



SmartAgriFood: Interoperability in the Agri-Food Supply Chain

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Objective: the virtual tomato

- Challenges:
 - agri-food supply chain very complex
 - many different types of actors
 - perishable goods
 - sensitive to transport and storage conditions
 - ethical aspects of handling living materials and living beings
 - agri-food supply chain very big
 - millions of actors, billions of consumers
 - daily need for food
 - there is no alternative for food
 - huge volume of food is being wasted



Specific use cases

- E. Coli - need for rapid direct access to whole supply chain to identify source of disease
- Consumer awareness - need for detailed knowledge made available to end consumer from whole supply chain
- Apply smart logistics to reduce waste

The Virtual Tomato in the Cloud

- The Virtual Tomato would discover and collect characteristics and data from:
 - sensors in the environment:
 - agricultural/production stage
 - transportation stage
 - retail stage
 - other data sources
 - generic data including recipes
 - health data including allergy information
 - certification data
 - environmental and ethical aspects
- The Virtual Tomato exists in the cloud



Capabilities:

- virtual tomato must communicate with stakeholders/actors along the supply chain
- reactively - “Yes I come from Sicily”
- proactively - “Please cool me down”
- the tomato needs to know access rights and regulations - "don't talk to strangers"
- Result: The smart tomato

Realising this Vision

- semantic technologies:
 - appropriate vocabularies/ontologies
 - appropriate standards
 - appropriate tools
- Current situation:
 - reality in food/agriculture is many isolated systems for specific segments or sections of the supply chain
 - data bases in FMIS for e.g. certification but sometimes 4 or more different systems used in one farm
 - some tracking and tracing systems like "Muddyboots", often many different parallel systems
 - many essentially paper-based tracking and tracing systems



Existing SW Technologies

- A number of existing agri-food vocabularies: ISOBUS, AgroRDF, AGROVOC, CABI, NAL
 - but various gaps in supply chain
- Potential to repurpose other vocabularies e.g. GoodRelations (e-commerce --> retail)
- A growing body of open linked data sets e.g. pesticides, nutrition and health alerts from EC SANCO (<http://ec.europa.eu/open-data/food/>)
- Non- SW: GS1 family of standards

The SAF Strategy

- product virtualisation as way to support data transfer through the supply chain
- data collected not just to go down-stream but also needed upstream
- development of the super-scenario to show both the technical feasibility and the business case for data integration / interoperability across the supply chain
- articulating this as the “linked open supply web”

