# Compositional security certification for medium- to high-assurance COTS-based systems in environments with emerging threats

## MISSION

**certMILS** develops a security certification methodology for cyber-physical systems (CPS). CPS are characterised by safety-critical nature, complexity, connectivity and open technology.

**certMILS** aims to increase the economic efficiency and European competitiveness of CPS development, while demonstrating the effectiveness of safety & security certification of composable systems.

## CONCEPT

certMILS aims to **reduce the complexity of the certification of cyber-physical systems dramatically** by use of a trustworthy MILS (Multiple Independent Levels of Security) platform within the cyber-physical system. Such a platform is small and simple and enables high-level compositional security certification, applied in three different pilots. To be marketable as product for a large scope of ICT/cyber-physical systems, **the platform**:

- Has a powerful API configuration,
- Supports open common and domain specific APIs (e.g. POSIX, ARINC)
- Consistently addresses existing domain safety standards/regulations.

## OBJECTIVES

A common downside to **complexity and openness** of cyber-physical systems (CPS), is a large attack surface and a high degree of dynamism that **may lead to complex failures and irreparable physical damage.** The legitimate fear of security or functional safety vulnerabilities in CPS results in arduous testing and certification processes. Once fielded, many CPS suffer from the motto: never change a running system. **certMILS increases the economic efficiency and European competitiveness** of CPS development, while demonstrating the effectiveness of safety & security certification of composable systems.

**Objective 1:** Transfer know-how in compositional safety certification to security certification

**Objective 2:** Make certification of composed systems affordable

**Objective 3:** Preservation of certified assurance throughout operational deployment

**Objective 4:** Involvement of all stakeholders in different industry domains

**Objective 5:** Certified European MILS platform and MILS Platform Protection Profile

PP Interop

**Objective 6:** Develop and apply compositional certification methodology on three industrial pilots

**Objective 7:** Guidelines and templates for MILS certification

## TECHNICAL APPROACH

certMILS has three technical activity lines and one management activity structured into ten work packages (WP) in order to increase efficient information exchange.

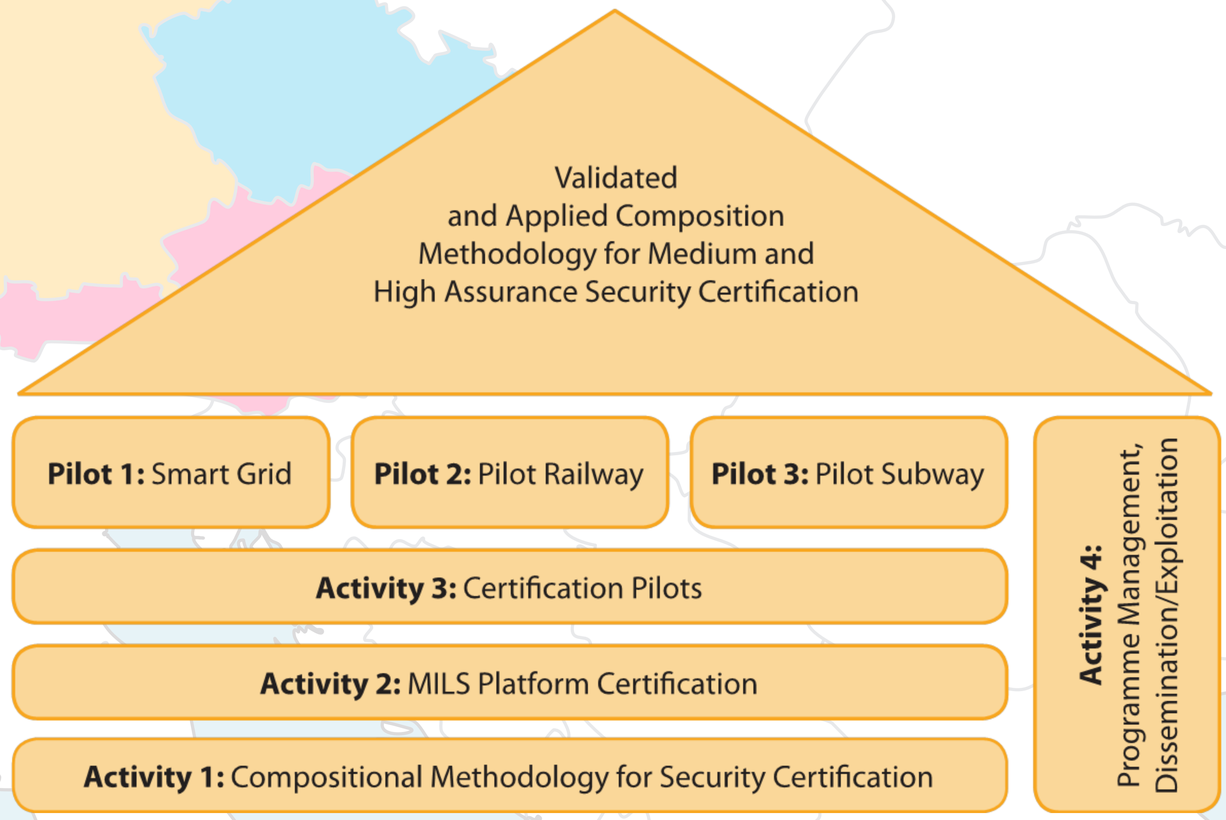
The activities and work packages are:

**Activity 1: Compositional Methodology for Security Certification**
**WP1:** "Baseline for compositional evaluation"
**WP2:** "Standardisation of MILS integration methodology"

**Activity 2: MILS Platform Certification**
**WP3:** "MILS platform definition"
**WP4:** "MILS platform enhancement"
**WP5:** "MILS platform certification"

**Activity 3: Certification Pilots**
**WP6:** "Pilot Smart Grid"
**WP7:** "Pilot Railway"
**WP8:** "Pilot Subway"

**Activity 4: Programme Management, Dissemination/Exploitation**
**WP9:** "Communication, standardisation, dissemination and exploitation"
**WP10:** "Project, risk, and innovation management"

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