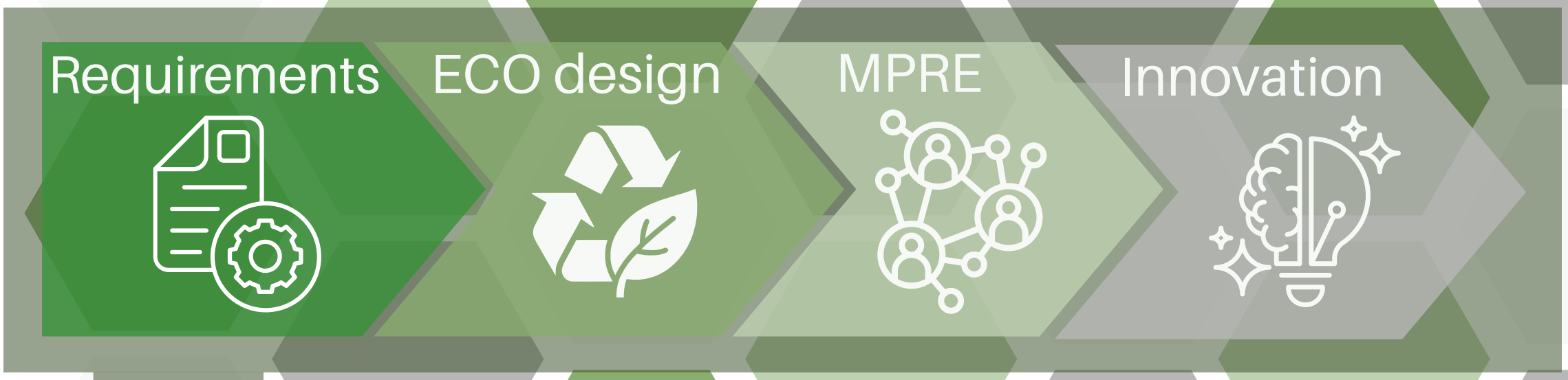
OBJECTIVES

This WP defines the essential requirements for both personal and platform protection systems, ensuring they meet operational needs while aligning with sustainability goals. It also establishes the Military Protection Research Ecosystem (MPRE), a collaborative platform to drive innovation.



Key Objectives:

- Define ballistic, ergonomic, and environmental specifications
- Integrate ECO design and lifecycle thinking
- Set acceptance criteria for durability and quality
- Launch MPRE to connect stakeholders and guide development

SPECIFICATIONS FOR PERSONAL PROTECTION SYSTEMS

This task focuses on defining the technical and environmental specifications for personal protective equipment (PPE), such as body armor and helmets, ensuring they are effective, ergonomic, and sustainable.

Key Focus Areas:

- **Ballistic performance**: Threat levels (e.g., NIJ standards), multi-hit capability, fragmentation resistance
- **Ergonomics**: Weight distribution, comfort, mobility, integration with other gear
- **Environmental resilience**: Compliance with AECTP 300 (temperature, humidity, corrosion)
- **ECO design**: Use of recyclable materials, modularity, end-of-life strategies
- **Acceptance criteria**: Resistance to ageing, tolerance to pre-damage, production quality control

SPECIFICATIONS FOR PLATFORM PROTECTION SYSTEMS

This task defines the protection requirements for military vehicles and platforms, addressing both conventional and emerging threats while considering sustainability and operational constraints.

Key Focus Areas:

- **Ballistic protection**: Up to STANAG 4569 Level 6 (armor-piercing rounds, IEDs)
- **Emerging threats**: Resistance to directed energy weapons (laser, microwave)
- **Design constraints**: Areal density, structural integration, weight optimization
- **Environmental resilience**: AECTP 300 compliance for harsh conditions
- **ECO design**: Lifecycle analysis, sustainable materials, recyclability
- **Surface treatments**: Advanced coatings for corrosion, heat, and threat mitigation

MILITARY PROTECTION RESEARCH ECOSYSTEM (MPRE)

The Military Protection Research Ecosystem (MPRE) is a dynamic, multi-actor platform that brings together stakeholders from across the military protection value chain. It enables co-creation, testing, and validation of sustainable protection solutions through a structured, participatory approach.

MPRE Goals:

- Connect defence users, researchers, industry, and eco-design experts
- Facilitate iterative development through structured feedback
- Promote transparency and shared innovation across the ecosystem

Stakeholders include material suppliers, recyclers, sustainability experts, and defence procurement agents, all contributing to the development of sustainable protection technologies.

HOW MPRE WORKS

MPRE operates through a structured, two-way engagement model that ensures innovation is grounded in real-world needs.

Bottom-up input from stakeholders → MPRE ecosystem as the co-creation hub ← Top-down input from the consortium

Kickoff → Focus Groups → Feedback Loops → Final Integration

Key Elements:

- **Bottom-up**: Stakeholders provide insights on materials, durability, resource efficiency, and environmental impact
- **Top-down**: The consortium introduces new concepts and challenges
- **Engagement Timeline**:
  - 3 structured sessions
  - Ministries of Defence (Finland, Portugal, Spain) define operational scenarios
  - Feedback loops ensure alignment with end-user needs

NEXT-GENERATION PROTECTION SYSTEMS

Work Package 2 is laying the foundation for a new era of military protection, one that is not only high-performing but also sustainable, adaptive, and collaborative.

Our Vision is built on pillars:

Technical Excellence

Advanced ballistic and environmental performance tailored to real-world threats.

Sustainability

ECO design principles and lifecycle thinking embedded from the start.

Collaboration

Multi-actor engagement through the Military Protection Research Ecosystem ensures relevance and co-creation.

Innovation

Future-ready systems that are modular, circular, and aligned with evolving defence needs.