

Report back 'use cases'

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Use cases

- User takes steps for tackling a problem with a product
- Need: 3-4 use cases that demonstrate the effectiveness
- Generic: similar requirement across specific problems, it should give focus
- Vision: natural language querying enabled by semantic technologies
- Low hanging fruit:
 - Effectiveness of technology to demonstrate impact
 - We need to find nice ends for the golden hammer we have
- Use cases should guide what other groups are doing
- Who is the user?
 - Researcher, trying to find data

Boundary conditions

- Socio-technical conditions: cultural change are required to get researchers to publish
 - Lack of recommendations on data publishing in different domains → link to vocabulary
 - Serious lack of outreach on the data life cycle: guidelines, best practices
- Democratization of science: anybody can be a scientist

Use case 1: researcher doing meta-analysis

- Researchers (on maize, wheat, beans) wants to analyse 50 data-sets with a meta-analysis
 - Generalised data – AgMIP use case
- It is about data preparation, data integration, and analysis of literature (knowledge)
- Researcher wants to develop a new variety, which uses less resources:
 - Ultimately this should benefit the farming
 - Researcher needs data and information, wants to do data mining further analysis

Concrete implementation

- Building blocks:
 - Wheat Initiative → wheat information system
 - AgMIP ICASA standards and wheat modelling group as users
 - CCAFS AgTrials.org
- Use case question:
 - Explore impacts of rainfed wheat systems under climate change in Ethiopia
 - Influence policy adaptation discussions in the region
 - Identification of wheat genes that control root growth
 - Develop new varieties
- A next step is needed to make a set of 10 specific use cases in detail, and analyse them for common elements

Concrete implementation 2: Explore impacts of rainfed wheat systems under climate change in Ethiopia

- Product:
 - Step 1: Wheat agronomy studies in Ethiopia → use AGRIS and AGROVOC
 - Envisioned: Wheat Data Monitor
 - Step 2: Pull out climate and soil data from those studies
 - Envisioned: Wheat Data Monitor
 - Step 3: Harmonise the data with AgMIP format
 - Envisioned: Wheat Data Monitor
 - Step 4: Conduct the simulation exercise
 - Step 5: Analyse outcomes versus previous studies
 - Step 6: visualize results in briefs and communicate with stakeholders
 - Step 7: Upload results to Wheat Data monitor

Use case 2: practitioners doing analysis sitting under a head of department

- Analyst needs to advice on a policy option or investment in a certain geography
 - Interest: economic, social, environment
- Expected beneficiary: civilians, farmers, in the case of companies: employees, shareholders

Concrete implementation

- Building blocks:
 - Aid investments, IATI, CGIAR program on spending
 - Remote sensing data
 - Global Agro-ecological Zones
 - Global Yield Gap Atlas
 - ARIES platform
- Question:
 - Analyst is tasked by donor to identify segments of farmers benefited from development funds, for irrigation technology
 - Analyst is tasked by the coordinator of Wheat initiative to find out who is doing what where and with what resources
- Steps:
 - Step

Agricultural Technology Adoption Tracker:

Analyst is tasked by donor to identify segments of farmers benefited from development funds, for irrigation technology

- Step 1: Analyst selects relevant indicators and creates a logical model of influence of technology on indicators
- Step 2: Logical model and indicators are used by the new system to retrieve relevant data, also on the biophysical conditions
 - Analyst ranks the data, analyses missing data sources, selects data sources of relevance for logical model
- Step 3: Analyst reviews data and implements logic rules between the elements
- Step 4: Analyst runs analysis of data and logical model, and assess the impact of the irrigation technology

Elements that are useful

- ATAT: 20 (?) crucial data sets annotated with tags from 5 (?) vocabularies for increased usability & applicability
 - Providing the fundamentals as a public good
 - Extensible in the future
 - Data sets are climate, soil, yield gaps, land use, investment aid, biodiversity, water resources
- Interoperability between vocabularies, as they cover different purposes
- Importance of geo-time referencing
- Outreach and advocacy needed on data suppliers to strengthen importance of standards, and use of vocabularies

Use case 3: Information service provider (extension agent and ngo-employee) in the field, advising the farmers

- Problem: transform science/technology pieces to digestible pieces that inform their advice
- Access to knowledge and low-usability barriers
- Expected beneficiary: farmers
 - Expected impact: better farm management, lower losses

Concrete implementation

- Problem:
 - promoting a portfolio of possible conservation agricultural techniques with the end-goal to improve soil fertility
 - Advising farmers on dealing with a major pest outbreak, by recommendations
- Building blocks:
 - AGRIS/NAL/CAB on research literature
 - PlantWise
 - FEWS-NET
 - RustMapper
 - TATA system (use case 2)

Concrete implementations

- Hypothesis:
 - Generate recommendations based on research literature, using the vocabularies, link to data sources, and Early Warning Systems
- Requirements:
 - Extend current vocabularies and link it to recommendations
 - Cross link current vocabularies and ontologies available for different purposes
 - Learning system (co-creation) and stupidity checker
 - Localise language and offline availability
 - Extremely simple
 - Feedback mechanism from service provider/farmer

Use case 4: IT developer needs to make the organization's data open according to latest technology trends

- Problem: IT developer is charged with a task from an institution's policy perspective and needs to pragmatically solve it in his organization
- Build capacity and provide an infrastructure for data publishing in a country
 - Simple and open tools, tailoring existing tools to easy use in agriculture
- Beneficiary: researchers and analysts
 - Expected impact: Increase of innovation and transparency

Concrete implications

- Building blocks:
 - Country stat
 - Aid investment mapping
 - CKAN
 - Tabular Data Working Group
- Focus on one or two institutions in one or two countries
 - Countries are working off-line
- Missing pieces:
 - Tool shed for data manipulation
 - Training, cheat sheets, FAQ on data management capabilities → support pack from CGIAR
 - Business processes for data management
 - Platform function across institutes

Conclusions

- Business process in the data life cycle from collection to usage
- First step in a process: more use case are possible (for example, genomics), and need elaborated
- Mechanism of use case submission:
 - Some use case group think
- Priority setting of the use cases
- Review the use cases for commonalities
- Resources required for outreach, capacity building, co-creation
 - Develop curricula for data scientists