Agricolus Profile

Project Name: Agricolus
FIWARE Accelerator: SpeedUp!Europe
Grant Funding: March to October 2015
Level of Grant funding secured: €68,000
Target Sector: AgriFood

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Vision and Market Need

It is now imperative that European agriculture is able to increase productivity while also addressing environmental issues. The adoption of appropriate technologies can support this transition in the face of reduced CAP funding. Precision farming can assist farmers to improve effectiveness in crop management while also dealing the climate change and diseases.

Teamdev srl commenced activities in 2008 and started to investigate how technology can support the agriculture domain. In this context Teamdev srl started to cooperate with the University of Perugia through the SIG 2015 project.

Frequently farm entrepreneurs do not have the necessary information at the right time in order to efficiently manage both their farm production and the phytosanitary (pesticide and fertilizers) treatments needed for healthly plants. Moreover very often the information related to sow /harvest /treatments are not interconnected with the pesticide and fertilizers storage and are used only for administrative purposes. Agricolous addresses these problems by providing a novel precision agriculture solutions which leverage FI-WARE technology to enable farmer to both produce more with less improving and reducing the agricultural environmental footprint.

The Agricolus Web application allows farmers to map fields with external GIS services, Esri Arcgis Online platform, and analyse information from external Decision Support Systems, stock management systems and other services that are part of Agricolus products. It supports the sending and receiving of geo-referenced alerts for diseases and possible risks. It allows experts, administrators and other stakeholders to share news and information, routed to farmers who are part of this community via a recommendation system.

The motivation for this application was based on the requirement for farmers and agronomists to have access to real-time information from a range of relevant sources to assist their decision making. They also need historical data on their fields. Teamdev srl has tested the Agricolus solution with a mix of farms, universities, agronomists in Italy and Denmark and unions of farmers in Italy. After the first year, local government, farmers and union of farmers have continued to use the service. They provided Teamdev with a lot of suggestions on how to improve the User eXperience. Based on market demand Teamdev deployed a mobile application to support anytime anywhere information consumption.

Target Market and Revenue Streams

While the Agricolus suite is designed for the European market, Italy is the initial target market based on the number of farmers who are growing wine, olives and vegetables. Target users include: farmers who wish to work more efficiently while dealing with disease prevention; unions of farmers who wish to collect information for CAP and government agencies who wish to disseminate information quickly about diseases.

The Agricolus Suite is an ecosystem of applications that helps the farmers to implement precision farming based on leveraging a pest awareness platform and decision support system tools. The DSS support farmers to reduce treatments usage, reducing costs and environmental impact of the cultivations.

Revenue streams are based around a subscription model, which can be taken out by a farmer, a union of farmers for its clients or a government agency for a grouping of farms growing specific crops within a region. Customers are acquired through a mix of social networks, relevant agrifood events, direct sales, agreements with farmers associations and international distributors. Over time revenue streams may also come from white labelling the solution for third parties.

Agricolus has also starting to implement an internal marketplace of alert services and other functionalities that customers can enable directly, subscribing to each service within the same platform. In this way Agricolus will be able to support app purchases, even for third parties services, that will payment for usage in Agricolus as a percentage of this subscription.

Competitive Positioning

Agricolus is a suite of products that focuses entirely on the European market. Its unique selling proposition is the manner in which it helps the farmers in all the steps of production and facilitates all the actors to come together in a single platform in order to share information and analysis tools.

Competitors include solutions focused on irrigation or one part of precision farming. While there are some good product offerings in the USA and Australia, they are targeting a different market. Agricolus is focused on addressing the needs of European small, medium sized and large farms.

Having compared Agricolus with competitive offerings, Teamdev determined that its value proposition is providing a complete ecosystem that includes analysis tools and the Agricolus DSS, which is also able to integrate third parties solution. The competitive advantage is that Agricolus offers a suite of tools and apps, which end users can select from. Some apps are available under a freemium licencse or provided through a union license for its members. Farmers can also choose for pay for services where a weather station or sensors needs to be put in place. The dash board (Diagram 3) shows the type of crop per field (e.g., corn, olives, tobacco) and the fields are common to all applications. This allows data to be collected from different sources (satellites, drones, sensors in the field, tractor hardware and mobile devices). All this information is collected and organised to support: disease prevention and management; moisture and treatments delivery optimization; vegetation stress analysis; treatment and seed stock management; agricultural notebook and CAP reporting. All the users enabled for a single farm can access and use the platform based on their assigned roles. For example, agronomists will be able to study and analyse the actions to perform on the web application, the field operator will be guided by the mobile application and will be able to collect on the field information, owners will have a real time situation of the farm. By having access to historical data for each part of the field the farmer can reduce costs for treatments and determine what stock they need to buy.

The value proposition for the client is that Agricolus supports interfacing with existing technologies being used in the farm as well as providing access to a range of external information sources.

To date two applications are available on the market (Agricolus Awareness and Oliwes) with other applications under development.

Enabling Technology

Agricolus leverages a range of technologies as outlined in Diagram 1 and 2 below including FIWARE Generic Enablers (Orion Context Broker GE, Cosmos GE, Identify Manager GE, Cygnus and Fispace's Wirecloud).

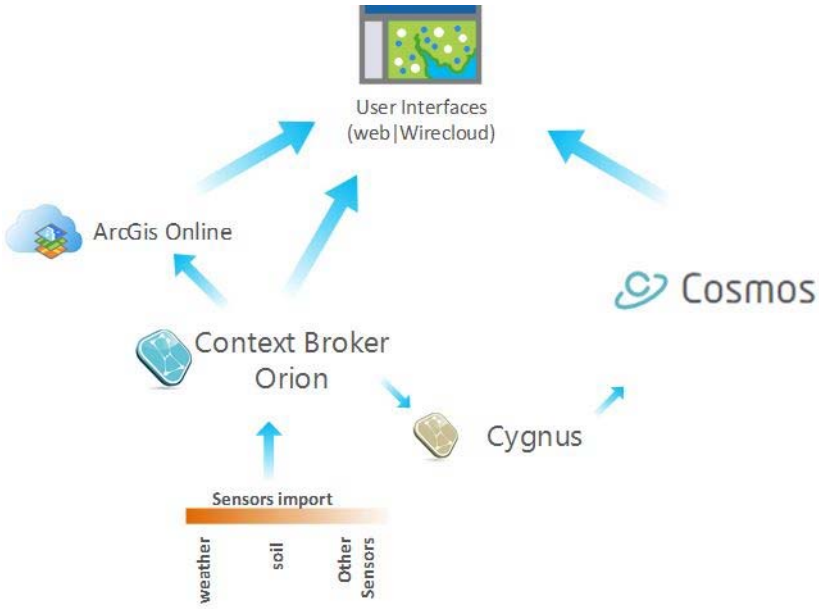

Diagram 1: Agricolus FIWARE Components

Orion Context Broker provides integration between sensors and the User Interface. Cygnus is responsible of the data transport between Orion and Cosmos. Through the ESRI module for FIWARE, Orion Context Broker is also connected with ARCGIS Online.

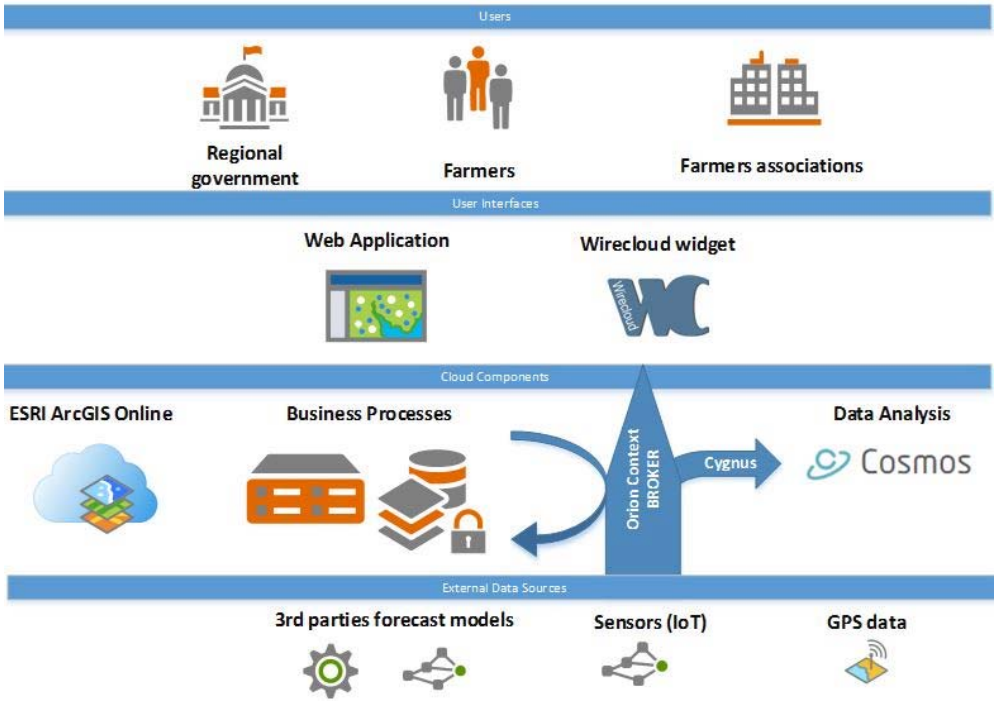

Diagram 2: Agricolus Architecture

Diagram 2 above illustrates the interaction between the components from the external data sources to users of the application. External data sources are a mix of forecast analysis models, sensors and GPS data. Cloud Components include ESRI ArcGis online, Business application logic processes, Orion Context Broker and Cosmos for big data storage and analysis. The user interface layer incorporates HTML5 and the WireCloud widget to enable collaboration between the application and other third party FIWARE applications.

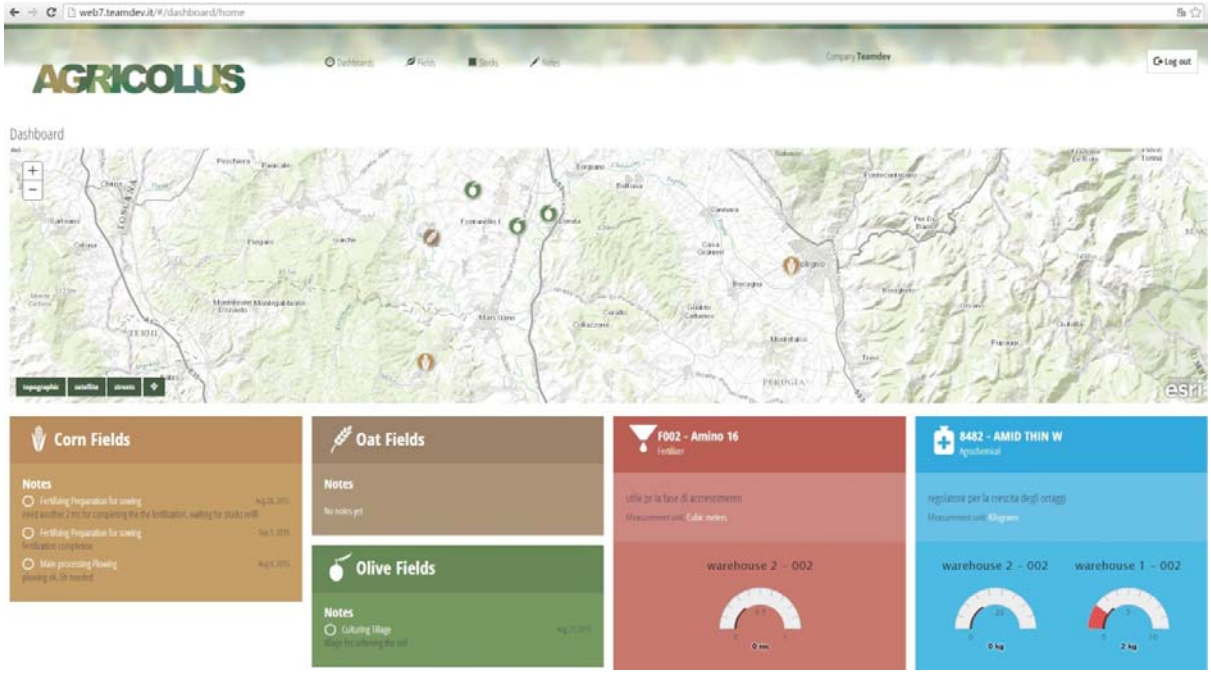

Diagram 3: Agricolus Dashboard

Diagram 3 above illustrates the Agricolus Dashboard that allows farmers to view their fields. Alerts are displayed as tiles to faciliate the most important information to be visable in one view.

Progress to date

Teamdev srl commenced activities in 2008. In February 2015, Teamdev srl secured a FIWARE Grant under the SpeedUp! Europe Accelerator as part of the FI-PPP Phase 3 Programme to develop the Agricolus Awareness application. In 2015 it secured a FIWARE Grant under the SmartAgriFood Accelerator to develop FarmManagement. In February 2015 it secured a FIWARE Grant under the Fractals Accelerator to develop the Oliwes solution. As a result the Agricolus Suite now incorporates tools developed under four separate projects: Agricolus Awareness (FIWARE Grant SpeedUp! Europe), FarmManagement (FIWARE Grant SmartAgriFood), Oliwes (FIWARE Grant Fractals) and pre-competitive DSS (SIG 2015 project). Teamdev srl also received funding under the H2020 SME Instrument Phase 1 for the Agricolus DSS solution.

Agricolus is being used by a number of medium sized farmers, union of farmers and the Region of Umbria to support disease awareness for olive farmers and grape-related alerts in the relevant season. It is also being used by big tobacco producers to support disease awareness and farm management.

Upcoming milestones include to extend Agricolus to other crops and to extend its market focus, targeting Spain and the Mediterranean area initially.

The Region of Umbria has widely disseminated information about the Oliwes solution based on Agricolus that they are using to gather information and prevent olive diseases through regional media.

Some of the main awards secured and events where Agricolus has been showcased include:

- Agricolus was selected as one of the three best cases by Telefonica and FIWARE to be promoted in the GSMA showcase at the Mobile World Congress 2016;
- FIWARE has published a FIWARE Success Story video on Agricolus (https://www.youtube.com/watch?v=XM-zfYdm7Wo);
- Agricolus and Libelium (IoT partner) presented during a session in the Sensors' Expo in June 2016 in San Jose, California (Silicon Valley);
- Agricolus will be part of a seminar during the International ESRI UC in San Diego, June 2016; and
- Agricolus has been chosen to be present at the European Food Venture Forum in Aarhus in September 2016