

Evaluation of the Webinar

#2: The way towards a Geospatial Knowledge Infrastructure

19 June 2023

Synopsis

UN-GGIM: Europe | Line of Work on Data Integration

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UN-GGIM: EUROPE | UNITED NATIONS COMMITTEE OF EXPERTS ON
GLOBAL GEOSPATIAL INFORMATION MANAGEMENT

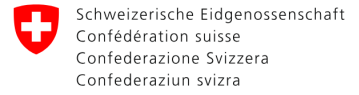


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FIGURES



INTRODUCTION

During previous years, the UN-GGIM Europe Working Group on Data Integration has analysed current and future trends in geospatial data integration. Examples of best practices have been collected and data integration methods that are especially relevant in a European context have been identified. This has resulted in a series of recommendations aiming towards an enhanced geospatial data integration experience, both at national and European level. The recommendations address technical and methodological bottlenecks, but also discuss challenges related to organisational setup, use of resources and capacity building.

The new webinar series will follow-up and focus on these main recommendations.

In the past 2 years, UN-GGIM Europe Working Group on Data Integration concluded that migrating from Spatial Data Infrastructure (SDI) to Geospatial Knowledge Infrastructure (GKI) was a key element for enabling the integration of the geospatial data into European Data spaces and business spaces (stated in the document [Data Integration Methods](#)). However, only few data owners know what it means and what are the needs and recommendations in that matter.

The webinar on *'The way towards a Geospatial Knowledge Infrastructure'* is considered as an introduction/overview webinar whose main aim is to collect needs and requirements by different groups, initiatives or stakeholders in Europe and from the webinar audience. The findings and conclusions might lead to more specific topics in second phase.



PARTICIPATING PARTIES

1. UN-GGIM: Europe Line of Work 'Data Integration'

The UN-GGIM: Europe Working Group on 'Data Integration' supervises two Lines of Work. One Line of Work addresses geospatial data in the context of the 'Sustainable Development Goals' and the other one of 'Data Integration'. In the past years the Working Group achieved its goals and delivered several strategic-conceptual recommendations on the topic. Some are included in a 'Policy Paper' as a 'Call for Action' in order to guide and recommend on how to improve data integration, to address the challenges and obstacles for integration of data and to provide facts for evidence-based policy making.

Presentation title: Why this webinar

2. Geospatial World Prime

Developed by Geospatial Media and Communications, Geospatial World Prime (GW Prime) is a first-of-its-kind subscription-based premium geospatial media platform, which offers quality content covering the entire geospatial ecosystem and the allied technology segments. Pursuing its vision of 'Making a Difference through Geospatial Knowledge to the World Economy and Society', GW Prime aims to promote the value of geospatial information, facilitate collaboration with the mainstream industry and support policy advocacy.

Presentation title: GKI supporting National Development, Case Study on GKI in Action

3. EuroSDR

EuroSDR is a not-for-profit organisation linking National Mapping and Cadastral Agencies with Research Institutes, Universities and Companies in Europe for the purpose of applied research in spatial data provision, management and delivery. Collaborative research projects address the acquisition, management and delivery of spatial data and services while international workshops and courses, in collaboration with related organisations, address key issues in a timely and focussed manner.

Presentation title: Solutions to engage with the national education community and synergies across countries

4. swisstopo

swisstopo is the Federal Office of Topography of Switzerland. One of the main strategies of swisstopo is ensuring the availability of the most up-to-date geo-reference data in Switzerland (area-wide and in the required quality).

Presentation title: Towards a Next Generation of Swiss Maps



OBJECTIVES

- To gain a greater understanding of the geospatial knowledge value-chain and how sustainable development is being driven by knowledge applications.
- To understand that GKI offers a series of recommendations to take nations up the value chain towards knowledge as they embark on their digital transformation. These will also support the development of UN-IGIF country-level action plans.
- To provide use cases and best practices examples of GKI applications within international organisations like Geospatial World, EuroSDR, and NMCAs.

The final outcome is to get a feedback of the audience by mean of a series of questions, in order to highlight the needs and requirements related to a possible migration to a GKI. Findings and conclusions might lead to more specific topics in second phase.



OUTCOME OF THE DISCUSSION

Questions raised during the webinar via Slido:

Can you specify better what do you mean with decentralization?

Decentralisation is the new way of life, that's a fact.

Firstly, the way the WWW works is very decentralised. Actually, we tend to get knowledge rather in a people centric way, doing the best searches we can with Google. But the point is that we're working in a very decentralised environment when we work on the WWW; the data sources, the applications can be anywhere across the WWW. That's the world we have to work with.

Secondly, in decentralised environment, we have to make sure that our data, our applications, our tools are findable, accessible, interoperable and reusable, and of known quality; the known quality becomes really important because as we start integrating data, we bring in potential errors, biases, and so, we need to know where we're starting from so that we can understand the finished product. We all use tools where there are biases and errors in the answers. Actually what we move forward to, is not going to be human but well to be machines talking to machines in a machine centric world.

The decentralisation absolutely applies to the infrastructure, but it also applies to collaborations; we don't know who has to come together to solve a particular problem in terms of people. There are many ecosystems that need to interact and we have to come up with collaborative solutions.

What exactly is meant by the legal framework; Specific laws that will regulate the GKI or already existing legislation that will support GKI?

GKI is conceptual; it is a direction to travel. It is not providing policies and regulations about specific things; standard is an easy one to draw out here. It can also be, for example, tried to change regulations on public-private partnerships to make them more attractive in a data environment, but this doesn't really occur in a geospatial data perspective, perhaps because some countries' legislation doesn't allow it.

Coming back to standard, we need to mandate central government or geospatial agencies to use a higher level of standards (like OGCs). Standard allows our data to be accessible and machine-to-machine readable. Actually, if you're searching on the Internet for data and you're doing it as a machine, you'll never access a single NMCA database. If we move up to standards, then we will be able to move into a world of linked data.

"Users want knowledge" brings up the question: how far away is "wisdom"? People trust authoritative geospatial information and receive wisdom.

Knowledge is still in the human mind. Knowledge is being able to solve your problem from the perspective of having the right information, the right answers through the combination of data and applications that meet the context of your particular problem. And so knowledge can be machine generated.

Wisdom is something that, for many years to come, in our minds and I don't think machines will be in that space for a long time either; it's a long way off.



If we can move to the knowledge in a data perspective so that data can be discoverable and accessible machine to machine, and so that applications are able to estimate the quality of the information (so that we can have an idea of how good it is), then we are moving into the knowledge space.

A lot of sources and dataspace in the next generation map: how do you rate "trust" and "ethics" for your sources?

From a government's perspective it's really important to argue that authoritative data is trusted data; government data need to carry some authority and be recognised. Strengths and weaknesses of the metadata are known. Trust is based on the data quality and the remaining issue is to be able to rate the data quality so that it can be trustable.

Ethics are linked to the legal framework. Ethics are increasingly the outcomes of the ethical discussions, which are leading to back to regulation.

As an example during the COVID period, I was asked some advice on an APP that was being developed in the USA. The outcome of that APP was using publicly available data or commercial with the result to see on people's smartphones every house where there might be COVID present at the moment. From an ethical perspective, others advised that those APP actually are unethical because you might start blaming people for a COVID outbreak in your area (and who knows where that might go.)

Swisstopo had a long discussion about reliability of the data since we give away some control of the data itself. Obviously, it might be that data is not trustable because they are not correct or not up to date. When we provide integrated data of third parties, we assess the data before, so to be really aware, which data sources are used and who are the stakeholders of the data sources.

Usually, most of the data come from official agencies, from swisstopo and other federal agencies, which provide reliable data. We have started working with societies and with associations, that can provide the data themselves. In our APP, we clearly show what the data provider did and that the data is not provided by ourselves but by a third party, so that the user is aware that the data might not be correct as it is not assessed and not coming from an official source.

How do you integrate all the third party data? Are they all so advanced that they provide standardized web services?

How periodic the updated data should be? In a sense that can we segment the update for particular spatial temporal region?

Some of the data providers deliver the data every three months, and we update the base maps every three months. Additionally, we will link the base maps to their API so that we can actually use the real time data of their system. If you click on the map on a specific map element, it will be linked to their data directly and getting these information in return. Of course, there might be a gap between the update cycle of three months and the linkage with real time data.

Swisstopo is now considering an update cycle on a daily base, but currently for the first release, the update cycle is every three months.



Investing in these new products, I wonder, if it is really the role of a NMCA? Do you do this in collaboration with the private sector ?

These projects are done in collaboration with the ministry of education and not by IGN alone. From my understanding, the private sector is involved but not so much. ESRI is involved in some curricula but not there.

There is room for more collaboration to get funded because we lack funding on that topic.

In the case of Minecraft, we worked with a private company and even switch to Minetest with another company. Minetest is the open version of Minecraft. But many developments were done at IGN. We participated in the design of a European project led by a private company to propose Minetest services for data from NMCAs in Europe which failed, to my knowledge.

In the case of the software to produce maps and map stories, this is a service developed within IGN to produce your own map, to assist users in selecting geodata, statistical data, old data and portraying them as well as creating map stories. There was some specific development for Education but now there is less and less money and we tend to focus on only one development called MaCarte, <https://macarte.ign.fr/>. Yet, the Edugeo solutions also entailed a catalogue of Mapstories and pedagogic material and we don't know yet how to maintain this.

The digital workplace of teachers is called Lumni in France, it is a collaboration between many organisations from public sector, I don't see the private sector there but can ask if you wish. <https://www.lumni.fr/qui-sommes-nous>

Swisstopo also provides its cartographic services to the general public in the sense of a “service publique”. In this sense, swisstopo pursues (among others) the following objectives in its strategy 2025:

- The orientation of its products towards future generations and their user behaviour;
- The linking and connection of its data with data of third parties to enable added value for the national economy.
- The legitimation for the publication of the digital national map and its linkage with third-party data is based on the legal foundations of the Federal Act on Geoinformation GeolA Art. 22 Para. 2 d and the Ordinance of the DDPS on National Surveying LVV-VBS Art. 9 Para. 4.

When data and information are currently obtained from our own, they are included from third-party sources. The principle applies of including official sources or sources as close to the operator as possible, i.e. primarily official data from federal, cantonal or municipal sources or, if not available, from state-related institutions or professional associations. In some cases, crowd-sourced data and data from private providers are also included.



CONCLUSION

Moving towards a Geospatial Knowledge Infrastructure requires:

- to make the spatial data discoverable, accessible and readable between machine-to-machine in a decentralised machine world;
- to apply standards so that linked data and machine readability is possible;
- to establish cooperation and collaboration within different sectors and trusted stakeholders through a public-private partnership, so to integrate the needed data sources;
- to provide an estimate of the quality of the data sources so that the users can evaluate about their reliability;
- to provide authoritative and reliable data mainly from the public sector.

The presentations have provided use cases demonstrating that the geospatial knowledge concept is now in application in many fields like education, land monitoring, ecological transition and mobile maps applications, with the purpose of helping to the decision-making process with the perspective of having the right info or to solve a particular problem.

The outcomes of the survey among the webinar audience show an increased interest in the GKI concept and some possible consideration for providing data in such framework.

Elaborating partnership with other sectors and domains is key. The well-known applied collaboration is with the health domain (probably owing to the Covid pandemic). However, other relevant domains have been identified to establish partnerships like the environment and climate change. GKI really fits for that purpose.

The audience has identified some of the main barriers to commit into GKI, which are:

- the lack of building capacity and experiences and the need for training and education;
- the availability of trusted and authoritative data;
- the successful combination of data requires a certain level of data harmonisation (not always available). Standards in that field are needed (and not only to make them findable and accessible);
- the collaboration with other domains become a priority but is probably not obvious if not supported by a legal framework.

Some of the key aspects or approaches that the audience finds relevant to undertake, in first approach, are:

- to identify the user needs in the way of focusing on users' knowledge needs (what the user needs to know, what are the needed outcomes) and not on the data;
- to increase the role of the users as active partners in matter of feedback for improving the applications
- to establish new stakeholders partnership;
- to establish official / authoritative data and standards to rely upon;
- to ensure that technology serves the ecological transition by taking a more systemic approach (agriculture, biodiversity, water,...).



NEXT STEPS

The audience has suggested some proposals in the way the UN-GGIM: Europe Line of Work on 'Data Integration' could help to progress in raising awareness and increase the knowledge of GKI.

The audience is asking for sharing more best practices and experiences in that matter and the webinars remain a good way for sharing the information.

As GKI remains a bit conceptual, defining a step-by step approach the definition of clear processes are most welcome. UN-GGIM: Europe Line of Work on 'Data Integration' might investigate whether those processes could be identified based on existing best practices.



ANNEX I

+++Results of the slido poll+++

Survey (1/11)

0 2 5

Where are you joining us from today?



Survey (2/11)

0 2 5

From which sector do you come from?

Public Sector: Geospatial



Public Sector: Statistics



Public Sector: Cadastral



Private sector: Technology



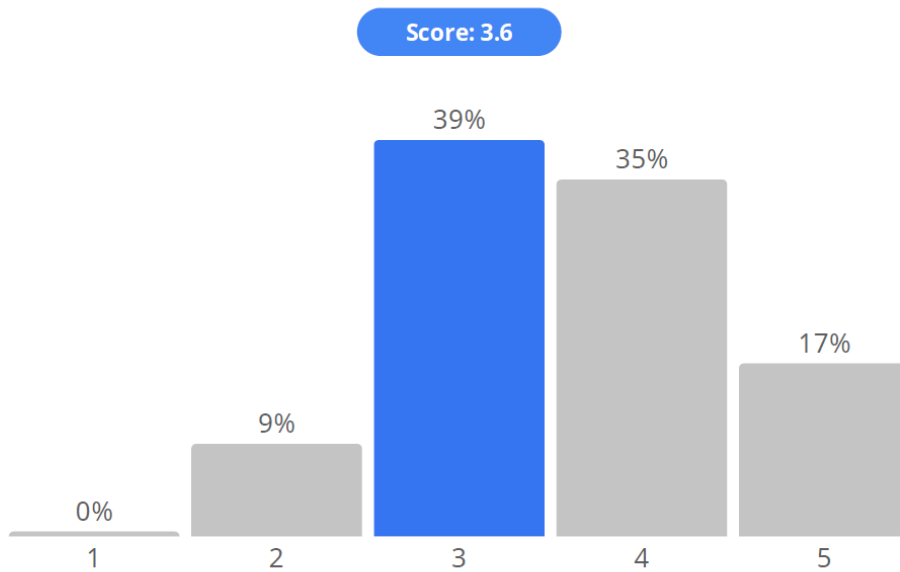
Others



Survey (3/11)

0 2 3

On a scale from 1 to 5 (1 minimum, 5 maximum), how far are you convinced that GKI is the best way insuring data interoperability and integration at cross domain level?

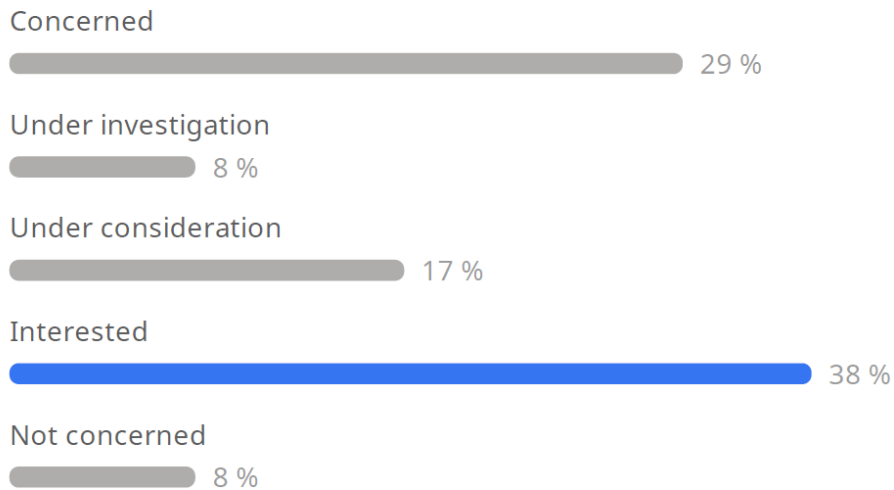


Multiple-choice poll

Survey (4/11)

0 2 4

How do you define the position of your agency?



Multiple-choice poll

Survey (5/11)

0 2 4

Do you have already engaged partnership or initiatives in matter of GKI?

Yes



No



Multiple-choice poll

Survey (6/11)

0 1 7

If yes , please mention, if no what are the domains you find relevant with domains mentioned in the presentations

Agriculture



Land administration



Education



Ecological transition



Mobile map applications



Multiple-choice poll

Survey (7/11)

0 1 6

If yes , please mention, if no what are the domains you find relevant with other domains:
(1/2)

Health

0 %

Energy

19 %

Climate change

44 %

Industrial & manufacturing

6 %

Finance

0 %

Multiple-choice poll

Survey (7/11)

0 1 6

If yes , please mention, if no what are the domains you find relevant with other domains:
(2/2)

Environment

25 %

Mobility

6 %



Wordcloud poll

Survey (8/11)

0 1 4

Which stakeholders you have or you would find relevant to cooperate with (data to integrate or to link)



Wordcloud poll

Survey (9/11)

0 1 6

What are the main barriers to engagement in GKI?

Have an authoritative data fou
harmonization of data
lack of experience
Collaborationpriority time Gdpr Attitudes
seen as a new buzzword
Not clear understanding. education
Standards, harmonization of da



Open text poll

Survey (10/11)

0 1 5

What are the key aspects or approaches in first step that you find relevant to undertake?
(1/2)

- Define effective action and find fundings
- user needs
- Wider engagement, focus on users knowledge/outcomes needs, not data
- Stakeholder engagement
- Ensure that technology serves ecological transition by taking more systemic approach (agriculture : also ask biodiversity, water, ...).
- Api
- define the user needs
- streaming spatial vector data formats
- Spread knowledge with real life examples, solve data security issues
- User needs
- Official data and standards
- Disseminate use cases and best practice examples
- stakeholders, advantages
- Clear picture and idea of development.

Open text poll

Survey (10/11)

0 1 5

What are the key aspects or approaches in first step that you find relevant to undertake?
(2/2)

- Sistematic gathering data with standards



Survey (11/11)

0 1 0

How do you see the UNGGIM: Europe - DI working group helping you to advance your knowledge of GKI? Any proposals for further webinar topics?

- How to break down global proposal for project or group leaders?
- Consider the papers and whether the general direction of travel is right.
- Talk about best practices
- Share successful use cases
- webinar, sharing experience
- The webinars are really useful, a good way of knowledge sharing.
- Webinar, experience sharing
- Discuss knowledge limitations that may arise for not having a reliable power foundation.
- I'm too new to this working group to say
- For now, GKI is considered more on a theoretical level. Introduce more Step by step approach. Clearly defined process and what is essentially the final outcome.



ANNEX II

Open text poll

Survey (1/16)

003

Your Country

- Armenia
- Portugal
- Lithuania

Multiple-choice poll

Survey (2/16)

003

Your Organisation

NMCA

0 %

NSI

33 %

Other, please specify

67 %

Open text poll

Survey (3/16)

002

If OTHER, please specify

- Cadastre Committee
- National geoportal



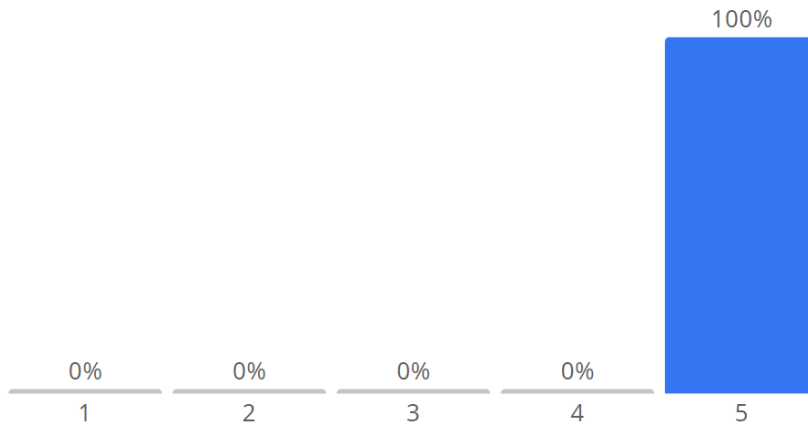
Rating poll

Survey (4/16)

0 0 3

Please evaluate the following in reference to the webinar - Duration of the webinar

Score: 5.0



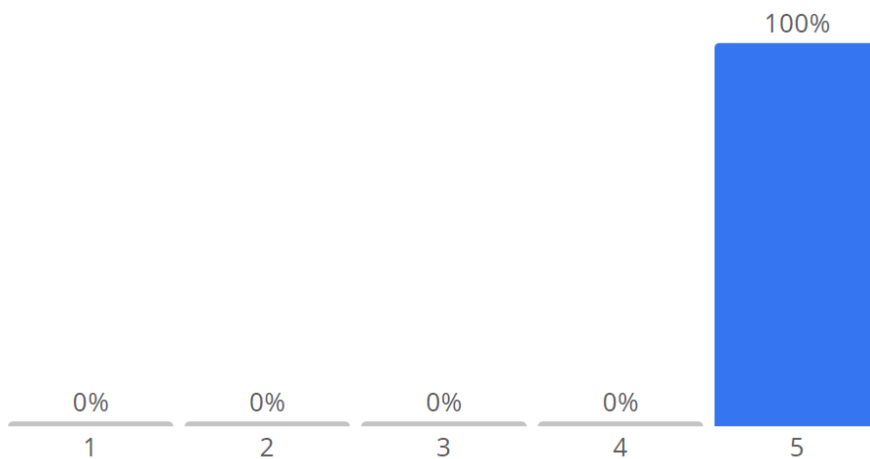
Rating poll

Survey (5/16)

0 0 3

Please evaluate the following in reference to the webinar - Sufficient time for discussion and participation

Score: 5.0



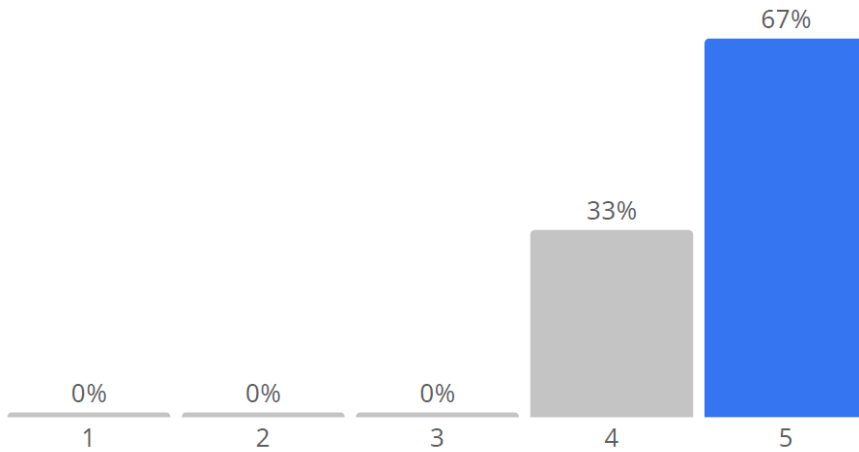
Rating poll

Survey (6/16)

003

Please rate the following statement - The presentations were helpful

Score: 4.7



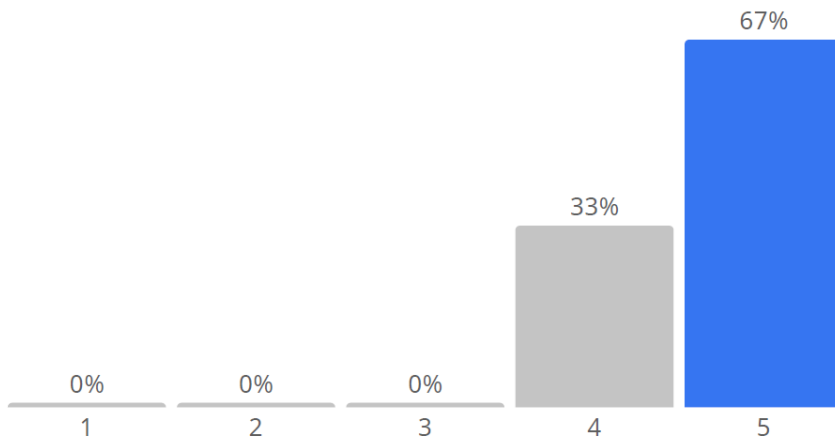
Rating poll

Survey (7/16)

003

I can see the presentations relate to my work

Score: 4.7



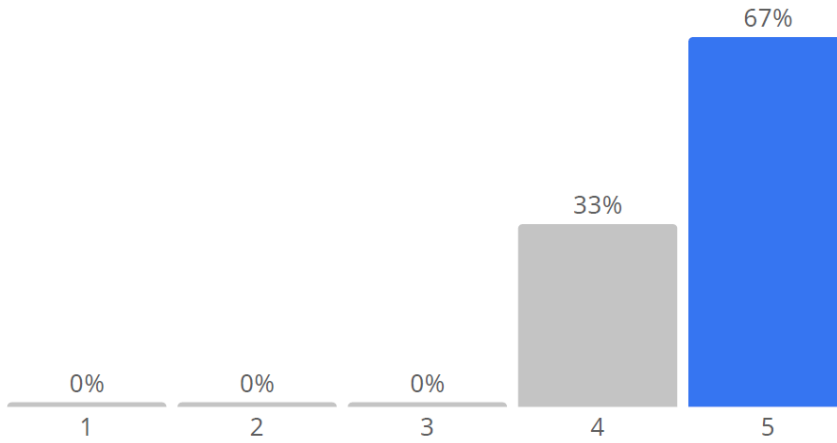
Rating poll

Survey (8/16)

003

I can apply what I learnt to my work

Score: 4.7



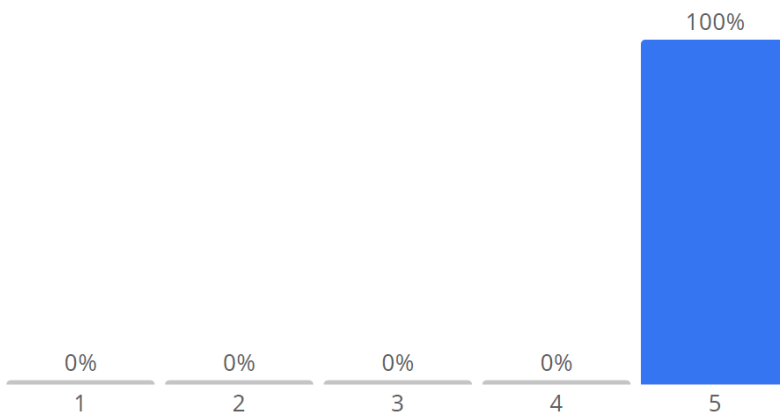
Rating poll

Survey (9/16)

003

The flow of the presentations was logical

Score: 5.0



Multiple-choice poll

Survey (10/16)

003

Level of detail in the presentation

Far too much

0 %

A bit too much

33 %

Just right

67 %

A bit too little

0 %

Far little

0 %

Open text poll

Survey (11/16)

001

What worked well in the webinar?

- The discussion time was more than usual in this type of event, and it was really nice that questions and comments were addressed.



Open text poll

Survey (12/16)

0 0 1

What did not work well with the webinar?

- The Slido poll at the end of the webinar was stretched too much. Reading every single response when it is clearly seen by the attendees on the screen was not an efficient use of time.

Open text poll

Survey (13/16)

0 0 1

How could the webinar be improved?

- Some more information about the presentations (e.g. short abstract) before the event would be appreciated as very often the name of the presentation does not really inform about the topic.

Open text poll

Survey (14/16)

0 0 1

Are there topics you would like to learn in future webinars? Please list them

- It would be nice to include the point of view of national/official geoportals.



Multiple-choice poll

Survey (15/16)

003

Did the webinar meet your expectations as stated above?

Yes



No



Somewhat



Open text poll

Survey (16/16)

001

If NO please explain why the webinar did not meet your expectations.

- Nicely curated topics. Looking forward to further discussions and webinars.



ANNEX III

Video of the webinar : <https://www.youtube.com/watch?v=nltTojh4FmU>

Link to the presentations: <https://un-ggim-europe.org/working-groups/working-group-data-integration/>

