PROMETEO

Plataforma Tecnológica Española de Sistemas con Inteligencia Integrada

MINISTERIO DE CIENCIA E INNOVACIÓN

CDTI Centro para el Desarrollo Tecnológico Industrial

Jornada-Taller PROMETEO-CDTI: 29 Septiembre 2011 (Universidad Politécnica Madrid)

Proyectos Actuales de Convocatorias ARTEMIS

ARTEMIS Joint Undertaking

ARTEMIS Industry Association is a founding member of the ARTEMIS Joint Undertaking (ARTEMIS JU). This is the Public Private Partnership with the European Commission, 22 in ARTEMIS participating member states and the Industry Association (200 + members). The stakeholders in the ARTEMIS Joint Undertaking adopt a commonly agreed research agenda closely following the recommendations of the ARTEMIS SRA. This research agenda is implemented in a 10-year R&D funding programme on embedded systems. Therefore, each year an ARTEMIS call for innovative project proposals will be launched. Selected projects will be co-funded by the EC and the 22 countries that have joined the ARTEMIS JU: http://www.artemis-ju.eu/

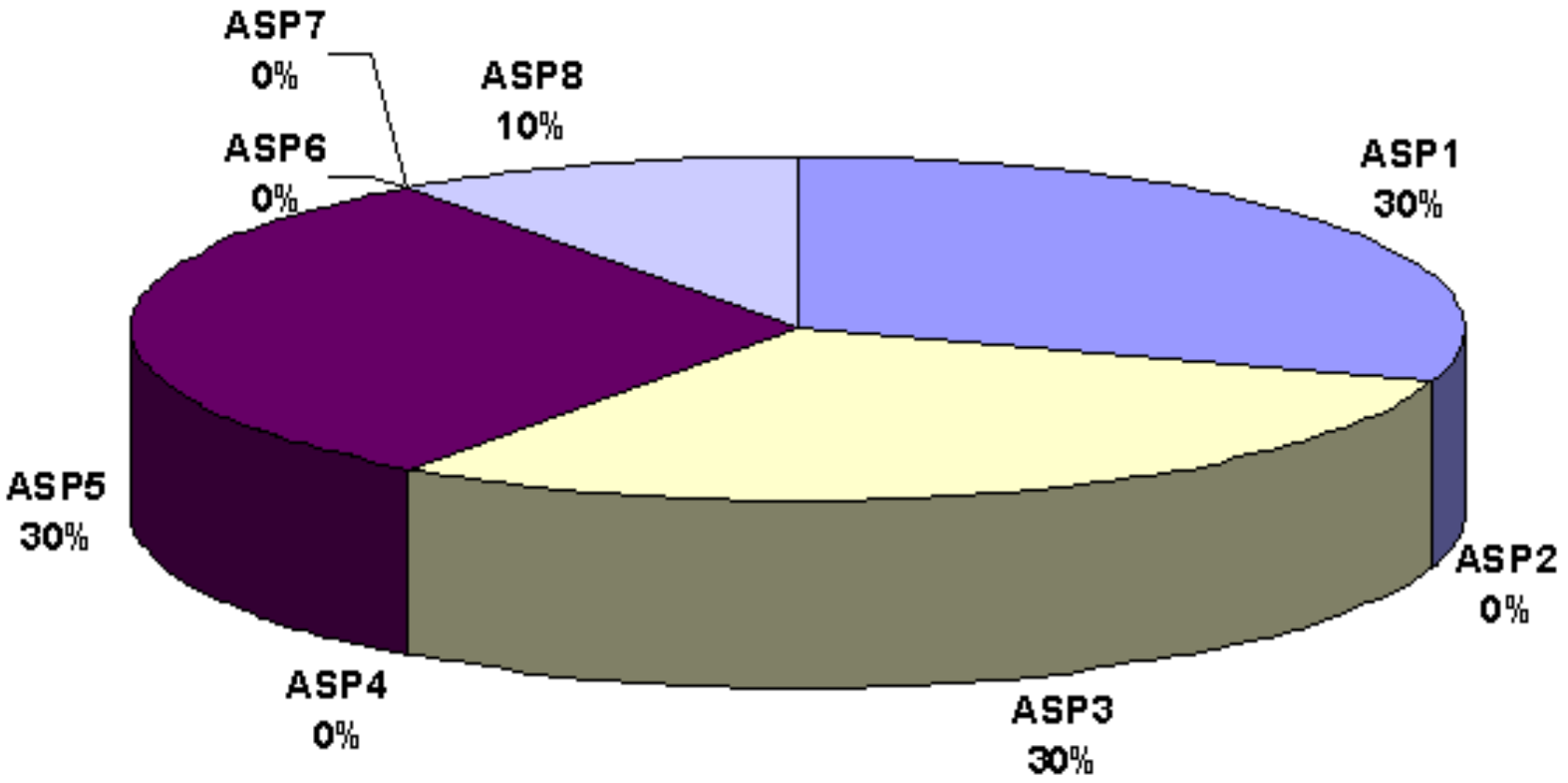
ARTEMIS ASPs

- ASP1: Methods and processes for safety relevant embedded systems
- ASP2: Embedded Systems for Healthcare systems
- ASP3: Embedded systems in Smart environments
- ASP4: Manufacturing and production automation
- ASP5: Computing platforms for embedded systems
- ASP6: ES for Security and Critical Infrastructures Protection
- ASP7: Embedded technology for sustainable urban life
- ASP8: Human-centred design of embedded systems

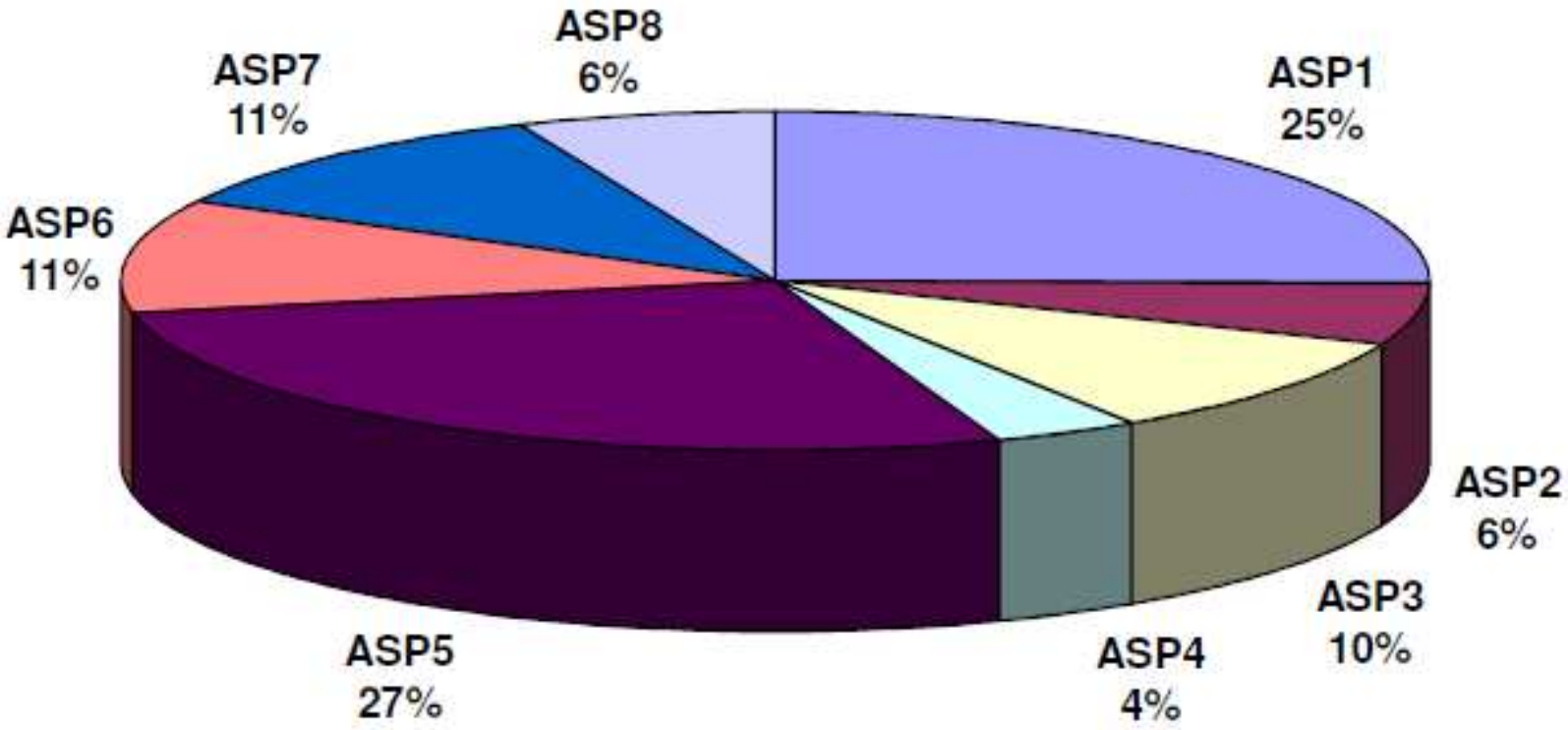
ARTEMIS-JU Convocatorias

Convocatoria	Cierre	ARTEMIS Joint Undertaking Budget	Member States Budget - Spain
ARTEMIS-JU Call 2008	FP: 03/09/2008	35.100.000 €	6 M€
ARTEMIS-JU Call 2009	PO: 15/04/2009 FP: 03/09/2009	37.086.500 €	5,99 M€
ARTEMIS-JU Call 2010	PO: 26/03/2010 FP: 01/09/2010	33.120.000 €	4 M€
ARTEMIS-JU Call 2011	PO: 31/03/2011 FP: 01/09/2011	23.223.750 €	4 M€

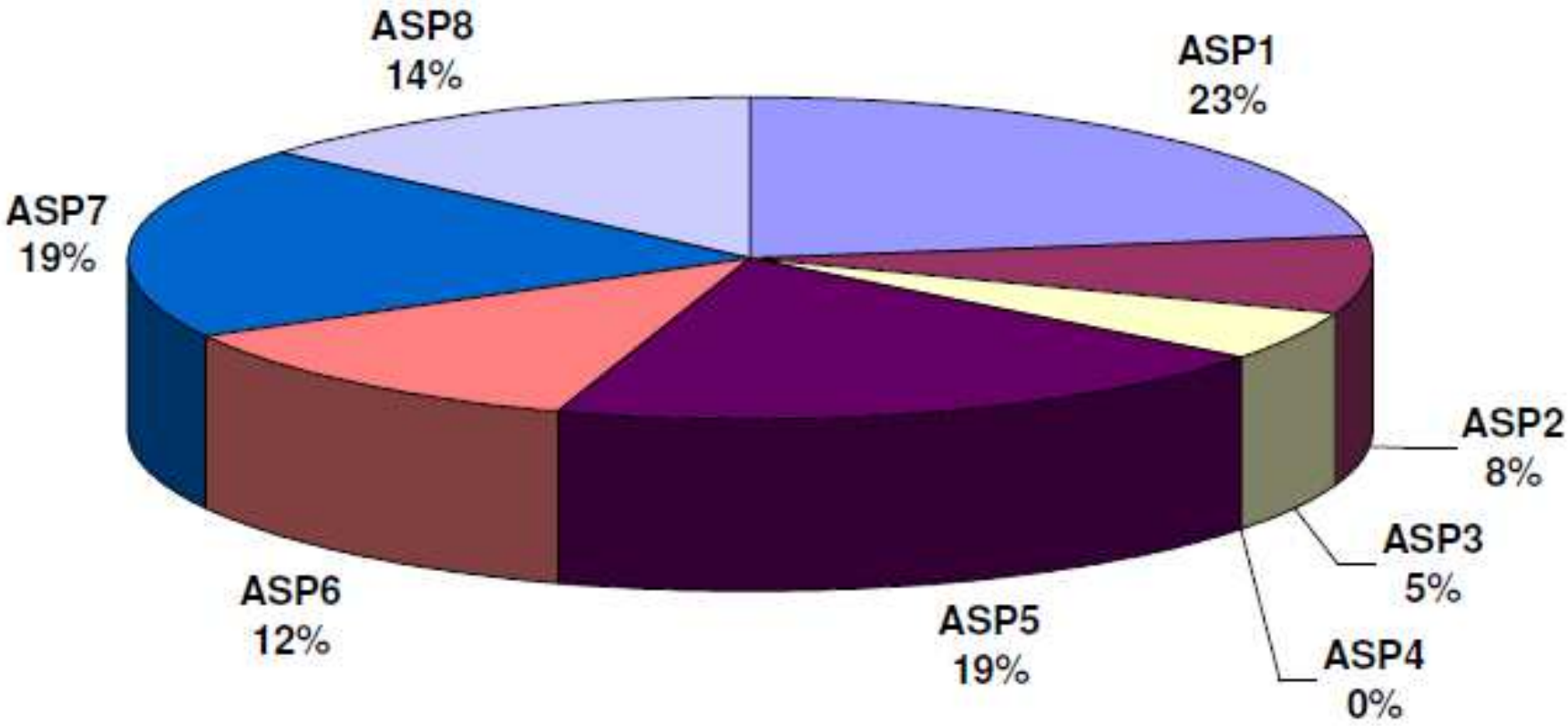
ARTEMIS Call 2008 - % de participación propuestas/ASP



ARTEMIS Call 2008 + 2009 - % de participación propuestas/ASP

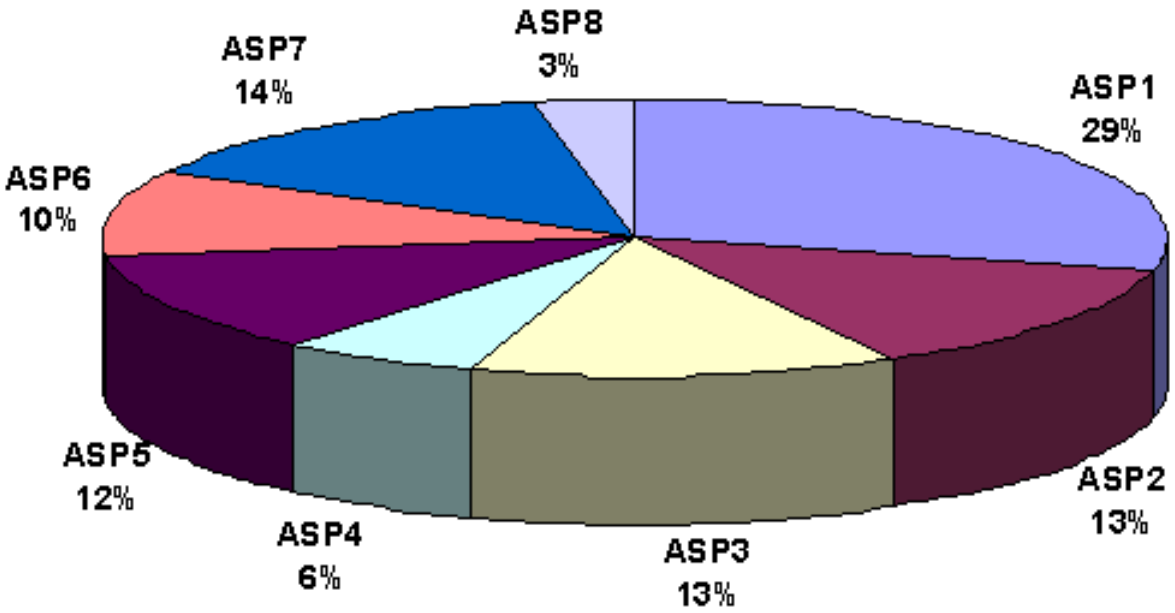


ARTEMIS Call 2010 % de participación propuestas/ASP – 2010



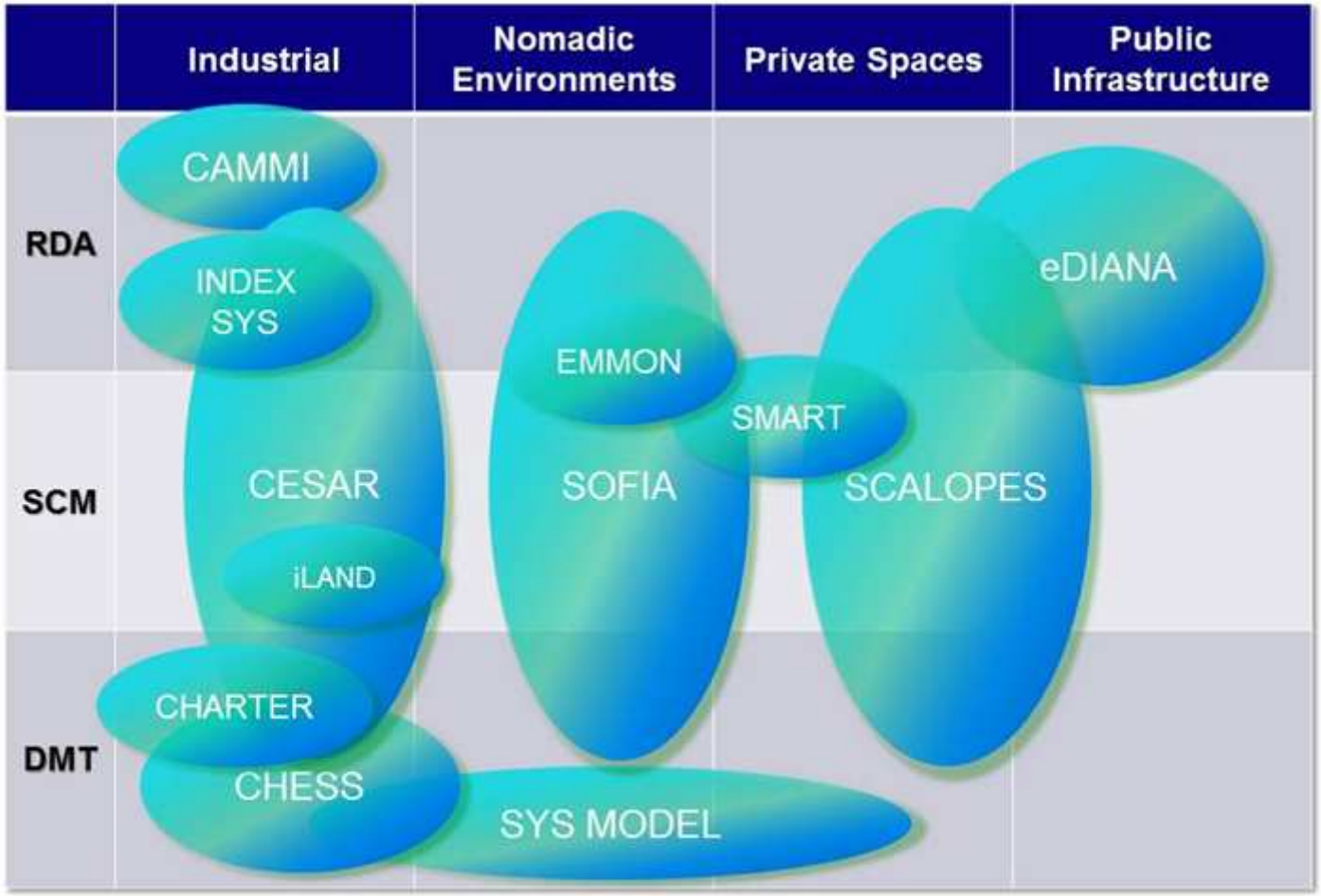
ARTEMIS Call 2011 % de participación propuestas/ASP – 2011

The ASP coverage is also different than in previous years, where ASP5 drops to about 12% and ASP1 is still large with 29%, with other ASPs showing interest that is in line with expectations. Of course, this is raw data largely based on self-declared figures, and the independent experts must first determine the subset of “above threshold” projects that are candidates for funding, subject to National budget availability. These evaluations and funding decisions will take place in the coming weeks



ARTEMIS Call 2008 Proyectos - 1

Resultados: 27 FPPs, 12 proyectos financiados



RDA= Reference Designs and Architectures
SCM= Seamless Connectivity and Middleware
DMT= Design Methods and Tools

ARTEMIS Call 2008 Proyectos – 2

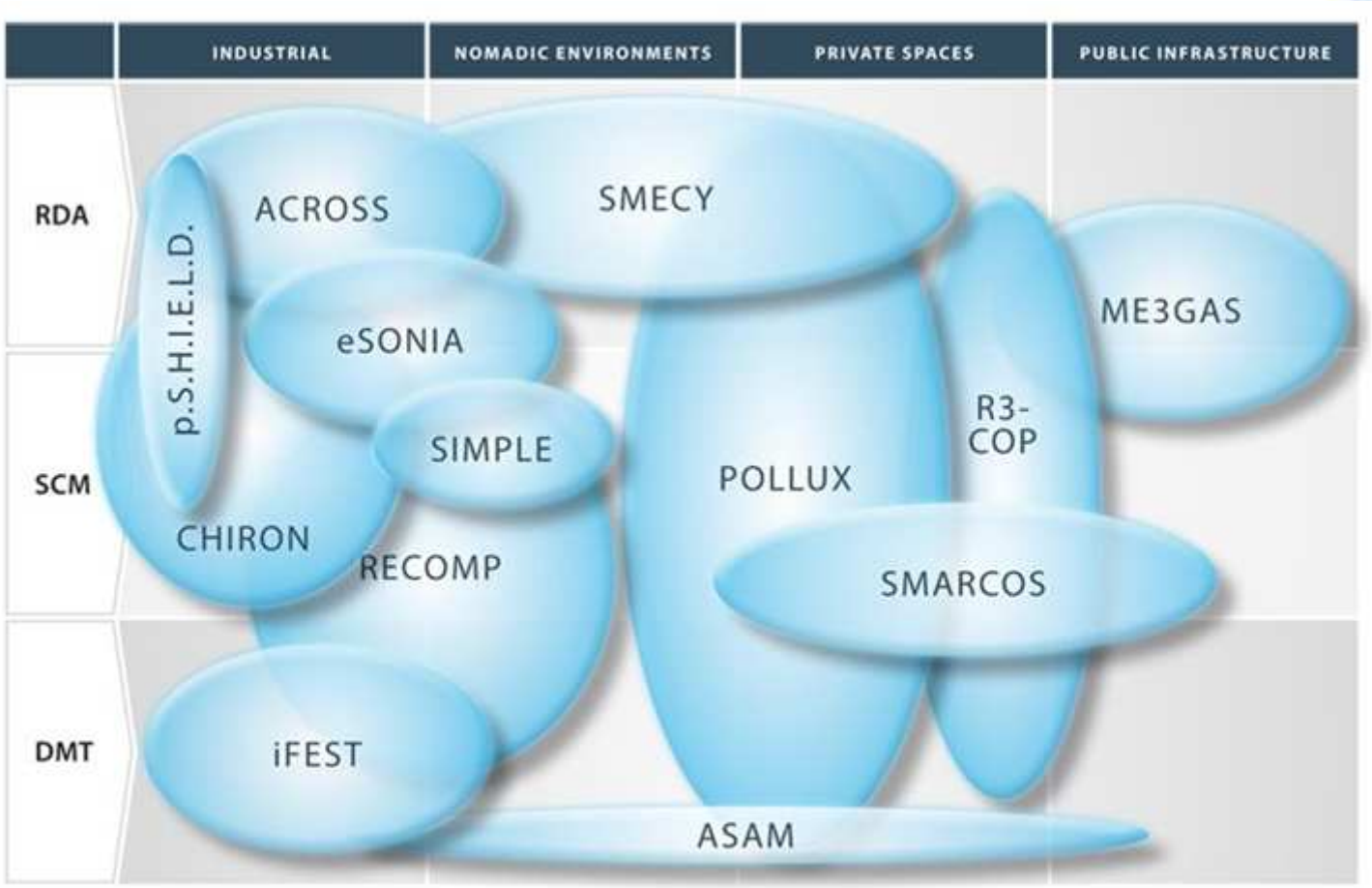
NOMBRE	ASP	COMIENZO	DURACIÓN	DESCRIPCIÓN
CESAR	ASP1	01/03/2009	36 months	CESAR targets significant reduction of overall development time and effort, between 30% and 50%, using a Reference Technology Platform (RTP). The aim is, within 5 years, to double the number of European technology providers and SMEs joining the CESAR ecosystem and reduce by 50% the cost of integration, configuration, deployment, and maintenance of tool-chains.
CHARTER	ASP1	01/04/2009	36 months	CHARTER will develop concepts, methods, and tools for embedded system design and deployment that master complexity and substantially improve the development, verification and certification of critical systems.
CHESS	ASP1	01/02/2009	36 months	CHESS aims to build modelling languages for extra-functional properties, and develop tools for evaluation of these properties of component contracts. It will adapt component infrastructures for the integration of real-time and dependable patterns, and validate the approach through multi-domain case studies.
EMMON	ASP3	01/03/2009	36 months	EMMON will research, develop and test a functional prototype for large scale Wireless Sensor Networks. It aims to advance the number of devices by one order of magnitude compared to what is possible today, and develop simulation tools for networks two orders of magnitude larger than at present. The goal is to create technologies that allow effective monitoring with 10,000 to 100,000 devices, in an area of 50 square km in a real world scenario.
SMART	ASP3	01/03/2009	36 months	SMART will create an innovative WSN infrastructure based on both off-the shelf reconfigurable devices (FPGAs) and specially designed Reconfigurable Application Specific Instruction Set Processors (RASIPs). This infrastructure will support video and data compression as well as high-levels of security with lower power consumption than existing solutions.
SOFIA	ASP3	01/01/2009	36 months	SOFIA will create an Open Innovation Platform (OIP) providing the interoperability that allows interaction between multi-vendor devices. For this, it will create interaction models and embedded devices that support a variety of “smart spaces” and a variety of users, and develop methods, techno-economic structures and toolkits for the deployment of smart environments and for the development of services and applications based on them. It will also define scenarios to demonstrate the capabilities of the OIP in personal spaces, indoor spaces and cities.

ARTEMIS Call 2008 Proyectos – 3

NOMBRE	SP	COMIENZO	DURACIÓN	DESCRIPCIÓN
iLAND	ASP5	01/03/2009	36 months	iLAND will develop enabling technologies for modular, component-based middleware for networked systems that demand deterministic, dynamic functional composition and reconfiguration. Its results embrace a lightweight middleware architecture offering deterministic services and QoS-based resource management, and an approach for modelling deterministic, dynamic reconfiguration and composition of applications, with validation through three application demonstrators.
INDEXYS	ASP5	01/04/2009	30 months	INDEXYS will develop a cross-domain instantiation of the GENESYS embedded system architecture, for Industrial-grade exploitation on real-world platforms in Railway, Aerospace, Automotive and Industrial Control domains.
SCALOPES	ASP5	01/01/2009	24 months	SCALOPES' objective is to enable an industrially sustainable path for the evolution of low-power, multi-core computing platforms, for application domains with strategic value for European competitiveness.
CAMMI	ASP8	15/12/2008	36 months	The objective of CAMMI is to demonstrate a joint-cognitive approach to controlling devices, where a workload exceeding the operator's capability ideally results in offloading non-critical, time-consuming tasks to autonomous agents (software, artificial-intelligence agents) and to let the operator focus his attention on critical tasks only.

ARTEMIS Call 2009 Proyectos - 1

56 PO, 44 FPP
Resultado: 13 proyectos financiados



RDA = Reference Design and Architectures
SCM = Seamless Connectivity and Middleware
DMT = Design Methods and Tools

ARTEMIS Call 2009 Proyectos - 2

NOMBRE	ASP	COMIENZO	DURACIÓN	DESCRIPCIÓN
ACROSS		April 2010	36 months	ACROSS will develop and implement an ARTEMIS cross-domain architecture for embedded Multi-Processor SoCs based on the architecture blueprint developed in the FP7 project GENESYS (Generic Embedded System Architecture), and develop a first generic MPSoC implementation in an FPGA.
ASAM		April 2010	36 months	ASAM addresses a uniform process of automatic architecture synthesis and application mapping for heterogeneous, multi-processor embedded systems, defining a new and unified design methodology, as well as related synthesis and prototyping tool-chains. For this, a highly efficient automatic synthesis flow will be created from the algorithmic specification down to its hardware/software implementation at the circuit/code level.
CHIRON	**ASP2**	March 2010	36 months	Addressing growing health-care concerns, CHIRON will combine state-of-the art technologies and innovative solutions into an integrated framework designed for an effective and person-centric health management over the complete care cycle.
eSONIA	**ASP4**	March 2010	36 months	eSONIA means greater predictability of plant behaviour and visibility, reduced safety risks, enhanced security and cost efficiency.
iFEST	**ASP5**	April 2010	36 months	iFEST will specify and develop an integration framework for establishing and maintaining tool chains for the engineering of complex industrial embedded systems. Specific emphasis is placed on open tool chains for HW/SW co-design of heterogeneous and multi-core solutions, and life cycle support for an expected operational life time of several decades.
M3Gas		April 2010	36 months	ME³Gas will also contribute to the standardization work being carried out currently in Europe in the smart metering field (under the M/441 mandate of the EC mainly). The work will propose a standard for a European Gas Metering Infrastructure, which can be a part of a multi-utility platform to be made within the project.
POLLUX		March 2010	36 months	POLLUX will develop a distributed real time ES platform for next generation electric vehicles, by using a component and programming-based design methodology.
R3-COP	**ASP5**	March 2010	36 months	R3-COP will develop a fault-tolerant high-performance processing platform, based on a multi-core architecture, as well as innovative system components for robust perception of the environment including sensor fusion, and for reasoning and reliable action control.

ARTEMIS Call 2009 Proyectos – 3

NOMBRE		COMIENZO	DURACIÓN	DESCRIPCIÓN
RECOMP	**ASP1**	April 2010	36 months	RECOMP will establish methods, tools and platforms for enabling cost-efficient (re-)certification of safety-critical and mixed-criticality systems. Applications addressed are automotive, aerospace, industrial control systems, and lifts and transportation systems
p.S.HI.E.L.D.	**ASP6**	March 2010	12 months	SHIELD aims at addressing Security, Privacy and Dependability (SPD) in the context of Embedded Systems (ESs) as “built in” rather than as “add-on” functionalities, proposing and perceiving the first step toward SPD certification for future ES.
SIMPLE		September 2010	36 months	The main goal of SIMPLE is to research and deliver an intelligent, self-organizing embedded middleware platform, designed for the integration of manufacturing and logistics. SIMPLE will address the self-organization and cooperation of wireless sensors and smart (RFID) tags for federated, open and trusted use in the manufacturing and logistics applications.
SMARCOS	**ASP8**	January 2010	36 months	SMARCOS helps users of interconnected embedded systems by ensuring their inter-usability. Many products today connect with web services (media players, refrigerators, e-books, even cars).
SMECY		February 2010	36 months	SMECY envisions that recently emerged multi-core technologies will rapidly develop to massively parallel computing environments which, due to improved performance, energy and cost properties, will extensively penetrate the embedded system industry in a few years.

ARTEMIS Call 2010 Proyectos - 1

72 POs, 43 FPPs

Resultados: 10 proyectos financiados

Aún no se dispone de información sobre la distribución de cada uno de los proyectos financiados en las diferentes áreas de investigación

	Industrial	Nomadic Environments	Private Spaces	Public Infrastructure
RDA				
SCM				
DMT				

ARTEMIS Call 2010 Proyectos – 1

NOMBRE	TÍTULO	DESCRIPCIÓN
D3CoS -	**Designing Dynamic Distributed Cooperative Human-Machine Systems**	Cars, aircraft and ships have major impact on modern human societies. In the traditional human operations of vehicle and traffic control, technological innovations have progressively allowed the introduction of advanced automated assistance systems leading to a complex human-machine interplay and, consequently, new types of human error, incident and sometimes accident..
WSN DPCM	**WSN Development, Planning and Commissioning & Maintenance ToolSet**	This project will develop an integrated platform for smart environments that will comprise a middleware for heterogeneous wireless technologies as well as an integrated engineering tool for quick system development, a planning tool and a commissioning & maintenance tool for expert and non-expert users.
IoE	**Internet of Energy**	The objective of Internet of Energy (IoE) is to develop hardware, software and middleware for seamless, secure connectivity and interoperability by connecting the Internet with the energy grids and so create the infrastructure for electric mobility. The underlying architecture of distributed embedded systems combines power electronics, integrated circuits, sensors, processing units, storage technologies, algorithms and software, with a real-time interface between the power network/grid and the Internet.
MBAT	**Combined Model-based Analysis and Testing of Embedded Systems**	The MBAT project will provide European industry with a new leading-edge V&V technology in form of a Reference Technology Platform (the MBAT RTP) that will enable the production of high-quality and safe embedded systems at reduced cost in terms of time and money by combining advanced model-based testing technologies with static analysis.
nSHIELD	**New embedded Systems arcHItecturE for multi-Layer Dependable solutions**	The nSHIELD project both complements and improves “pSHIELD”, a pilot project funded in ARTEMIS Call 2009 to investigate the SHIELD Architectural Framework for SPD and provide a roadmap to address Security, Privacy and Dependability (SPD) in the context of Embedded Systems (ES) as “built in” rather than “add-on” functionalities. The leading concept is to demonstrate the composability of SPD technologies. The project will develop new technologies and consolidate those already explored in pSHIELD, approaching SPD at four different levels: node, network, middleware and overlay.

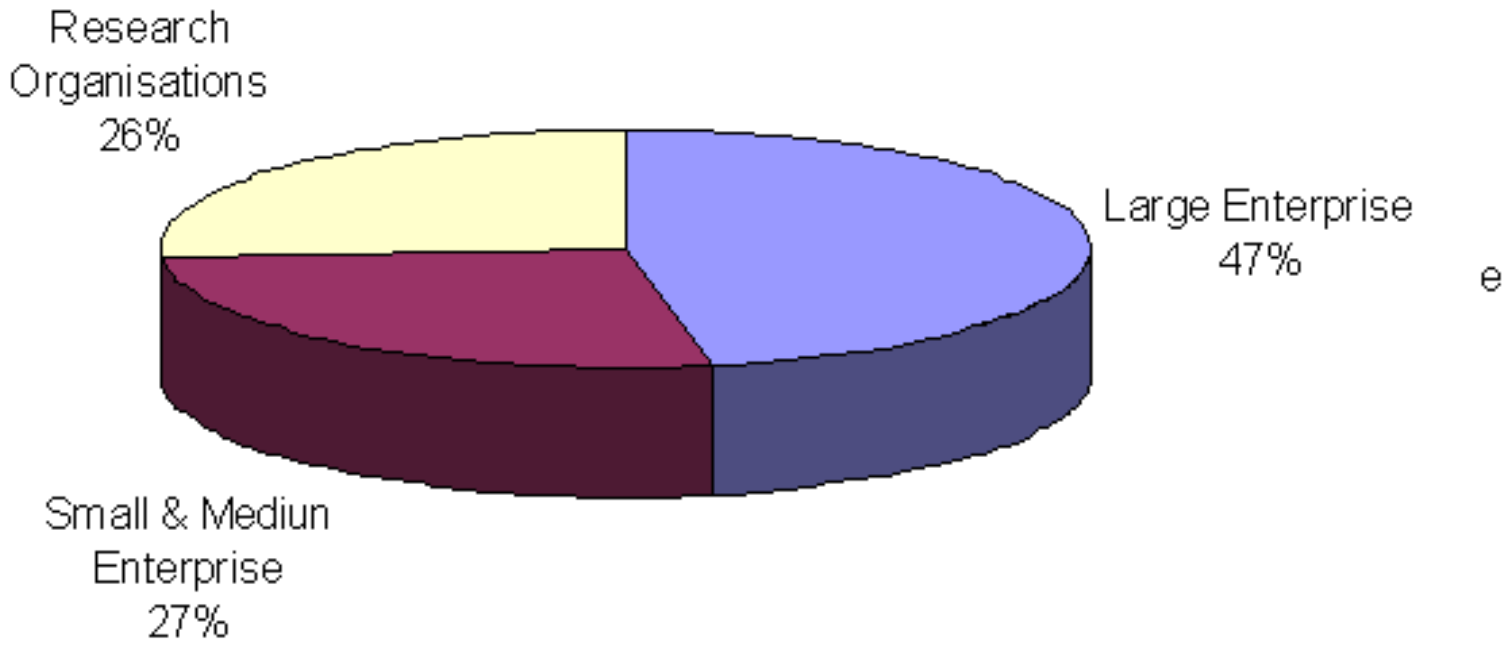
ARTEMIS Call 2010 Proyectos – 2

NOMBRE	TÍTULO	DESCRIPCIÓN
PRESTO	ImProvements of industrial Real-Time Embedded SysTems develOpment process	The PRESTO project aims to improve test-based embedded systems development and validation within the constraints of industrial development processes. This project is based on the integration of test trace exploitation, platform models and design space exploration techniques aimed at enabling functional and performance analysis and platform optimisation at early stage of design development. The modelling framework for software/hardware allocation is based on the UML profile for model-driven development of Real Time and Embedded Systems (MARTE)
ASTUTE	Pro-active decision support for data-intensive environments	ASTUTE aims to define reference architecture for the development of HMIs, targeting proactive information retrieval and delivery based on situational context as well information content and services, and user state information. This architecture will optimise the choices available to the user, while safeguarding user control. Verified by demonstrators, the architecture will allow for multiple instantiations for different domains such as avionics, automotive and emergency management. The ultimate goal is to develop a platform for building embedded products that capture and act upon user intentions thereby taking into account the user's context and state.
HIGH PROFILE	HIGH-throughput PROduction of FunctIonaL 3D imagEs of the brain	HIGH PROFILE focuses on R&D activities dealing with image diagnostic platforms for the central nervous system. It will address the challenge of the increasing complexity of real time image processing and aims to advance the state-of-the-art by integrating imaging equipment for diagnostics to support combinations of images from different medical equipment modalities (MRI, MRS, fMRI and EEG) and the comparison/fusion of images with physiological models of central nervous systems
pSAFECER	Safety Certification of software-intensive systems with reusable components	pSafeCer targets greater efficiency and reduced time-to-market by composable safety certification of safety-relevant embedded systems. The industrial domains targeted are automotive and construction equipment, avionics, and rail. pSafeCer will also develop certification guidelines and a training example for other domains, thus considerably increasing its market impact.
ENCOURAGE	Embedded iNtelligent COntrols for bUildings with Renewable generAtion and storaGE	The ENCOURAGE project aims to develop embedded intelligence and integration technologies that will directly optimise energy use (20% savings) in buildings and enable active participation in the future smart grid environment. The desired energy savings will be achieved in three complementary ways. Firstly, by developing supervisory control strategies that will be able to coordinate larger subsystems (HVAC, lighting, renewable energy generation, thermal storage, etc) and orchestrate the operation of the numerous devices in such systems.

ARTEMIS Call 2011 Proyectos - 1

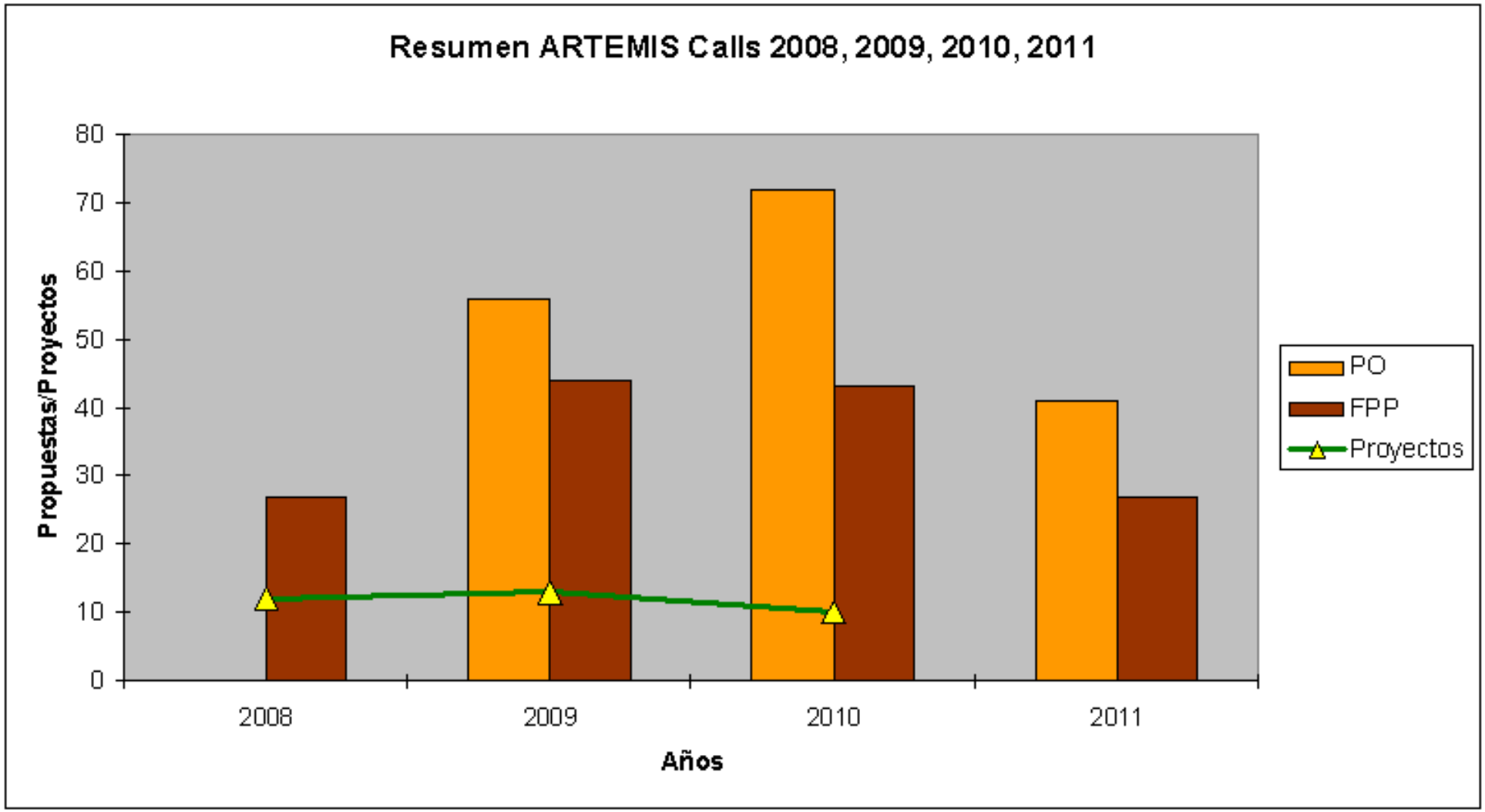
41POs, 27 FPPs presentados

Aún no se dispone de información sobre cada uno de los proyectos aprobados.
Se dispone de información de la particiapción por “partner type”



Preliminary analysis of the participation per partner type, based on eligible cost, shows a slight increase for SME partners with 27% compared to 21% in call 2010. The Large enterprises cover 47% and the Research organisations 26%.

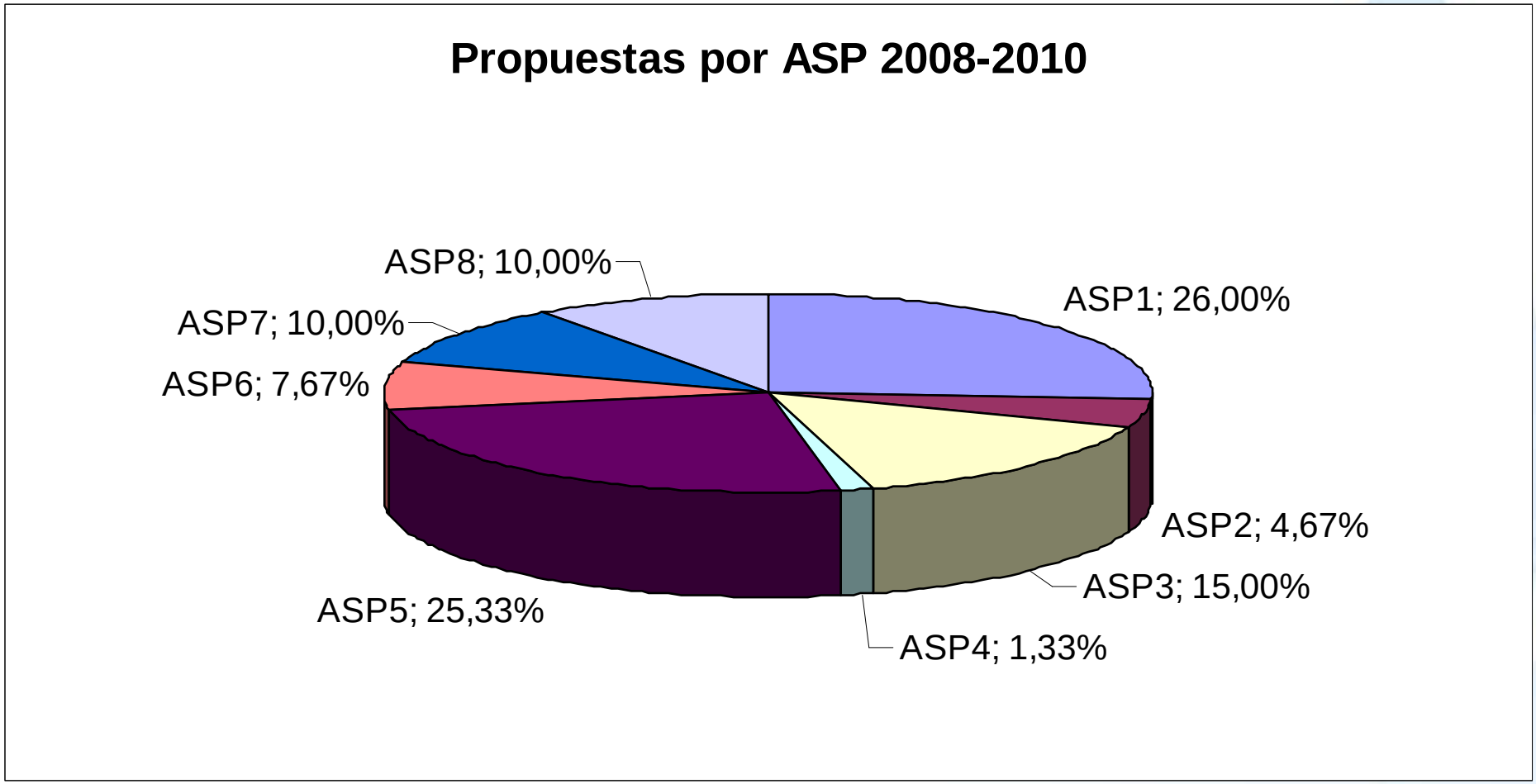
Conclusiones: PO/FPP/Proyectos



Conclusiones: PO/FPP/Proyectos

- El presupuesto de Artemis y España se ha reducido un 33% respecto del 2008.
- El número de FPPs ha aumentado en un 159% respecto del 2008.
- Los ratios de abandono (presentaron PO pero no FPP) son:
  - **2008: no hubo fase PO.**
  - **2009: 21%.**
  - **2010: 40%.**
- Los ratios de éxito (proyectos aceptados) son:
  - **2008: 44%.**
  - **2009: 30%.**
  - **2010: 23%.**
- **Conclusión**: cada vez mayor competencia, aunque todavía hay oportunidad para las buenas propuestas.

Conclusiones: PO/FPP/Proyectos

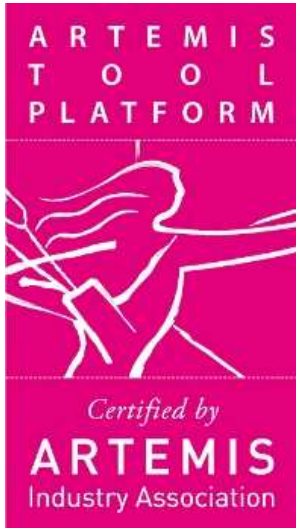


Conclusiones: ASPs

- En el 2010 la desviación respecto a la media es:
  - **ASP1 (histórico 26%). Variación: -8%.**
  - **ASP2 (histórico 5%). Variación: 33,3%**
  - **ASP3 (histórico 15%). Variación: -50%.**
  - **ASP4 (histórico 1%). Variación: -100%.**
  - **ASP5 (histórico 25%). Variación: -29,63%.**
  - **ASP6 (histórico 8%). Variación: 9%.**
  - **ASP7 (histórico 10%). Variación: 72,73%.**
  - **ASP8 (histórico 10%). Variación: 133,33%.**
- Tendencia hacia los proyectos transversales (más de un ASP).
- **Conclusión**: hay una descompensación en el interés por los diferentes subprogramas.

Conclusiones: tangibles

- Tendencia hacia la generación de valor vía dos herramientas:



- **Conclusión**: las propuestas deben ir alineadas a la creación de plataformas y/o centros de excelencia.