ECSEL Joint Undertaking
Electronic Components and Systems for European Leadership

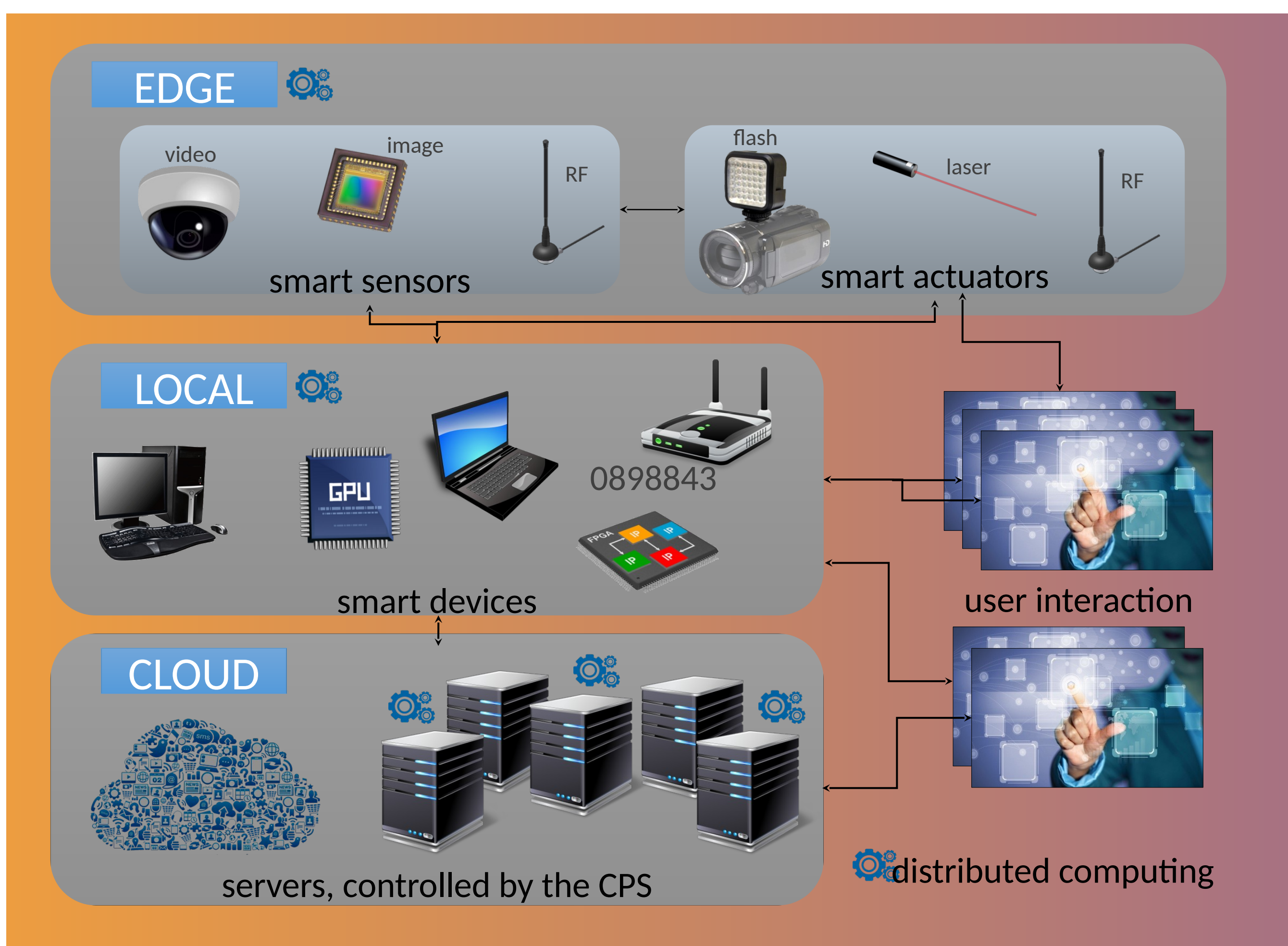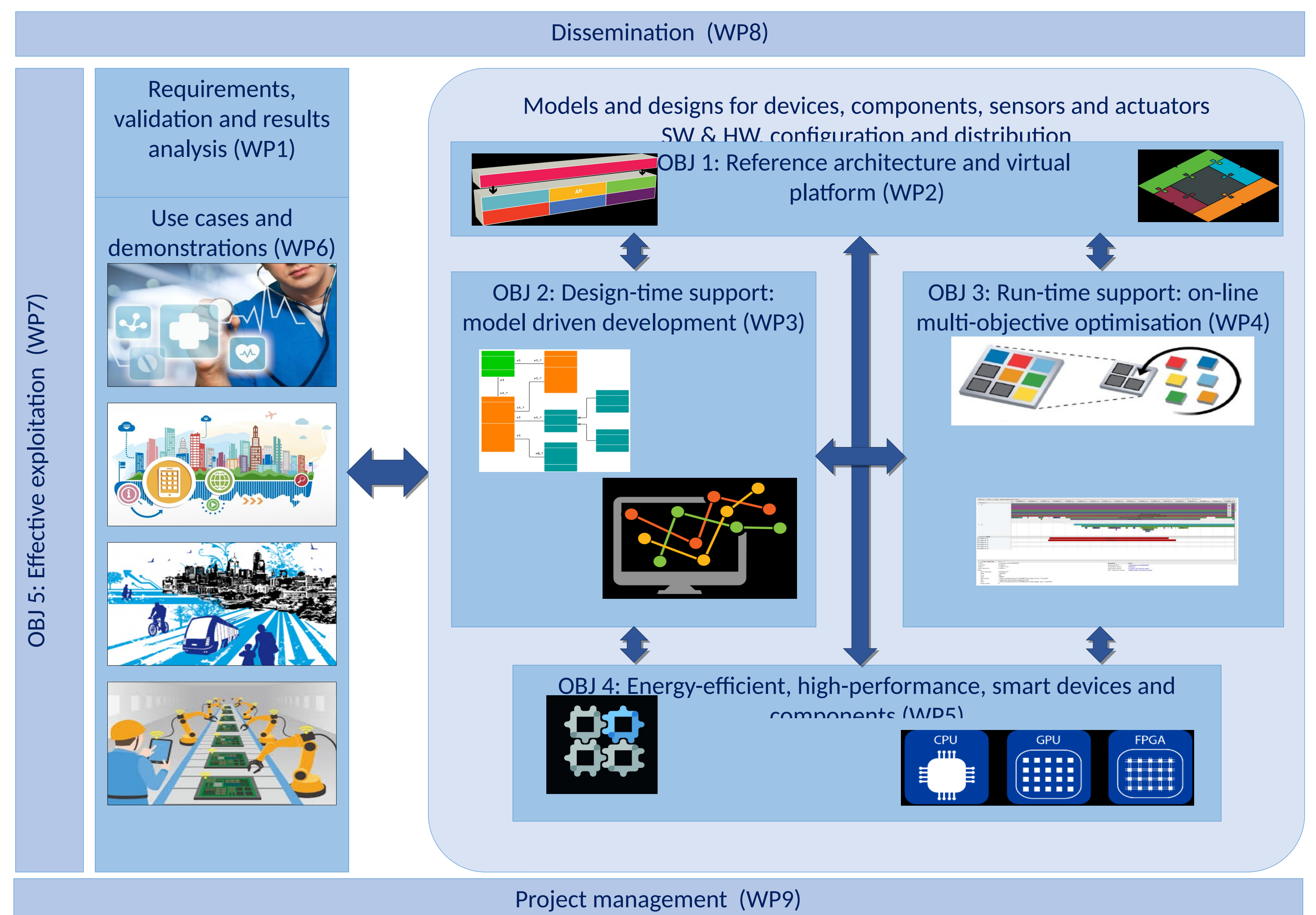# FitOptiVis

From the cloud to the edge - smart IntegraTion and OPtimisation Technologies for highly efficient Image and VIdeo processing Systems

Challenges and objectives

FitOptiVis addresses CPS with distributed actuators and image and video sensors. Real-time image- and video-processing pipelines are a prime source for environmental information and feedback. FitOptiVis applies advanced imaging and video applications, combining multiple heterogeneous sensor inputs. It balances power demand versus image and video performance.

Dissemination (WP8)

Requirements, validation and results analysis (WP1)

Use cases and demonstrations (WP6)

OBJ 5: Effective exploitation (WP7)

Models and designs for devices, components, sensors and actuators SW & HW, configuration and distribution

OBJ 1: Reference architecture and virtual platform (WP2)

OBJ 2: Design-time support: model driven development (WP3)

OBJ 3: Run-time support: on-line multi-objective optimisation (WP4)

OBJ 4: Energy-efficient, high-performance, smart devices and components (WP5)

Project management (WP9)

EDGE

video | image | RF | flash | laser | RF

smart sensors | smart actuators

LOCAL

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smart devices | user interaction

CLOUD

servers, controlled by the CPS | distributed computing

Technical goals

- Reference architecture and virtual platform
- Design-time support: model driven development
- Run-time support: on-line multi-objective optimization
- Energy-efficient, high-performance, smart devices and components

Results after 16 months

- Architecture; Component models
- Domain Specific Language (DSL) for quality- and resource management
- Design-time optimization, deployment and programming strategies
- Run-time models
- Components analysis

Start: 1-6-2018   **Duration:** 36m
Total investment: €M 22.5
30 **partners** in 5 **countries**

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Applications

Use cases: CPS image and video processing applications with strict power budget and quality (performance) requirements

Tasks | Component abstractions and models | Quality

FitOptiVis Reference Architecture

Abstract Application Components

Abstract Application

Resource and Quality Management

Design time methods and optimization | Run-time methods and optimization

Virtual Platform

Platform Component Abstractions

Physical resource availability | Component abstractions and models | Allocation to physical devices and networks

Platform

Devices and networks: considered to meet the use case requirements

https://fitoptivis.eu

FIT OPTI VIS