Establishment of the "ARTEMIS Joint Undertaking" to implement a Joint Technology Initiative in Embedded Computing Systems

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The Joint Technology Initiatives are public-private partnerships in industrial research at European level. They were set up as pilots in 2007-2008 under the Seventh Framework Programme in five strategic areas: aeronautics and air transport (the Clean Sky initiative), public health (the Innovative Medicines Initiative (IMI)), fuel cell and hydrogen technologies (the Fuel Cells and Hydrogen (FCH) initiative), **embedded computing systems (the ARTEMIS initiative**) and nanoelectronics (the ENIAC initiative). The SESAR (Single European Sky Air Traffic Management Research) programme should also be mentioned since it is funded under the Seventh Framework Programme.

An annual report on the progress achieved by the Joint Technology Initiatives Joint Undertakings ('JTI JUs') is required by Article 11(1) of the Council Regulations setting up the individual JTIs. This report contains details of implementation including number of proposals submitted, number of proposals selected for funding, type of participants, including SMEs, and country statistics. This **2011 annual report** follows the **first interim evaluations of the Joint Undertakings** carried out under Article 11(2) of the Council Regulations.

The European Commission, as a co-founding member, was responsible for starting up the JTI JUs. Once they had built up their legal and financial framework and demonstrated their capacity to manage their own budgets, ARTEMIS, IMI and Clean Sky were given autonomy in late 2009, followed by ENIAC in May and FCH in late 2010. Thus, 2011 was the first full year in which all the JTI JUs operated autonomously.

The first interim evaluation was performed on time and assessed their quality and efficiency and the progress achieved towards their objectives. All the reports concluded with a **favourable opinion**: the evaluation panels agreed that the **JUs should continue beyond 2013**. The evaluation panels supported the Sherpa Group's recommendations, in particular that **the current legal framework be streamlined to fit the purposes of setting up and implementing future JTIs**. In this respect, the current 'Community body' status of JTIs should be reviewed. They recommended **reinforcing and streamlining processes and decision-making**.

They also referred to the need (i) for more structured coordination and complementarity with FP7 and national programmes and funds; (ii) for improved communication, to enhance the visibility of JTI actions aimed at the general public and at international level; and (iii) for systematic data collection and a monitoring system for key performance indicators.

Progress achieved by the Artemis JU: for the period 2008–2013, the Commission allocated a maximum budget of EUR 420 million to the ARTEMIS JU, which was boosted by ARTEMIS Member State funding of at least 1.8 times the EU contribution (EUR 756 million). A matching contribution in kind at least equivalent to the public authorities' total is expected from industry.

In July 2011, ARTEMIS signed an additional Administrative Agreement with the Brussels Capital Region of Belgium. An Administrative Agreement with Poland was signed in December 2011, making it the 23rd ARTEMIS Member State, with the intention of committing a budget to the 2012 call.

The main objectives of ARTEMIS are to **tackle the research and structural challenges faced by industry in embedded systems** and to help the European industry **consolidate and reinforce its world leadership** in embedded computing technologies. The participation of Member States in funding and governance alongside the EU and industry is a major feature of the JU. The submission and evaluation procedure is two-stage: applicants first send a project outline (PO), then a full project proposal (FPP).

In 2011, 10 grant agreements relating to the 2010 call 3 were signed and call 4 was launched. 540 applicants reached the FPP stage of the 2011 call for proposals and 206 were involved in the projects funded (an average of 23 participants per project). ARTEMIS seeks to foster collaboration between all stakeholders - industry, including SMEs, national and/or regional authorities, and academic and research centres - pulling together and focusing research efforts. There was a **good balance** in the types of participants in 2011, with 71 from research organisations and academia, 73 industrial partners and 62 SMEs. The scientific and research community is well represented and coordinated. SMEs accounted for 37.9 % of total participations in 2011, and obtained 19.18 % of EU funding to ARTEMIS over the period 2008 to 2011.

The projects funded involved 17 countries, led by Spain, Italy, Germany, Finland, France and Austria. The EU-12 countries were also represented, by the Czech Republic, Latvia and Estonia. Only one associated country was involved in the projects selected for funding: Norway, but with six participants. The US was the sole international partner, with one participant.

In 2011 the **main research objectives** evolved to reflect the latest progress in their fields of technology. ARTEMIS revised its Strategic Research Agenda to take better account of the intrinsic nature of embedded systems as the "**neural system**" of society, reflecting their pervasiveness in all modern products, infrastructure and services.

For the future, a number of challenges remain open: the relatively small size of the JUs was considered as 'risky element' by experts involved in the first interim evaluation of ARTEMIS and ENIAC. The independent experts proposed, amongst the possible scenarios for JUs evolution both merging the two and setting up a **joint structure for administrative tasks only**.

It is time to seek **better alignment** of ARTEMIS and ENIAC research agendas **with national programmes**.

Funding for ARTEMIS and ENIAC projects follows a unique tripartite model. Partners obtain much of their funding from their own governments or regional agencies under grant agreements. The JUs also provide funding directly to the partners worth up to about 16.7 % of their eligible costs. This funding model worked well in the first years of ARTEMIS, but **with certain limitations** - mainly caused by sharply lower commitments by Member States in the context of the economic and financial crisis. In 2011, for the first time, the trend was upwards and this is expected to continue in 2012.