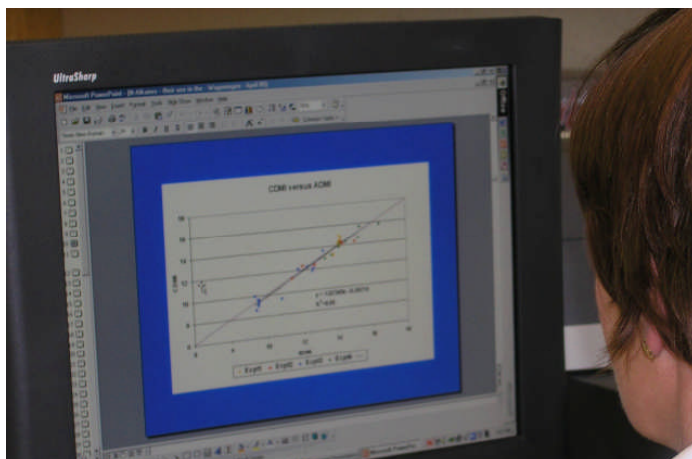


Project number: 6054
Funding source: FP7

Date: March 2014
Project dates: Jan 2010-Dec 2012

AgriXchange- A network for data exchange in agriculture



Key external stakeholders:

Farmers, machinery manufacturers, software providers, breeding organisations

Practical implications for stakeholders:

The outcome of this project is the development of a realisation that there is a requirement for a standard to be developed in relation to data exchange between groups and entities

- There is a disparity of ICT and internet usage across different groups and entities across different EU countries
- There is potential for significant added value to be obtained around data from different sources in agriculture
- There is a requirement for a common data exchange system to ensure data can be transferred and used between entities and countries across the EU

Main results:

- Development of a strategic research agenda (SRA) for the future vision of data exchange in agriculture based on AgriXchange as well as a number of previous projects.
- The SRA not only focuses on the standardisation process but also on defining priorities for future research in ICT within agriculture.
- An international review of data exchange suggests that there is a disparity of data exchange across the EU

Opportunity / Benefit:

The outcome of this project is to develop a recognition that there is a requirement for a set of standards that can be used to formulate data and allow it to be transferred by different groups and entities to be developed.

Collaborating Institutions:

Wageningen University & Research Center (LEI, LSR, Alterra) - The Netherlands; Kuratorium für Technik und Bauwesen in der Landwirtschaft (KTBL) - Germany; MTT Agrifood Research – Finland; Wireless Info (WRLS) - Czech Republic; Institut de l'Elevage (ELEV) – France

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1. Project background:

Within the knowledge-based bio-economy, information sharing is an important issue. In the agri-food business, this is a complex issue because many aspects and dimensions play a role. An installed base of information systems lack standardization, which hampers efficient exchange of information. This leads to inefficient business processes and hampers adoption of new knowledge and technology. Especially, the exchange of information at whole chain or network level is poorly organized. Although arable and livestock farming have their own specific needs, there are many similarities in the need for an integrated approach. Spatial data increasingly plays an important role in agriculture and has huge potential to increase efficiency and reduce costs.

2. Questions addressed by the project:

The overall objective of this project was to coordinate and support the setting up of sustainable network for developing a system for common data exchange in agriculture. This was achieved by:

- Establishing a platform on data exchange in agriculture in the EU;
- Developing a reference framework for interoperability of data exchange;
- Identifying the main challenges for harmonizing data exchange.

3. The experimental studies:

First, an in-depth analysis and investigation of the state-of-the art in EU member states plus Switzerland was carried out. A platform was built up that facilitates communication and collaborative working groups, that worked on several, representative use cases, guided by an integrative reference framework. The framework consisted of a sound architecture and infrastructure based on a business process modelling approach integrating existing standards and services. The development was completed in close interaction with relevant stakeholders through the platform and international workshops. The results converge into a strategic research agenda that contains a roadmap for future developments. The project consortium consists of 15 partners from 11 countries covering different disciplines, stakeholder views and experiences with information management and standardization.

4. Main results:

The report highlights the results of research on the current situation of data exchange in EU member states and Switzerland. The current situation was formulated through the compilation of a literature review and investigation of the state of the art in these countries.

In arable farming so called precision agriculture is one of the driving forces for data exchange and issues related to data formats and interface standardization. Currently, new automation, ICT and GIS technologies provide solutions for steering and controlling site-specific production systems to fulfil requirements of safe, efficient, environmentally friendly and traceable production. To enable compatibility between different system parts that are needed in performing data transfer, an information management system which utilizes open system interfaces and ICT standards, such as ISOBUS, and efficient data transfer are required. The implications of ICT and data transfer in livestock production directly affect consumers in terms of awareness and knowledge of consumers, information transfer for food safety, animal health and welfare, efficient plant and animal production and sustainability of production systems. Expected ICT developments in the coming years include developments towards external storage of farmer's data to cater for increasing amounts of data produced. Centralized management information's systems, with internet-based cloud support are foreseen. Geographical Positioning Systems (GPS) is seen to become a central plank of future agricultural technology in terms recording field data collection, yield mapping automated variable rate applications (VRA) in seeding and fertilizing amongst others. According to the results of the research, arable farms are largest in the Czech Republic, Denmark, UK and France. The largest dairy farms were in Denmark, Cyprus, Czech Republic and the UK. Farm automation level characterized by precision farming is only used to a small extent by farmers in most EU countries. However, there is a significant difference in areas across Europe, in Western and North Europe and for example in Czech Republic there is more progress in PF development. Manufacturers of agricultural machines are the main booster for adaptation of PF techniques in developed countries such as Germany, the Netherlands, Denmark and Finland. In general big differences all over Europe can be seen in data integration at process level. The availability and accessibility of (broadband) Internet in rural areas is an issue in most countries. Except from some countries like Germany, France,

Denmark, Belgium and the Netherlands.

5. Opportunity/Benefit:

1. To include ICT and knowledge management for agri-food and rural communities generally as a vital part of the ICT policies and initiatives (for example Digital Agenda for Europe 2020). Knowledge becomes one of the most important products and also material. If there is no equal access to knowledge by rural communities, the urban rural gap will grow and negative trends will continue e.g. abandonment of rural areas.
2. To improve the use of representation of ICT in Agriculture specialist and users on European activities – community of rural ICT researchers, users and developers need to have strong representation within political dialogue.
3. To support better adoption of Agriculture on Climatic change – experiences from past and discussions on Social Networks demonstrated that climatic changes have an influence on agricultural production. This influence could be in some cases positive (for example warming for Nordic countries), but in most cases it is negative. So it is necessary to support farmers by knowledge and how to adopt their production in new conditions.
4. Support better transfer of RTD results and innovation into everyday life of farmers, food industry and other rural communities. There is visible progress worldwide in the roll out of basic communication infrastructure but the take up of new innovative rural solutions is not so fast and in many cases, there is a low transfer of real ICT based results and innovation in practice
5. Build new ICT model for sharing and use of knowledge in rural regions. Currently we can recognise more shifts of technologies to web-based and mobile solutions, cloud computing, open access to context, social media, collaborative platforms and business intelligence. Building such solutions will not only help rural communities, but will open also new business opportunities for the local and regional ICT industry through development of new applications and tools to support the European agri-food and rural sector. Participation of local ICT SMEs on development and implementation of local applications will play an important role in regional development.
6. To support discussion and transfer of knowledge between developed and developing countries – agriculture, food, production, food safety and food security, energy, environment protection are global issues. It is important to support open discussion between developed and developing countries about these aspects. It is also important to support transfer of experiences.

6. Dissemination:

There were three International conferences held as part of this overall project which included GeoFARMatics 2010 (Cologne, Germany), EFITA 2011 (Prague Czech Republic) and SmartAgrimatics 2012 (Paris, France), while there were a number of internal project workshops. There was Industry representatives at all events. This project represented an EU cost action with the main focus discussions between the project teams

Main publications:

Henri Holster, Sarka Horakova, Bert Ipema, Bénédicte Fusai, Gianfranco Giannerini, Frederick Teye, Daniel Martini, Laurence Shalloo, Otto Schmid Current situation on data exchange in agriculture in the EU27 & Switzerland, agriXchange

7. Compiled by Laurence Shalloo
