



Summary Report 2nd International Workshop

Creating Impacts with Open Data for Agriculture and Nutrition

Intro

Open data offers great opportunities for informed and transparent decision making and developing a data driven economy. There is a growing awareness of the potential impacts of this global trend. In January 2015 the participants in the 1st International Workshop 'Creating Impact with Open Data for Agriculture and Nutrition' jointly produced a rich picture of the many on-going and upcoming initiatives and activities in this field. Although the workshop was very successful in showcasing the many relevant tools, datasets, networks, and initiatives, it also resulted in the conclusion that additional action was needed to clearly outline the *pathways to impact* of these tools, data sets, networks and initiatives and to use these insights in developing more general views on the role of open data in achieving impact. Therefore the objectives of the 2nd workshop were:

- To develop a shared general understanding what it takes to generate societal impact with open data in the field of agriculture and nutrition;
- To make this concrete and specific for the following areas of societal activity:
 - Realisation of the Sustainable Development Goals (SDGs) targeted at the economic, environmental and social dimensions of sustainable development;
 - Innovation that contributes to the transition processes and citizen participation that are needed (e.g. economic processes/ business activity and improved governance);
 - Improved strategic decision making.
- To explore routes to impact, business models that lay behind open data, and good practices.

The 2nd International Workshop ‘Creating Impact with Open Data in Agriculture and Nutrition’ saw 75 representatives from governments, the private sector, research institutions and non-governmental organizations from Europe and Africa. The event was structured in a few plenary sessions with introductory presentations in the topics to be discussed, followed by in-depth working sessions in which different questions were solved through group discussion.

The first set of working sessions on the first day explored the desired impacts of open data from a governmental, private sector and civil society perspective. The second set of working sessions on the second day followed up with discussions on the possibilities to reach these impacts through technology, best practices and organization in the community and business innovation. The second day focused on short term actions that will help the community to reach the next level.

Key Findings

‘Open data’ offers opportunities for informed and transparent decision making and for developing a data driven economy in agriculture and nutrition. Efficiency, sustainable and viable rural economy, and supportive governance are main impacts of open data in agriculture and nutrition.

‘Open data are an essential element of our policy to increase global food security.’
Michel Berkelmans, Government of the Netherlands, Ministry of Economic Affairs in his opening address

For the private sector, open data is a way to operate in a more cost-efficient manner, either by reducing internal transaction cost of working with data or by improving decision making based on data.

For civil society, impacts can take many forms, and mainly depend on context specific cases where open data has the opportunity to play a significant role; notably impacts are seen to arise from promoting a sustainable living environment for citizens and a viable rural economy.

Participants also keenly discussed the roads to achieve these impacts from a range of enabling conditions: technology, best practices and organizational issues, and business innovation. There are very promising technological developments, which can be deployed in the sector. For example, remote sensing, drones, semantic interoperability and data sharing agreements. These technologies are ready to be deployed, but in many cases require a thorough assessment to understand their market readiness.

With respect to business innovation, participants proposed development of an innovation matrix of promising applications, either by applying existing solutions to new clients, or by developing more solutions for existing clients for open data. Such solutions need to be specifically scoped out for open data in agriculture and nutrition.

From the perspective of best practices and organizational issues, the participants identified a need for an assessment of the current organizational capabilities within the open data and agriculture and nutrition communities. A need was identified to fund organizations in order to enhance the learning capacity in these communities and work with (open) data in agriculture and nutrition. The need for more data scientists strongly emerged across discussions in the different working sessions.

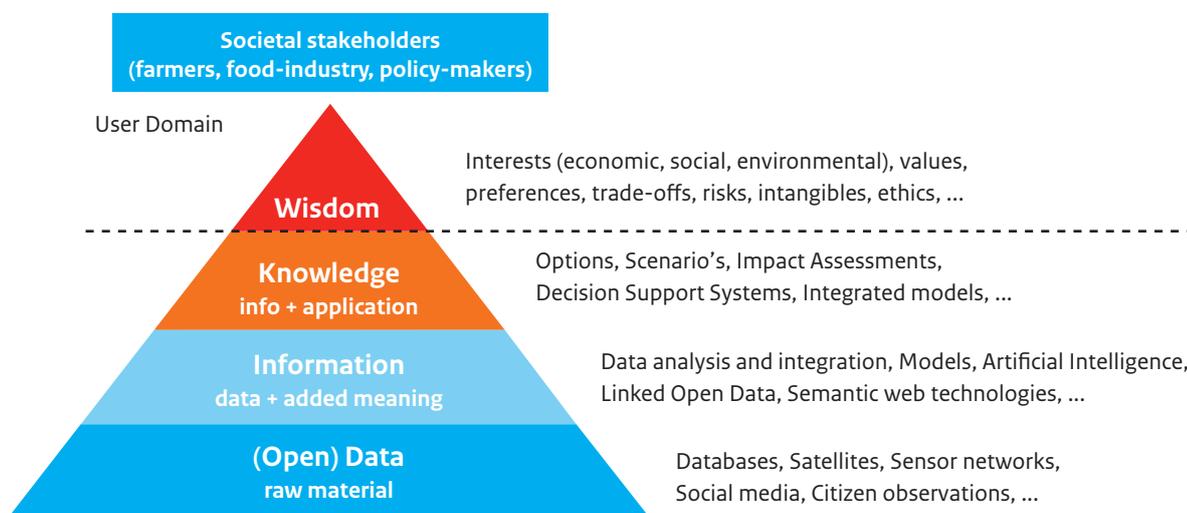


Figure 1. Data or open data does not create impact. Data can be used to create meaningful information and ultimately knowledge about a system, for example crop growth and water use. The ultimate goal is to support the user with knowledge so he can benefit by using the knowledge to create impact (individual wisdom) such as interpretation of a DSS tool for operational farm management to save water costs and optimize farm performance.

The workshop closed with partners giving a series of commitments. Derek Scuffell from Syngenta announced an effort to scope the data ecosystem ahead of the GODAN Summit 2016 in September, through development of a discussion paper led by Syngenta and the GODAN Secretariat. Malick Tapsoba from Burkina Faso Open data Initiative announced a workshop on 7 & 8 of December in Burkina Faso on impact of open data for agriculture and water. Finally, Francois van Schalkwyk of the World Wide Web Foundation announced an effort to open data on so called 'wet mills' for coffee and their locations to enable more efficiency in the value chain.



Action agenda

Short term action items:

- We have to **create a reference for open data set in agriculture and nutrition as a lamppost**. Currently, only specialists know to find and process the available open data sets, and relatively simple overview of the best suggested datasets based on these specialist experiences would be beneficial to increase the use of data. *(Spring 2016)*
- **Assess technology readiness for working with open data in agriculture and nutrition**. Stakeholders need to make informed choices in adopting technologies based on readiness levels of the available technologies. *(Autumn 2016)*
- To identify quick wins and suitable pilots with stakeholders for research and development in open data, **we should develop an innovation matrix**. *(Spring 2016)*
- To get a good picture of the data ecosystem we should **produce a position paper on data discovery** that describes the current landscape and its challenges. *(Spring-Summer 2016)*
- To use the strength of storytelling in stimulating open data, involve data journalists to **produce tangible stories** in the actions mentioned above. *(Autumn 2016)*

Long term action items (2017 and beyond)

- **Capacity building to address current lack of data scientists**. Data scientists are crucial to implement new applications in agriculture and nutrition with open data. They will develop the next generation of SMEs where apps will be made by using open data.
- Support **capacity building (data providers, controllers, users) to keep up to date** with latest standards, practices and technology.
- Instruct people on **how not to use data (bad practices)**.
- Encourage **peer learning as a strategy across networks** that leads to best practices, and promote skill sharing across sectors/ across partners

Results per Workshop Session

Day 1: Desired impacts of Open Data in Agriculture and Nutrition

A governmental perspective

The following impacts were seen as the most important ones from a governmental perspective:

1. **Economic growth** as a result of increased opportunities for innovation and informed decision making; and (specifically for developing countries) more development aid as a result of more targeted value propositions. In developing open data initiatives it is important to look at differences in impact for various stakeholders (e.g. companies and farmers). There are no general

indicators of success; these need to be elaborated in the context of specific policies.

2. **Accountability and transparency of public policies**. Note: there also can be negative feedback loops (e.g. accountability could negatively impact trade). Indicators of success: proactive data publication by governments, use of these data by citizens (including the use in interaction processes between citizens and governments).
3. **Citizen engagement**. A higher participation of citizens can lead to improvement of the democratic process: human-centred design of policies, better connected policies (governmental departments stop working in silos) and more effective exchange programmes and technology transfers within communities.

Indicators of success: increased citizen participation in government policies. This should be elaborated in a specific policy context (e.g. the implementation of SDG2).

A Civil Society Perspective

We need to use more specific questions/statements, because impact is very case specific. Impact is difficult to define; it depends on stakeholder (e.g. farmer, consumer). For instance, financing organizations may be more interested in weather data than the farmer, where farmers feel their privacy is violated when sharing plot data. Not all problems are related to open data; they tend to be more about sharing data. Given this, it is necessary to build trust to pave the road for a transition towards more sustainable agriculture. An open society is needed for open data. Yet openness requires regulation from government. This includes dealing with high risk transactions (e.g. monopolies, corruption, more cost efficiency). Therefore, more trust is needed and concern farm sustainability. We need improved welfare (food safety, safe living environment), access, use and greater data literacy. Further questions were raised about data collection (reliable sources, packaging and dissemination), legacy, finance (cost-benefit), economy (jobs) and lastly, the important question on what are unintended consequences of open data.

A Private Sector Perspective

What is the impact of open data for different stakeholder groups in agriculture and nutrition? Better decision making and efficiency was rated as the most highly ranked impacts among participants. Open data can lead to more efficient use of inputs and an improvement of outputs. Currently we see an under-use of data. A certain critical mass is essential, the number of users needs to be high and the number of data needs to be high. The re-use of standards makes the data-infrastructure more robust for the private sector and more cost-efficient. The use of common standards will also facilitate the usage within the organisations and outside when finally published as open data. Next, an indicator of

success is the amount of business innovation, how many start-ups are you supporting with your company's (open) data? The private sector entity that uses open data innovatively is likely to have a better position compared to the average company in terms of business competition. Quality requirements are, however, key to meet the goals with (open) data, and the investments in housekeeping costs need to be seen as strategic investments in the data-infrastructure. Furthermore the societal challenges (as for example, formulated in the SDG's) need to be addressed (e.g. licence to produce).

Day 2: Reaching impacts through technology, best practices and business innovation

Technology

New technologies could open many new opportunities to support the use of open data in agriculture and nutrition and thus enable desired impacts. Examples of such technology are sensing technology, either remote (i.e. satellites) or near (drones) or in situ (Internet of Things) sensors, big data, genomics and bioinformatics techniques, linked data and mobile technology. Workshop participants generally felt that such technologies are generally available and technology development itself is not the main concern. However, deploying these technologies to agriculture and nutrition should be the concern.

To make a better use of technology to deliver impacts with open data, the following activities are needed:

- Create a reference open data portals in agriculture and nutrition as a lighthouse. Currently only specialists know how to find and process the available open datasets, and have a relatively simple overview of the best suggested datasets, which are based on these specialists' experiences where it would be beneficial to increase the use of data.



- Assess technology readiness for agriculture and nutrition. There is a need for a good understanding of the different readiness levels of available technologies for applications with open data in agriculture and nutrition, to help stakeholders make better informed decisions.
- Need for exemplary use cases, demonstrating whether or not public open API's are working for the stakeholders involved
- Encourage capacity building to address current lack of data scientists. Data scientists are crucial to implement new applications in agriculture and nutrition with open data. They will develop the next generation of SMEs to make apps using open data.
- Develop best practices on IP issues and trust. There is a need to engage with public and develop guidelines or best practices for privacy protection and privacy-by-design solutions. Also good shared ownership models of data are required to facilitate sharing data at a more aggregate level
- Create a space to support the need for a harmonised controlled ontology as a reference terminology for interoperability. A harmonised controlled ontology would make application development easier and more efficient, however, it is very difficult to decide now who is responsible to deliver this.

Organisational issues and best practices

We first **linked the thematic introductions** to issues from government, civil society and private sector perspectives. The practices in open data and current obstacles are: lack of transparency, lack of structure in organisations, inconsistency in capacity building (data providers, controllers, and users), differing levels of interest and trust, and different business cases and models. This leads to the following proposed actions:

- Focus on organisational learning to keep up to date with latest standards, practices and technology, and support capacity building (data providers, controllers, users), incl. peer learning strategy
- Instruct people on how not to use data (bad practices). For example, have organisation-wide policies and conventions for being specific about names and name changes (URIs)
- Encourage peer learning as a strategy across networks that leads to best practices, and promote skill sharing across sectors/across partners – follow up with baseline questionnaire for GODAN partners, include partner profile on website to answer the following question: “How big is the capacity across partners?”
- Share and use labels and badges (GODAN Secretariat and ODI) and share stories and blog posts on GODAN website (e.g. What are the data gaps? Who is writing about them?)
- Host short book retreats with partners on best practices
- Potential for future developments are test-driven development (fail forward), and legal/risk-averse workshops (lawyer hackathon, HR, accountants, CFOs).



Opportunities for business innovation

In order to develop business innovation we need to sharpen and specify the user groups we are targeting. We defined 5 fields of action:

1. Increase trust and remove fear from end users and providers of open data we should **identify what causes fear or distrust of actors** and how can this be solved? We should assess what are the preconditions (e.g. for farmers) to share or use these data? Solutions should fit into the local culture of actors. A GODAN working group could start with a focus on one specific group of stakeholders.
2. Get a good picture of the data ecosystem we should **produce a position paper on data discovery** that describes the landscape and the challenges. Syngenta, ODI and GODAN secretariat are logical partners to initiate this position paper.
3. Reveal to what extent the legal framework hampers/stimulates business innovations in open data, we should **carry out a rapid assessment of existing regulations** in GODAN member states, that builds on existing studies. A Kenya pilot is suggested.
4. Identify quick wins and suitable pilots with stakeholders for research and development in open data, **we should develop an innovation matrix**. This matrix gives an overview of users/clients and open data services they desire, based on examples of existing services presented during this workshop and previous GODAN events. The matrix should be used as a living key document that can support a **vision on the development of future services** that require larger investment in time and/or money.
5. Use the strength of storytelling to stimulate open data, involve data journalists to **produce tangible stories** in the actions mentioned above. There could be a role for the GODAN Secretariat here.



Useful resources

www.godan.info: Website of the GODAN initiative on Global Open Data in Agriculture and Nutrition

www.godan.info/launch-of-godan-discussion-paper/: GODAN-ODI joint position paper on 'How can we improve agriculture, food and nutrition with open data?'

www.cta.int/images/Opendataforsmallholders-report_.pdf: CTA working paper 15/01: on 'Open Data and Smallholder Food and Nutritional Security'

<http://data.overheid.nl>: the Government of the Netherlands portal with open data

<http://g4aw.spaceoffice.nl/nl/>: The Geodata for Agriculture and Water program on use of remote sensing and mobile technologies for smallholder farming systems, operated by Netherlands Space Office and commissioned by Netherlands Ministry of Foreign Affairs

www.spaceoffice.nl/nl/Satellietdataportal/ & www.satellietbeeld.nl/: The National Satellite Portal data base of the Government of the Netherlands

<https://boerenbunder.nl/>: a website visualising open data sources of the Netherlands on individual parcels using open data sources, made by: Hackwerk Advies, Liters, Boerenverstand en Crop-R.

<http://opendata.institute/>: Website of the Open Data Institute with many resources on open data and data management

Contact & Colofon

This report is based on discussions at the 10/11 November workshop, and we are grateful for the input from all participants. The report was collaboratively developed in cooperation between Ministry of Economic Affairs, GODAN Secretariat and Wageningen UR.

Contact details are:

Ministry of Economic Affairs

Ineke Lemmen, coordinator open data for food security

www.rijksoverheid.nl/ministeries

c.j.m.lemmen@minez.nl

GODAN Secretariat

Ben Schaap, Researcher

www.godan.info

ben.schaap@godan.info

Wageningen UR

Sander Janssen, team leader Earth Informatics

www.wageningenur.nl

sander.janssen@wur.nl

