

ARTEMIS

Industry, Member States and the EU pool resources in embedded computer systems



The ARTEMIS ("Advanced Research and Technology for Embedded Intelligence and Systems") Joint Technology Initiative is a €2.7 billion research programme on Embedded Computing Systems. It will be run by a public-private partnership in the form of a "Joint Undertaking" established through a Regulation of the EU Council. For the first time ever, Community research and development (R&D) funds are being pooled with national funds, and this investment matched by industry.

Why a Joint Undertaking?

The purpose of the Joint Undertaking is to create an industrially-driven European-wide R&D programme which focuses on clear objectives that are key to European competitiveness. The Joint Undertaking aims to position Europe at the forefront of the revolution of "embedded" systems. Europe stands to benefit from a more focused approach to research, which complements and integrates national research efforts, and leads to economies of scale and efficiency gains. This represents a major improvement over the more fragmented approach that results from smaller overlapping research programmes, and the duplication of evaluation and monitoring procedures. As an independent body, the Joint Undertaking can streamline management and reduce red tape, shortening the time needed to sign contracts and so launch research projects. Experts within the Joint Undertaking will be able to follow-up on project results and ensure the co-ordination necessary for all participants to benefit from the advances being made. This offers a very attractive and responsive approach to managing research, for companies that face ever-shrinking times to market and narrowing windows of opportunity.

The Joint Undertaking will provide R&D financing in a way that encourages industry and Member States to further increase their research expenditure in the field.

What is the legal basis?

Joint Technology Initiatives (JTIs) are established on the basis of Article 171 of the EC Treaty. This allows the Commission to propose Joint Undertakings for "the efficient execution of Community research, technological development and demonstration programmes". Article 172 says that these Joint Undertakings can be implemented via a Council Regulation in agreement with Member States.

Embedded Systems

Computers are an integral part of modern society, whether we realise it or not. Apart from being a major industry in its own right, "embedded" computer systems can be found in just about any machine these days. They are everywhere, built into cars and roads, medical instrument and surgery robots, into homes, offices and factories, into mobile phones and even into our clothes. You may be surprised to learn that over 90% of computing devices are actually embedded in machines that do not look like computers. In short, an embedded system is a special purpose computer system designed to perform specific tasks in interaction with its environment.

What is ARTEMIS?

The ARTEMIS JTI (Joint Technology Initiative) is a public-private partnership between the Commission, Member States, industry and research institutes. The participation of industry and research organisations is orchestrated through ARTEMISIA (the ARTEMIS Industrial Association), which was established in January 2006 under Dutch law by Philips, ST Microelectronics, Thales, Nokia and DaimlerChrysler. It currently has over 100 members and new applications for membership are in the pipeline from industry, SMEs and research organisations. Members of ARTEMISIA can vote in elections, participate in key decisions, and shape the policies and evolution of ARTEMIS' "strategic research agenda". Membership also provides access to an extensive network of respected research partners. ARTEMIS is to be set up as a joint undertaking based in Brussels. Public research funding will be allocated following open calls for proposals. The first of these is expected to be published in 2008.

The overall budget of the ARTEMIS initiative is €2.7 billion over seven years with around 60% coming from industry. In short, each euro contributed by the Commission will leverage 7 euros of research effort, with €1.8 coming from Member States and €4.2 from Industry. Overall, the Commission is expecting to contribute €420 million during the seven years, starting with €42.5 million in 2008.

The birth of ARTEMIS: European Technology Platform

ARTEMIS began life as a "European Technology Platform" or industry group established in June 2004. The aim of the Technology Platform was to bring together key players across the entire industry spectrum to establish a common strategic research agenda for embedded computing, which would serve to attract investments from stakeholders. The strategic research agenda details the research and development challenges that need to be addressed. In addition, it deals with general aspects such as research infrastructure, education, support for SMEs and international collaboration.

26 major companies and research institutes participated in this technology platform, and delivered their strategic plan to the Commission in March 2006.

The ARTEMIS Joint Undertaking will now implement significant parts of this research agenda, co-funded by industry and research organisations, Member States and the Commission's own ICT research programme.

A market opportunity for Europe

A third wave of "embedded intelligence" is around the corner which will lead to the creation of new markets and applications that we cannot currently envisage. The ARTEMIS JTI aims to position Europe at the forefront of this revolution, in sharp contrast to the continuing dominance of non-European players in desktop computing and Internet.

The market for embedded systems

Forecasts predict that there will be more than 16 billion embedded devices by 2010 (almost three embedded devices per person on earth), and over 40 billion devices worldwide by 2020. Today, 98% of all computing devices or processors are used in embedded computing systems. Embedded systems (electronics and software) add substantial value to products. Within the next five years, the share of embedded systems in the final product value is expected to increase substantially in markets such as automotive (36%), industrial automation (22%), telecommunications (37%), consumer electronics (41%) and health/medical equipment (33%). The value added to the final product by embedded software is much higher than the cost of the embedded device itself. For example, in the case of a modern car, about 20% of its value is attributed to embedded electronic and software components, which also account for 90% of new innovations such as engine management (improved efficiency and reduced emissions), safety features (like stability control, antilock braking and airbags) and

comfort (navigation and entertainment features). Similarly, a modern cellular phone has more features than those of a laptop from a few years ago with a digital camera, camcorder, video and music player and, of course, a phone.

For further information:

Information Desk
European Commission - Information Society and Media DG
Office: BU31 01/18 B-1049 Brussels
Email: info-desk@cec.eu.int
Tel: +32 2 299 93 99
Fax: +32 2 299 94 99
http://europa.eu/information_society

ARTEMIS own website: <http://www.artemis-office.org/>