



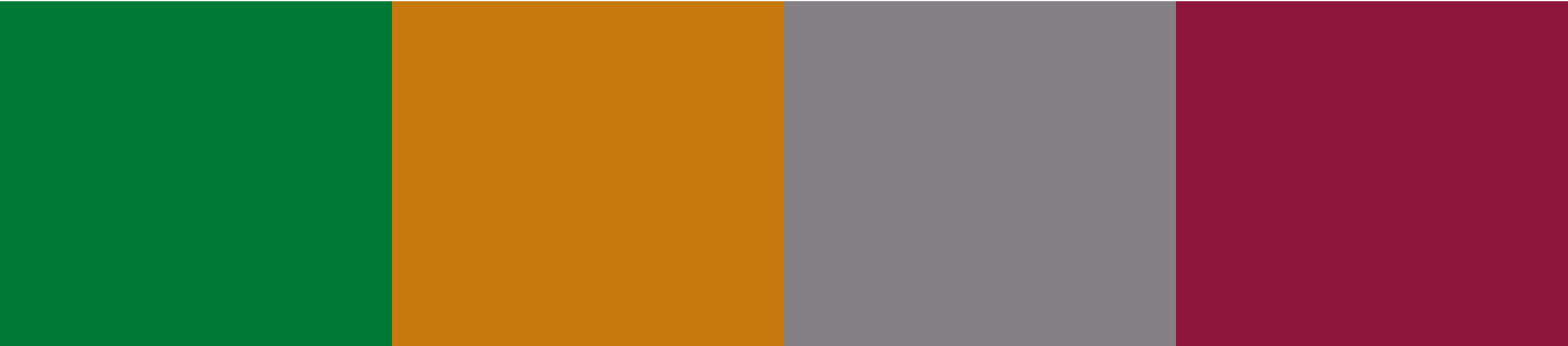
Global Open Data
for Agriculture & Nutrition



Creating Impact with Open Data and the importance of context

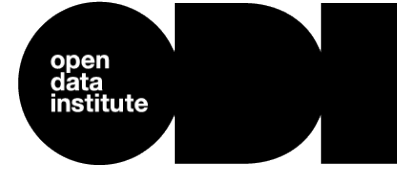
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Wageningen, 2017-06-27



Outline

- GODAN Action approach & activities
- Impact evaluation of OD initiatives
- The role of context & environment
- Examples from open weather data



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GODAN Action - Activities

Enabling effective use of open data by building the capacity of stakeholders to understand the potential of open data for agriculture & nutrition and to engage with it practically



- **Improved interoperability of data** through providing improved standards and innovative services.
- by providing examples of **improved tools for impact assessment**, as well as by analysing barriers that hinder the full potential of open data initiatives and investments
- The development of tailored training courses will **increase the capacity of stakeholders** on how to use and handle open data

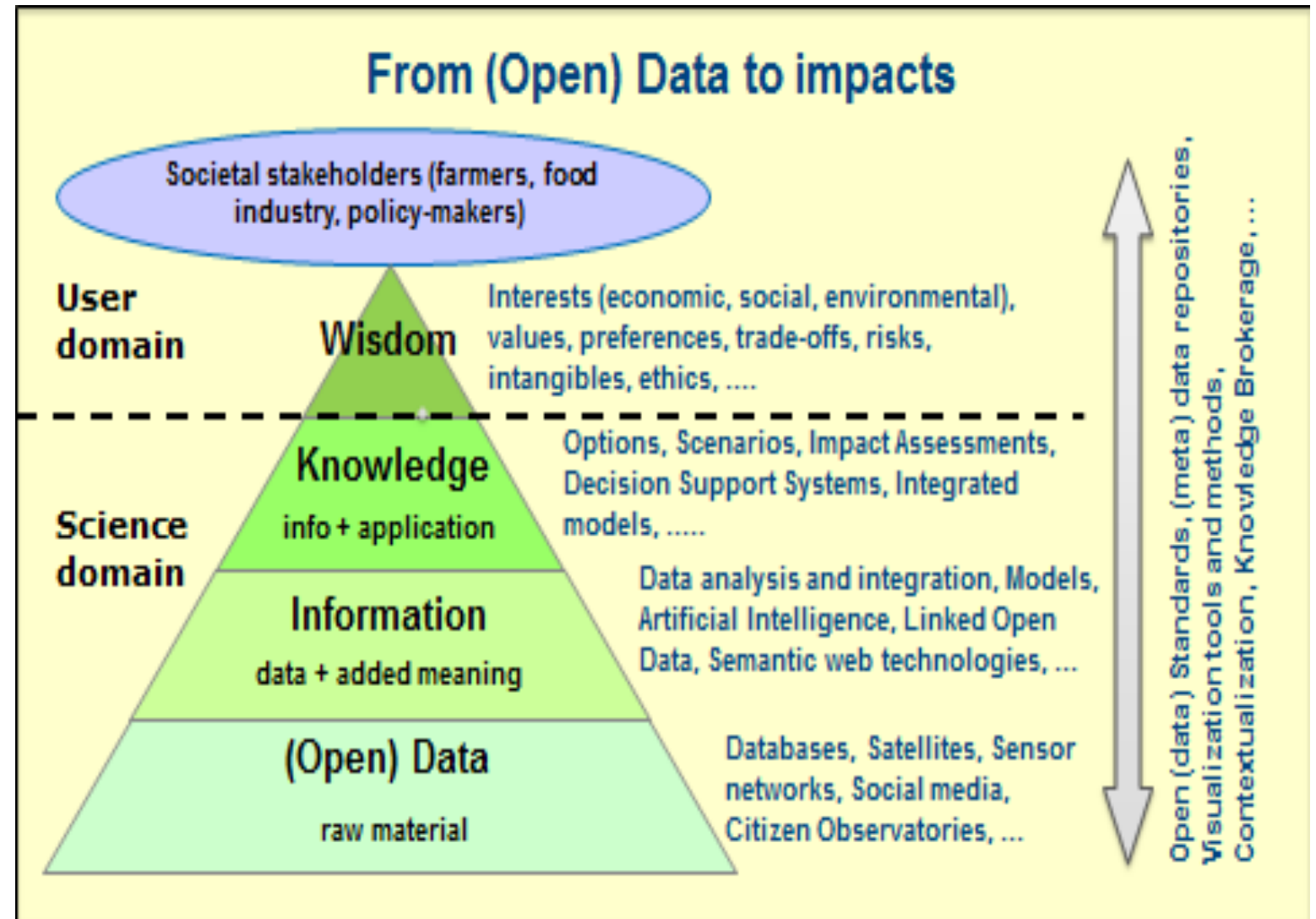
Open data as a solution

GODAN Action works along thematic topics

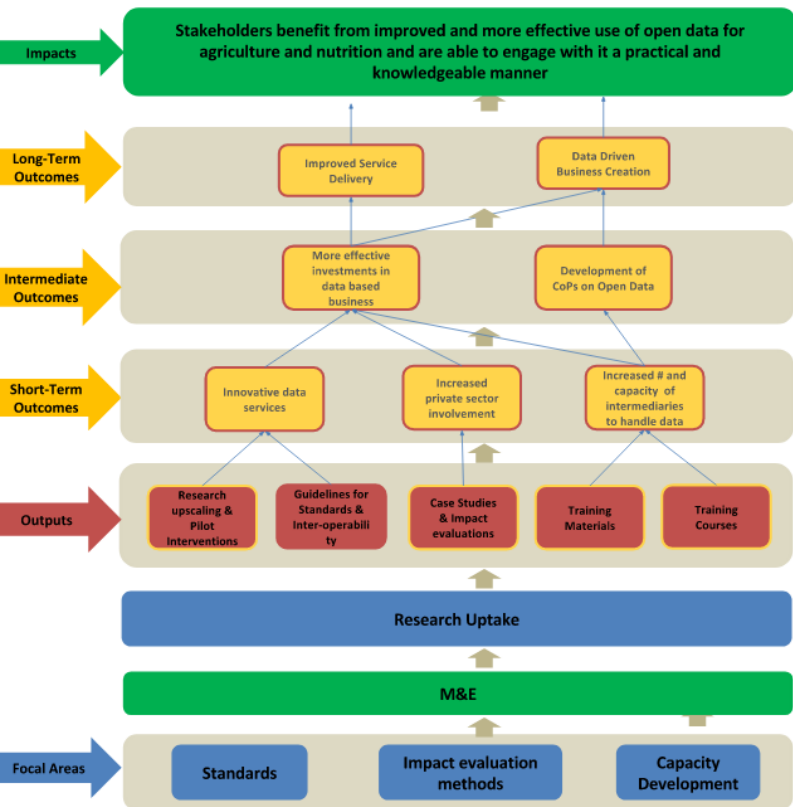
- to focus on domains and topics of high relevance
- to work on domains where the impact of open data is foreseen to be substantial
- to put research into practice and achieve impact

- **Climate and weather data:** Open data as a catalyst for business development and capacity development
- **Support to land data sharing:** Localization and contextualized of relevant shared data sets to specific conditions
- **Nutrition data:** Data interoperability for nutrition and with respect to the Global Nutrition Report

GODAN Action – Approach to Impact



GODAN Action - Impact Evaluation



- Developing methods for impact evaluation
 - based on existing knowledge base
 - adapted to be applied to initiatives that engage with open data
 - adapted to be applied in specific application domains
 - taking into account local boundary conditions
- Apply and test methods
 - Over initiatives in GODAN Action thematic topics



Methods for impact evaluation

Existing methods:

- The Sunlight Foundation's report on [the social impact of OD](#) (Keseru and Chan, 2015)
- The [Common Assessment Framework on OD](#)
- [Davies and Perini's \(2016\) revised conceptual framework](#) for the Open Data in Developing Countries (ODDC) program.
- All methods are aimed at evaluation after execution of larger initiatives
- They have different perspectives (e.g. social aspects, technical aspects)
- They tend to focus on the government level (transparency, accountability etc.)

So how about assessing (potential) impact in the earlier stages of a project and the role of relatively small scale projects?



Methods for impact evaluation

- It is difficult to attribute the role of open data and its share in total impact of interventions
- Post project evaluations are valuable, especially as a learning source
- However,
 - They are usually quite demanding
 - Budgets and intrinsic motivation are generally lower at or after the closure of the project
 - It does not offer ways to establish preferential conditions for interventions with open data
 - It does not provide means to monitor and pro-actively steer towards higher impacts
- Existing evaluation methods target relatively large and broad initiatives
 - Global/regional instead of national/local
 - Targeting the broader society, economy rather than specific domains (like agriculture)
- Methods tend to oversee specific aspects
 - E.g. innovation, business development

So how about assessing (potential) impact in the earlier stages of a project and the role of relatively small scale and domain specific projects?



Methods for impact evaluation

Context is crucial to assess the potential impact of open data initiatives

- **Favorable policy environment**
 - political will and commitment in supporting transparency and open data
 - Legal framework: clear rules and legislation
- **Skilled stakeholders**
 - Technical skills
 - Communicational skills
 - Economic skills, e.g. knowledge of OD business models
 - “E-readiness”
- **Technical environment**
 - Access to ICT for data providers, intermediaries, end users
- **Economic environment**
 - General business climate
 - Co-development opportunities (e.g. PPP’s)
 - Innovation capacity



Achieving impact through open weather data

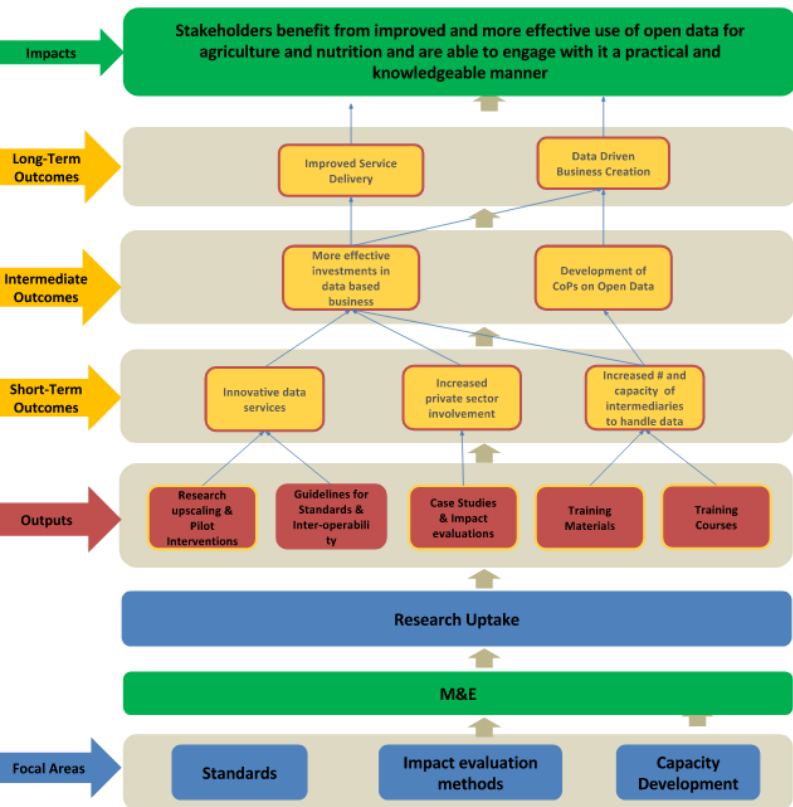


“Access to weather data is a strategic asset to farmers”

- Weather patterns are changing, growing seasons get less predictable
- Higher risk profiles for farming and food production
- Knowing about weather forecasts, weather patterns is key for optimizing farm management and farm advisory services
 - Securing and improving yields and income
 - Access to resources and capital
 - Local and regional food security
- Co-creation e.g. between farmer organisations, business and government

Achieving impact through open weather data

Focus on information and service intermediaries



- Create added value by combining agronomic knowledge with capacities in data processing and service provision
- Work directly with farmers or indirectly through farmer organisations, micro finance and insurance providers etc.

- Capacity building on open data, knowledge of and access to (open) weather data, interoperability issues, good practices creates new opportunities
- Stories of impact might motivate national governments and weather services to be more open

Example – NOAA

- Open weather data portal of United States National Oceanic and Atmospheric Administration (NOAA)
- significantly lowered the economic and human costs of weather-related damage
 - more accurate forecasts
 - development of a multi-billion-dollar weather derivatives financial industry
 - million-dollar industry of tools and applications derived from NOAA's real-time data
- Business model: opening up the data leads to social, economic and political benefits exceeding the costs of providing the data.
- Impact for agriculture
 - has benefited U.S. agriculture by over \$460 million by helping guide planting decisions in El Niño, normal and La Niña years
 - created value through the weather-related industry, e.g. Climate Corporation (“weather insurance”) was sold in 2013 to Monsanto for \$930 million
- And a multitude of benefits over other sectors
 - estimated to provide \$31.5 billion in benefits, against \$5.1 billion costs for generating forecasts

Example – NOAA - Context

- Policy environment
 - Broad recognition of the benefits of open weather data (government, policy makers, business, investors)
 - No major legislative barriers to exploiting open weather data
- Skilled stakeholders
 - Large ecosystem of ICT service providers
- Technical environment
 - Broad availability of ICT (hardware, services etc.)
 - Infrastructure for business and end users
- Economic environment
 - Multitude of available business models
 - No acquisition costs for core datasets
 - Willing investors
 - High innovation capacity

Example – weather based services in Ethiopia

- Developing a platform of specialized information services
 - crop monitoring, yield forecasting for smallholder farmers
 - loan portfolio monitoring and risk assessment for MFIs
 - generate information supporting government in decision making for policy, planning, extension
- Targeted users
 - farmers, farmer unions and cooperatives
 - agro industry, financial institutions (micro-finance and microinsurance institutions)
 - Ethiopian government
- Open data
 - CHIRPS rainfall archive (open)
 - ECMWF historical archive and forecasts (paid service)
- Business model
 - based on a license model. Farmers unions and other users will pay annual fees to access the services
- Impacts (foreseen)
 - Total number of individual farmers making use of the service > 200.000 (female > 50%)
 - Total number of farmers intermediaries making use of the service > 50%
 - Improvement of crop productivity: potatoes 200-300%, sesame 10%
 - Increased number of microfinance and microinsurance customers 40.000

Example – weather based services in Bangladesh

- Developing a platform of specialized information services to provide farmers with
 - weather related information
 - advice on the usage of seeds, land preparation, sowing, transplanting, irrigation, fertilizers and agrochemicals
 - advice on preventive and remedial measures for controlling pest and diseases.
- Targeted users
 - farmers (both small and large scale farmers) in 14 districts of Bangladesh
 - agricultural researchers and university students
- Open data
 - NOAA, historical archive and forecasts (open)
- Business model - achieve an economically viable service
 - fee for a phone call to a customer advisor, extension officer or interactive voice response
 - subscription to text messages, automated outbound calls, web-based application.
- Impacts (foreseen)
 - Enroll 330,000 farmers as users within 3 years
 - These 330,000 farmers will generate 10% savings in their cultivation practices
 - Development of an economically viable service towards the end of the project

Example – weather based services in Ethiopia and Bangladesh - Context

- Policy environment
 - Non-existing or immature policy on open data
 - Weather data as a strategic, sensitive data source (crisis management, aviation, national security issues)
 - Restrictions on use, protective behavior
- Skilled stakeholders
 - Awareness of open data in general is still developing
 - Not all stakeholders (e.g. service providers) have the capacities to work with (open) weather data
- Open data
 - Localized (open) weather data is generally scarce or missing
- Technical environment
 - Level of access to ICT's varies
 - Infrastructure barriers still exclude broad deployment of specific services
- Economic environment
 - No knowledge on and experience with OD business models
 - PPP's sometimes difficult to establish, especially for small/medium sized enterprises

Conclusions

- Context is crucial to achieve impact with open data
- Existing impact evaluation focusses on post-project impact evaluation
 - Determining if (and why?) things went well or not
 - As a learning mechanism
- There's a need for early stage assessment to be able to
 - Know and understand the enabling environment for open data
 - Be able to determine opportunities, barriers and realistic outcomes and impacts
 - Be pro-active through monitoring and mitigation

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