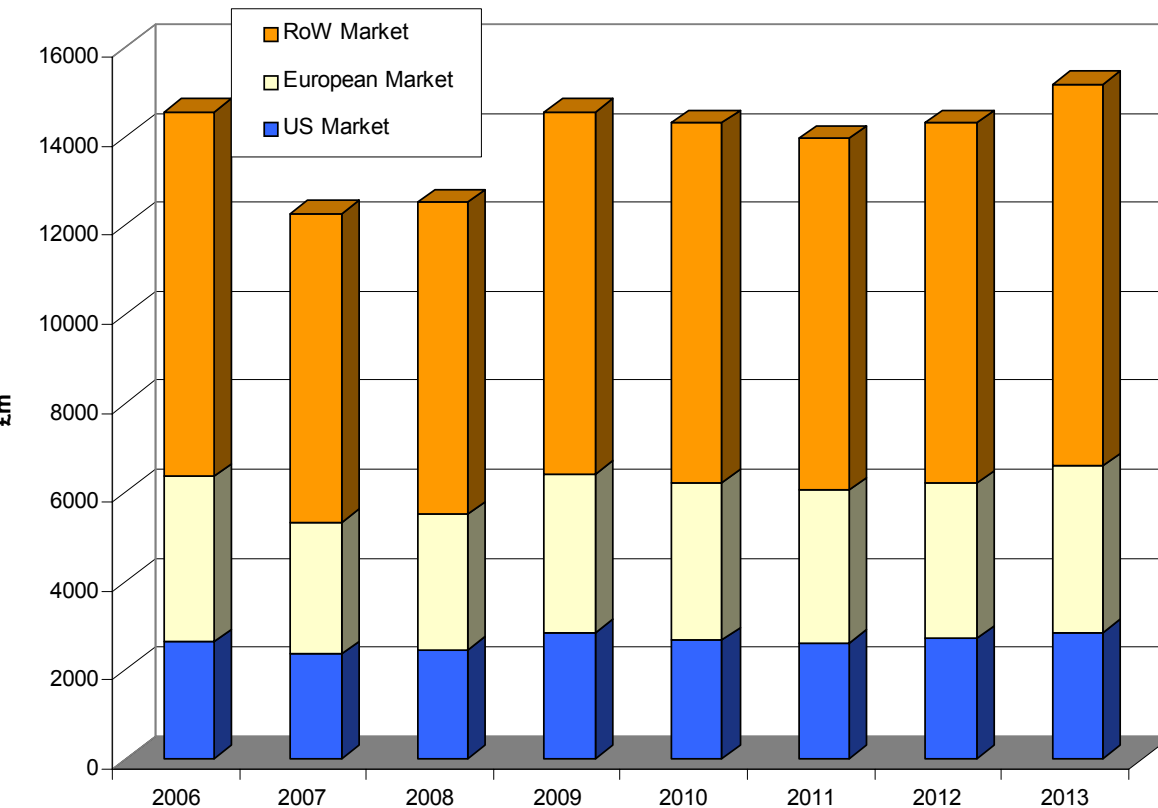
# 6. Ammunition Components



# 6. Missile Components



# 6. Global Ammunition & Missiles Market



**2007 Global Market  
£12 bn**

## ➤ Forecast is based on:

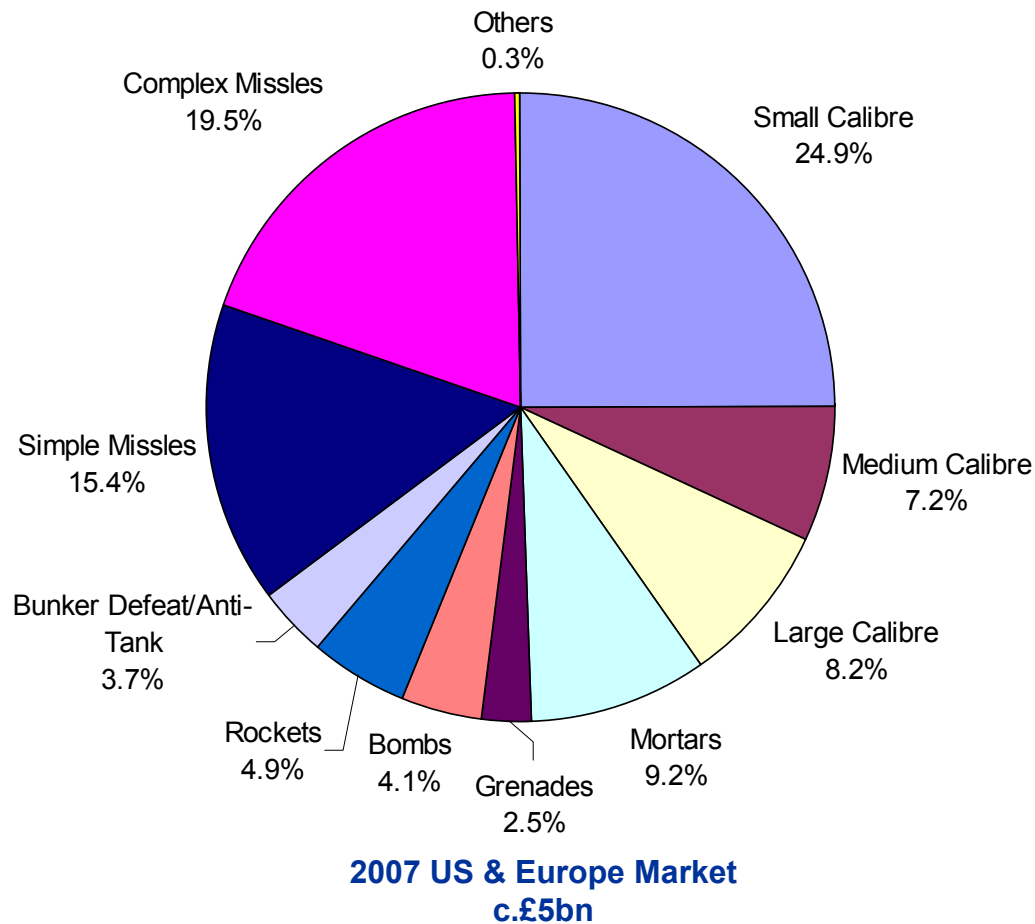
- Current and predicted conflicts and peacekeeping operations
- Equipment replacement / upgrade programmes
- Technology insertions, e.g. IM

## ➤ Market drivers are:

- Security of supply / sovereign capability
- Flexible systems / tunable effects
- Through life capability management
- Insensitive Munitions (Safety)
- Size and weight (Logistics)
- Reduced environmental impact

Sources : Forecast International, Teal Group and Internal Chemring analysis

# 6. Global Ammunition & Missiles Market 2007



Sources : Forecast International, Teal Group and Internal Chemring analysis

## 6. Munitions Growth



81mm Illum mortar



Fuzes

Growth in ammunition based on strong technology in niche growth positions

- Simmel and PW Defence jointly developed IR Illumination mortar round to meet UK need in growing market
- Development programme to develop a full range of 40mm grenade natures including smoke, Illum, and practice rounds for the growing medium velocity market
- Fully compliant modular charge system for 155mm howitzer offers international growth opportunities
- Opportunity to expand scale and scope of offerings to ammunition prime contractors in key materials, components and subsystem technologies
- Missile opportunities will build on existing customer relationships, and combined Group strengths to enhance the offering to prime contractors

# 7. Summary

- **Energetics is a large market, circa £15bn**
- **Significant growth opportunities exist for Chemring in key segments through:**
  - **Technology and product development**
  - **Geographic market expansion**
  - **Extending scope of collaborations with key prime contractors**
- **Clear strategy to exploit opportunities**
  - **Technology roadmap driven by market need**
  - **Manufacturing roadmap driven by technology and capacity requirements**
- **Organic growth complemented by strategic acquisitions**