



ADOSE Project no. 216049:
Reliable Application Specific Detection of Road Users
with Vehicle On-Board Sensors

Overall budget : 10.198.456 € (EC funding 6.099.790 €)
Timeframe : 01 Jan. 2008 - 30 Nov. 2011
Coordinator : Centro Ricerche Fiat



BOSCH

**MAGNETI
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Fraunhofer
Institut
Zuverlässigkeit und
Mikrointegration



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Overall objective

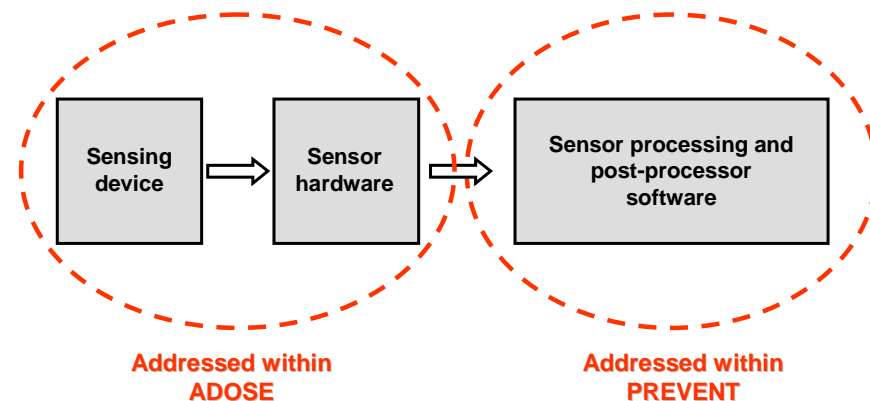


ADOSE addresses **functional, performance and cost limits of current sensors and Advanced Driver Assistance Systems** for their extensive market penetration.

The aim is the **enhancement of safety functions** through the **development of high performance and low cost sensing technologies** suitable for reliable detection and classification of obstacles and vulnerable road users.

ADOSE is a **product driven project** with the development and integration of smart systems and technologies.

It is a **complementary project to PREVENT**, being focused mainly on the sensing devices and the sensor hardware.



Specific objectives



ADOSE addresses five **breakthrough sensing technologies**, with the goal to improve the current state-of-the-art in terms of costs, performance and reliability :

- ❖ **FIR-add-on sensor with sufficiently good thermal & spatial resolution at lower cost (FIR)**
 - ❖ **Low-cost multi-functional and multi-spectral CMOS vision sensor (MFOS)**
 - ❖ **High spatial resolution and low-cost 3D range camera (3DCAM)**
 - ❖ **Harmonic radar and passive/active tags (HR-PTAG and HR-ATAG)**
 - ❖ **High temporal resolution and low-cost silicon retina stereo sensor (SRS)**
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Specific objectives



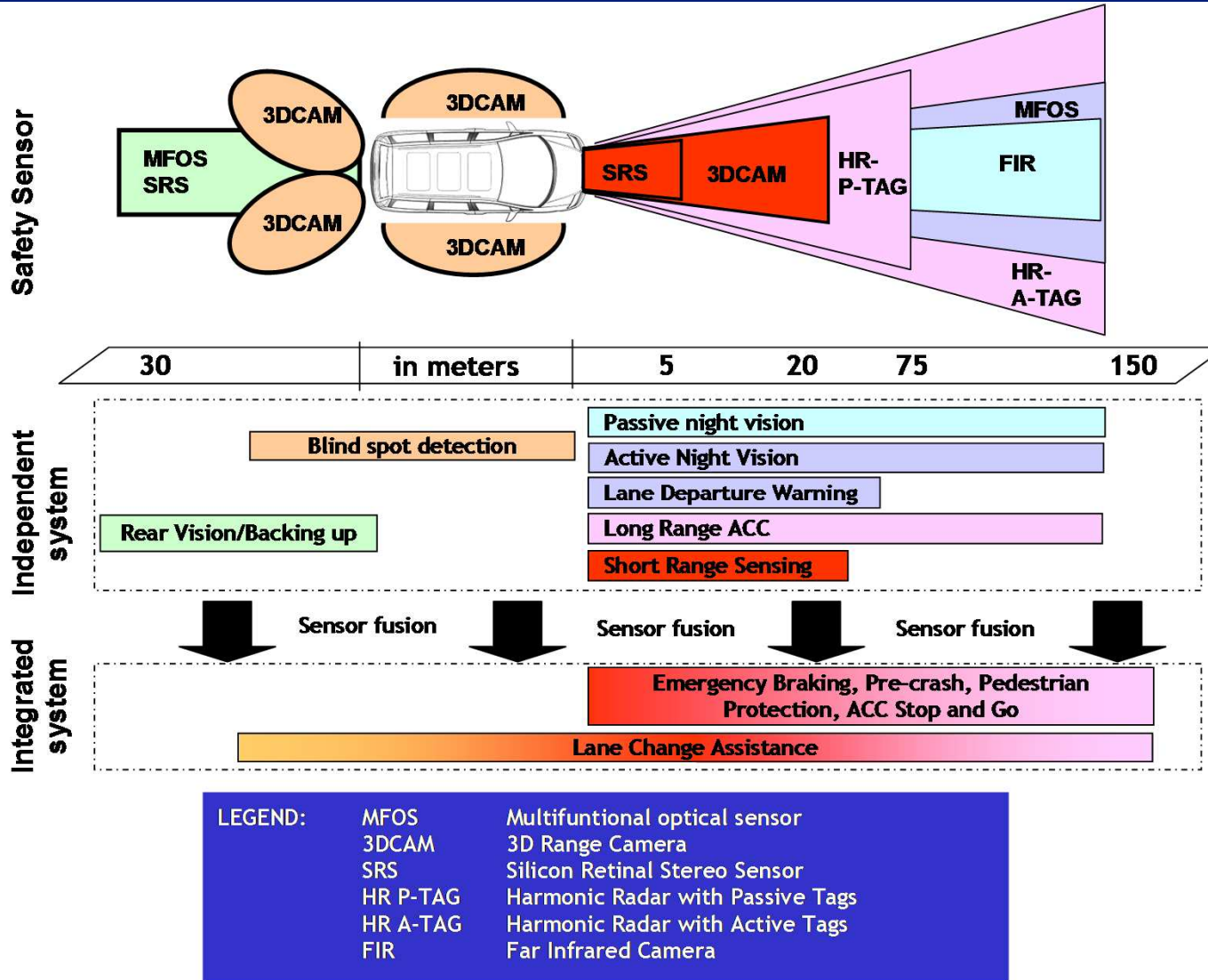
Only **'technology-dependent' pre-processing algorithms** will be developed :

- ❖ **algorithms implemented into the sensor hardware;**
- ❖ **algorithms on raw data**, coming from the sensor hardware, implemented on a PC-based processing hardware, strictly related to the sensing technology and its demonstration.

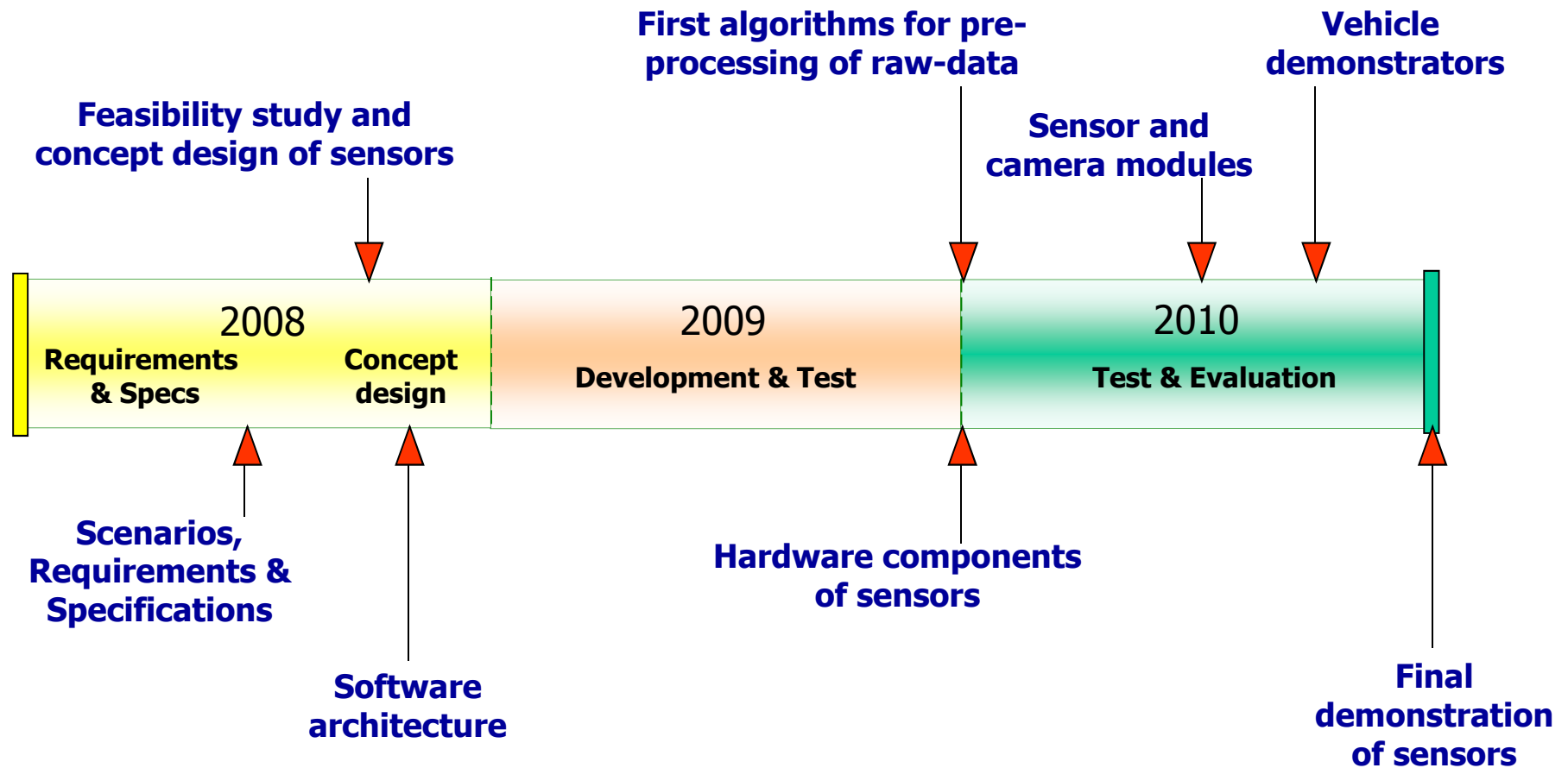
PROFUSION guidelines (PREVENT) will be followed but algorithm developments will not be extended to Sensor Data Fusion.

Demonstration will be limited to **functional sensor prototypes installed on the concept cars** without integrating the complete safety system.

Potential application scenarios



Main Milestones plan



Major achievements



- ❖ **Five sensor module prototypes:**
 - FIR camera (FIR)
 - Multifunctional CMOS vision sensor (MFOS)
 - 3D range camera and eye-safety illuminator (3DCAM)
 - Harmonic radar with passive and active tags (HR P-TAG, HR A-TAG)
 - Silicon retina stereo sensor (SRS)

- ❖ **Pre-processing algorithms ('technology dependent')** for each sensor, compliant to PReVENT-PROFUSION guidelines

- ❖ **Two demonstrator vehicles:**
 - CRF vehicle: MFOS sensor, FIR and 3DCAM cameras
 - ARC vehicle: SRS sensor and harmonic radar

- ❖ **Updated product specifications and cost/benefit analysis**

