Press Release

Early achievements of the Joint Technology Initiatives' €10 billion R&D programme highlighted at the European Parliament

European Parliament - Brussels, Belgium

Brussels, 6 October 2011 – Europe's five Joint Technology Initiatives (JTIs) highlighted this week at the European Parliament the first achievements of their €10 billion research and innovation programmes. The first results emerging from JTI-funded projects highlight the success of this novel and unique model of public-private partnership (PPP) and its capability to boost innovation in key sectors for European competitiveness, job creation, and quality of life.

The five JTIs –**ARTEMIS** (embedded computing systems), **Clean Sky** (aeronautics and air transport), **ENIAC JU** (nano-electronics), **FCH JU** (fuel cells and hydrogen) and **IMI** (innovative medicines) – are presenting their impressive achievements at a dedicated event in the European Parliament in Brussels.

Between them, the JTIs have a **total budget of €10 billion**, around a third of which comes from the European Commission, with the rest leveraged from industry, research and the EU Member States. The JTIs are investing these funds in ambitious research and training projects that bring together experts from academia, small and medium-sized enterprises, industry, and other groups. As such, they cover the full innovation chain.

The projects highlighted this week during the exhibition and thematic sessions are already generating tangible results that will improve Europeans' quality of life through cleaner and quieter air and ground transport, improved energy security and efficiency, better and safer medical treatment, enabled by improved cross-cutting computing technology and advanced nano-electronics.

'The results and forecast gains presented here could never have been achieved by any one organisation on its own, nor by collaborative projects involving a handful of partners.
Only by pooling the expertise and know-how of industrial and academic partners, and public and private sector talent in game-changing collaborations across entire sectors can advances of this order of magnitude be achieved.

The Joint Technology Initiatives are reshaping the environment for R&D in Europe, in the spirit of the *Europe 2020* strategy,' - a statement released jointly by the Executive Directors of the five organisations *(Eric Schutz – ARTEMIS, Eric Dautriat – Clean Sky, Andreas Wild – ENIAC JU, Bert De Colvenaer – FCH JU, and Michel Goldman – IMI)*.

Ms Maria Da Graça Carvalho, MEP and host of the Joint Exhibition, stated: "Innovation is crucial for growth and creation of jobs in Europe. JTI´s are powerful instruments to bring knowledge into the market in Key Technologies".

Annex 1: ARTEMIS

The ARTEMIS programme was established to assure Europe's leading role in "Embedded Systems" - the electronic systems that are found literally everywhere. Today, by far the largest added value of all innovative products comes from the "embedded systems" part, directly or indirectly. They are also the enablers of new solutions to today's important societal concerns, such as clean energy, transport safety, affordable health-care, as well as being generators of new economic growth through market innovation.

"Embedded Systems" are electronic devices that invisibly bring together semiconductor technology and software to make real, working products. They enable such commonplace things as mobile communications, like GSM. They also enable the reduction of fuel consumption and pollution by cars and give them new features; they let aircraft fly efficiently and safely, manage our energy use to help reduce our carbon footprint. They can also be used to help keep us healthy, so reducing the cost burden of healthcare.

The computer, software and the Internet, highly visible at the workplace, changed the way we work and do business drastically. Now the same technological ideas are used invisibly, to make better, cheaper, more interesting, more economical and safer products – these are "Embedded Systems".
Putting electronic devices and software together is not trivial, especially when the end product must work faultlessly and continuously in often difficult and aggressive environments. If your office or home computer fails you, it's inconvenient at worst. If a computer in your car, aeroplane or factory were to fail, or if that medical equipment were to refuse service, the consequences can be literally fatal, let alone very expensive. But these systems are now un-missable in our present world.
Making a complex system with a guarantee that it will work perfectly, on time and every time at a competitive cost is a Herculean feat. Addressing this complexity, making them easier, cheaper and faster to design, test and approve for use, is a major demand of the industries using embedded systems and as such is also a major element in the ARTEMIS programme - and one where significant progress is already being made.

The know-how needed to keep ahead cannot be carried by one or even a few entities working together. Expertise from many disciplines needs to be pulled together and, as much of the progress is found through standardised approaches, a large buy-in from a broad base of players is needed. To help achieve this, ARTEMIS focuses its projects to address the re-usability of new technologies across different domains, and to encourage the formation of large, pan-European 'clusters' around important areas. These have been given names like "Self-sustaining eco-systems", which is a general concept, or "Centres of Innovation Excellence", which have a more formalised existence through an accreditation system put in place by the ARTEMIS Industry Association – the private partner in the ARTEMIS Joint Undertaking.

Such ideas are not new or even unique, but ARTEMIS is the first publicly funded R&D programme to achieve a European footprint and critical mass large enough to create the environment necessary for true innovation in its domain. And, by assuring a focus on technological solutions of major societal concerns, offering a good pay-pack for the taxpayer.

Editor's contact:
Else Embregts (else.embregts@artemis-ju.europa.eu)
Manager PR & Communications for ARTEMIS
Tel: +31 (0)88 00 36 188

Annex 2: Clean Sky Bringing Sustainable Aviation Closer

As the largest aeronautical research and innovation programme worldwide, Clean Sky develops and matures breakthrough 'clean tech' for air transport. The JTI is addressing Europe's key environmental and societal priorities, will enhance competitiveness and bring sustainable economic growth. Its total budget of €1,6 billion is funded 50% by the European Union and 50% by the aeronautical industry.

Clean Sky aims at developing large integrated demonstrators which concern the full scope of commercial aviation: large or regional aircraft, rotorcraft, engines, systems and the implementation of ecological design. The objectives are defined for each category of future aircraft, mostly in the range of 30% of CO2 emissions reduction and 30% of noise reduction, strongly contributing to the "ACARE" goals for aeronautical research and innovation. The technologies developed and demonstrated are being made ready for application by 2020. To achieve this, Clean Sky is spread into six technological areas which are coordinated by the leaders of the aeronautical industry. The Clean Sky industrial leaders are supported in this research, technology and innovation process by a wide range of tier one suppliers, SMEs, research organisations and academia.

One of the most promising concepts is the Open Rotor, an engine where the frame around the "fan" stage does not exist anymore, allowing an increased airflow to go through two open or 'non-ducted' contra-rotating stages for a better performance. Aerodynamic and acoustic tests have already been achieved for the novel fan-blades. The architecture of the concept aircraft fit for Open rotors has also been recently selected.

With the aim of decreasing the structural weight, technologies have been down-selected through laboratory testing, featuring for instance multi-functional, multi-layer carbon fibre composites, or the inclusion of nano-particles in the composite layout.

Another important technology stream is about the "laminar wing", designed in such a way that the airflow around the wing would be rid of the small scale turbulences, allowing for a lower drag: a first piece of hardware with the expected smooth surface was manufactured in full-scale, using ground-breaking manufacturing technologies with near-zero tolerances. Meanwhile the high speed wind-tunnel tests have been realized.

The delivery of the main demonstrators, and the performance of related testing range from 2012 to 2016. By the end of next year, an evolved turbo-shaft for helicopters, aimed at strongly decreasing CO_2 and NO_X emissions, will be tested on ground. In total, more than 20 demonstrators of different sizes will be tested at the level which allows the Clean Sky programme to ensure the maturity of the technologies: in flight, fully integrated, on aircraft like the A340 with a 8 meter span wing-section for the above laminar concept, or like the ATR 72 for regional aircraft structures and flight management, or a light helicopter for the test of a Diesel engine. Other tests are about on-board hardware and software designed for allowing the pilot to define in real time optimized trajectories in terms of noise and CO_2.

But first of all, by the end of this year, the Technology Evaluator will go through its first assessment: it consists of a set of simulation tools which will allow for an independent evaluation of future environmental benefits of clean Sky technologies, measured against 2000 level technology and assessed at aircraft level, at the level of a major airport, or at the level of the global air transport fleet.

www.cleansky.eu

Press contact:
Ron van Manen
Technology Evaluation Officer & Programme Officer
Tel: +32 471 820294 / +32 2 2218149
ron.vanmanen@cleansky.eu

Annex 3: ENIAC Joint Undertaking

Nano-electronics create the intelligent objects characteristic for the modern age, the fabric on which the Information and Communication Technologies are running. The ENIAC Joint Undertaking has been established to ensure the competitiveness and the sustainability European nano-electronics recognized as a Key Enabling Technology. Within the ENIAC JU, the R&D actors together with the ENIAC member States and the European Commission generate a research program with a total costs up to 3B Euros, driving and being driven by societal needs creating new markets.

Programme Overview
Driving the continued miniaturisation of the nano-electronic devices and the increase in their functionality, the ENIAC JU programme shall provide technologies and solutions addressing grand challenges in areas such as automotive and transportation, communication and digital life style, energy efficiency, health care and aging society, and safety and security.

Important Milestones Reached
After a challenging start due to the inherent complexity of aligning many stakeholders, the ENIAC JU engaged on a growth path. In 2011, the proposals selected for funding continued national and regional priorities, expanding and strengthening them in the strongly collaborative context of the European research. The increased synergy resulted in doubling the financial commitments with respect to the previous year.

A few example of projects and topics:

- In automotive and transportation, projects addressing the Grand Challenge "Intelligent Electric Vehicle" shall enable a 35% improvement in energy efficiency, with corresponding increase in the driving range.

- The Grand Challenge "Internet Multimedia Services" drives important progress towards the 5A solutions: adaptive systems enabling Anything to be transferred from/to Anybody located Anywhere at Any-time using Any-path.

- Projects focusing on solid-state lighting develop solutions with the potential to reduce by 20-30% the electrical energy consumption in Europe addressing the Grand Challenge "Reduction of Energy Consumption".

- Fusion of sensor systems with powerful data processing devices in portable medical imaging platforms addressing the Grand Challenge "Home Healthcare" open new ways in the therapy of degenerative brain disorders such as Alzheimer's and Parkinson's diseases

- The Grand Challenge "Securing European Challenging Applications" creates novel tamper-resistant components boosting European leadership in secure integrated devices.

Next Steps
The ENIAC Joint Undertaking shall continue along the path of identifying opportunities building upon Europe's specificities to establish a leadership position, and recognizing and eliminating gaps in the nano-electronics value chain to ensure sustainability. To this effect, it will continue to build upon synergies among all stake holders in this key Enabling Technology that permeates all areas of public and private life.

Press contact:
Elodie Michaud
Communications & Press Relations
Tel.: +33 1 40 64 45 73
michaud@aeneas-office.eu

Annex 4: Fuel Cells and Hydrogen accelerating the market entry of innovative energies technologies

The Fuel Cells and Hydrogen Joint Undertaking (FCH JU) is a unique public private partnership supporting research, technological development and demonstration (RTD) activities in fuel cells and hydrogen energy technologies in Europe. With a budget of € 940 million from 2008 to 2013, contributed for 50% by the European Commission and 50% by industry, it aims to **accelerate the market introduction of these technologies**, realising their potential as an instrument in achieving a carbon-lean energy system.
www.fch-ju.eu

Some important milestones towards deployment of these technologies:

Fuel cell field test demonstration for portable generators, backup and UPS power system applications (FITUP)

A total of 19 market-ready fuel cell systems from 2 suppliers will be installed as UPS/ backup power sources in selected sites across the EU. Real-world customers from telecommunications industry will utilize these fuel cell-based systems, with power levels in the 3-10kW range, in their sites. FITUP is supported by the FCH JU with € 2.475.978. Partners are located throughout the EU covering a range of environmental conditions to demonstrate the viability and enable the use of fuel cell-based UPS across the EU.

Clean Hydrogen in European Cities Project (CHIC)

The project involves integrating 26 FCH buses in daily public transport operations and bus routes and the respective infrastructure in five cities across Europe - Aarau (Switzerland), Bolzano/Bozen (Italy), London (GB), Milan (Italy), and Oslo (Norway). CHIC is supported by the FCH JU with 26 million Euros, and has 25 partners from across Europe, along with industrial partners for vehicle supply and refuelling infrastructure.

European demonstration of hydrogen powered fuel cell forklifts (HyLIFT-DEMO)

The HyLIFT Demo project will conduct a large scale demonstration of Fuel Cell Hydrogen (FCH) powered FLTs (Fork Lift Trucks), while building the business case to enable following deployment and market introduction by 2013. The project will hold a two year demonstration of at least 30 units of 2.5 - 3.5 tons FLTs with fully integrated 3rd generation fuel cell systems and hydrogen refuelling infrastructure at 3 end-user sites throughout Europe. HyLIFT Demo is supported by the FCH JU with € 2,881,245.00.

Next Steps

The FCH Joint Undertaking is also dedicated to support commercialisation studies: the development of a fuel cells and hydrogen Vehicles roll out plan at EU level, the development of a European Urban Fuel Cell bus commercialisation plan, and a plan for stationary applications. In that respect, concerted effort with all stakeholders including the European regions, national governments, industry, the research community and the European Community remain a major asset.

Press contact:
Claire Castel
Communication Officer
T: +32 476 99 42 08
Claire.Castel@fch.europa.eu

Annex 5: IMI research and training boost EU drug development

About IMI

The Innovative Medicines Initiative (IMI) is the world's largest public-private partnership in drug research. By linking industry, academic teams, regulators and patients' organisations in joint **research and training projects**, IMI is transforming the EU's ecosystem for pharmaceutical R&D, making Europe a more attractive place for private investment in innovation.
By sharing research results that have not been brought together previously, IMI project partners are building new methods, models and tools that will speed up the development of novel therapies. IMI is funded jointly by the European Union (€1 billion in cash) and EFPIA, the European Federation of Pharmaceutical Industries and Associations (€1 billion in in-kind contributions).

Achievements

The first 23 projects that have been launched by the Innovative Medicines Initiative (IMI) in 2009 and 2010 are generating impressive results.

For instance, the **IMIDIA** consortium has generated an innovative tool which will help researchers to understand **diabetes** and to test potential new drugs in laboratory conditions. This achievement is recognised by the scientific community as a breakthrough in diabetes research.

The **EUROPAIN** consortium has revealed important findings that contribute to a better understanding of the mechanisms of **chronic pain**, and achievement that has been covered in major international news media.

The companies involved in the **NEWMEDS** project have pooled data to create the largest known database of studies on **schizophrenia**, including information on 23 401 patients from 67 studies in over 25 countries. It offers the industry and the academic community unique opportunities for the development of tools and models that will help find targeted treatments for schizophrenia.

The **eTOX** consortium has developed an innovative computer model that predicts if a candidate-drug is likely to cause serious heart problems in patients. The new eTOX system provides better results than the computational systems currently used, and should help researchers pick up **drug safety** problems earlier on in the drug development process.

In addition, the IMI **Education & Training** projects have set up targeted training courses and information platforms for students and scientists that wish to develop their career in the area of drug safety, preclinical testing or any other aspect of drug discovery and development. This will allow industry and other research organisations to recruit better trained scientists.

Next steps:
A next wave of projects is due to be launched shortly and will include projects on autism, tuberculosis and vaccine safety. Early 2012, IMI will launch a new (5th) Call for research proposals, and consecutive Calls will follow after that.

Press contact:
Kim De Rijck
IMI External Relations Manager
kim.derijck@ imi.europa.eu
Tel. +32 484 89 62 27

An overview of **scientific publications** by IMI projects is available at www.imi.europa.eu