ARTEMIS Call 2012 Project
332987

ARROWHEAD

Service Interoperability enabling collaborative automation

EXECUTIVE *summary*

ARROWHEAD vision is to enable collaborative automation by creating the ARROWHEAD interoperability framework.
Our society is facing both energy and competitiveness challenges. These challenges are tightly linked and require new dynamic interactions between energy producers and energy consumers, between machines, between systems, between people and systems, etc. Cooperative automation is the key for these dynamic interactions and is enabled by the technology developed around the Internet of Things and Service Oriented Architectures.

ARROWHEAD is addressing efficiency and flexibility at the global scale by means of collaborative automation for five application verticals; production (manufacturing, process, energy), smart buildings and infrastructures, electro-mobility and virtual market of energy.

RELEVANCE CALL 2012 *objectives*

Answering the ARTEMIS Call 2012, ARROWHEAD ambition is to maximize efficiency and flexibility, increase energy efficiency, and flexible use of energy through cooperative automation in the areas of buildings and public infrastructure, manufacturing, process and energy industries.

MARKET *innovation*

The global objectives of market innovation in ARROWHEAD is building market trust and technology guidance by usage of explicit innovation methodology, provision of interoperability testbed and tools, service business model understanding, result dissemination to relevant actors, and by involvement in relevant standardization to the ARROWHEAD vision.

The strategy adopted in the project has four major dimensions:

- An innovation strategy based on business and technology gap analysis paired with a market implementation strategy based on end users priorities and long term technology strategies
- Application pilots where technology demonstrations in real working environments will be made
- A technology framework enabling collaborative automation and closing innovation critical technology gaps
- An innovation coordination methodology for complex innovation "orchestration"

TECHNICAL *innovation*

The global objectives of the technology innovation in ARROWHEAD is to provide the basic common interoperable technology , the ARROWHEAD interoperability framework, that makes it possible for systems and devices, new as well as legacy, to integrate and interact based on a loosely coupled service based approach, thus enabling service based collaborative automation.

The objective of the ARROWHEAD project is to address the technical and applicative challenges associated to cooperative automation:

- Provide a technical framework adapted in terms of functions and performances,
- Propose solutions for integration with legacy systems,
- Implement and evaluate the cooperative automation through real experimentations in applicative domains: electro-mobility, smart buildings, infrastructures and smart cities, industrial production, energy production and energy virtual market,
- Point out the accessible innovations thanks to new services,
- Lead the way to further standardization work.

ARROWHEAD

PROJECT COORDINATOR	START
Prof. Jerker Delsing	March 2013
INSTITUTION	DURATION
Lulea University of Technology	48 months
EMAIL	TOTAL INVESTMENT
info@arrowhead.eu	€67.7M
WEBSITE	PARTICIPATING ORGANISATIONS
www.arrowhead.eu	78
	NUMBER OF COUNTRIES
	15

3E N. V.
Aalborg Universitet
Aktiebolaget Elektronik-Konstruktion Innovation (Abelko)
ACCIONA Infraestructuras S.A.
Airbus Operations SAS
Akhela srl
Aktiebolaget SKF
Artelys
ALMA MATER STUDIORUM-UNIVERSITA
AIT Austrian Institute of Technology GmbH
AITIA International Informatikai Zartkoruen
AVL List GmbH
BITRON SPA
BNearIT AB
Boliden Mineral AB
C2 SmartLight OY
CAMPUS 02 University of Applied Science Graz
Commissariat à l'énergie atomique et aux énergies alternatives (CEA)
Centro Ricerche Fiat scpa
Ceske Vysoke Uceni Technicke v Praze
CORE AS
DI BOLOGNA
EISTEC AB
EUROTECH SPA
EVOPRO INNOVATION KFT
Evolaris next level GmbH
Fagor Electrónica S. Coop
Fluidhouse OY
Fomento de San Sebastián
Ford Motor Company
Fotonic i Norden AB
Fully Distributed Systems Ltd
FUNDACION TECNALIA RESEARCH & INNOVATION
Fundación Tekniker
GEWISS SPA
Honeywell spol s r.o.
HSSMI
Ikerlan S. Coop
INDRA Sistemas S.A.
INDRA Software Labs, S.L.U.
Infineon Technologies Austria AG
Institut Polytechnique De Grenoble
Instituto Superior de Engenharia do Porto
Integrasys S.A.
LKAB, Luossavaara Kirunavaara AB
Luleå tekniska universitet
Lyse Energi A/S
Magillem Design Services SAS
Metso Automation OY
Midroc Electro AB
Mondragon Goi Eskola Politeknikoa S. Coop
Neogrid Technologies ApS
NODA Intelligent Systems AB
NorDan AS
NXP Semiconductors France SAS
Orona S Coop
Outokumpu Stainless Oy
Personal Space Technologies B.V.
Politecnico di Torino
Riga Technical University
Schneider Electric industries SAS
Seluxit APS
Sirris HET COLLECTIEF CENTRUM VAN DE
Smart Meter Ltd
Sodimas
Stiftelsen SINTEF
ST Microelectronics S.r.l.
TTY-SAATIO Tampere University of Technology
Technologische Industrie VZW
Teknologian Tutkimuskeskus VTT
TECHNISCHE UNIVERSITAET GRAZ
Thales Communications & Security SA
THT-Control OY
ULMA Embedded Solutions
UNINOVA Instituto de Desenvolvimento de Novas Tecnologias
Universite´ Joseph Fourier Grenoble 1
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University of Warwick
Wapice Ltd
Zense Technology