

# **Danish proposal for a SCAR Collaborative Working Group on “ICT and robot technology in agriculture and related industries”**

## **Rationale**

There is a growing worldwide need for the development of innovative technologies applicable for biological systems according to the global demand for food and food quality and the increasing awareness of the impact of agriculture on animal welfare and environment. There is a significant potential in supporting the competitiveness of EU agriculture and related industries through mobilising research and innovation efforts on ICT and robot technology, which has been neglected in FP6.

New EU policies on traceability, food safety, agri-environmental and rural development have renewed the interest in ICT and robotics research as a solution to an efficient implementation of these policies. The policies are reflected in a demand by European agriculture and related industries, for technological solutions that accommodate the demands and provide competitive advantages in a market with increased consumer demands and environmental focus. There is a significant potential in supporting this by mobilising research and innovation efforts on ICT and robot technology within the EU. The challenge is to support the emergence of biosystem management technologies capable of meeting environmental and ethical requirements while promoting efficiency and a healthy work environment.

The knowledge bases that exist in the implicated research areas will through a closer cooperation and coordination be able to achieve a synergy that can create new innovative solutions in the applied research and production of the sector. The added value will be created through interprofessional network and the large growth potential of SMEs that can develop high-technological solutions in the cross field between biology and engineering, and area where EU has the potential to take the lead.

The fundamental technologies play an increasingly important role in European national strategic research priorities and should be expected to do in FP7 as well. There is a considerable scope for increasing member state collaboration and many reasons for doing so, including:

- Agriculture and the food industry in the member states face largely the same problems, and often initiate research and development in ICT and robotics independently of each other to solve these problems. The member states can benefit from collaboration in R&D and by using each other's results.
- Increasing demands for traceability are a threat to the free trade of food products in Europe, unless common solutions can ensure an efficient use of ICT and robotics in the exchange of products between member states.
- Legislation related to agricultural subsidies, environmental regulation, traceability, food safety, etc., is largely enacted at the EU level and efficient support of these policies requires coordinated research on ICT support.
- The costs of research and development in the field of knowledge intensive ICT and robotics are very high. There is a considerable scope for improving the R&D efficiency by cooperation between member states.
- Different expertise, research data and research facilities exist in different countries so international collaboration allows an integrated approach to R&D issues.
- Increasing the market place through collaboration between member states will provide improved opportunities for profitable R&D in agricultural ICT and robotics.
- National funding of R&D in agricultural ICT and robotics are often insufficient and difficult to obtain. However, an increased international collaboration may well stimulate national funding as well.
- EU agricultural machinery development is under pressure from producers outside the EU and there is a need for renewed European focus on the next generation robotics solutions that support key EU policies.
- ICT and robotics will ensure the productivity and minimize the negative environmental impact of the sector.

## **Working group**

The vision of the working group is to shape and focus the research and development on ICT and robotics for the agricultural and related industries and provide a basis for member state collaboration. The working group brings together existing networks and the technological companies, achieve critical mass, and provide optimal conditions for the European work in ICT and robots for agriculture and related industries.

Contact is Dr. Svend Christensen (research director of Department of Agricultural Engineering, the Danish Institute of Agricultural Sciences, [Svend.Christensen@agrsci.dk](mailto:Svend.Christensen@agrsci.dk)).

## **Possible tasks might address aspects of:**

- Identifying focus areas, that are fundamental to developing and maintaining European competitiveness:
  - Map policy drivers
  - Identify national, EU and international research and development programmes supporting these policies
  - Identify needs by agriculture and related industries for EU level collaboration and research
  - Analyse RTD gaps in relation to industry needs and EU policies
  - Assess standards for ICT communication in relation to traceability
  - Establish a common agreement on priority issues
- Expanding the working group by integrating sectors to strengthen the interprofessional focus for maximum exploitation of the potential of the area
- Quality of food and safe agricultural production (quality assurance)
- Environment protection and sustainable appropriate plant production
- Animal welfare and adequate livestock husbandry
- Establish a framework for collaboration between member states research organizations, agricultural organizations, and related industries

### **Deliverables**

- Advise SCAR on a cooperation research agenda of EU/International research priorities on ICT and robots in agriculture and the related industries;
- Report on current EU RTD capacity and infrastructure in ICT and robots in agriculture and the related industries

**Department of Agricultural Engineering  
Danish Institute of Agricultural Sciences  
May 2005**