

Template for short research summaries on practical results

Reference to the project: Smart Agrifood / Reference to the WP: WP200 Smart Farming

Smart Farming

(please use 1 sheet per significant results)

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Aims and background

The European farming sector is about 400 Billion Euro market annually (source Eurostat October 2011) and Information and Communication Technologies are more and more needed to boost revenues and save production costs. If we assume only 2% spending for ICT we would end up with **8 BEuro annually** to be spent. The **Future Internet** is seen as the most promising lever for improving such efficiency. With novel cloud technologies and services, farm industry can use support functions for making intelligent decision in-cooperating environmental conditions and electronic market places. With FI networking technologies and services a smooth interworking with logistics and consumer will be provided thereby increasing food safety and transparency.

Current **Farm Management Systems** are on-site centric and networking opportunities across other farmers, business partners and consumers are not well covered by them. Moreover, local IT is costly and presents a single point of failure as well. Future Internet will provide the opportunity for subscription of relevant services with a minimum up-front investment from the farmer viewpoint. **Security and privacy** are key requirements for sensitive business operations and trusted ICT partners have to guarantee farmer demands.

Results and applications

Some of the specific topics that should be facilitated in order to improve the Farm operations are as follows:

- Provide on-site ICT solutions for rural and remote areas
- Secure and trusted interworking with cloud services a farmer can subscribe to
- Savings in daily work and increasing farmer revenues by utilizing a knowledge-based network between local (e.g. neighbor farmer), regional (e.g. weather forecast) and global stakeholders (e.g. European policies)
- Improved food safety and authenticity
- Meeting quality management and sustainability standards at farms

- Improved education and training materials
- Improved knowledge for further research

Some of the technological concepts that could be applicable are as follows:

- Connected local Farm Management Systems communicating to global network instances (e.g. weather services) and to other business partners and consumers.
- On-the-field communications and local intelligence on machinery for offline operations.
- Advanced multi-media operations for audio, video and sensor measurements on-site and in-field for advanced decision making.
- Electronic marketplaces for service subscriptions for repair, animal nutrition, logistics, and advisory services.
- Building up a strong end-consumer customer base for on-site selling and meeting transparency demands for food products in a trusted community globally.
- Improved remote support by eVeterinaries and EAgriculturists for fast diagnosis of impairments.

Significance and benefits

In general, the expected results should provide benefit by addressing the following issues:

- *Fast and cost efficient support:* Advanced stock management, measurements and sensing on-site and infields in cooperation with secure and trusted networking will drive down costs and boost efficiency.
- *Increased revenues:* Electronic market places can much better address business partners and consumer needs thereby increasing sales activities and reducing the amount of spoiled and old vegetables or useless meat production.
- *Increased safety and transparency for end consumers:* Trusted consumers can access farm information systems for their buyer's decision in a convenient on-the-fly access.
- *Reducing environmental impairment:* By FI, we expect less pollution and reduction in waste.
- *Comparable Service Level Agreements with business partners:* Farmers can benefit from eMarkets by their service selections and corresponding costs in an harmonized and comparable manner. Standardized service queries elements will be provided for such comparisons.

Summary for the benefits:

- Cost savings
- Boosting revenues due to more efficient sales
- Harmonizing and standardizing service components and information elements.
- Guaranteeing privacy and security by Future Internet security concepts.
- Screening of information by personalized selection criteria
- Interpretation of different objects in a system
- Improving the environment and reducing pollution