

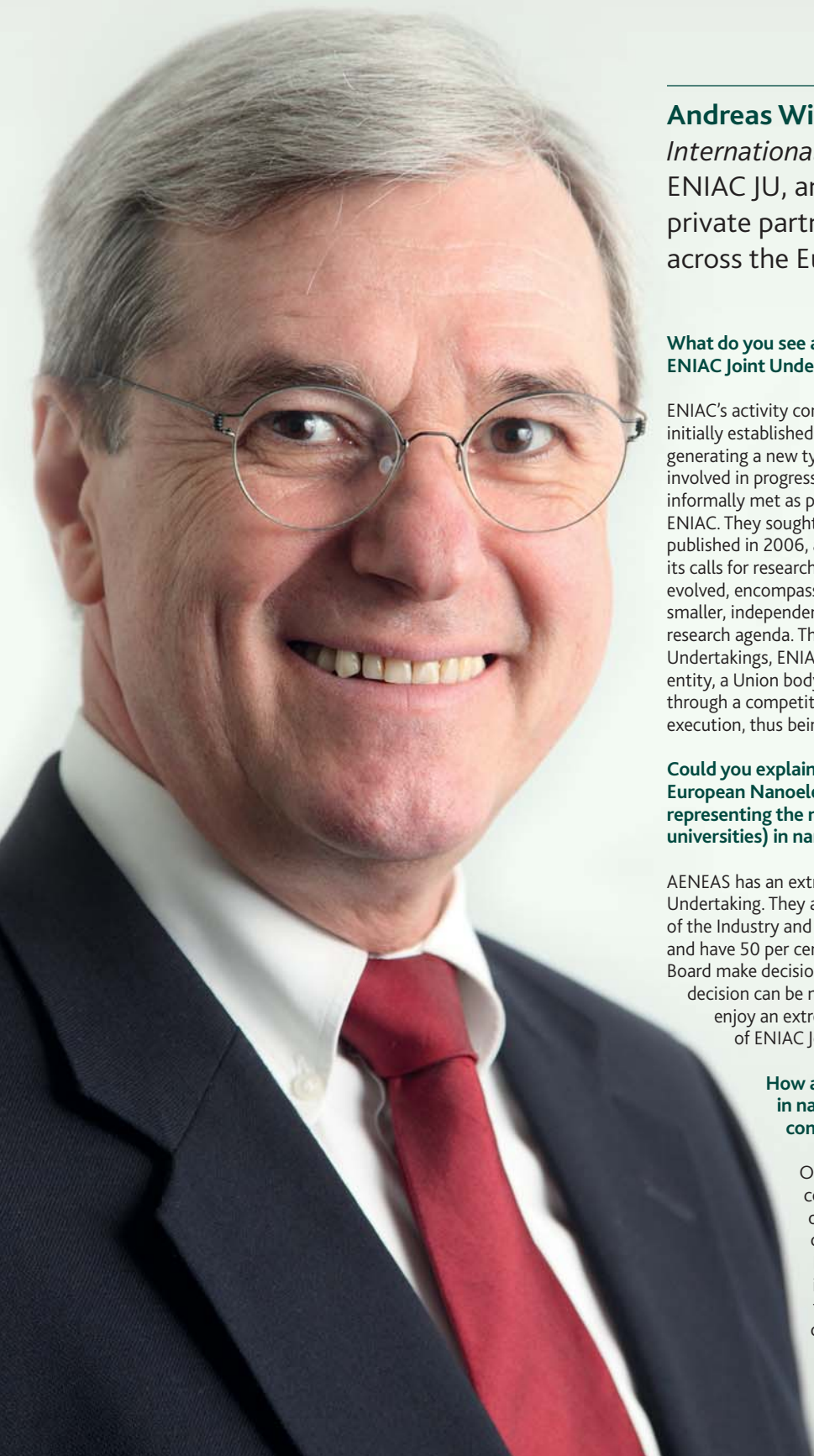
International Innovation

Disseminating science, research and technology



A public-private partnership in
nanoelectronics strengthening European
competitiveness and sustainability

ENIAC Joint Undertaking



Andreas Wild, Executive Director, talks to *International Innovation* about the birth of ENIAC JU, and indicates how this public-private partnership strengthens collaboration across the European nanoelectronics industry

What do you see as the motivation behind ENIAC, and why was ENIAC Joint Undertaking (JU) created?

ENIAC's activity commenced with the Lisbon Agenda in 2000. The Council, initially established to create a common market in Europe, engaged in generating a new type of society based on innovation. Several phases were involved in progressing in that direction: initially, industrial representatives informally met as part of an advisory council and called themselves ENIAC. They sought to elaborate on the Strategic Research Agenda first published in 2006, and advised the European Commission in launching its calls for research proposals. With FP7 beginning in 2008, their purpose evolved, encompassing implementation work. It was determined that a smaller, independent entity may be more effective in implementing the research agenda. These entities have been organised in the form of Joint Undertakings, ENIAC JU being the one in nanoelectronics. We are a legal entity, a Union body which can allocate grants to projects that are selected through a competitive process. We also perform technical reviews of the execution, thus being involved in all phases of research.

Could you explain the relationship between the Association for European Nanoelectronics Activities (AENEAS), an association representing the main R&D actors (companies, research centres and universities) in nanoelectronics in Europe, and ENIAC JU?

AENEAS has an extremely important role and is a member of ENIAC Joint Undertaking. They are assigned with various tasks including the nomination of the Industry and Research Committee elaborating the research agenda, and have 50 per cent of the votes in the Governing Board. The Governing Board make decisions based on a 75 per cent majority, ensuring that no decision can be made without the support of AENEAS. They therefore enjoy an extremely powerful position in terms of directing the work of ENIAC Joint Undertaking.

How are you developing key competencies in nanoelectronics to strengthen European competitiveness and sustainability?

Our method of operation is based upon our competitive project proposal system: industry organises consortia on subjects related to the content of our calls, they submit the proposals, and ENIAC JU competitively evaluates them, employing independent experts. Once the projects are selected for funding by our Public Authorities Board, they are contractualised and can begin.

Set up as a public-private partnership bringing together the European Commission and EU Member and Associated States with AENEAS, what has ENIAC JU facilitated thus far?

The concept of combining the Member States' and the Union's funding to support research topics as defined by the industry represents a new type of public-private partnership, bringing the existing partnership in Europe to the next level. Currently we are trying to optimise the mechanisms enabling us to direct EU resources to strengthen existing points of excellency in Member States, to create a strong value chain in Europe, and to identify and eliminate the gaps and weak points. We have made considerable progress towards finding mechanisms to unite these various interests represented by the actors in the ENIAC Joint Undertaking.

The involvement of many actors does increase complexity and perceived bureaucracy, but it also provides a platform for the participants to negotiate, present their priorities and balance them with the goals of other participants to ensure that a coherent approach will emerge at European level, and that the harmonisation of local, national and industrial interests takes place. We cannot apply pressure or oblige the actors to move: this is both complex and exciting, since actors are converging and creating a synergetic picture without brute force.

By what means are you working towards synergising and coordinating European R&D efforts?

We achieve synergy by trying to encourage active involvement from all participants in the programme. Industry now has a precisely defined role; similarly, public authorities must negotiate and converge towards a joint decision as to where the money is spent. The EU – through the European Commission representatives – also imposes some requirements in terms of equality of treatment, fairness, openness of the call, etc. We have to comply with all these regulations and, in order to do so, we establish intensive dialogue. Member States have begun to realise their vital role in the programme, proving that we have made progress in this direction. They have recognised that if they do not communicate between themselves and express their priorities and interests regarding the best solution for an optimised global result, then the programme will have no impact. Therefore, to achieve synergy a clearly defined goal and purpose must be developed, as well as a means to measure progress towards that goal. In this vein we monitor the progress of European industry activities in comparison with other regions of the world in global competition. We then engage in very active dialogue to select the topics in which our resources can make a difference, and the means by which this can be achieved.

Could you outline the methods you are employing to promote the involvement of SMEs in your activities?

Our statute requires that we promote SMEs and their participation in the programme. Among the 336 participating companies, 41.7 per cent are SMEs, 23.2 per cent large companies, and 35.1 per cent are represented by research institutes and public entities.

The participation of SMEs in our programme is reasonable and we must continue supporting them, however, our approach ensures that all kinds of participants are involved in the projects. For example, projects that make the most impact are very seldom small teams working in isolation, and in order to influence global competition it is essential to have the whole ecosystem involved, including large companies supported by SMEs and research centres often acting as collaborators, vendors, suppliers or customers.

What areas of innovative high-tech applications are you both driving and driven by?

Our Strategic Research Agenda specifically highlights several areas in which Europe is traditionally very strong. For instance, Europe is the leading market for semiconductors applied to the automotive industry; the largest consumption of semiconductors for this application takes place here. Clearly we must, therefore, merge electronic and transportation applications in our strategic research.

In our research agenda there are also other topics where Europe has the opportunity to take a leadership position. One of these areas is related to the ageing population: in Europe we see life expectancy increasing, and therefore have an immediate need to develop technologies to consider this phenomenon. If we do a good job developing information technology that incorporates this area of activity, European companies have a chance to become leaders in this field. Another example is the European traditional ecological awareness that shall help us assume a leadership position in developing nanoelectronics solutions for green technologies.

Looking towards the future, what targets has ENIAC JU set out, and how will you improve the coordination of European research in nanoelectronics? Can you outline some of the challenges you are facing?

To improve the coordination of European research in nanoelectronics we have active links to other types of public-private partnerships, such as the Eureka Cluster. We also have relations with other Joint Undertakings and Clusters that are not specifically in the field of nanoelectronics but are linked to what we perform here. At ENIAC JU, we are trying to find a coherent, overarching strategy that allows us to leverage the specificities of each funding mechanism, ensuring maximum impact for industry in global competition.

Why has dissemination become so vital in today's research climate?

Dissemination in its traditional form has some limitations with regard to nanoelectronics, which thrives on an economy of scale and gets increasingly concentrated. However, in terms of academic research environments – where the novelty of the idea is on a long-term horizon – collaboration and dissemination leads to faster progress and greater impact, effectively producing a sustained flux of innovation which is vital for the global competitiveness of the European industry.

Is there any other aspect of ENIAC JU that you would like to discuss?

I believe that the Joint Undertaking, and the way it is structured and organised, has the potential to contribute to the upward trend of the European nanoelectronics industry. There are, however, a few difficulties to solve. For example, we have not been able to entirely convince the Member States about the effectiveness of the mechanisms we have found to ensure this programme's smooth running. As a result, the budget of ENIAC JU is under-utilised. This is a major issue because we are looking at an industry that is engaged in very tough global competition and needs all the support we can offer. To have help available, and not be able to find a mechanism to ensure it is applied successfully, represents a serious concern.

My top priority for the next three years is to identify the projects that will justify a level of funding in-line with the available budgets, and to implement, simplify and evolve the funding mechanisms to ensure a high effectiveness of funding. Our success will consist of a recognisable contribution to the global competitiveness of the European nanoelectronics industry.



www.eniac.eu

ENIAC Joint Undertaking • Avenue de la Toison d'Or 56-60 1060 Brussels, Belgium • Mail: TO56 1049 Brussels, Belgium
Tel: +32 2 221 8102 • Fax +32 2 541 8247 • eniac@eniac.europa.eu • www.eniac.eu



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