

Capacity Development Action Plan

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Summary

This Capacity Development Action Plan aims to address existing bottlenecks in using and sharing open data by identifying and improving the capacities, and to develop appropriate and efficient key skills of potential users (e.g. researchers farmers, journalists, citizens, policy-makers etc). This report is the result of 1) a [mapping exercise](#) to identify and summarise the existing open data initiatives, capacities and training resources in the field of open data and 2) a [survey](#) to assess capacity development needs and requirements from potential open data stakeholders.

The preliminary results of this survey indicate that there are still several challenges faced in terms of open data use, particularly that there is a strong need and demand to know more about open data and to be part of the capacity development initiatives. It finds that, for the majority of the participants on this survey, the main challenges encountered in open data are related with Data access and Data quality. At the same time, we noticed that face-to-face is the favourite learning approach. Video is the second favoured option, showing that this training approach has a cost effective role to play.

The ultimate goal of this action plan will be to develop and strengthen the capacity of potential users to understand the value of the use of of open data and to practically engage in order to tackle key agriculture and nutrition challenges.

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1 Background Information

The [Global Open Data for Impact and capacity Development in Agriculture and Nutrition](#) (GODAN Action Project) is a 3.5 year project lead by a mix of international partners with a strong agriculture, nutrition, data and ICTs record such as Wageningen UR –Alterra -, AgroKnow, the Food and Agriculture Organisation of the United Nations (FAO), Global Forum on Agricultural Research (GFAR), the Land Portal, the Technical Centre for Agriculture and Rural Cooperation (CTA), the Open Data Institute (ODI), AidData and the Institute of Development Studies (IDS). The project proposal was formulated in response to the DFID call -Global Open Data for Agriculture and Nutrition Initiative: Open Data Research and Capacity-Building which aims to enable the effective use of open data in tackling the food security and nutrition challenges, in part by building the capacity of potential stakeholders to both understand the potential of open data for agriculture and nutrition and to engage with it practically.

In this regard, the objective of **Focal area 3: Building capacity of agricultural and nutritional open data users** of the GODAN Action Project is to build the capacity and diversity of open data users leading to a more effective use of open data in tackling key agriculture and nutrition challenges. In order to effectively achieve this objective, and most specifically, to build the capacity of potential users (e.g. researchers, farmers, journalists, citizens, policy-makers and politicians) to understand the full potential of open agricultural/nutrition data, innovative approaches to raise awareness within these groups about the benefits of open data will be used. The inception phase of this project is being used as an opportunity to determine possible interventions and to benchmark existing skills for open data use amongst project actors.

A key part of this capacity development plan relies on the larger element of open data awareness, innovations and good practices promoted by the GODAN Secretariat. As this action plan will focus on training and innovative approaches to skills development, it will rely on the GODAN Secretariat to continue advocacy and awareness and campaign activities through promotional materials of programs, good practices, and lessons learned that enable the use of open data and linkages with the GODAN Working Group on Capacity Development.

The envisioned outcomes, as stated in the project's Theory of Change, are more evidence based decision making, improved service delivery in agriculture and nutrition, data -based business creation , actor empowerment and increased transparency of decision making.

1.1 Methodology

The United Nations Development Programme (UNDP) has extensively published on capacity development and, in particular, on assessing capacity needs, defining capacity development as *'the process through which individuals, organizations and societies obtain, strengthen and maintain the capabilities to set and achieve their own development objectives over time'*.¹ The UNDP approach can be described as the following: first assess existing capacity, then assess future capacity envisaged by answering the question – where do we want to go? – and from these two, identify the capacity gaps. Strategies can then be developed to fill the gaps².

¹ http://www.unpcdc.org/media/8651/pn_capacity_development.pdf

² <ftp://ftp.fao.org/docrep/fao/008/y5899e/y5899e01.pdf>

In conformity with the UNDP approach and other UN agencies such as the Food and Agriculture Organisation of the United Nations (FAO), the GODAN Action project will similarly align to this approach as we firstly recognise that support for the capacity development process requires identifying existing activities and what additional capacities may be needed to reach the desired outcomes.

With regard to literature review, there are few studies in the area of capacity development either defining the necessary skills nor examining the success of capacity development such as the one from Ubaldi's³, but one that is of particular interest in a developing country context is that by Mitrovic⁴. This study is aiming to suggest how developing countries (South Africa and Namibia for the purpose of this specific study) can implement Open Government Data (OGD) and suggests the needed skills for efficient and effective provision of open government data, among others.

According to the literature review made by Mitrovic, he identified that many governments struggle with access to and usability of data. The usability of open data is related to the quality of the provided data, which often causes reluctance from governments to publish open data. This is, according to the study, attributed to the lack of capacity in data management or having no idea of the kinds of data needed in the market place. Thus, policy-makers should ensure that government officials, as OGD providers, are equipped with appropriate data management and data science skills, hence ensuring data users will obtain usable, high quality data. On the other hand, the technology-related OGD policies should focus on e-skilling users to effectively use various technologies such as wired (e.g. PCs) or wireless (mobile phones, tablets or laptops) devices for accessing and manipulating Open Data.

The study also outlines the key role played by data intermediaries to bridge the digital divide, and make OGD available to a majority of citizens. According to the author, intermediaries are the best placed to connect open data providers and open data users. However, in order to perform their task successfully, these intermediaries must be appropriately skilled. Development of open data intermediaries can be done through self-learning, short courses or more formal education.

Within the context of the GODAN Action project, a great emphasis will be put on the intermediaries and their crucial role in development for impact. Indeed, one of the approaches guiding Focal area 3 is to engage and enhance open data capacities of data intermediaries such as journalists, CSOs and policy-makers working with open data providers through face to face and online training. In this respect, journalists can bring data alive to illustrate a story and make policy discussions more transparent.

Finally, but most importantly farmers, civil society organisations, and commercial organisations will need to be reached at scale to develop their capacity to use open data. This can be achieved through a blend of local training and technology based approaches.

³ Ubaldi, B. (2013), "Open Government Data: Towards. Empirical Analysis of Open Government Data Initiatives", OECD Working Papers on Public Governance.

⁴ Zoran Mitrovic (2015), Building Open Data Capacity through e-Skills Acquisition, Conference: 3rd International Open Data Conference, At Ottawa, Canada, May 2015

1.2 Godan Action Project : The Capacity Development Process



Adapted from the UNDP Capacity Assessment Methodology. User's Guide.(2008)

2 Needs Assessment of open data users

It is important to note that this Capacity Development Action Plan should be treated as a *living document* to assess the needs of open data users and to propose capacity development initiatives to address existing gaps. This plan will be developed and implemented with the full knowledge and collaboration of the [GODAN Working Group on Capacity Development](#) in order to ensure ownership and appropriation from the global open data community working on capacity development initiatives as well to avoid duplication and use of the identified and collected training resources.

The Working Group (it is composed by 40 representatives from governments, international and private sector organisations, civil society and research groups coming from all over the world) has to be seen as providing a platform for longer term actions and scaling up in the use of capacity development materials and assessments.

The objectives of this working group are :

- Promote open data knowledge, increase awareness of ongoing open data initiatives, innovations and good practices
- Advocate for collaborative efforts agriculture and nutrition open data initiatives through knowledge sharing among capacity development activities

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- Advocate programs, good practices, and lessons learned that enable the use of open data. Promote capacity development and diversity of open data users for a more effective accessibility, use, engagement and understand of open data

2.1 Desk Research and Mapping Exercise

The mapping exercise was the first step to guide through this process. This exercise was conducted during the inception phase to help understand the capacity, skills and needs of stakeholders. It is the backbone for the development and implementation of this capacity development action plan, and will serve to address the bottlenecks in open data use in the thematic areas selected within the project. It will also constitute the baseline for consequent activities foreseen during the implementation phase such as the development and delivery of training courses and of innovative self-training products.

The exercise sought to summarize the existing needs in open data with a special focus on the agriculture and nutrition domain, reviewing and building on advances made in recent years. It helped to provide a snapshot of existing capacities and training resources in the field of open data, areas where gaps in data hinder the full engagement of end users, existing open data initiatives and sources that can be tapped into to address the effective use of open data, and new opportunities using open data.

Initial research was conducted via the internet to develop a database of existing training courses on open data offered from different organisations.

At the same time, organisations within the the GODAN Network provided support to collect information on the training that they currently deliver. The mapping exercise can be found in Annex 1 at the end of this document. The mapping exercise was compiled during the months of July – October 2016. This was divided by GODAN Members, GODAN Action Partners and other relevant key stakeholders at national level listing open data training initiatives at global level. As the study revealed, most of these organisations are providing training in different modalities: in-person and online training.

Within the set of GODAN Members, we identified 13 members' organisations that are providing training on open data, as well as 19 organisations who are not GODAN members. As a general trend this mapping exercises indicated that:

- Most training is provided face to face followed by the online approach
- The training provided ranges from introductory open data courses, to courses on accessing, using, visualising, and manipulating open data.

A number of organisations provide online training materials, for example the content developed by the ODI for the [European Data Portal](#). For instance, the World Bank offers tutorials, exercises and other materials that explore Open Data initiatives; the Open Knowledge Foundation delivers, both formally and informally — with governments, civil society organisations and others — introduction courses on open data, as well as more specialised open data training courses; The Open Data Institute (ODI) offers classroom and online open data training, that includes a mixture of practical exercises, case studies and the latest learnings from the field of open data; the Land Portal offers training sessions (including web tutorials) on linked open data (LOD). It is important to recall that this mapping exercise is intended to map both general awareness and capacity development/training initiatives on open data, as well as the ones focused on agriculture and nutrition.

GODAN Partners will continue providing support in identifying capacity development/training initiatives that were omitted.

2.2 Survey Development and Distribution

A questionnaire was developed following the ODI Training Needs Analysis (TNA) methodology and was sent to representatives of the organisations identified during the desk research/mapping exercise. This survey was also designed to refine the profile of the organisations providing open data training. The inputs received from the survey(s) are evaluated and analysed in this Action Plan in order to fit into the development and implementation of a capacity development plan to address barriers in open data usage.

As a result, Focal Area 3 partners will develop online training materials taking into account the needs identified during the assessment needs exercise.

The Focal Area 3 partners will focus on building and developing capacity using the following four approaches and will assess their efficacy.

1. Face to face will promote open data training and help to improve open data training materials. This type of face-to-face training could be delivered together existing ICT training providers.
2. 'Workbench' activities: with multiple stakeholders building their applications and learning about key success factors.
3. E-learning will be developed through the preparation of online courses, e.g. based on existing e-learning methodologies FAO.
4. Self-learning: in particular, innovative approaches to learning using mobile phones.

All materials produced for each training event will be described and made accessible in an online repository which will be hosted by the [GODAN Working Group on Capacity Development](#). [The objective is](#) to ensure efficiency and knowledge sharing among capacity development activities within the GODAN Network, in order to enhance the data production and curation skills amongst different stakeholder groups such as data producers and researchers.

2.2.1 Survey Structure

The questionnaire was rolled out online via Survey Monkey and can be found here: <https://www.surveymonkey.com/r/N85YLJ7>. Partners from Focal Area 3 developed and distributed it among project's partners as well as within the members of the GODAN Network. The survey was distributed between August and October 2016, and received 248 answers from individuals worldwide, from diverse professional backgrounds such as government, research, academia, business, international organisations, non-governmental organisations, or media.

2.2.2 Methodology

The Institute of Development Studies (IDS), one of the GODAN Action project's, has developed a set of 7 persona types (see deliverable D4.1.1, Research Uptake Strategy, for details). Personas are models that represent groups of real users who have similar behaviours, attitudes and goals. These are based on actual known data. Each persona has demographic details, such as background, role, location as well as motivations, goals and everyday tasks to perform. The main

idea behind the development of these personas is to ensure that strategies can be constantly evaluated against these “real” people to help focus decisions on actual users’ needs and benefits. Below, you can find the personas developed within the context of the GODAN Action Project.

WHAT IS A USER PERSONA?

Personas are **archetypes** (models) that represent **groups of real users who have similar behaviors, attitudes, and goals.**

Each persona serves as a single surrogate for many actual users which produces a clear target to aim for.

Personas are an eye opening **catalyst** that gets us thinking about our users and trying to understand them and their context.

Personas should **inform all decisions with empathy** for our intended users. They **challenge assumptions** and lead to more rigorous user-centred design techniques.



EMMANUEL MAKINDA
Commercial Maize Farmer

- Owner of mid-scale commercial maize farm in Tanzania
- Needs accurate weather and market price data to help him run his business
- Sometimes he can't find the data he needs

"Finding information about what supermarkets are buying maize is really important to future business."

FARMER




MIRA DAS
Journalist and Blogger

- Journalist for an Indian national newspaper
- Constantly needs new sources of land use/rights data
- Sometimes needs help interpreting the data she finds.

"I don't have enough evidence to back up what I know is happening in real life."

INFOMEDIARY




ISABELA VARGAS
Community Health Worker

- Health worker in Bolivia specialising in newborn and maternal health
- Needs a complete data picture of the people in her car
- Has too many people in her catchment area

"I am always on hand to give out advice and information."

EXTENSION




HANNA WEBER
Research Fellow

- Academic based in Switzerland
- Needs evidence in data that tests her research questions
- Data she finds either not connected meaningfully or has gaps

"I try to identify gaps and opportunities to collect the data that falls between agricultural and nutrition research."

RESEARCHER




CHLOE DURRAND
Agriculture Programme Manager

- Programme Manager for small NGO in East Africa
- Needs to get data that can help her delivery value for money interventions
- Sometimes she doesn't know what to do with the data

"We are only a small NGO so I don't have data experts to bounce questions off."

NGO




ZACK SWANSON
Research and Development Specialist

- R&D Specialist in large American agrochemical company
- Needs the latest high quality data
- Protective of data his company produces

"I need the best data available...yesterday."

PRIVATE SECTOR



NGUYEN QUANG CHU
Senior Agricultural Policy Advisor

- End of career civil servant in VietNam
- Needs evidence quickly to support the briefs he produces
- Has trouble finding trusted data sources

"Sometimes I can't find good quality statistics."

POLICY

Based on these personas , the findings of the survey were organised into the following categories:

Under the **Infomediaries** group we grouped together: ICT worker/Technologist-Journalists, Communications Officer and Librarian
Under the **Manager** category fell as well Administrator and Project Manager
Researcher and **Extensionists** are treated under two distinct categories.

To be noted: as the number of answers received for the Extensionists category were quite low, it might be useful to develop a further survey targeting specifically this category.

The survey was designed to address the following elements:

- The respondent's experiences interacting with open data
- The respondent's self-assessment on their open data understanding
- The challenges faced by the respondents in terms of open data
- Learning needs on open data

3 The Main Findings

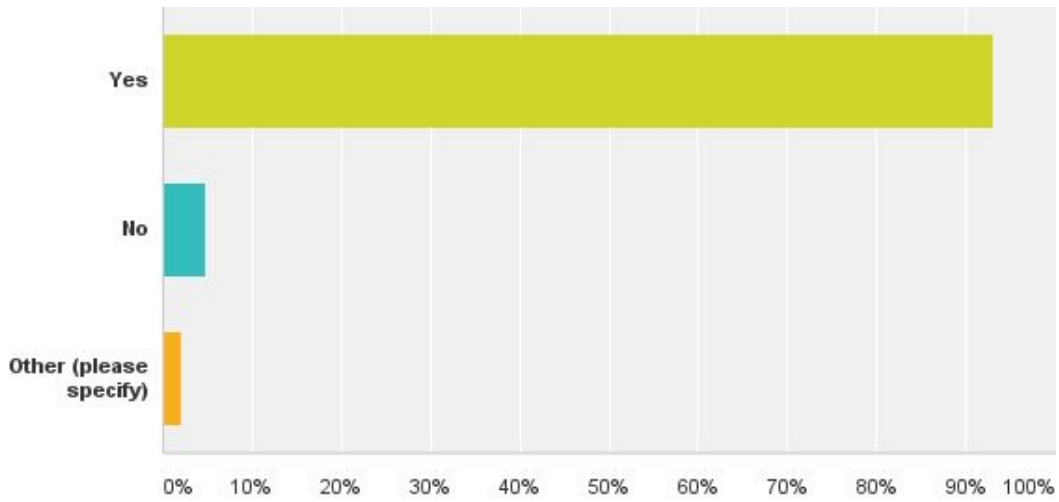
Demographic Data

1. 73% of the respondents are male
2. 27% of the respondents are female
3. 28% of the respondents are belonging to Non-Governmental Organisation
4. 43% of the respondents fell under the Manager category, followed by the Researcher 23%, Infomediaries with 16% and Extensionists with 9%
5. The biggest geographic coverage represented is the African continent with 43%

Below you can find some of the key findings of the survey. The full analysis can be found in Appendix 2

Working with Data

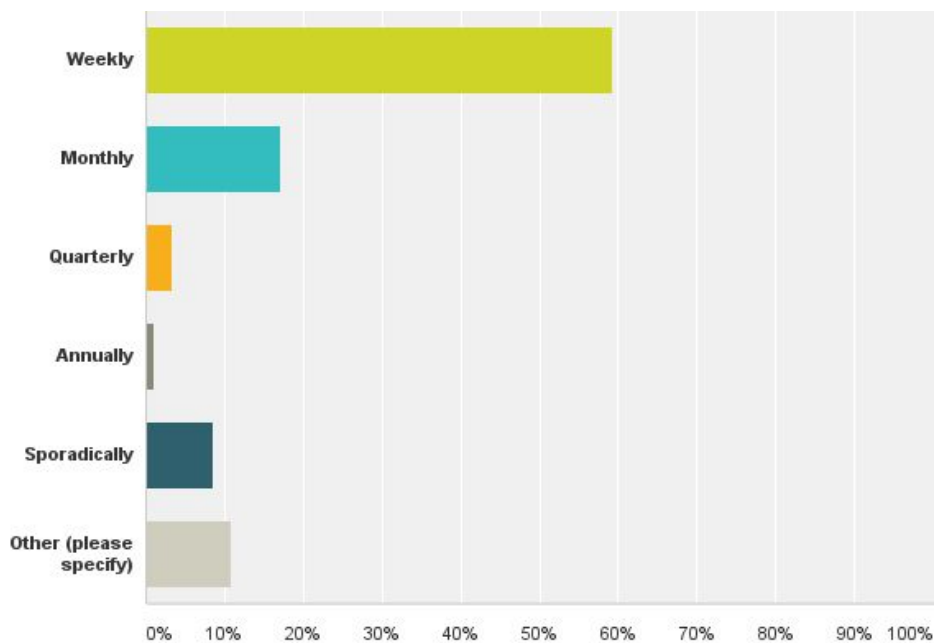
Q6. Do you interact with data in your job?



Based on the persona developed by IDS, we could identify that the largest number of people interacting with data are to be found in Managers with 41% followed by Researchers with 21 % and Infomediaries with almost 15 %

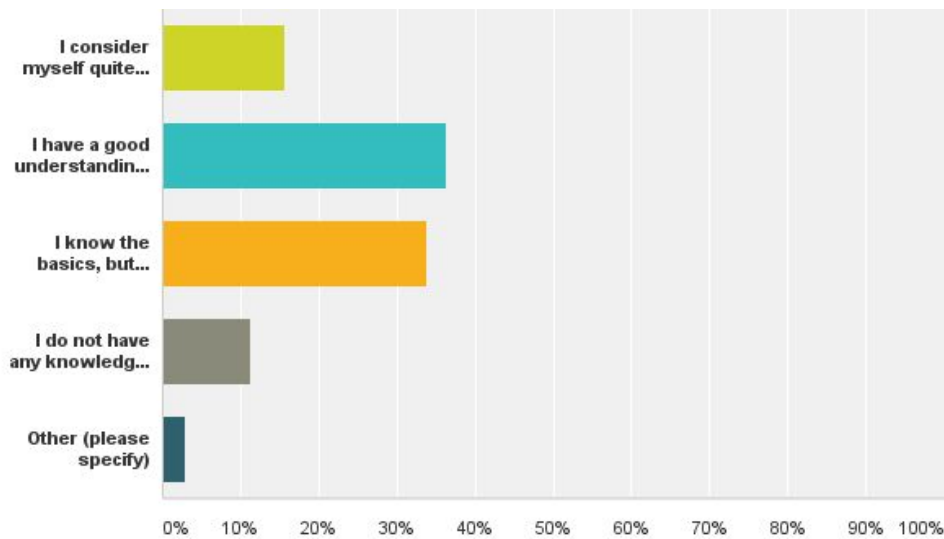
Q7. If yes, how often do you interact with data in your work?

When asked how often do they interact with data the answer was:



Open Data Knowledge

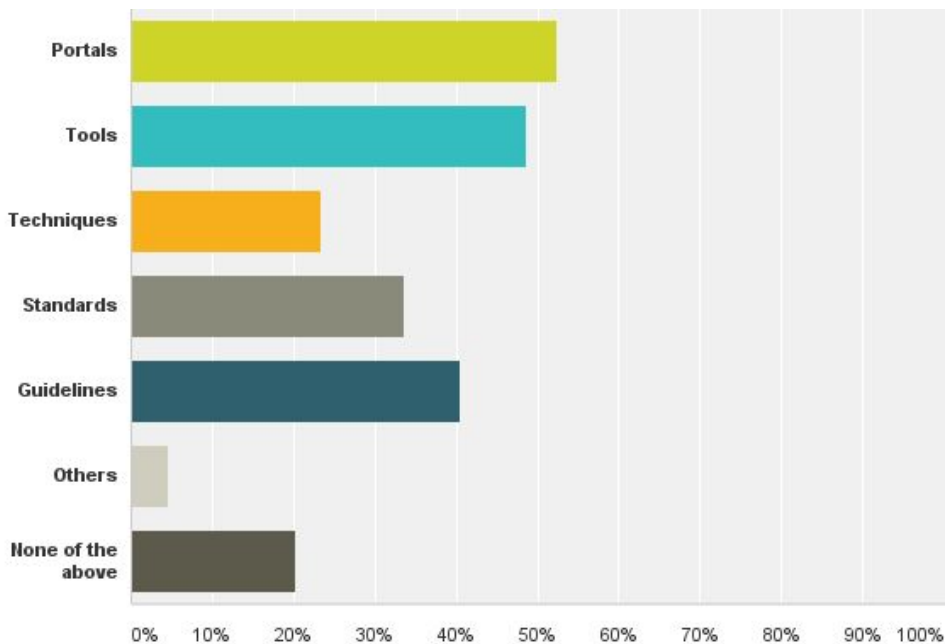
Q 10. How much do you know about open data?



The answer -I have a good understanding on open data but I would like to gain more insight ranked at the first position with 36%; followed by 34% of the participants who indicated their basic knowledge on open data, though stating their lack of deeper understanding on this field; almost 16% indicated they considered themselves quite knowledgeable and 11% declared they did not have any knowledge on this field.

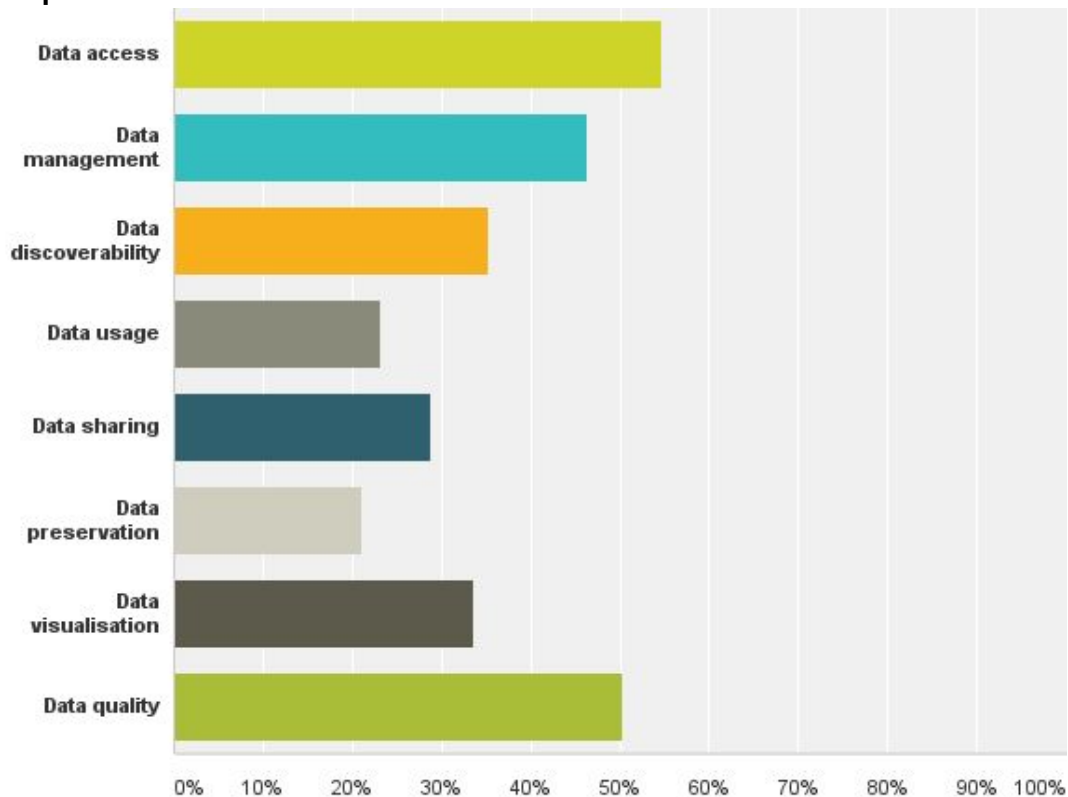
Q 11. Do you use any of these open data resources in your work?

The most used tools among the people that are using open data in their fields are portals with 52% followed by tools and guidelines.



Among the portals cited, we can find government data portals; portals run by international Organisations such as World Bank, FAO portals, Land portal and the European Open Data Portal.

Q12 At the question: What are the main challenges you encounter within your work with open data?



Almost 55% of the participants indicated data access was a challenge, followed by data management with 46%, data discoverability with 35% and data visualisation with almost 34%

If we disaggregate these results based on the personas, we find:

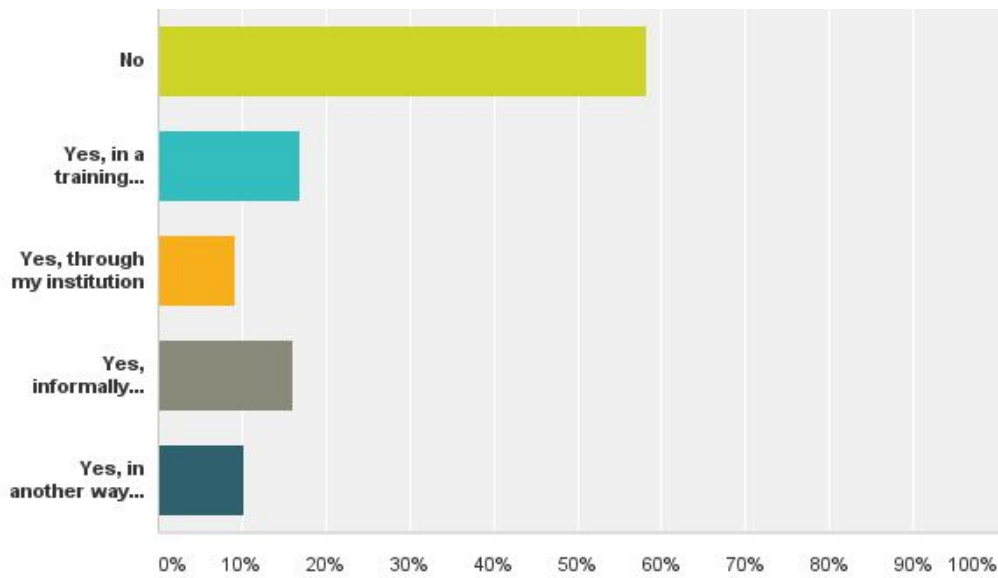
For the managers' category, the main challenge they encounter when they are working with open data is data access with 17%

For the Infomediaries category, the main challenge they encounter when they are working with open data is data management with 6%

For the Researchers category, the main challenge they encounter when they are working with open data is data access at the same level of data discoverability with 8%

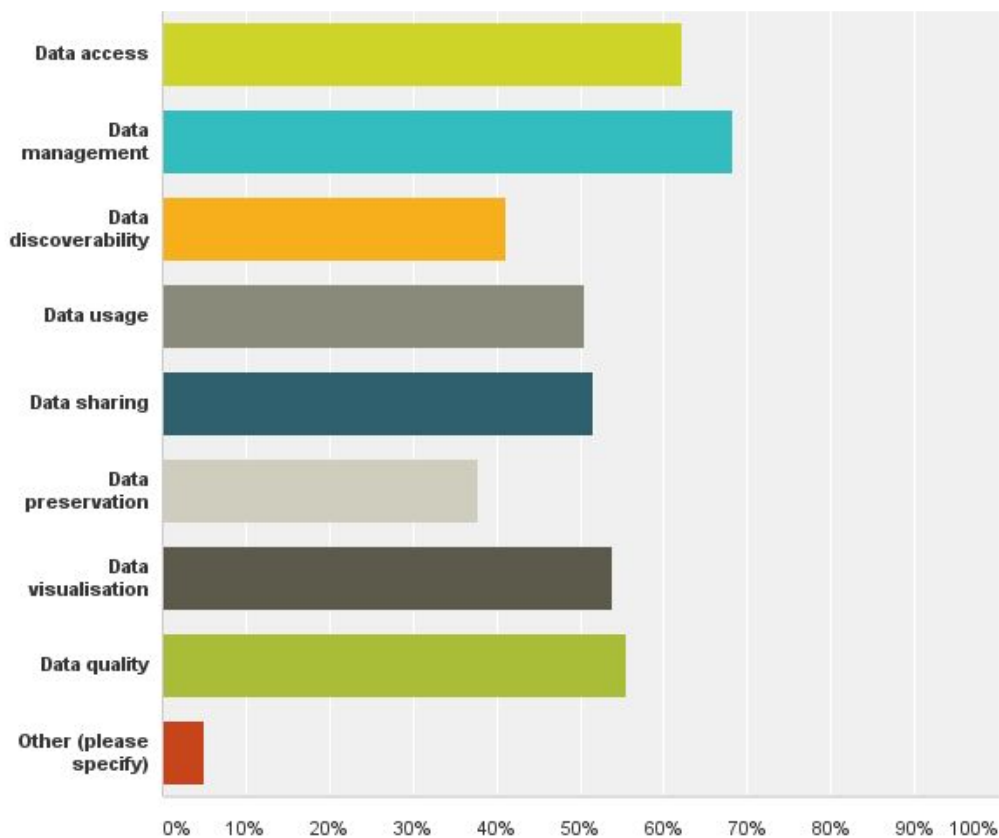
For the Extensionists category, the main challenge they encounter when they are working with open data is data management with 3%

Q13. At the question: **Have you ever had any training/capacity development on open data**



58% of the surveyed people indicated that they never had any training/capacity development on open data while 17% went through a training/ capacity development initiative through a workshop.

Q17. For the question: **What data skills would benefit you in your work, respondents could pick any number of skills**, the respondents answered as follows:



Data management was the area with the biggest demand, with 68%, followed by data access (62%), data quality (55%) and data visualisation (almost 54%). None of the areas attracted less than 35% of the respondents, indicating that there is reasonable demand for all kinds of training.

If we disaggregate these results based on the persona, we can identify the following:

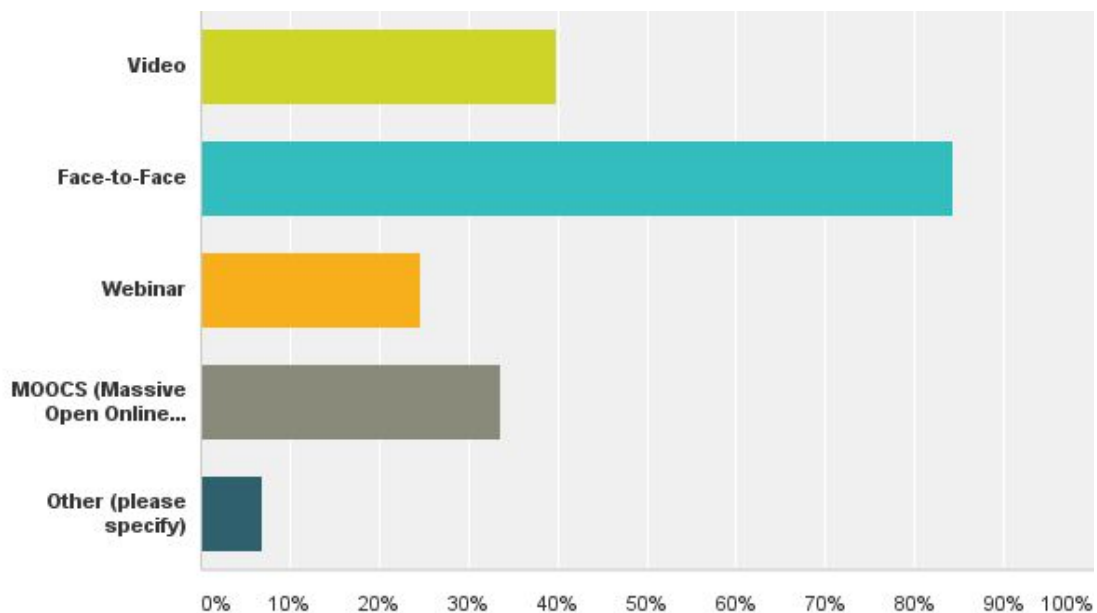
For the Managers category: Data Management with 22%, followed by Data Access with 18%, Data Quality with 17% and Data Visualisation with 16% are considered the skills that mostly would be useful in their work

For the Infomediaries category: Data Management with 11% followed by Data Access with 10% and Data Visualisation with 9 % are considered the skills that mostly would be useful in their work

For the Researchers category: Data Management, Data Access and Data Quality with 11% are considered the skills that mostly would be useful in their work

For the Extensionists category: Data Management and Data Access with 2% are also considered the skills that mostly would be useful in their work

Q 18. When asked: What is your favourite learning approach?



The face to face approach is the favourite approach of the majority of the respondents of this survey (84%) followed by video (40%) and MOOCs with 31%.

Specifically, the face to face approach is the favourite learning approach for 26% of the Managers category, 12% for the Infomediaries category; 16% for the Researchers category and 3% for the Extensionists category.

3.1 Lessons Learnt

One of the findings of the Mitrovic⁵ paper is that the level of data literacy (which denotes competence in finding, manipulating, managing, and interpreting data, including not just numbers but also text and images⁶) amongst open data users is quite low. They outline the importance of investing in capacity development initiatives for the promotion of a digitally inclusive society.

The preliminary results of this survey indicate that there are still several challenges faced in terms of open data use.

1. Though most of the people surveyed interact on a regularly base with data (93%), when referring to open data knowledge there is still not a clear perception of the meaning of open data: most of the respondents indicated a need to gain more insight in this field (36%) and the lack of deeper understanding (33%).
2. When referring to the main challenges encountered in open data, the participants on this survey mainly indicated the following challenges:
 - Data access 55%
 - Data quality 50%
 - Data management 46%
3. There is also a strong interest in data visualisation with 34%.
4. In terms of learning needs, we can see that over 70% of the surveyed people are interested in participating in face-to-face training.
5. Face to face training is also indicated by 84% of the participants as their favourite learning approach.
6. Among the participants that had already taken part in a training/capacity building initiative, 15% started taking training informally with the help of a friend/colleague.

In conclusion, the key messages conveyed by the survey responses is that there is a strong need and demand to know more about open data and to be part of the capacity development initiatives. At the same time, we noticed that face-to-face is the favourite learning approach. Video is the second favoured option, showing that this training approach has a cost effective role to play.

4 Action Plan: Rationale, Target Groups & Modes of Delivery

As mentioned earlier in this Action Plan, elements of this survey included in this Action Plan will help the partners of Focal Area 3 with the production and customisation of training materials and curricula.

⁵ Zoran Mitrovic (2015), Building Open Data Capacity through e-Skills Acquisition, Conference: 3rd International

⁶ <https://hbr.org/2012/09/data-is-useless-without-thskills>

The four approaches that will take place within the Project are the following:

1. Face to face will promote open data training and help to improve open data training materials. This type of face-to-face training could be delivered together with existing ICT training providers.
2. 'Workbench' activities: with multiple stakeholders building their applications and learning about key success factors.
3. E-learning will be developed through the preparation of online courses, e.g. based on existing e-learning methodologies FAO.
4. Self-learning: in particular, innovative approaches to learning using mobile phones.

In this context we foresee a need to produce or customise training materials.

First, we need to **raise awareness to maximize around the benefits and use of open data among intermediaries, journalists and policy makers**. The aim is to showcase how to integrate and use open data. Guidance about subjects from tools to visualize or create charts, maps, or galleries, to how to find data suitable to their needs, will be part of a repository of learning objects. This repository will be made available and maintained by the GODAN Working Group on Capacity Development and at the end of the Project will be transferred to the GODAN website.

There are different lines of action in order to achieve this objective:

To define the content itself, create materials and fill the repository of learning objects. The objects will be developed within the WP3 partners but also integrate from existing initiatives that have already training material interesting for the purpose of this project. The objects in the repository will be labelled by target user, type and subject to facilitate the design of any course in different countries and audiences.

The content developed within the Project will be run based on the assessment and choice of thematic areas. The impact will be measured through tracking alumni and changes in open data use in the chosen thematic areas.

To identify different methods to disseminate learning objects according to the needs and based on our target users. There are a series of methodologies that can be applied to reach our target users, from apps, videos, infographics to e-learning events.

Second, e-learning courses will also benefit from having a repository of learning objects to prepare materials and curricula for each event. New materials developed within the WP3 partners will be uploaded in the repository to ensure efficiency and knowledge sharing among capacity development activities during the project lifetime.

Third, we will enhance capacities on data production and data curation among data producers/researchers. Since data projects are often complex and require the interaction of actors with different perspectives, we propose to develop e-learning courses to create a common ground between different actors, focusing on those that produce, manage and share data. The courses are primarily meant to be used in the context of different institutions in agricultural knowledge networks and raise awareness on the different types of data formats and uses, and on the importance of reliability, accessibility and transparency. The e-learning courses will be easily integrated in other capacity development activities within the consortium and updated

according to the needs of consortium members, and the lessons they learn on the way. They will focus on helping to implement any findings that involve capacity development in Focal Area 1 and Focal Area 2. The courses will run twice per year, and will reach around 200/250 persons. They will be distributed under a Creative Commons licence (CC-BY-SA) and provided to GODAN to distribute as kit. This activity is committed to give preference to any registration from women. We expect that empowering women will have a multiplier effect for achieving the SDGs related to this project. Materials available in the repository of learning objects will be used for creating the curricula of these courses, and, vice-versa, the e-learning courses will provide new content to the repository that can be also useful and used for other activities.

Materials produced/adapted for these training initiatives should⁷:

Include learning objectives: clear learning objectives outcomes need to be set at the beginning of each training initiative

Be context-relevant: relevant to individual needs of the learner

Be user friendly: simple structured and with relevant example

Curricula based on the Table below and findings from the Focal Area 1 and 2 will be the basis of the e-learning courses. In the context of face-to-face training sessions, the content will be also re-used, according to the objectives and target users of each event. Additional material will be customized to illustrate the use cases.

Proposed Content for the e-learning courses⁸

Unit	Lesson	Scope and additional remarks
The data revolution	Introducing concepts	This lesson will clarify the different data concepts (data vs information vs knowledge, open data, big data)
	Sources of agricultural data	This lesson will explore the different types of agricultural data (Genetic data, economic statistics, crop yields, farm data, geospatial data)
The life of Open Data	What makes data open and useful?	This lesson will focus on the elements that make open data useful to access and reuse
	Use of open data	This lesson will explore the different open data decision-making tools with focus on agriculture innovation. And how open data is being used to create impact
Dealing with Data	Documenting data	Research notes, ELN's/ Common pitfalls
	Curating Data	Sustainable formats / Digital preservation
	Exposing Data	Data repositories/ API's and apps/ Linked Open Data and SPARQL / Cleaning and validating data- tools

⁷ These conclusions were mostly deriving from the [capacity development session at the IODC 16](#)

⁸ To be noted that this is just a draft

	Licensing Data	Copyright applied to data / Database rights applied to data / Creative commons and open data commons
	Visualising Data	Common (free) tools / Meaningful presentation of data/ Telling stories with data

To be note that this content will further developed in the beginning of the implementation (January 2017)

The existing content will be organized into lessons, which are meaningful, relevant, and reusable chunks of information. The lessons will be therefore designed as stand-alone learning entities, with minimal or no cross-referencing between them. In accordance with adult learning theories and competency-based learning, the instructional design will bring together the original learning materials to design a complete course that enables learners to accomplish the identified learning objectives without the support of an instructor. The instructional approach of this proposal on Open Data and Research Data Management aims to accomplish learning objectives at the knowledge, comprehension and application level. To this end, exercises and assessments will be included throughout the lessons to reinforce learning and to increase active participation of the user. The e-learning courses will be developed in English and, if an interest is expressed by GODAN partners, translated into other languages. The content will be developed by subject matter experts. For the e-learning lessons to be interactive, engaging and memorable, it is important that they are integrated with relevant case-studies, worked examples and materials for the design of interactive scenarios, so that the learners have opportunities to practice their understanding of the materials and increase retention.

An instructional designer will develop lesson storyboards by applying instructional strategies for e-learning to the existing content. The Subject Matter Experts identified will review the storyboards. The courseware developer will lead the integration of the learning content and related resource materials in the application and test the final interactive version of the course. The courseware developer will work with the instructional designer on the design, layout, interactivity and knowledge assessment tests of the course to ensure proper integration of the learning content for computer-based delivery.

Overall coordination for the different phases of the project, which will include content finalization, instructional design, mark-up, courseware development and production of the e-learning interactive course on Open Data and Research Data Management is needed.

Fourth, face-to-face training sessions are a key element as live events where interaction helps to break down barriers and provide real cross-cultural experiences with participants and facilitators. They also facilitate networking opportunities, enhance sustainable relationships and encourage the sharing of knowledge. They are will mostly be delivered through subcontracted partners already used by the project partners in the contexts above. Through the use of the library of training materials, engagement with the GODAN Working Group on capacity development and through the network of the project partners network of trainers, there will be a focus on franchising courses in addition to those executed as part of the project in the selected thematic areas. The project work is therefore focused not only on the face-to-face courses but on serving the alumni generated by the online courses as well. Special attention will be given to women, who we will prioritize in some or all the activities foreseen during the project's lifetime.

Target Groups & Modes of Delivery⁹

Managers	Favoured Training Approach	Training Components	Competencies Developed
	Blended approach combining awareness and data management, Change management	guidelines on data management; data and metadata management; dataset identification; data manipulation; LOD; data interpretation	Capacity to understand how to use open data Increased data quality Improved political decision making and governance

Researchers	Favoured Training Approach	Training Components	Competencies Developed
	Blended approach focusing on data quality and data management	guidelines on data management and data sharing ; data and metadata management; dataset identification	Capacity to better use open data Capacity to promote open data use Increased data quality Capacity to share data

Infomediaries	Training Approach	Training Components	Competencies Developed
	Blended approach focusing on data access and data visualisation	guidelines on data management; dataset identification; data analysis; data communication; data visualisation	Capacity to understand how to use open data Capacity to produce open data storytelling Increased data quality

Extensionists	Training Approach	Training Approach Components	Competencies Developed
	Blended approach focusing on data management and on data access	guidelines on data management ; data and metadata management; dataset identification	Capacity to apply open data to needs Increased data quality

⁹ To be note that this is just a draft proposal to be further developed during the implementation phase

Case Study: Open Data Training Course for CAADP Journalists

The Open Data Training Course for Journalists that took place on 25–28 July in Nairobi was intended as a trial event to assess, from one point of view, the needs and barriers in training faced by open data alumni, as well as to have feedback on the appropriateness of the materials used and subsequently to provide changes to the current approach.

This training initiative was organised by CTA and the New Partnership for Africa's Development Agency (NEPAD), together with the [Local Research Development Institute](#) (LDRI). The aim was to create awareness of open data among media practitioners. The training provided members of the [CAADP Journalists Network](#) with practical tips for using open data. The aim of this training was to showcase and equip them with the best tools on how to find, present and visualise data suitable to journalists' needs, such as creating charts, maps, or galleries, while providing the essential concepts, techniques and skills to effectively work with data and produce compelling data stories.

The workshop had ten Anglophone participants (all currently covering agriculture and nutrition sector in their countries) drawn from 9 different countries in sub-Saharan Africa. The majority were from print media and 3 from radio and TV.

Some key observations from this training were:

- The low level of use by journalists of tools for managing data such as spreadsheets. Although this was expected and the program was designed to allow for dropping of sessions without adverse impact on objectives, in future training initiatives will need to dedicate more time covering the basics of spreadsheets.
- A more thorough coverage of the CAADP Framework¹⁰ is required in order for the journalists to identify points of entry for engagement with the process in their countries.

On completion of the training, the trained journalists will be encouraged to produce through a mentorship programme, one piece of data / research-driven content every month for 3 months. The content will be published on their organisations' online and offline properties as well as the Project's and GODAN channels. The Journalists will be provided with technology and content support in the development of their stories or advocacy content throughout the period by our local partner, LDRI.

A short video where the journalists themselves talk about their experience participating in this training initiative was also produced and can be found here: <https://vimeo.com/177993806>

Case study: Linked Open Data Training Course for the Land Sector

A second trial event for the Capacity Building work package for GODAN Action, was a Linked Open Data training with policy enablers and decision-makers in the land governance sector. The Land Portal hosted a one-day workshop at the global [Habitat III conference \(Quito, Ecuador\)](#). This is a conference organized once every twenty years and brings together most of the land governance-stakeholders and institutions.

The goal of the workshop was to raise awareness of policy enablers and decision makers about the possibilities and advantages of open and linked open data. The objectives were to convince these stakeholders to integrate these technologies in their organizations' policies and create

¹⁰ http://www.nepad-caadp.net/sites/default/files/the_caadp_results_framework_2015-2025.pdf

awareness of the necessary steps to be taken to apply open and linked data strategies within their organization.

The Land Portal Foundation organized a one day workshop on October 16th and a session on October 21st, in collaboration with [Habitat for Humanity International](#), the [Global Land Tool Network](#) and the [Cadasta Foundation](#). On October 16th, 22 participants attended, from various organizations, but mostly directors and policy enablers working at civil society and grassroots organizations. These were the actors that are involved in or leading the decisions of an organization on whether and how to publish the knowledge produced by the organization. The awareness raising session on October 21st, was limited for Habitat for Humanity partners, of which the directors of over 50 country and regional offices participated. Habitat for Humanity is a civil society network organization, with many country and regional offices around the world, working on housing rights and land tenure security for people in urban and peri-urban areas mostly.

The workshop on October 16th focused on providing the participants with an introduction to open data and linked open data main concepts, starting from a more broad description to a more specific approach, describing the different steps to apply open data and eventually linked open data in an organization. The contents of the workshop were based on the materials provided by FAO and established in consultation with ODI. The participants were asked, in the beginning and several times during the day, questions regarding their awareness and understanding of open and linked open data. While at the beginning of the session, the participants mostly indicated to have no knowledge of or inclination to use open data, during and at the end of the day, the majority of the participants indicated that they understood more about these concepts and were more inclined to adopt an open approach within their organizations. At the same time, the participants indicated that they found the concepts very technical and difficult to grasp within the time frame of one day.

The awareness raising session on October 21st was meant to familiarize the audience with the concept of open data and standards; to familiarize them with the advantages of applying open data and how it can be used as a tool in their new strategy; and to show the participants how they can apply open data and standards in their own organization's websites. Learning from the feedback from the earlier training, the focus was less technical and more on the "front-end", user-experience rather than "back-end" technical explanations.

Some key observations of the training:

- Even within a seemingly homogenous target audience, the baseline knowledge of policy makers within civil society and international organizations, of open data and standards can be very limited and or even non-existing. Even though the contents were designed for a low baseline knowledge, the content on the 16th was still considered too technical. The very "user-end" approach on the 21st was received much better;
- It is extremely important to know the exact baseline (not only through surveys, where participants are inclined to input more knowledge than they actually have) but also by visiting and analyzing their respective websites;
- The adjusted approach for the awareness raising session on October 21st, learning from the experiences on October 16th, proved to be successful as several organizations within the Habitat for Humanity network have indicated that they are going to implement a Linked Open Data-approach within their organization.

Case Study: AgriGIS Workshop and ThinkTank

The AgriGIS Workshop and ThinkTank took place on 27-28 October in Nairobi, Kenya . It was organised jointly by the The University of Nottingham, the Regional Centre for Mapping of Resources for Development (RCMRD), the Global Open Data for Agriculture and Nutrition (GODAN) and Crops for the Future (CFF)

The objective of the event was to provide a forum for stakeholders in agricultural research organizations in Africa to share knowledge and propose strategies on improving the use of free and open geospatial software, open data, open educational resources with the aim to expand Capacity Development and Training in AgriGIS to support Global Food Security. The workshop had nearly forty participants.

The Think-Tank discussions covered the following themes

- Big challenges for Agriculture in the African context
- Tools (known & wish list) used for agri using satellite/remote data collection
- Existing or potential data sets we would like to use
- Practical, technical, policy, implementation obstacles to Location aspects/geotechnologies for agriculture
- Data and Modelling

Some of the key themes that emerged from the Think Tank discussions were the following

- Importance of the need of an organisation locally to facilitate and ensure sustainability of AgriGIS
- Spearheading open data and free and open software use for cost savings, expanding innovation and sustainability
- Need for Capacity building among stakeholders

The Center for Agricultural Networking and Information Sharing (CANIS), Kenya has volunteered to host the secretariat for the Think Tank for developing as a focal point for interaction with other stakeholders on Open GIS and open data and keep building the ideas from the ThinkTank.

Case study: Capacity Development Initiatives in the field of standards and interoperability

The process of using and sharing of open agricultural and nutritional data in an interoperable manner highly needs the adoption and appropriate usage of existing standards in this field. For this purpose, there are existing capacity development activities that aim to build the technical capacity of individuals and national/regional/international institutions to implement Open Access and Open Data projects in the agricultural domain. These initiative include:

- **The Capacity Development activities of the AIMS** (<http://aims.fao.org/>), which is supported by FAO. AIMS supports the following capacity development activities:
 - **Webinars@AIMS**: are real-time, online events, with short presentations allowing interaction from participants
 - **Face-to-face training**: arranged on request, and in the form of lectures or other organized meetings. AIMS can provide expertise in all areas of agricultural information management

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- **Workshops:** such as the Agricultural Ontology Services (AOS) workshops which have brought together over the years researchers and practitioners in the area of semantic-driven information management in agriculture.
 - **Conferences:** AIMS collaborates with stakeholders worldwide in the organization of conferences and events related to standards, technology and good practices for open access and open data in agriculture.
 - **The Capacity Development activities of the Interest Group on Agricultural Data (IGAD)** (<https://www.rd-alliance.org/groups/agriculture-data-interest-group-igad.html>), which is supported by the Research Data Alliance (RDA). RDA/IGAD has spearheaded two important capacity development initiatives. These include two introductory online MOOCS course on data management, principally aimed at learners in Latin America, and four Forums on Open Data and Open Science in Agriculture in Africa. The MOOCS courses offer an introduction to themes of data management using examples from the international sphere and with a particular focus on data management research in fisheries and nutrition. As well as teaching how to define data the course looks at issues of data storage, sharing and long term preservation, highlighting the different resources available to researchers in data management. IGAD heads the course in conjunction with the FAO of the United Nations, Spain's Polytechnic University of Valencia and the International Food Policy Research Institute (IFPRI).

Annex 1 : Mapping Exercise of existing capacity development /training initiatives

Please help us in providing with information on the existing capacity development/training initiatives by filling the following table:

<https://drive.google.com/open?id=1Xp7fffU7VjZ-6mA4ItV1C48d7YpBLGrfENiaZPxxkqU>

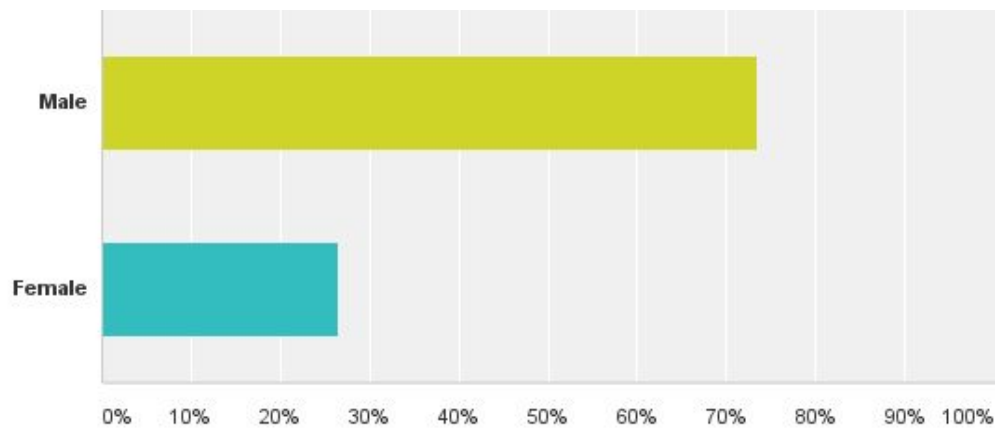
Annex 2 : Analysis of the Capacity Assessment Survey on Open Data.

Timeframe: July October 2016

Total responses: 248

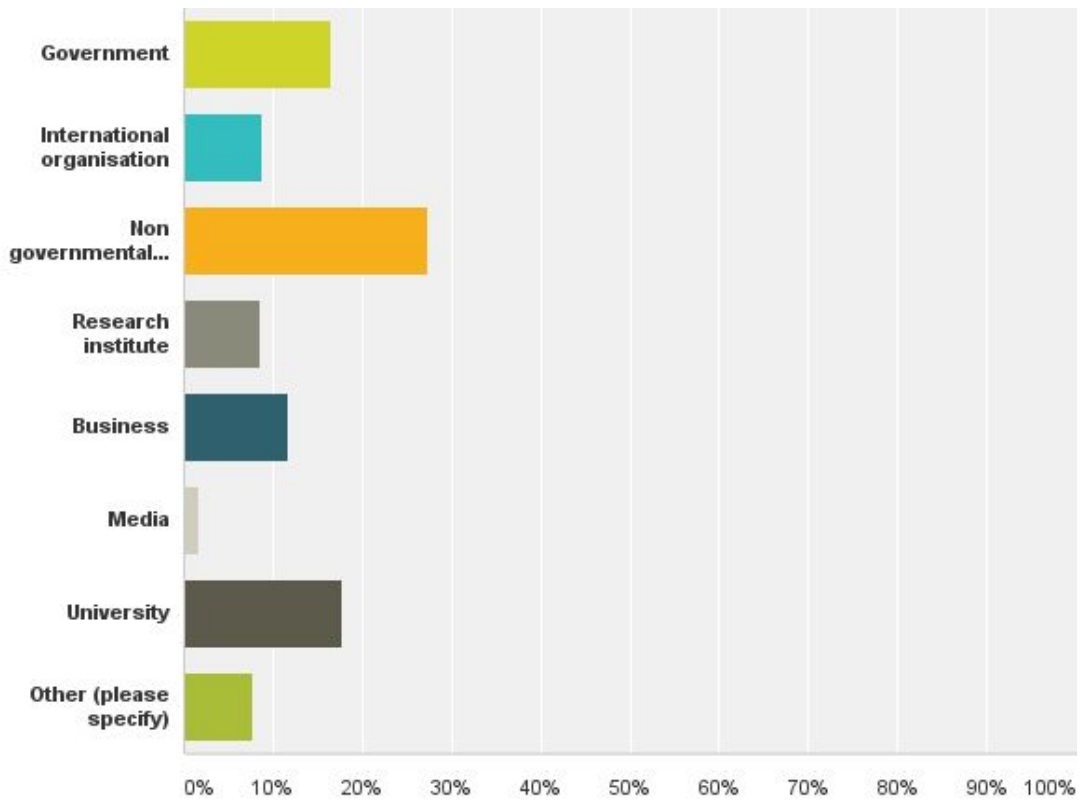
Q1: Gender

Answered: 248 Skipped: 0



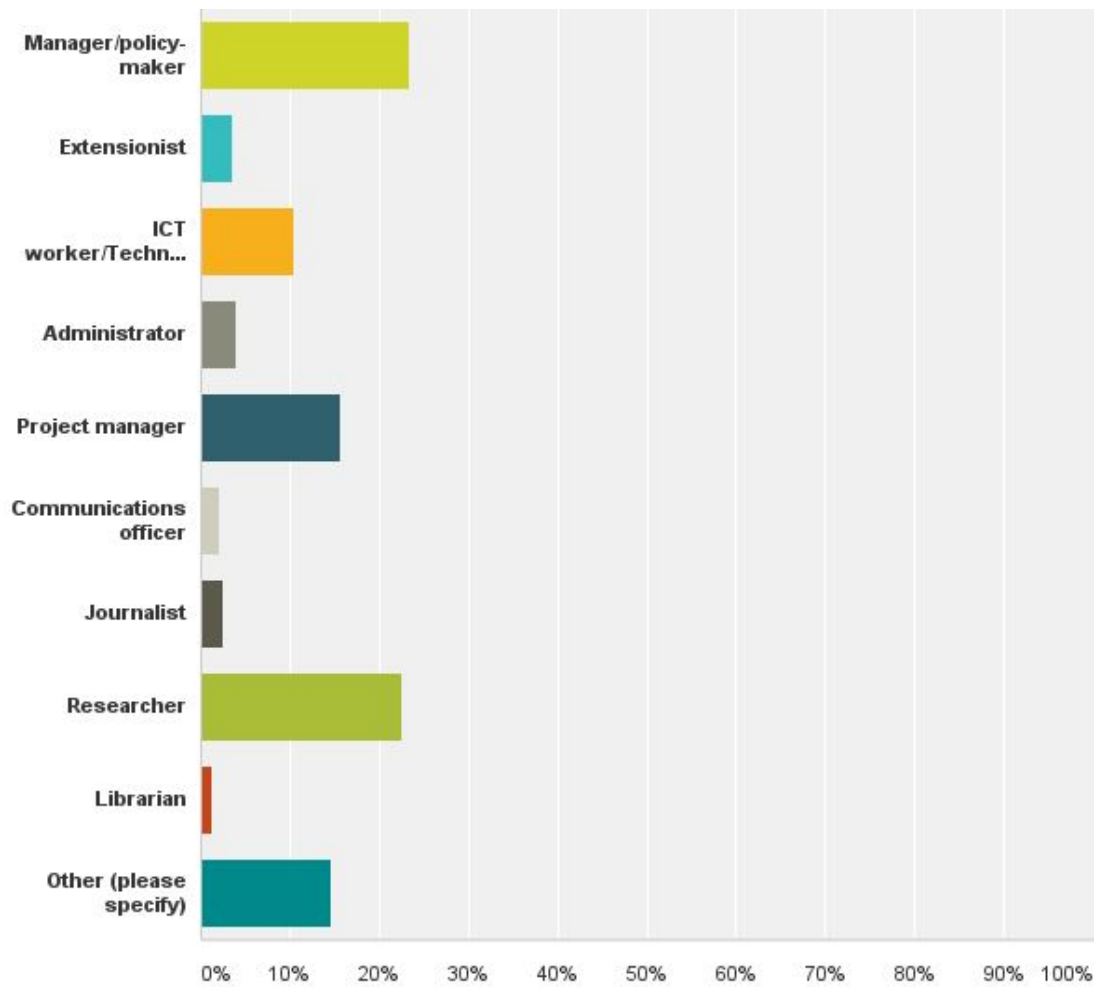
Q2: Type of organisation

Answered: 248 Skipped: 0



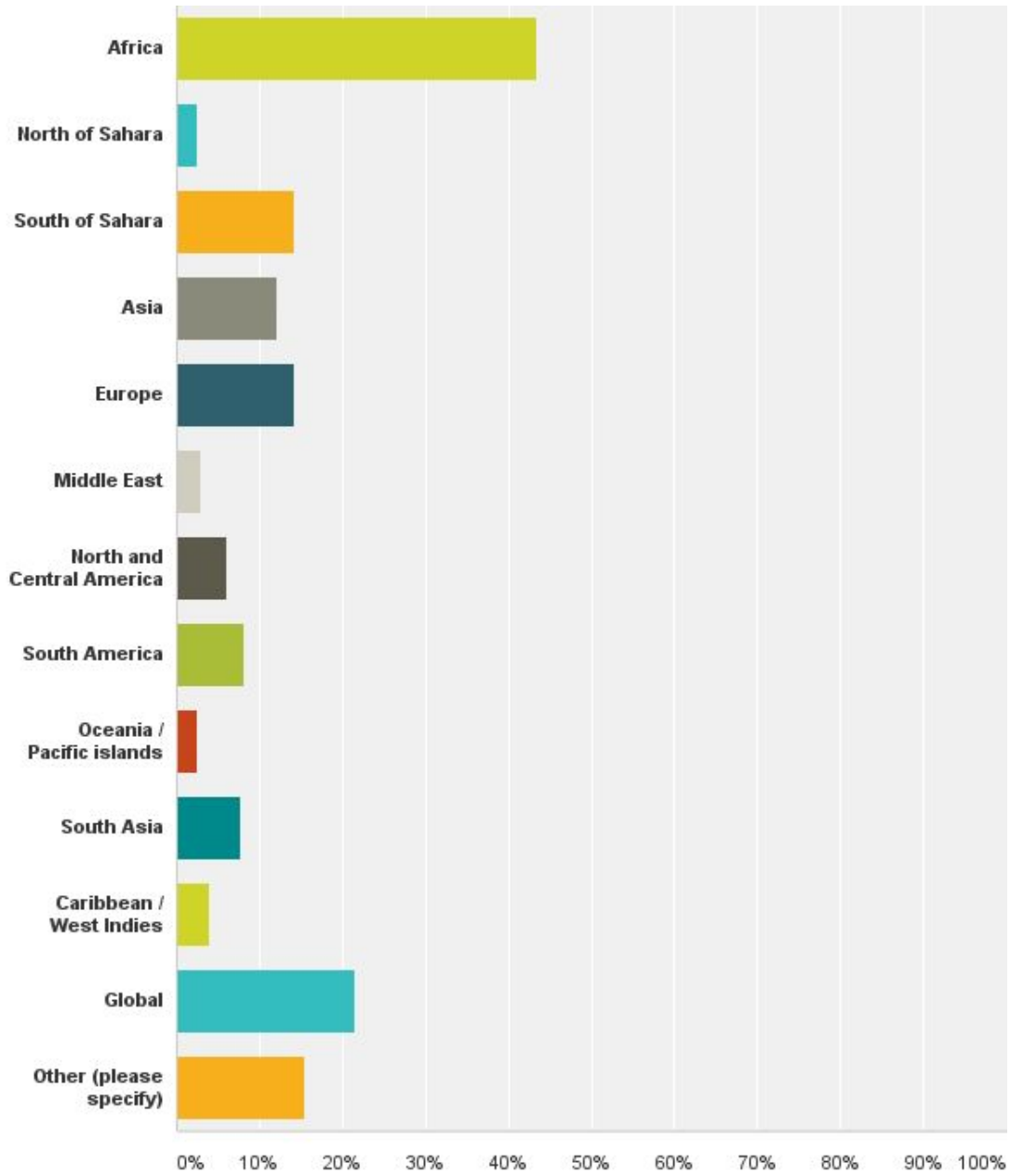
Q4: Role

Answered: 248 Skipped: 0



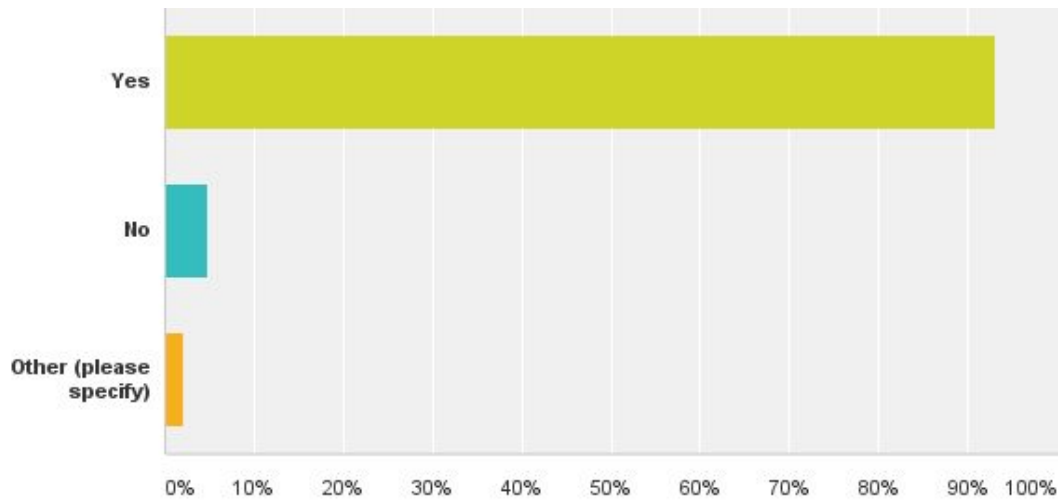
Q5: What is the geographic coverage of your organisation (more than one answer possible)

Answered: 246 Skipped: 2



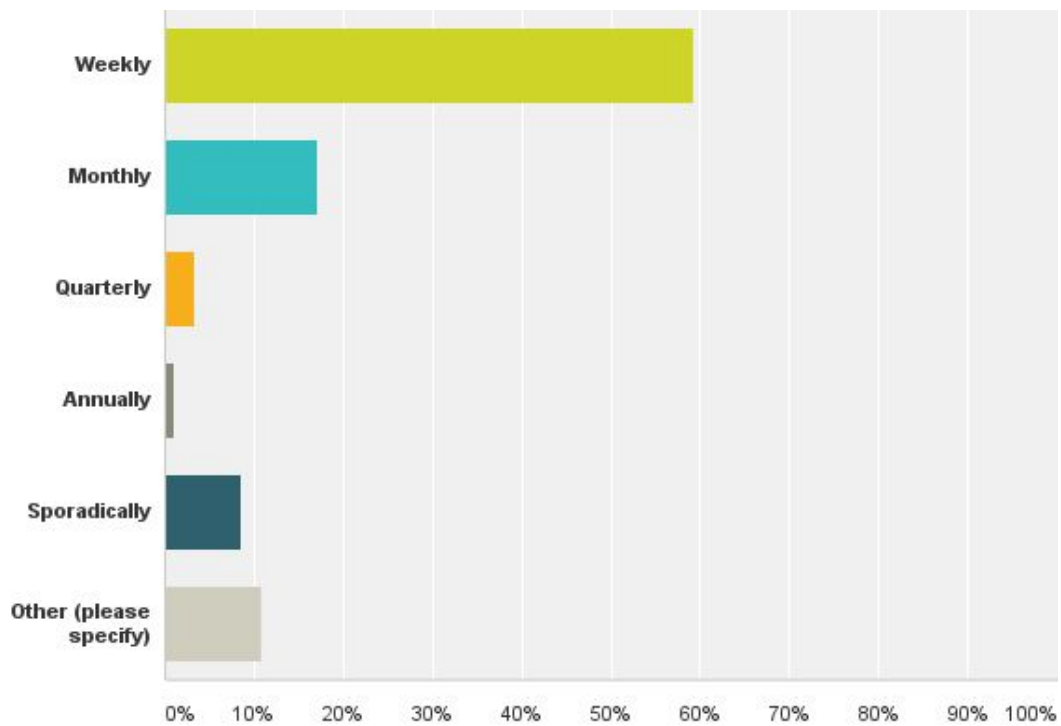
Q6: Do you interact with data in your job

Answered: 248 Skipped: 0



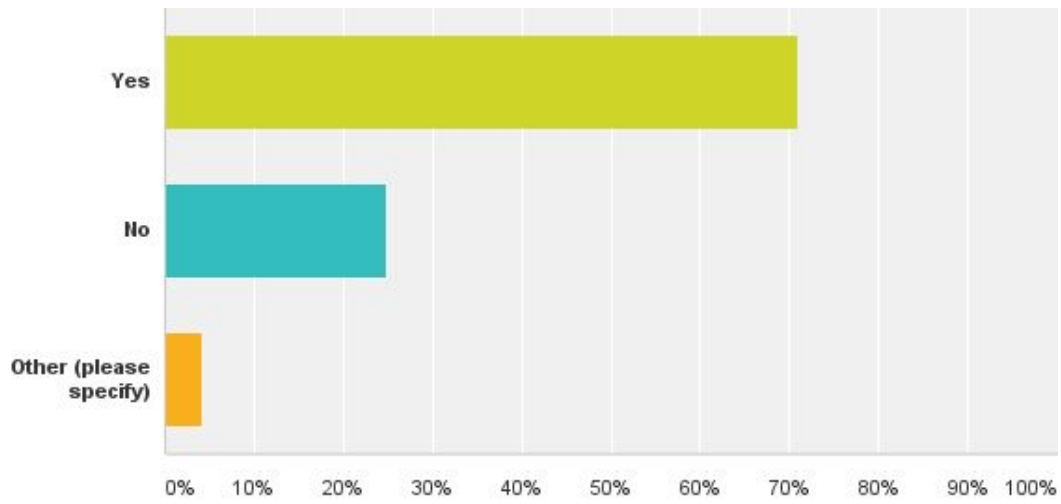
Q7: If yes, how often do you interact with data in your work?

Answered: 211 Skipped: 37



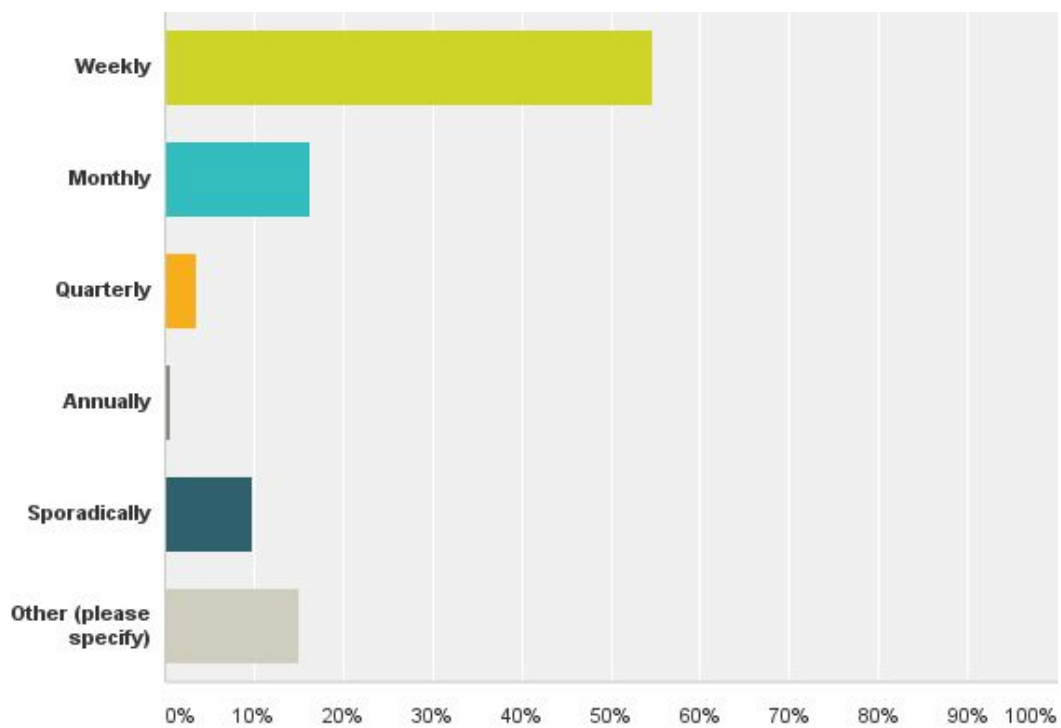
Q8: Do you manage people who work with data?

Answered: 217 Skipped: 31



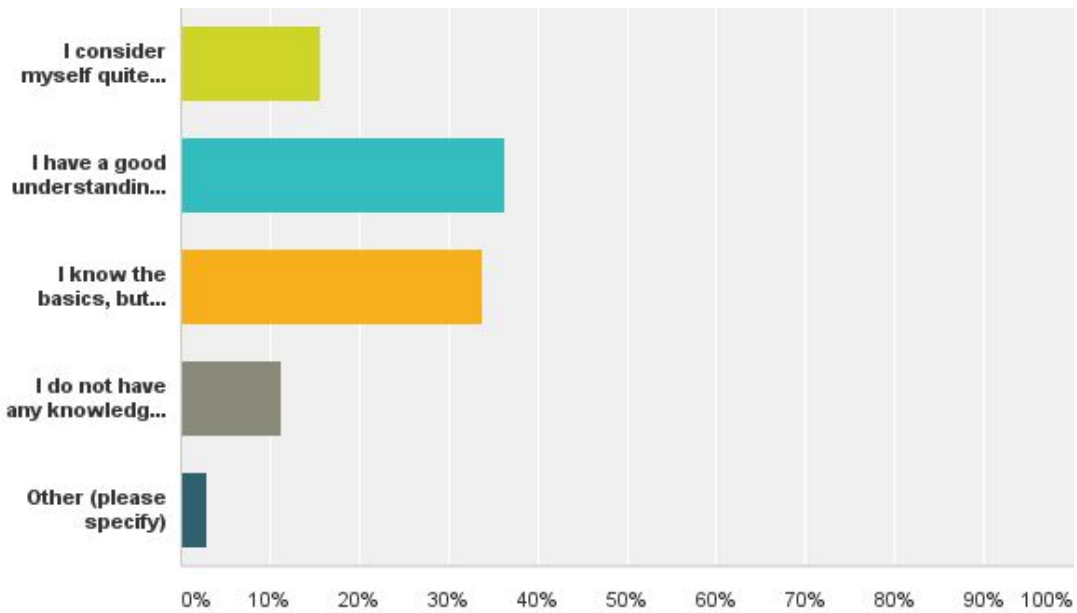
Q9: If yes, how regularly do they work with data?

Answered: 172 Skipped: 76



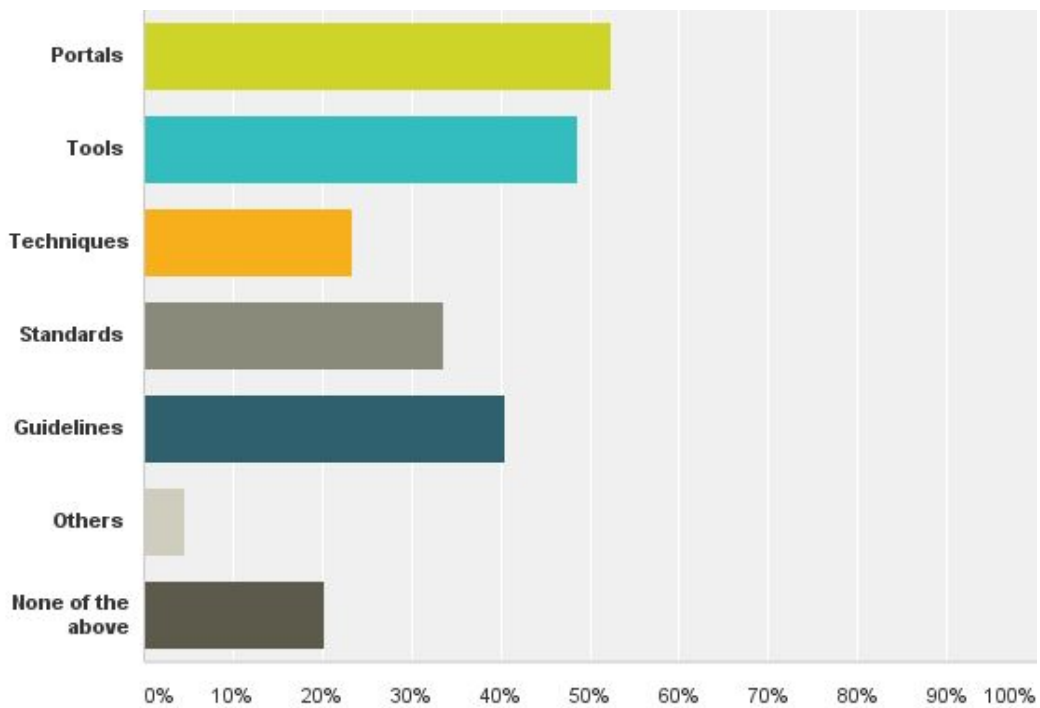
Q10: How much do you know about open data?

Answered: 204 Skipped: 44



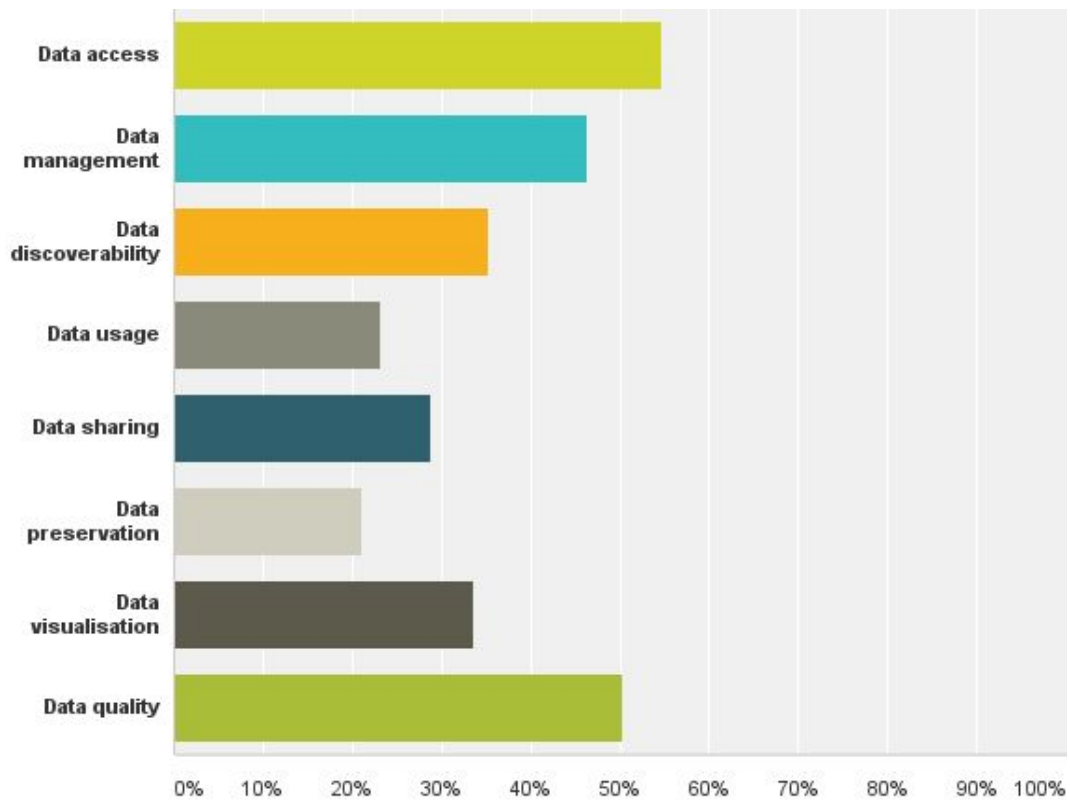
Q11: Do you use any of these open data resources in your work ?(more than one answer possible)

Answered: 193 Skipped: 55



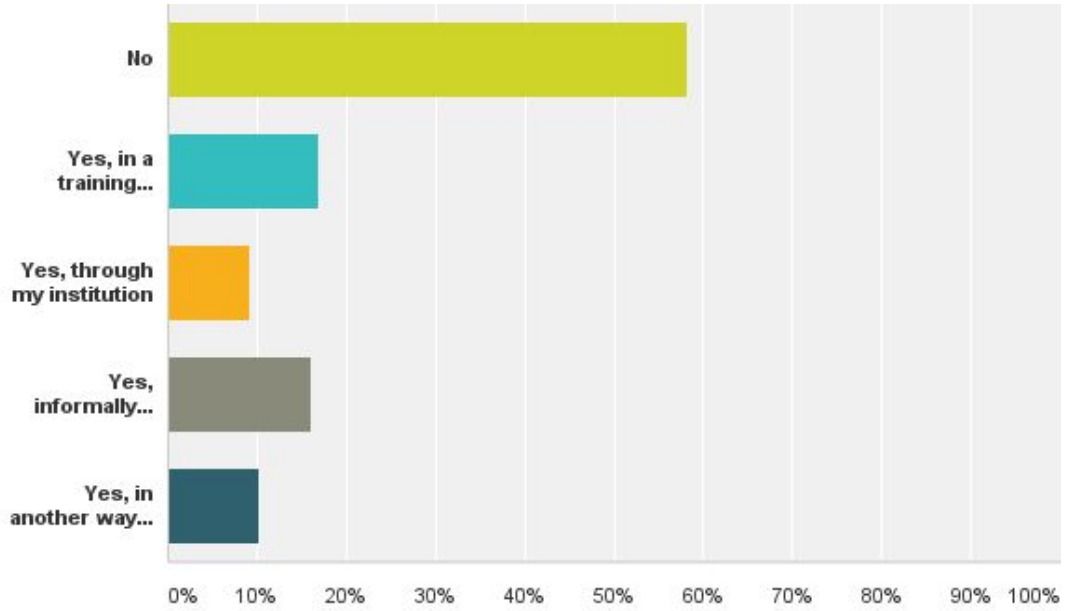
**Q13: What are the main challenges you encounter within your work with open data?
(more than one answer possible)**

Answered: 181 Skipped: 67



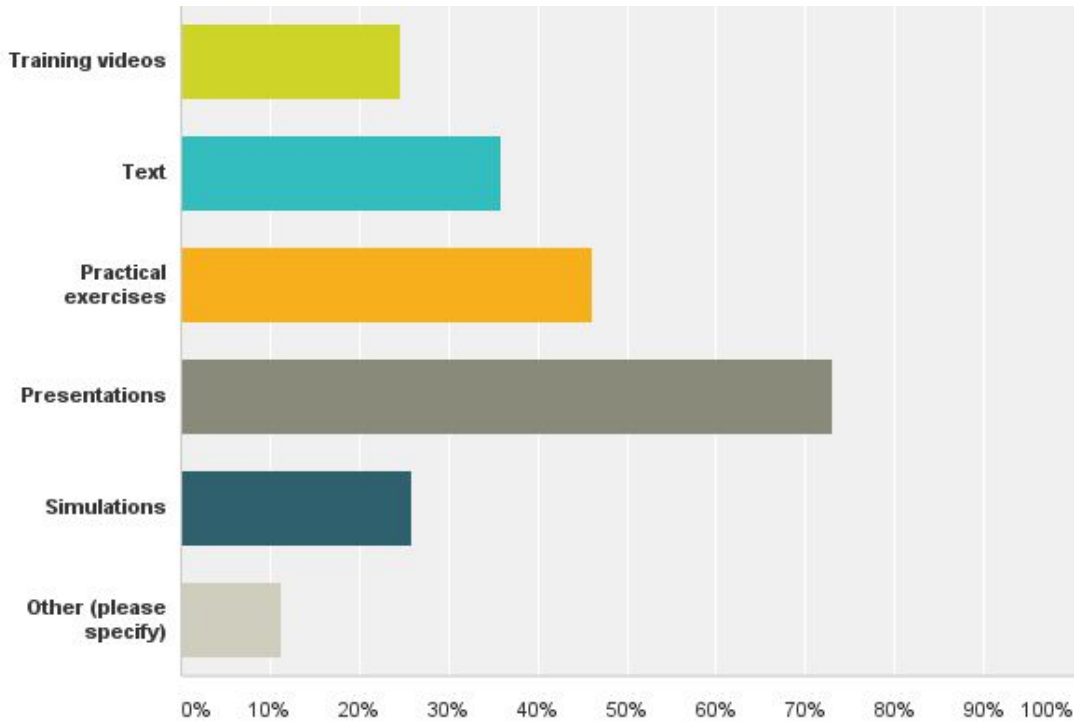
Q14: Have you ever had any training/capacity development on open data (more than one answer possible)

Answered: 194 Skipped: 54



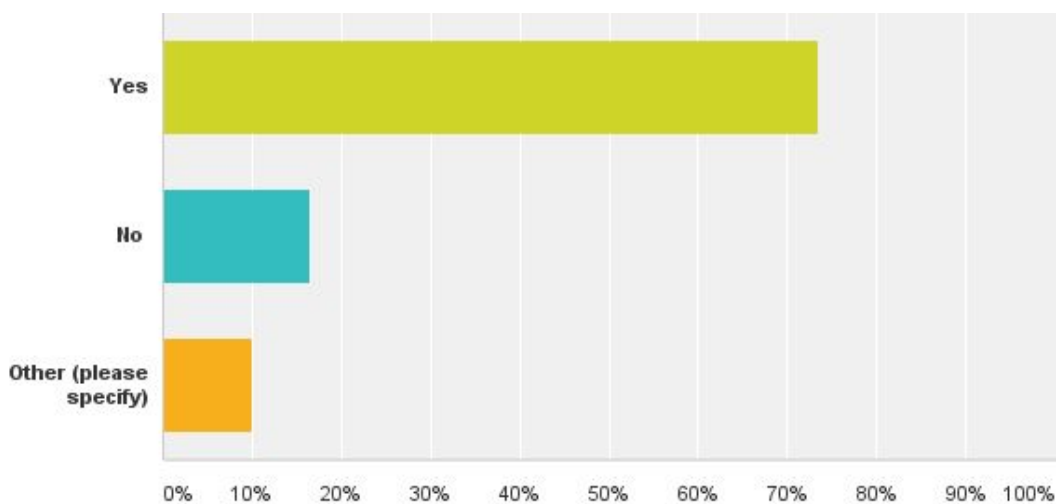
Q15: What were the training materials used during this training? (more than one answer possible)

Answered: 89 Skipped: 159



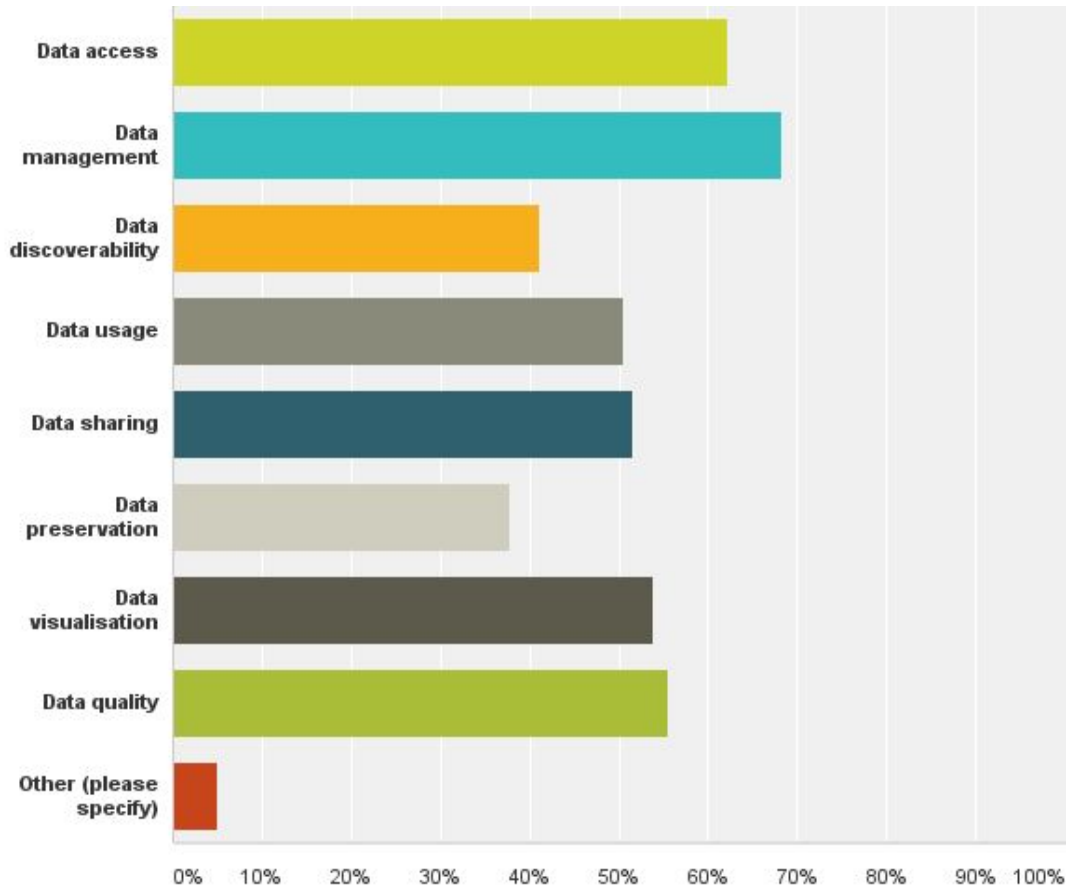
Q16: Do you apply the skills you acquired during the training (s) in your work?

Answered: 109 Skipped: 139



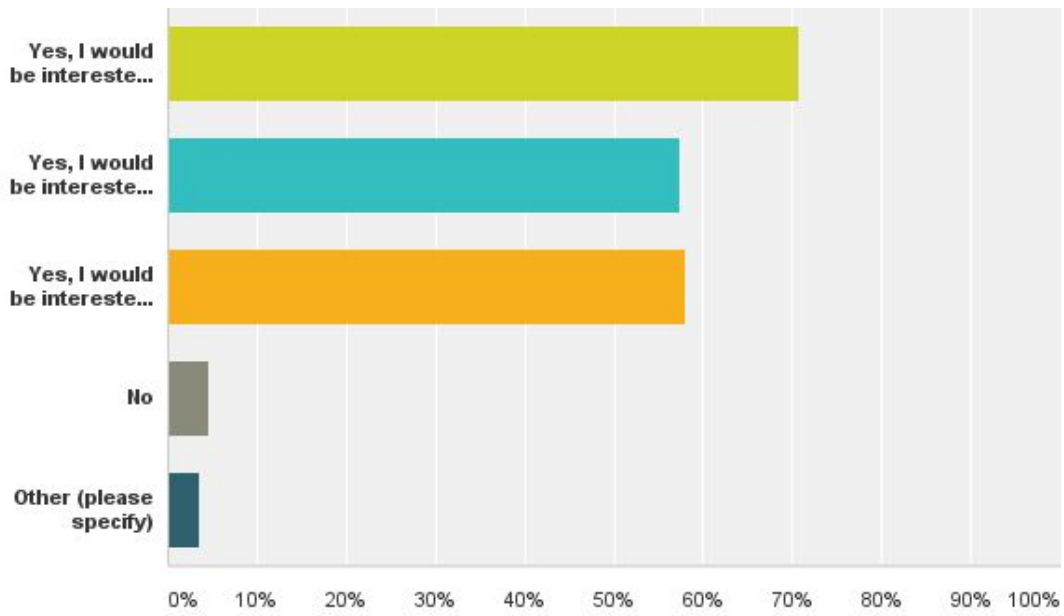
Q17: What data skills would benefit you in your work?(more than one answer possible)

Answered: 180 Skipped: 68



Q18: Would you be interested in (further) training? (more than one answer possible)

Answered: 195 Skipped: 53



Q19: What is your favourite learning approach? (more than one answer possible)

Answered: 191 Skipped: 57

