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

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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

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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 tacking and tracing systems

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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”