ICT-AGRI-2 FP7 ERA-NET 2014 -17

Information and Communication Technologies and Robotics for Sustainable Agriculture

Action plan 2015-2016 for implementation of the ICT-AGRI SRA

Towards the second ICT-AGRI2 call

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ICT-AGRI 2: project goal

Identify needs
and solutions

Action plan for implementation of the Strategic Research Agenda

Implementation in EU
and national initiatives

Implementation in
transnational calls

Three annual repeats

Topic 2015-2016: Farm Management Information Systems

- Global food security
- Sustainable resource management
- Energy consumption
- Food quality and safety
- Climate change
- Social aspects and demands

- Increase productivity
- Reduce waste in the food chain
- Optimize fertilizer and pesticide use
- Optimize water management
- Maintain soil quality
- Protect and promote biodiversity
- Minimize air pollution
- Increase energy efficiency
- Ensure food quality and safety
- Food traceability and information
- Reduce greenhouse gas emissions
- Increase animal welfare and health
- Less tedious and hazardous work

Plant Production

Precision Crop Farming
- Variable Rate Application (VRA)
- Controlled Traffic Farming (CTF)

Animal Production

Precision Livestock Farming

Automated Indoor Climate Control

Automated Quality Control

Agricultural Robots

Farm Management and Information System (FMIS)

Farm Management

FMIS current problems

For interoperability ICT components used within the same farm enterprise:

- have partly overlapping and partly unique services, functions and interfaces,
- are missing required application services, functions and interfaces
- have separated data repositories and
- have inadequate and incomplete data exchange.

Most of the available ICT components are lacking both technical and semantic interoperability, resulting in data sharing issues and non-coherent user interfaces

Current ICT Components often hamper farm enterprise integration and do not sufficiently support the monitoring, planning and control processes to enable precision- or smart farming.

FMIS overall challenge

Overall challenge: integration of all kind of IT systems that make up an FMIS

Five main challenges for agricultural software development:

- handling the increasingly large amounts of data, especially from all kind of agricultural equipment
- interoperability between various systems at farm level and in the whole supply chain network surrounding the farm
- standardization of data
- overcome the small scale and the regional focus of software development and
- comply with national or regional differences in farming practices.

4 main FMIS innovation topics

1. Information collection methods to get access to information
2. Information aggregation and analysis techniques to derive intelligence
3. Decision support and information exchange mechanisms to take action
4. Platform implementation and adoption strategies for stimulation

1: Information collection mechanisms

- Access to sensor data
  - Hyper-local weather monitoring (< 2Km, one to two days ahead of time)
  - Sensor data for agronomic data modelling
  - Extracting information from big high-resolution satellite data sets
- Information standardization
  - Standardise semantics of shared information
  - Collaborate with standardization organizations

2: Information aggregation and analysis techniques

- Big data analysis for pattern recognition
  - Text mining methods and tools
  - Data clustering techniques and applications
  - Machine learning algorithm applications
  - Data analysis workflows
  - Spatiotemporal data mining techniques

- Semantic alignment for aggregation of data
  - Ontologies for aggregation and linking of data
  - Automatic enrichment methods for metadata

3: Decision support and exchange of information

- Decision strategies for operation and dealing with risks
  - Standard operating procedures
  - Preventive measurements to deal with risks
- Data exchange with partners in the supply chain
  - Information interoperability for traceability
  - Data standardization and ownership
- Data exchange with stakeholders in government, research and service providers
  - Collection of information for reporting

4: Platform implementation and adoption

- Platform for modular (multi-vendor) applications to offer smart services

- Formation of Farm Software Ecosystems by different organizations
  - Platform development
  - Development of modules (multi vendor) applications
  - Governance Structures (Open Software Enterprises)
    - Standard Interfaces
    - User interaction (farmers, application developers, platform developers, service providers)

4: Platform implementation and adoption

- Enhancement of Platforms and Farm Software Ecosystem development
  - Data repositories
    - How to share (historical) data between different systems?
    - Use of data standards
    - Resolve governance issues (ownership, business models, etc.)
  - Alignment of software development standards and service configuration support
    - Based on generic enablers/reference information models
    - Sharing of resources (cf. FIWARE/FIspace approach)
    - Connecting existing developments /platforms (e.g. FARM365net, DATALAB, etc.)

General call topics/requirements

- Use existing, open IT platform (e.g. FISpace)
- Ensure compatibility with products from other/different suppliers
- Demonstrate interoperability between components in FMIS via plugfests
- Contribute to standardization

Let's workshop!

"Discussion booth" for each of the 4 topics and discuss about:

1. Do you agree with the structure?
2. Did we miss topics on FMIS?
3. Which emphasis in our call?

More information from our website:
ict-agri.eu

Have a prosperus workshop!