actimage | digital intelligence

REFERENCES

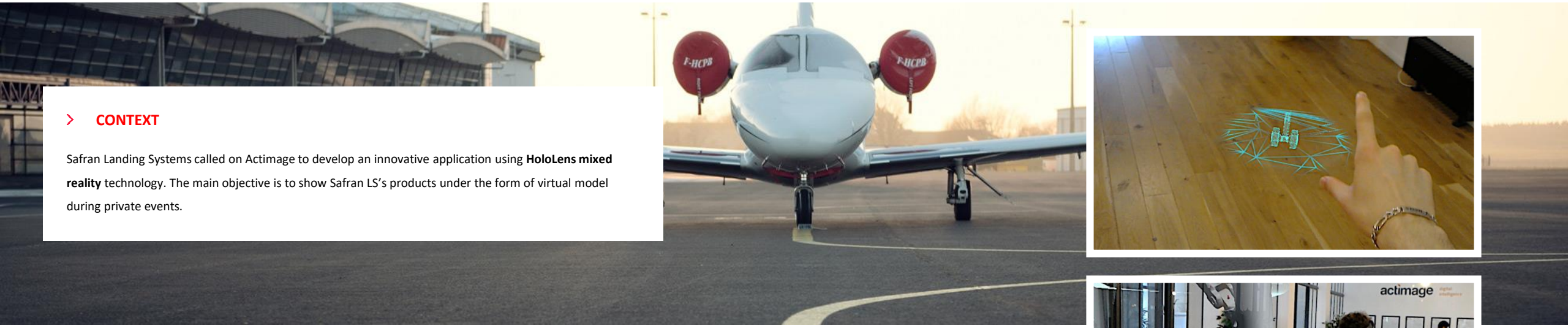
Research Development & Innovation

1

Paris

SAFRAN LANDING SYSTEMS

Development of a HoloLens application to visualize landing gear



CONTEXT

Safran Landing Systems called on Actimage to develop an innovative application using **HoloLens mixed reality** technology. The main objective is to show Safran LS's products under the form of virtual model during private events.

CHALLENGE

- HoloLens innovative technology
- Networking of several Hololens glasses
- Setting of the demonstrator functions/spectator functions
- Optimisation and animation of 3D files coming from CATIA software

TECHNOLOGIES

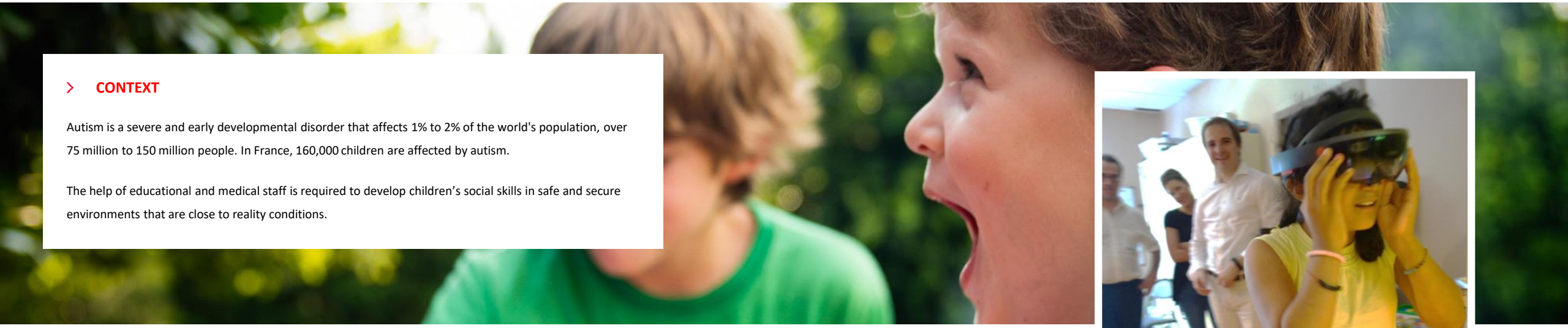
- Microsoft HoloLens
- Microsoft Visual Studio
- Microsoft Simplygon
- C#
- Unity 3D
- 3DS Max

PROJECT INFORMATION

- **Period:** ongoing
- **Global budget:** confidential

AUTISM

Development of a HoloLens application for children with autism



CONTEXT

Autism is a severe and early developmental disorder that affects 1% to 2% of the world's population, over 75 million to 150 million people. In France, 160,000 children are affected by autism.

The help of educational and medical staff is required to develop children’s social skills in safe and secure environments that are close to reality conditions.

CHALLENGE

- HoloLens innovative technology
- Creation of a dedicated application catalog
- Implementation of tools and analytics to measure children progress
- Allow medical and educational staff to drive and to control the experience

TECHNOLOGIES

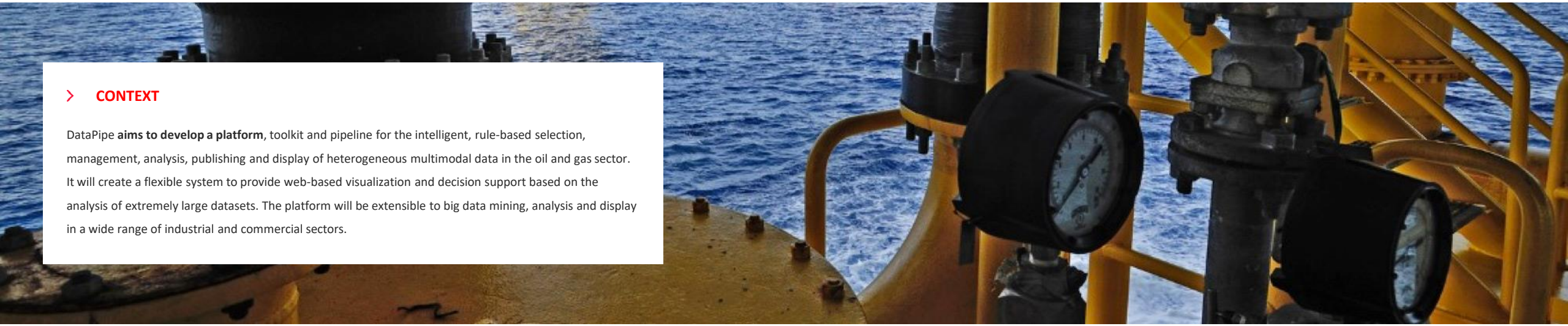
- Microsoft HoloLens
- Microsoft Visual Studio
- Microsoft Simplygon
- C#
- Unity 3D
- 3DS Max

PROJECT INFORMATION

- **Period:** ongoing
- **Global budget:** around 1 M€
- **Actimage budget:** around 800 K€

DATAPIPE

Framework for the smart management of Big Data in Oil & Gas



CONTEXT

DataPipe **aims to develop a platform**, toolkit and pipeline for the intelligent, rule-based selection, management, analysis, publishing and display of heterogeneous multimodal data in the oil and gas sector. It will create a flexible system to provide web-based visualization and decision support based on the analysis of extremely large datasets. The platform will be extensible to big data mining, analysis and display in a wide range of industrial and commercial sectors.

CHALLENGE

- State of the art of the developments in HTML5 and of the data presentation technologies and study of the leading rules engines technologies on the market
- Design of the rules engines, prototype a first set of rules and defining the GUIs
- Participation to the set up of the workflows and data processing management tools
- Leveraging the multi agent cloud-based architecture of the ActiNote platform and adapting its security model to the defined requirements
- Design and implementation of a flexible HTML5 graphical user interface (GUI) for the supervision of complex data processing tasks
- Integration and validation of the rules engines, the security model and the web-based UI into the whole system

CONSORTIUM

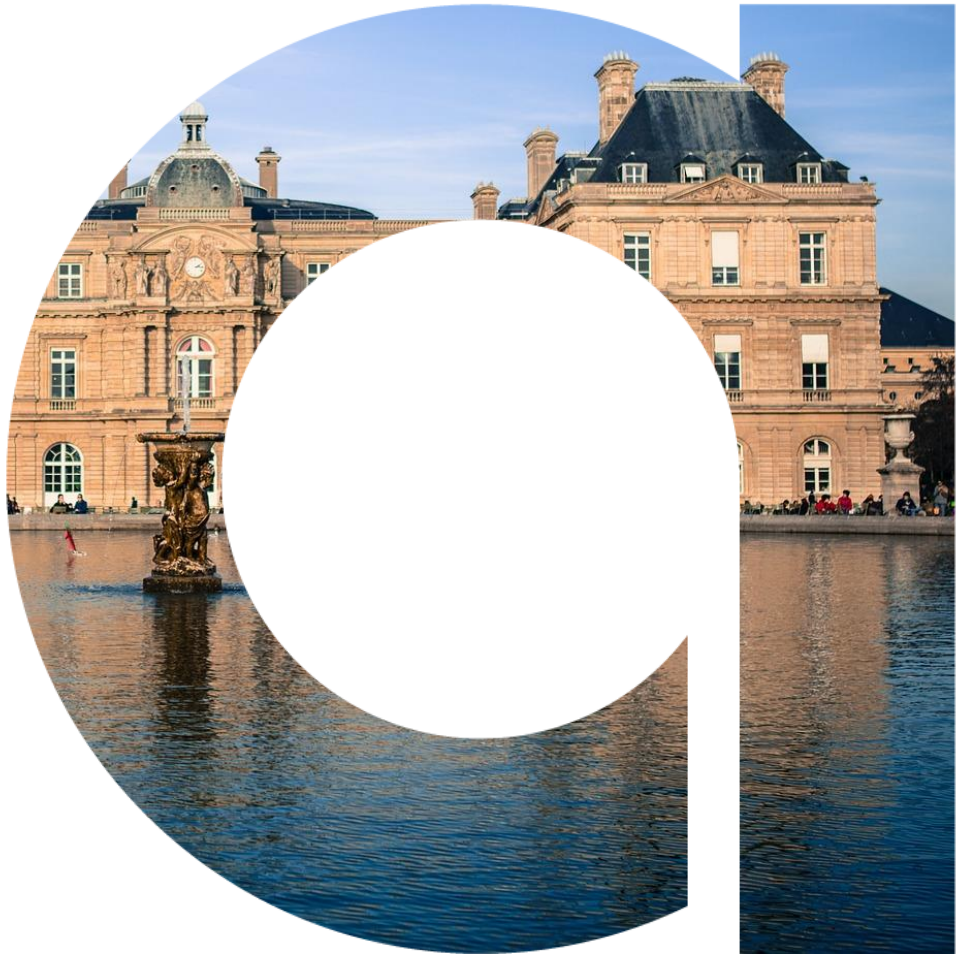
- **United Kingdom** : Root6 (UK), Project Coordinator
- **United Kingdom** : Ovation Data Services Inc
- **France** : Actimage Consulting SAS

PROJECT INFORMATION

- **Period:** 01.01.2014 - 31.12.2015
- **Global budget:** around 1 M€
- **Actimage budget:** around 220 K€

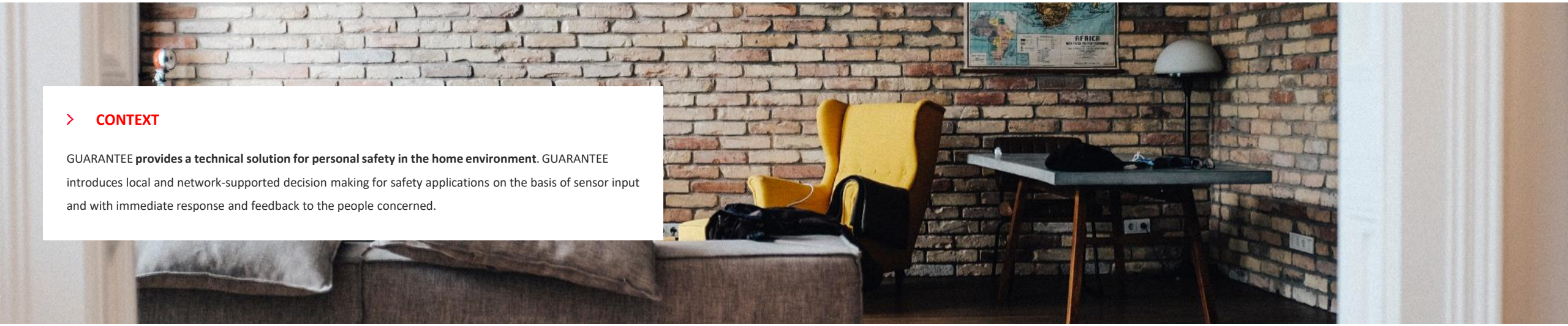
2

Luxembourg



GUARANTEE

A guardian angel for the extended home environment



CONTEXT

GUARANTEE **provides a technical solution for personal safety in the home environment**. GUARANTEE introduces local and network-supported decision making for safety applications on the basis of sensor input and with immediate response and feedback to the people concerned.

OBJECTIVES

- Design a platform architecture to integrate multiple devices
- Mobile development for 3 demonstrators, both iOS and Android
- Keep up to date with the standardization (mastering Communication Protocol UPnP)
- Design and implement sensor data analysis algorithm
- Communication and dissemination of project results

CHALLENGE

- **Safety:** improve personal safety in the home
- **Personalized advice:** providing direct advice and support to individuals in unsafe situations
- **Interactivity:** systems that respond to human behaviour
- **Multiple usage:** baby monitoring and elderly monitoring scenarios

CONSORTIUM

- **Belgium:** COMmeto, Spikes
- **Finland:** Active Life Village, Innohome, Laurea, Rinnekoti-Säätiö, Videra LTT, VTT
- **Greece:** Forthnet, TEI of Crete
- **Lithuania:** UAB Kardiosignalas, Uni Kaunas Cardiology, Uni Kaunas Fundamental Sciences, Uni Kaunas Geriatric Clinic
- **Luxembourg:** Actimage
- **Netherlands:** Eagle Vision Systems, Noldus, Philips Applied Tech, Philips Consumer Lifestyle, Philips Research, Sound Intelligence, University of Twente
- **Romania:** AltFactor, Siveco
- **Spain:** ESI-Technalia, ETIC, Ibermatica, Universidad Polytecnica Madrid, University of Deusto, Visual Tools
- **Turkey:** Armakom, Arvento, iDeal Technologies

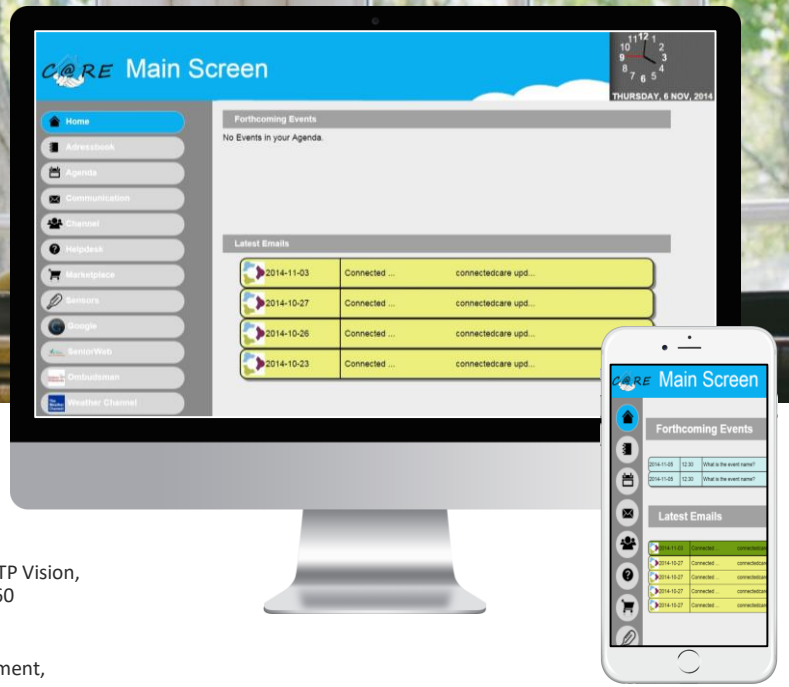
PROJECT INFORMATION

- **Period:** 01.09.2009 - 31.12.2012
- **Global budget:** around 18 M€
- **Actimage budget:** 357 K€

Care at Home

CONTEXT

CARE@HOME is about **enabling empowerment, wellness and social care services to the home of the elderly through interactive multimedia SmartTV**. The idea is to enclose the social support system for the elderly and carry this as a personalized communication and service channel in their home.



OBJECTIVES

- Design a platform architecture to integrate multiple devices
- Develop Reasoner and device portal modules to allow smart analysis of data coming from sensors
- Develop a notification center to send warnings generated by Reasoner
- Use new emerging technologies (HTML5 and smartphone scripting)

CHALLENGE

- **Wellness:** enable wellness and social care services to the home of elderly
- **Multiple devices:** use of familiar platforms: SmartTV, smartphone and tablet
- **User-centric:** content is personalized, user-friendly, secure and easy to access
- **Interactive:** integrated voice and video communications for interactive virtual connection
- **Communication:** communication platform for collaboration and participation

CONSORTIUM

- **Luxembourg:** Actimage
- **Netherlands:** Delft University of Technology, TP Vision, National Ouderenfonds, Mextal, MEDvision360
- **Romania:** Singular Logic, Intrarom
- **United Kingdom:** Building Research Establishment, HoIP, Bournemouth Borough Council

PROJECT INFORMATION

- **Period:** 28.11.2011 - 01.12.2014
- **Global budget:** around 4 M€
- **Actimage budget:** 481 K€

M3W

Maintaining and measuring mental wellness

CONTEXT

Develop a mental wellness toolset for self-usage, specifically computer games, tailored for elderly people. Measure and visualize mental changes and tendencies by an entertaining way. Give indications (warnings, alarms, reports) to elderly persons, relatives, friends or carers. Develop scientifically sound methodology for the measurement and data evaluation. Build multinational mental wellness community backed with multilingual website.

OBJECTIVES

- Technology survey for the topic
- Leading data visualization task
- Development of the games platform and the community platform
- Integration of serious games
- Information security and data protection using LLDAP-SOO and Oauth

CHALLENGE

- **Community tool:** develop a platform to aggregate the knowledge on dementia
- **Mental health:** develop a platform to aggregate the knowledge on dementia
- **Serious games:** develop serious games to measure and maintain cognitive functions

CONSORTIUM

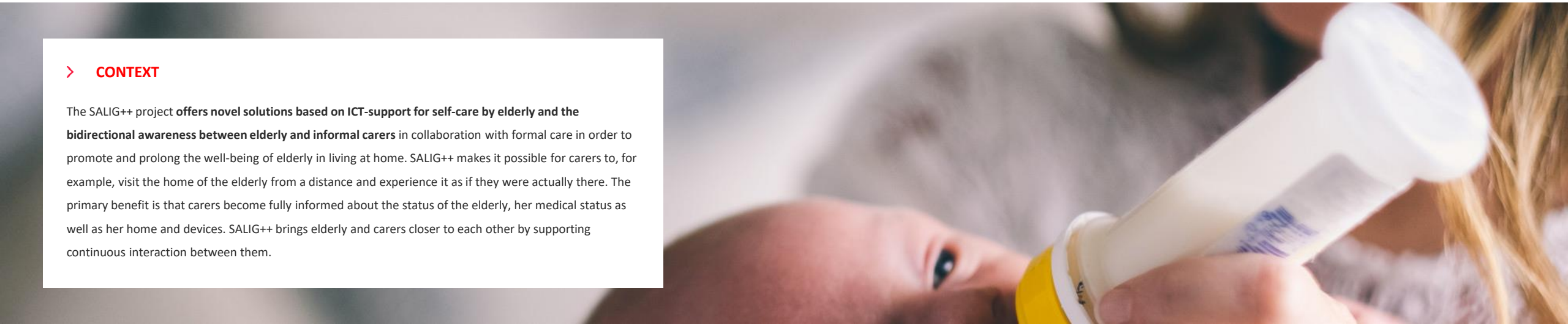
- **Greece:** Frontida Zois
- **Hungary:** Budapest University of Technology and Economics - Healthcare Technologies Knowledge Centre, Gaudiopolis Retirement Home, Semmelweis University – Faculty of Medicine, Department of Psychiatry and Psychotherapy, Silver Kiadó
- **Luxembourg:** Actimage
- **Switzerland:** Zurich University of Applied Sciences – Institute of Facility Management

PROJECT INFORMATION

- **Period:** 01.12.2011 - 01.11.2014
- **Global budget:** around 3 M€
- **Actimage budget:** 270 K€

SALIG++

Smart assisted living involving informal care givers



CONTEXT

The SALIG++ project **offers novel solutions based on ICT-support for self-care by elderly and the bidirectional awareness between elderly and informal carers** in collaboration with formal care in order to promote and prolong the well-being of elderly in living at home. SALIG++ makes it possible for carers to, for example, visit the home of the elderly from a distance and experience it as if they were actually there. The primary benefit is that carers become fully informed about the status of the elderly, her medical status as well as her home and devices. SALIG++ brings elderly and carers closer to each other by supporting continuous interaction between them.

OBJECTIVES

- Development of shared calendar module
- Integration of connected pillbox service
- Sending reminders for everyday actions
- Analysis of the sensor information to create a safe environment for elderly
- Sending alerts based on sensor information
- New communication protocols understanding (WebRTC)
- Personal information security via oAuth

CHALLENGE

- **Informal care inclusion:** including informal care givers, like families, to provide better care services
- **Safety at home:** personalized scenarios based on smart home system of sensors
- **Information sharing:** shared calendar, connected pillbox, logbook, and other features for optimized information sharing
- **Personalized approach:** personalized features for user interface for maximum comfort

CONSORTIUM

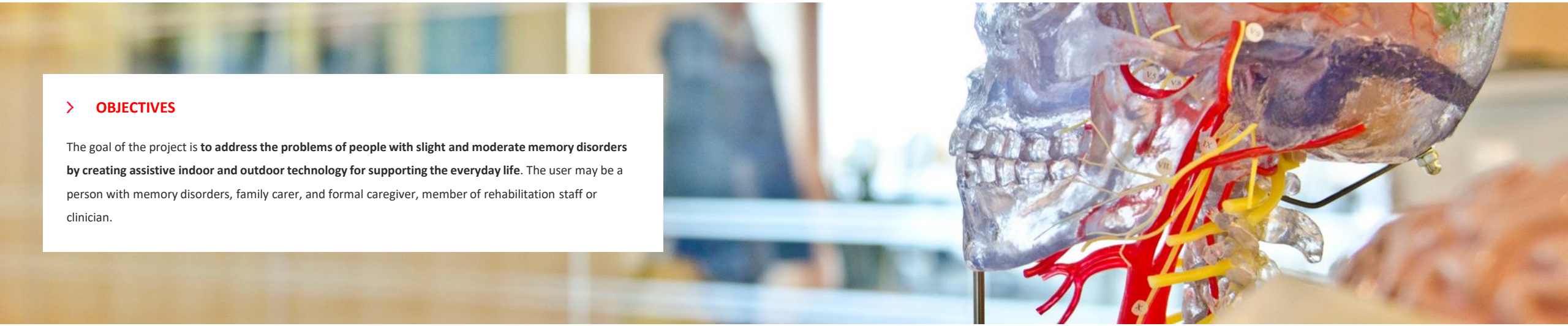
- **Luxembourg:** Actimage
- **Netherlands:** Almende, Divitel, TU Delft
- **Poland:** PIAP
- **Spain:** Hi-Iberia
- **Sweden:** Stockholm University, Stockholm County Council

PROJECT INFORMATION

- **Period:** 01.06.2013 - 31.05.2016
- **Global budget:** around 4 M€
- **Actimage budget:** 523 K€

DEMWATCH

Dementia Watch System



OBJECTIVES

The goal of the project is **to address the problems of people with slight and moderate memory disorders by creating assistive indoor and outdoor technology for supporting the everyday life**. The user may be a person with memory disorders, family carer, and formal caregiver, member of rehabilitation staff or clinician.

OBJECTIVES

- Use new technologies for optimized health care
- Personalized preventive actions
- Facing memory disorders related problems
- Advances system for falling detection and geo-localisation

CHALLENGE

- **Memory disorders:** addressing a great need for solutions to assist the care by supporting people with memory disorders
- **Preventive actions:** aiming the early diagnosis, prolonging independent living, and exercising memory of users
- **Learning Algorithms:** using new technologies like machine learning and big data to provide personalized advices
- **Safety:** falling detection and geolocalisation using learning algorithms

CONSORTIUM

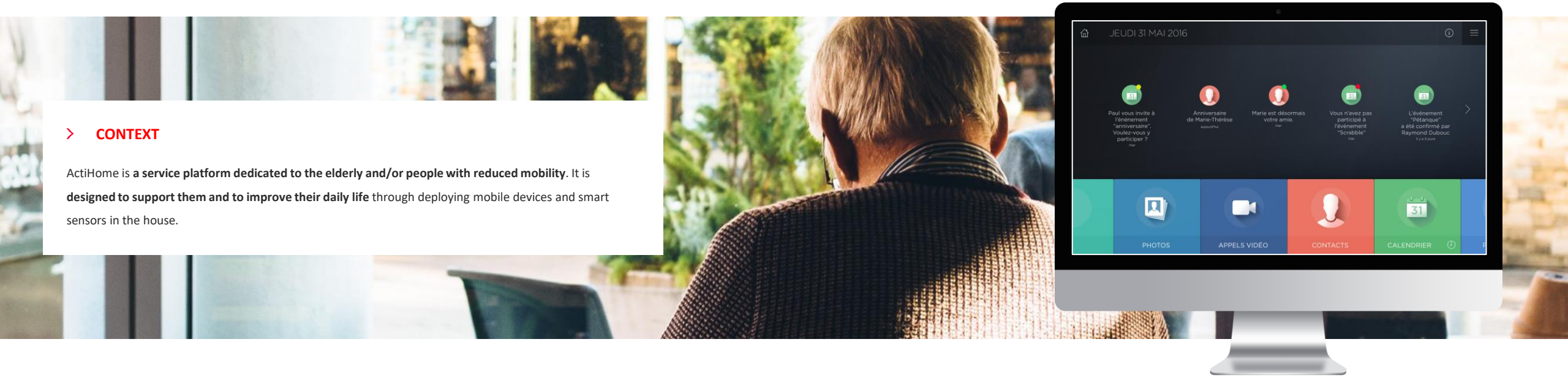
- **France:** Actimage, CEA, Telemedicine Technologies, Eeleo
- **Turkey:** Ardic, Ankira, Bor Software, Turkcell Teknoloji

PROJECT INFORMATION

- **Period:** 01.03.2013 - 31.08.2016
- **Global budget:** around 10 M€
- **Actimage budget:** 523 K€

ACTIHOME

Service platform dedicated to home support



CONTEXT

ActiHome is **a service platform dedicated to the elderly and/or people with reduced mobility**. It is **designed to support them and to improve their daily life** through deploying mobile devices and smart sensors in the house.

OBJECTIVES

- Improve of well-being and safety at home
- Improve communication between elderly people and care givers
- Enhance social aspect
- Monitoring of medication intake
- Stimulate cognitive skills
- Personal services

CONSORTIUM

- **France:** Actimage, CEA, Telemedicine Technologies, Eeleo
- **Turkey:** Ardic, Ankira, Bor Software, Turkcell Teknoloji

FUNCTIONALITIES

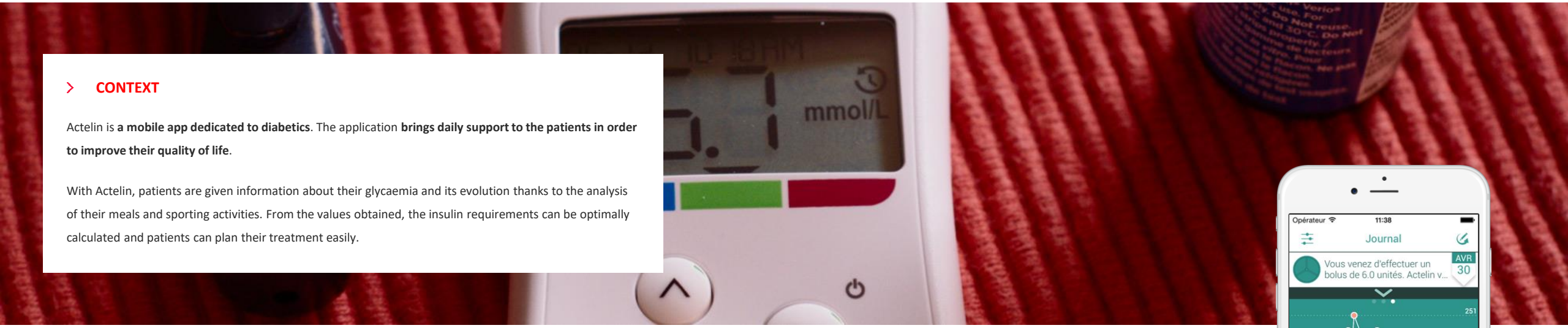
- **Security:** sensors installed at home, history of sensors values, customisation of scenarios, automated alerts and notifications
- **Help:** notification for relatives and caregivers, connected pillbox, meal delivery, external services (medical practitioner, hairdresser, bus…)
- **Social:** mail, address book, videoconference, shared calendars, photo book
- **Entertainment:** serious games, localised events, news, horoscope
- **Communication between all the Silver Economy actors:**
  - Via the application, family is informed in real time
  - Family can consult the medication, services history
  - Medical personnel can perform follow-up actions directly from patient's home
  - Medical personnel can inform family about possible incidents
  - Services providers have an addition communication channel

PROJECT INFORMATION

- **Period:** since 2009
- **Global budget:** Undisclosed
- **Actimage budget:** 950 K€

ACTELIN

The ideal mobile companion for diabetics treated with insulin



CONTEXT

Actelin is **a mobile app dedicated to diabetics**. The application **brings daily support to the patients in order to improve their quality of life**.

With Actelin, patients are given information about their glycaemia and its evolution thanks to the analysis of their meals and sporting activities. From the values obtained, the insulin requirements can be optimally calculated and patients can plan their treatment easily.

OBJECTIVES

- **Reading meals:** correlate with past logs, evaluate and understand choices
- **Adapt to one's profile:** understand preferences, understand one's daily rhythm

PROJECT INFORMATION

- **Period:** since 2011
- **Global budget:** 2 M€
- **Actimage budget**: 1 M€

FUNCTIONALITIES

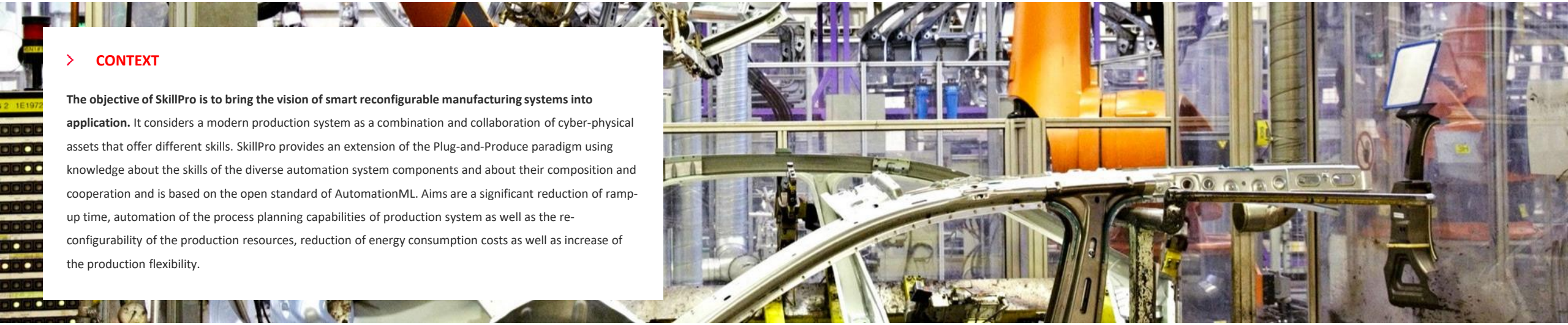
- **LogBook:** input, select and visualize your blood, glucose level, meals, physical activity and insulin intake
- **Meals:** easily estimate the amount of carbohydrates in your meal by relying on our database of more than 1300 different foods
- **Physical activity:** optimize your insulin intake by specifying the intensity and duration of your physical activity
- **Decision making support:** get personalized advice based on the data provided
- **Sharing:** export your data and use them for your next diabetologist appointment
- **Summary:** snapshot view of your status and log data
- **Notifications:** do not ever forget to measure your blood glucose level thanks to our notification system
- **Customization:** specify your insulin sensitivity and get a personalized advice

3

Berlin

SKILLPRO

Skill-based propagation of « Plug&Produce » Devices in reconfigurable production systems by AML



CONTEXT

The objective of SkillPro is to bring the vision of smart reconfigurable manufacturing systems into application. It considers a modern production system as a combination and collaboration of cyber-physical assets that offer different skills. SkillPro provides an extension of the Plug-and-Produce paradigm using knowledge about the skills of the diverse automation system components and about their composition and cooperation and is based on the open standard of AutomationML. Aims are a significant reduction of ramp-up time, automation of the process planning capabilities of production system as well as the re-configurability of the production resources, reduction of energy consumption costs as well as increase of the production flexibility.

CHALLENGE

- State of the art study focused on cloud technologies
- Work package coordination regarding functional and technical specifications
- Use cases and requirements definition for mobile and cloud interfaces
- Development of a mobile interface for the supervision of the Asset System Management (ASM) and the Manufacturing Executive System (MES)
- Development of a mobile Skill Execution Engine (SEE) to integrate human operators

CONSORTIUM

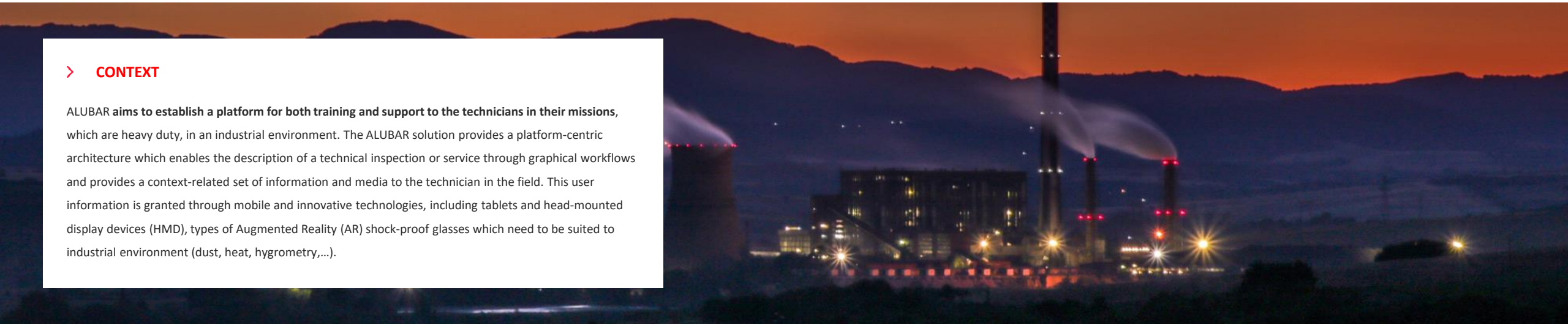
- **Germany** : KIT, Project Coordinator
- Faute Automatisierungstechnik
- FZI
- Fraunhofer IOSB
- Dresden Elektronik GmbH
- Akeo Plus
- **France** : Actimage Consulting SAS
- **Finland** : Visual Components Oy (FI)
- **Estonia** : Technalia, Roboconcept S.L
- (ES) **Greece** : University of Patras
- K.MET AS (EE)

PROJECT INFORMATION

- **Period:** 01.10.2012 - 30.09.2015
- **Global budget:** around 3.8 M€
- **Actimage budget:** 250 K€

ALUBAR

Adaptive learning support-system based on augmented reality



CONTEXT

ALUBAR **aims to establish a platform for both training and support to the technicians in their missions**, which are heavy duty, in an industrial environment. The ALUBAR solution provides a platform-centric architecture which enables the description of a technical inspection or service through graphical workflows and provides a context-related set of information and media to the technician in the field. This user information is granted through mobile and innovative technologies, including tablets and head-mounted display devices (HMD), types of Augmented Reality (AR) shock-proof glasses which need to be suited to industrial environment (dust, heat, hygrometry,…).

OBJECTIVES

- Help workers by providing needs-based training and on-the-spot guidance
- Use innovative human-technology integration & provide an individual learning-curve

CHALLENGE

- Define an adequate system architecture as well as its software-implementation to meet the expected functionality
- Achieve a usable form of scripting environment for the enrichment of the system (information and media gathering)
- Deliver an industrial solution by selecting appropriate devices from the latest technology available
- Improve the selected components that best fit the needs of the project (additional sensors and their enhancements)
- Implement applications on different target devices (Tablets and HMD, principally Microsoft Windows based)

CONSORTIUM

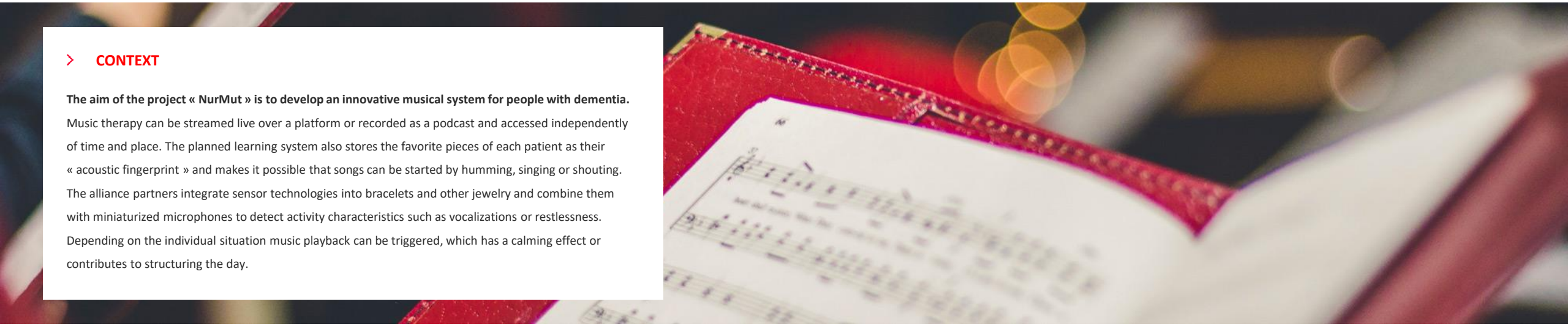
- **Germany** : Actimage GmbH, Project Coordinator
- Fraunhofer Gesellschaft IZM
- Fraunhofer Gesellschaft IPK
- Siemens AG
- CITEC - University of Bielefeld

PROJECT INFORMATION

- **Period:** 01.08.2014 - 31.07.2016
- **Global budget:** around 3,84 M€
- **Actimage budget:** 450 K€

NURMUT

Musical systems for the therapy and activation of people with dementia



CONTEXT

The aim of the project « NurMut » is to develop an innovative musical system for people with dementia.

Music therapy can be streamed live over a platform or recorded as a podcast and accessed independently of time and place. The planned learning system also stores the favorite pieces of each patient as their « acoustic fingerprint » and makes it possible that songs can be started by humming, singing or shouting. The alliance partners integrate sensor technologies into bracelets and other jewelry and combine them with miniaturized microphones to detect activity characteristics such as vocalizations or restlessness. Depending on the individual situation music playback can be triggered, which has a calming effect or contributes to structuring the day.

USE CASES

- **Play music & sing together:** music therapists organize group singing sessions with a maximum number of 4 patients. A patient can participate locally with the therapist or remote using his home station. The remote access allows the patient to see the group and the therapist can see him to evaluate his reactions.
- **Emotion recognition:** this use case consists in recognizing the state of activity of the patient. The main emotions to identify are agitation and apathy. The device contains sensors that allow the system to detect the movements of the patients, their stress levels. The envisaged solution is based on music and graphical signals and pictures.
- **Pastime / day regulation:** this use case aims to propose activities to schedule the days and pastime of patients.

CONSORTIUM

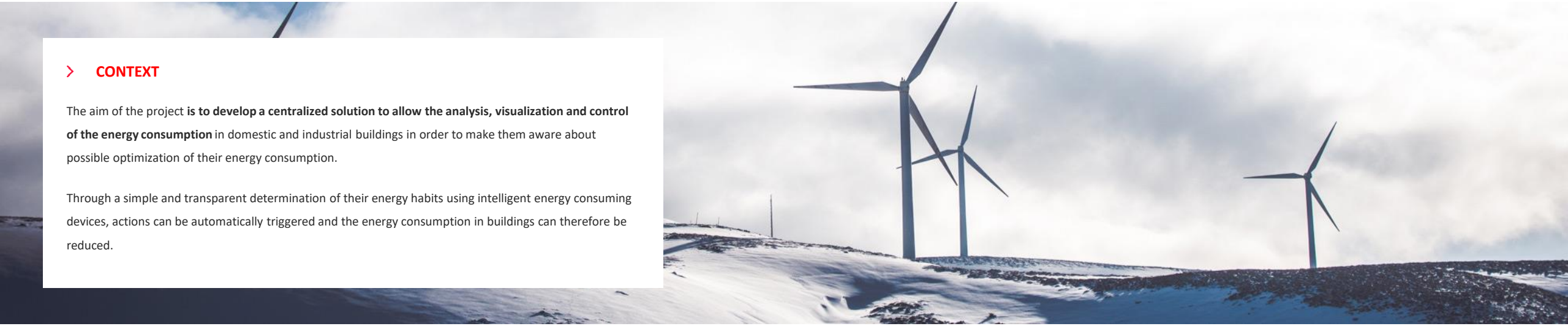
- **Germany** : Wohlfahrtswerk für BW, Project Coordinator
- Fraunhofer Gesellschaft IZM
- Universität der Künste Berlin
- Constin GmbH
- Syntax GmbH of Bielefeld
- Charité - Unvi Medizin Berlin
- Actimage GmbH
- Tombait Software GmbH

PROJECT INFORMATION

- **Period:** 01.09.2015 - 31.08.2018
- **Global budget:** around 2.24 M€
- **Actimage budget:** 160 K€

KEHL

Solution for smart control of energy at home



CONTEXT

The aim of the project **is to develop a centralized solution to allow the analysis, visualization and control of the energy consumption** in domestic and industrial buildings in order to make them aware about possible optimization of their energy consumption.

Through a simple and transparent determination of their energy habits using intelligent energy consuming devices, actions can be automatically triggered and the energy consumption in buildings can therefore be reduced.

CHALLENGE

- Analysis of methods and tools and definition of the requirements
- Design and development of a software module for geometrical and logical configuration:
  - Creation of a scalable and flexible architecture applicable to the infrastructures and requirements of building automation
  - User-friendly and easy-to-use
- Design and development of a data and aggregation model for detecting the energy information
- Design and development of a software module for data evaluation and analysis
- Design and development of a visualization module for energy monitoring and control configuration
- Development of a data protection concept for the portal to ensure the security of customer data
- Implementation of a demonstrator with associated tests and validation
- Work package coordination regarding functional and technical specifications

CONSORTIUM

- **Germany** : Actimage GmbH, project coordinator
- Fraunhofer Gesellschaft

PROJECT INFORMATION

- **Period:** 01.05.2009 - 31.10.2010
- **Global budget:** around 490 K€
- **Actimage budget:** 224 K€

MOBILEMEASURE

Development of reference models for configuring the measurement scenarios and communication between the individual components

CONTEXT

The aim of the research project is to develop a professional measure module that can be easily connected to mobile devices. Using the camera of the smartphone or the tablet, the newly developed model makes it possible to get accurate measures of spaces and objects.

CHALLENGE

- Study of metrology and modeling in the digital domain
- Creation of workflows on-the-go to process information while presenting the user various activities depending on the context, guiding him throughout the measure
- Analysis of the workflow capacity to represent a measurement process
- Development and configuration of such processes allowing the user to create an application that can assist him in his tasks
- Analysis of the smartphones computing capabilities
- Configuration of an adaptable system that allows indexing multiple mobile systems in an increasingly diverse context (lot of OS, HW and SW capabilities)

CONSORTIUM

- **Germany** : Actimage GmbH, project coordinator
- Hochschule Offenburg

PROJECT INFORMATION

- **Period:** 01.11.2012 - 30.10.2015
- **Global budget:** around 511 K€
- **Actimage budget:** 122 K€