e-shape

EuroGEO Showcases: Applications Powered by Europe

e-shape-WP5-D5.9 - First Analysis of governance options for e-shape

e-shape

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ABSTRACT

This deliverable explores the different options for the future governance of EuroGEO based on the e-shape experience. A short analysis of the strengths and weaknesses of the current organization is conducted and some governance models are proposed. An updated version of this deliverable is planned at month 46 of the project.

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1 INTRODUCTION

In order to maximise the impact of EU investment in Earth Observation (EO) - and the use of the knowledge gained through flagship programmes such as Copernicus - the EuroGEO initiative was launched in October 2017 during the annual GEO plenary meeting. EuroGEO aims to ensure Europe's leading role in Earth observation and to coordinate the European contribution to the Group on Earth Observations, as well as addressing end user and citizen needs, transforming EO into reliable and usable information. One of the main challenges that EuroGEO wants to address is to shift from a data-centric to a user-driven approach – in other words guaranteeing that the data are utilised in the most efficient way. Against this backdrop, e-shape was designed to support the activities of the European partners within GEO through EuroGEO.

e-shape is a unique initiative funded under the Horizon 2020 programme, driven by the need to develop operational EO services with and for the users and to create a conducive environment whereby the strengths of Europe are exploited towards addressing societal challenges, fostering entrepreneurship and supporting sustainable development. e-shape is also a flagship project for the European Union (EU) to contribute to GEO (Group on Earth Observations) by establishing EuroGEO and by providing its experience and knowledge to the EO community.

To support the EuroGEO initiative after the end of the e-shape project, this deliverable explores the different governance options for EuroGEO in order to fulfill its objectives and to take advantage of the work and key components developed within e-shape.

2 THE EUROGEO INITIATIVE

2.1 Short presentation of EuroGEO

The implementation plan of EuroGEO[1] stated that:

"The EuroGEO Initiative was launched in 2017 and provides a regional framework to promote coordination and cooperation among the members of the European GEO Caucus. EuroGEO will achieve a critical mass in Europe by combining existing European EO assets and initiatives and delivering pilot applications supporting governments in their decisions, boosting innovation and improving lives in Europe. EuroGEO will also strengthen the coordinated European contributions to major Flagships, Initiatives, Community Activities and Foundational Tasks of GEO."

EuroGEO is built on Copernicus and Horizon 2020 and its successor Horizon Europe. EuroGEO also combines with other activities of European GEO members and Participating Organisations such as the European Space Agency (ESA) and EUMETSAT.

EuroGEO is positioned as an integrator in Europe to support the implementation of the Global Earth Observation System of Systems (GEOSS) and its user's uptake in Europe.

From its implementation plan, EuroGEO puts emphasis on the following actions:

- Identifying existing EO applications under development in Europe with high potential to respond to consolidated European user needs, but requiring further demonstration, incubation, up-scaling, deployment or replication;
- Up-scaling selected pilot applications by streamlining innovation instruments available in the EU and internationally, to actively promote synergies;

[1] EuroGEO Implementation Plan (2020-2022): https://earthobservations.org/documents/gwp20_22/EUROGEO.pdf

- Connecting EuroGEO pilot applications and related GEO activities to allow for appropriate scaling-up (from national, through European up to global scale) and scaling-down (from global to regional scale);
- Showcasing GEOSS benefits to European citizens, science and businesses and promoting the GEO vision in Europe, to realise a future where decisions and actions are informed by coordinated, comprehensive and sustained Earth observations and
- Supporting the consolidation of national GEO structures across Europe

EuroGEO promotes incubation and scaling-up of the most promising user-driven applications in EU and focus on the 'last mile' of the innovation process. EuroGEO aims at accelerating the transformation of GEO from a data-centric to a user-driven partnership.

EuroGEO pilot applications should take full advantage of the infrastructure, data and information products delivered by Copernicus and the core Copernicus Services. The selected pilots should be of direct relevance to the GEO Engagement Priorities whilst leveraging global and European EO initiatives to improve/facilitate the implementation of European environmental policy.

"The current governance structure of EuroGEO is a light governance structure to support greater engagement by the Members of the European GEO Caucus. The structure includes a Coordination Group, jointly chaired by the Commission (DG RTD and DG GROW[2]) and implementation working groups bringing together existing relevant initiatives."

The EuroGEO governance aims to be as simple and flexible as possible while allowing for increased inclusion, greater engagement and leadership. It is structured around working groups on two levels addressing the EuroGEO 3Cs: ***Coordinate, Combine and Cooperate***. In the implementation plan of EuroGEO, ***Coordinate*** is insured by the Coordination Group and the ***Combine and Cooperate*** by the Actions Groups (see Annex 1 for a better description of these aspects)

EuroGEO is positioned to support the development of EO-based services and applications for decision-makers, including the EU and its Member States, as stated in GEO, but also aims to promote and support innovation in the EO private sector by focusing on the last-mile of the innovation process. This second aspect is not fully reflected by the EuroGEO 3Cs. This can be complemented by **an Identification and Innovation step (2I)** more oriented on the development of EO based applications for the market.

The **identification step** would focus on two aspects:

- The research, development and innovation activities related to GEO and the exploitation of EO in Europe and worldwide.
- The EO applications under development in Europe with high potential to respond to consolidated European user needs, but requiring further demonstration, incubation, up-scaling, deployment or replication.

The different projects conducted by EO actors in Europe have paved the way to e-shape. Thus, e-shape builds on the legacy of these projects. These projects – typically funded by framework programmes of the EU (FP7, H2020), have laid out the research and strategic activities in relation to GEO and the exploitation of EO resources. Without this phase of research and exploration of the potential of EO (the background), EuroGEO would not be able to apply this 3C approach. This background knowledge was critical in the preparation of e-shape, as it allowed the consortium to identify the most promising projects for demonstrating the potential EO applications.

The **innovation step** is tackled within e-shape as the project is defined as an innovation action. Based on the e-shape's experience and looking from this point of view to EO applications, a support is

[2] This was the situation at the inception of EuroGEO, as stated in the EuroGEO Implementation plan

needed at different stages of the development of an EO-based service/product/ application. Figure 1 illustrates the intensity of effort needed in the different phase of development of an EO based service. Figure 2 illustrates the different elements provided within the project and outside the project to give access to knowledge, capital, technology and market.

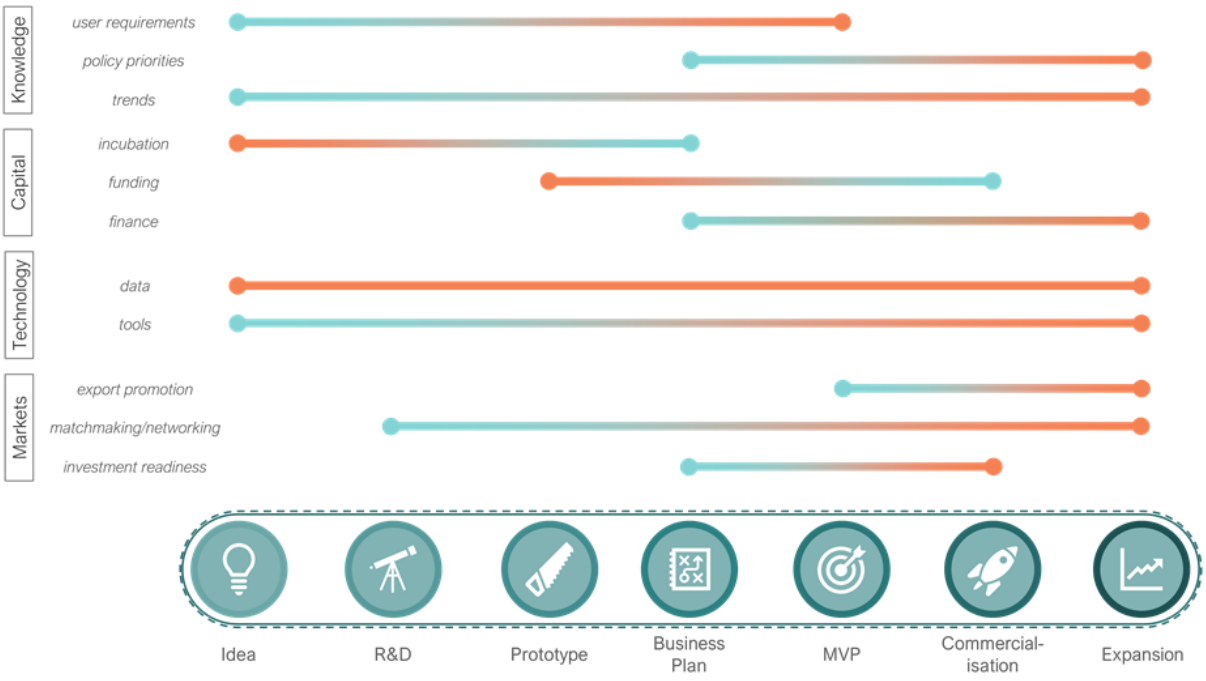

Figure 1: Conveyor Belt. Overview of support measures for the development of an EO-based service/application/product. Blue means a small support, red means a large support.

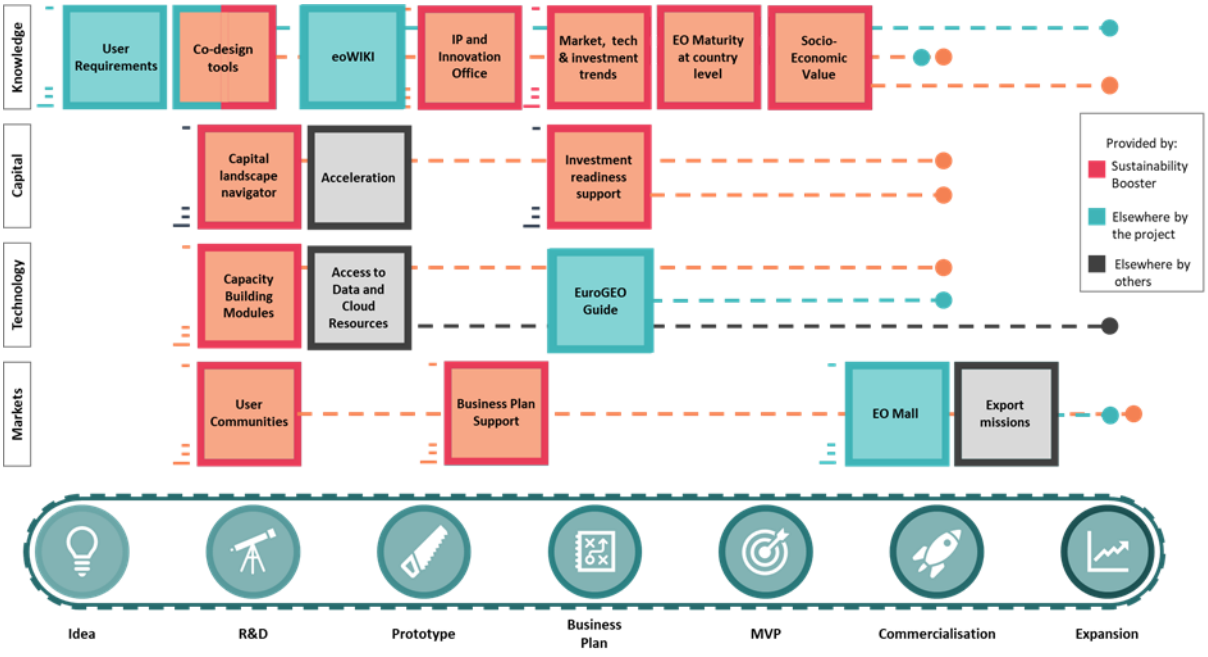

Figure 2: Overview of the support measures provided by e-shape.

The EuroGEO Regional initiative should be able to catalyse the European EO sector towards the user-centric approach it promotes. **An evolution of its governance can be to complement the 3C approach by the 2I activities experimented within e-shape, and to strengthen its means of action**.

In addition, the evolution of the landscape of GEO (Canberra declaration, Knowledge Hub Development, focus on private sector) and EO in Europe (New Space, Cloud based EO development, new programmes such as Destination Earth, Technological development such as Artificial Intelligence methods, Machine Learning, Datacubes, …) is constantly evolving since the inception of EuroGEO. The objectives of EuroGEO are still relevant for the community and its four first years allow to identify the strengths and weaknesses and to try to identify the opportunities and trends in its governance and activities.

2.2 Short analysis of EuroGEO initiative

Table 1: SWOT Analysis of of EuroGEO.

Strengths	Weaknesses
• A European-wide mandate to represent the European EO sector towards other regional Caucus, and a recognition of EuroGEO by those Caucus • A series of objectives clearly stated • A European landscape favorable to the achievement of the EuroGEO objectives • A dynamic European EO industry • An important European research and development community involved in GEO • A rich legacy of projects and activities funded over many years of EU support and involving multiple stakeholders • A support of EU instruments and programmes such as H2020, Horizon Europe, Copernicus, Destination Earth, • A lot of actions in Coordination, Combination and Cooperation	• A series of communities structured mainly by thematic • A very light governance structure without dedicated budget relying mostly on a series of projects and voluntary contributions • A link with different Directorates General (RTD, DEFIS, CONNECT, …) of the EU, diluting the responsibilities • The limited of structuration of the European EO/GEO community can dilute the impacts of the activities • The different initiatives supporting the European EO sector might be perceived as fragmented (Copernicus programme, GSA, Knowledge centre for EO, …) • Means of actions mainly done through Call for proposal in the Framework program • No dedicated long-term budgeting for the initiative • Absence of mechanisms supporting the evolution of research outputs to market-ready services • Not a lot of guidance in the Actions Groups since their inception • Few results from the Action Groups

Opportunities	Threats
• A clear support to the Space domain by the EU • A evolving landscape where the benefits of EO start to be clearly understand at all levels (decision makers to citizens) • Evolution of Copernicus towards more services and towards downstream services • Availability of EO data free of charge • Private sector involvement in GEO • Development of the 2I activities	• Internationally, EO is historically a domain with strong cooperation, but commercial segments are in fierce competition globally. • New EO giants emerged. South-south cooperation in EO sector may generate missed opportunities for the EU. • EU has not yet fully internalized cloud infrastructures, and cloud competencies for EO. EO might not be on top of the agenda for cloud providers.

This short analysis is only presenting the Strengths and Weaknesses of the EuroGEO initiative from the point of view of its objectives. One aspect of the 3C approach, the Coordinate one is well achieved through the actual governance as described in the EuroGEO implementation plan. But the Combine and Cooperate aspects that should have been achieved through the Action Groups obtained limited results. The additional 2I activities, that should be enhanced, are not tackled by the current governance, but are pursued through H2020 and will be ensured by the future calls in Horizon Europe. A continuous process to stimulate this 2I aspects seems necessary to have a high reactivity in identification of new opportunities and a continuous support to innovation in EuroGEO.

Of course, this first analysis will be complemented in the next version of this deliverable, planned month 46 of the project. In the next version we will also explore the opportunity and the trends for EuroGEO at the time of the report.

Having analysed its scope, and in order to strengthen the impacts of EuroGEO on the European EO community and its role in GEO based on its objectives, and also based on the changing landscape, we revisit its governance in the following part.

3 TOWARDS A NEW GOVERNANCE MODEL FOR EUROGEO

The first developments of the EuroGEO Regional initiative allowed to set-up a series of resources and actions and to materialise EuroGEO. The current governance of EuroGEO is a very light one that has proven efficient for its launch. The activities linked with the different objectives of EuroGEO contribute to the 3C approach (albeit not yet fully) but it seems that there is of potential for making the 2I (Identification and Innovation) more visible and efficient.

3.1 Leadership of the EuroGEO Regional initiative

Each regional initiative within GEO ('Caucus') is piloted by a High-Level Working Group (HLWG) designed in a similar way to that of the GEO Executive Committee, which is managing the overall strategic orientation of the initiative.

These HLWG are generally built on the continental Caucus led by the GEO Principals of the member countries.

This coordination ensures that the goals and aims are discussed and shared within a Caucus. For example, within EuroGEO the High-Level Working Group ensures all European participants in GEO are sharing their strategic views and decide jointly about the next steps.

The first years of existence of EuroGEO have allowed to launch the activities and to start the organisation of the community through the Action Groups and the launch of numerous actions through the H2020 programme. The operational guidance is carried by the HLWG and operationalised by European commission through the DG RTD.

The observation after this period is that the animation of the European GEO community requires a more dedicated body to ensure that Combine and Cooperate asoects of the 3C approach are fully operational and the development of the 2I aspects of EuroGEO and to amplify the momentum initiated during the first phase of EuroGEO.

3.2 The e-shape perspective

At its inception, the H2020 e-shape project was designed along the strategic priorities of EuroGEO, which were cascaded to the project. Thus, e-shape embeds EuroGEO's operational objectives at its core.

Each objective is translated into an operational work programme, structured along work packages which take the form of a 'conveyor belt' – from design to market.

e-shape was therefore intended to be a seed for a future EuroGEO. After almost two-years of operations, and through the incubation of 32 Pilot applications in seven Showcases aligned with most of the Global Sustainable Development Goals, e-shape has accumulated operational experience in conducting a "sandbox" EuroGEO.

Table 2: Alignment of e-shape's objectives, cascading the EuroGEO priorities as a "sandbox" to a future EuroGEO.

e-shape's objectives	EuroGEO objectives
Develop operational EO services with and for users active in key societal sectors **Demonstrate** the benefits of the EO pilots through the coordinated downstream exploitation of EO data and the utilization of existing EO resources **Promote the uptake** of pilots at national and international scale, across vertical markets (private and public) and amongst key user communities Enable the **long-term sustainability** of the numerous pilots, their **penetration** in public and private **markets** and support their **upscaling** **Increase uptake** by raising **awareness** on the solutions developed through tailored and well-targeted communication, dissemination and outreach activities.	Identifying existing EO applications under development in Europe with high potential to respond to consolidated European user needs, but requiring further **demonstration, incubation, up-scaling, deployment or replication**; **Up-scaling** selected pilot applications by streamlining innovation instruments available in the EU and internationally, to actively promote synergies; **Connecting** EuroGEO pilot applications and related GEO activities to allow for appropriate **scaling-up** (from national, through European up to global scale) and **scaling-down** (from global to regional scale); **Showcasing** GEOSS **benefits** to European citizens, science and businesses and promoting the GEO vision in Europe to realise a future where decisions and actions are informed by coordinated, comprehensive and sustained Earth observations and Supporting the consolidation of national GEO structures across Europe

Based on the experience accumulated by e-shape, this deliverable proposes, in the following part, to pave the way in terms of activities that can be of interest for the future of the EuroGEO Regional initiative and different options for a so-called EuroGEO secretariat.

3.3 The different potential EuroGEO governance models

In its current configuration, the EuroGEO Regional Initiative is supported from its governance point of view by a very light structure managing the strategic coordination and supported by DG RTD from the operational point of view, with the support of the European Caucus, the HLWG.

In the follow-up we propose two approaches, a light version of the governance that will concentrate on the 3C approach and some more ambitious schemes tackling the 3C and 2I approaches to untap the full potential of EuroGEO and its user centric approach. In both cases, we propose a role for a dedicated "EuroGEO Secretariat".

3.3.1 A light coordination body

This EuroGEO secretariat can take different forms but in any case, should be in charge of the application of the implementation plan of EuroGEO, the development of the 3C approach and the close interaction with the members of the HLWG:

- A **rotating EuroGEO secretariat**: In this case, the different countries would ensure the operation of the EuroGEO secretariat on a yearly basis. It would allow each member state to be really involved in the governance of EuroGEO, but leaves open the risk of having a discontinued level of engagement and activities. It has also the potential risk of the loss of the memory, of the general direction of the Regional initiative and the dynamics of the work . Based on the discussions carried out with AmeriGEO and AfriGEO, it seems that a 3 year mandate is a good option to leave time for the development of the vision of each member state. In AfriGEO, the choice of having a sub-regional representation (group of countries in an African Region) was chosen. In AmeriGEO, the choice of a rotating secretariat supported the development of National GEO skills and organization.
- A **secondment at the GEO Secretariat dedicated to the EuroGEO secretariat**: In this case a dedicated person would be devoted to the EuroGEO secretariat in collaboration with the GEO secretariat. This would entail a regular link with the HLWG and an annual description of work. The hierarchical link with the HLWG and the GEO Secretariat should clearly be established to avoid any loss of efficiency.
- An **institute-based EuroGEO Secretariat**: In this case an institution deeply involved in GEO would be in charge of the animation of the EO community with the support of the HLWG. This institution would also be in charge of the management of the implementation plan of EuroGEO and its evolution. This can guarantee the neutrality and the fairness in the animation of the Regional initiative from the member states' point of view.
- An **externalized EuroGEO Secretariat**: In this case, the EuroGEO secretariat could be built on the model of the Copernicus Support Service. The risk is more on the difficulty for such a company to handle the different political aspects of the EuroGEO initiative. It can be a good solution if the HLWG give strong orientations for the activities.

In all cases, the principle of the Action Groups should be revisited and actions should be taken to improve the Combine and Cooperate part of the 3C approaches. The 2I part will be taken into account in the same ways then currently i.e. through the support of activities within the new Horizon Europe Framework programme and by the DG in charge of GEO and EuroGEO.

3.3.2 Other Governance schemes

We explore in this last part, some potential schemes of governance tackling both the 3C and the 2I approaches and aspiring to become the tool for the implementation of the EuroGEO Objectives. The debate of the opportunity of such new governance schemes and their content will be explored within the HLWG and with the European community involved in EuroGEO.

3.3.2.1 A core group dedicated to the EuroGEO governance with a budget to support Actions Groups

This governance option aims at adding some means of interventions to support the orientations given by the HLWG and to prepare the evolution of the activities. This core group can be built on one of the light coordination bodies proposed above. The budget of intervention will help to support some specific actions in the 2I approach (identification of opportunities and trends, innovation actions such as the ones proposed within e-shape i.e. co-design, implementation, users' uptake, capacity building and liaison or in sustainability and uptake). A strong effort in communication and dissemination would be also required. The action groups can be the place where experiments can be conducted to evaluate the interest, potential and benefits of supporting a specific pilot toward sustainability with a financial support that can be organized in an annual basis in a similar way of the current on-boarding process of e-shape.

3.3.2.2 EuroGEO Research Infrastructure

Research Infrastructures are facilities that provide resources and services to research communities, industries and stakeholders to conduct research and foster innovation.

They can be used beyond research e.g. for education or public services and they may be single-sited, distributed, or virtual.

They include:

- Major scientific equipment or sets of instruments
- Collections, archives or scientific data
- Computing systems and communication networks
- Any other research and innovation infrastructure of a unique nature which is open to external users

In the EuroGEO Context, and building on e-shape and on other European Research Infrastructure such as the European Open Science Cloud, or the Wekeo DIAS, a specific EuroGEO Research Infrastructure will allow combining all the elements that can lead to a tool that will really be a game changer for the EO domain. This EuroGEO ERIC can be organized in a way to become an active body of the EU and to answer to the needs of decision-oriented services and to the development of a world-class EO industry that will fully complement the Copernicus programme from the exploitation of EO data point of view. This EuroGEO ERIC needs to be built not as a new tool but at the convergence of all actions related to the EuroGEO initiative and to avoid reinventing the wheel.

3.3.2.3 An EuroGEO partnership within Horizon Europe

European Partnerships bring the European Commission and private and/or public partners together to address some of Europe's most pressing challenges through concerted research and innovation initiatives. They are a key implementation tool of Horizon Europe, and contribute significantly to achieving the EU's and Member States' political priorities. By bringing private and public partners together, European Partnerships help to avoid the duplication of investments and contribute to reducing the fragmentation of the research and innovation landscape in the EU.

This instrument can be a support to create a partnership between the EU and associated countries participating to GEO, the private sector (EO industry and EO based services industry, ...), and other stakeholders to deliver on Regional GEO challenges and stimulate the industry towards a full exploitation of GEO and Copernicus. The 3C and 2I approaches will support this partnership and the interests of all parties involved. This European Partnership to GEO can be proposed on its own or be built as part of the European Partnership for Globally competitive Space Systems.

4 RECOMMENDATIONS

According to the different exchanges of e-shape with the EC, the position of the EuroGEO Regional Initiative should be strengthened in the GEO landscape, and its ambitions and goals reaffirmed and supported.

The light solutions proposed in the deliverable can be a first step towards a more powerful and supported tool to bring the EuroGEO ambitions at its higher level. This will fulfill the first part of the ambitions of EuroGEO, i.e. to support the development of EO-based services and applications for decision-makers, including the EU and its state members, as stated in GEO.

Nevertheless, to capitalize on the e-shape experience and on all projects exploiting EO, and to really impact on the development of an ambitious industry exploiting the full potential of Copernicus and GEO, a sustainable innovation instrument contributing to the EO market growth would have its place

in the value chain. This will allow also promotion and support to innovation in the EO private sector by focusing on the last-mile of the innovation process.

Between the Knowledge centre for EO currently developed by the Joint Research Centre in Ispra dedicated to fulfill the needs of the EC and the future European Union Agency for the Space Programme in Prague (i.e. the evolution of GSA to embrace Copernicus as per the new space regulation), there is a room for EuroGEO to build a more complete instrument based on the strategic findings and developments of e-shape for supporting and promoting the most relevant actions in the field, contributing to the development of the EO markets and supporting its strategic views.

The different proposals of this deliverable should now be proposed to the EuroGEO community and can be the basis for opening the debate on the EuroGEO evolution and future.

The next version of this deliverable planned in month 46 will reflect the evolution of the discussions with the team currently in charge of EuroGEO, with the HLWG when presenting this work (planned in May 2021), the experience gains through an analysis of the Regional GEO that will be carried out by the programme Board in 2021, and taking into account the evolution of the landscape and the objectives of EuroGEO in the coming months.

ANNEX 1: THE GOVERNANCES OF THE REGIONAL GEO INITIATIVES

AmeriGEO – GEO Americas

The Americas Caucus, led by the GEO Principals of the member countries, provides oversight of the AmeriGEO initiative. The AmeriGEO Coordination Working Group (CWG) members provide leadership and coordination of AmeriGEO. The CWG's Terms of Reference (TOR) was approved at the November 2016 Caucus meeting, and revised to include 2-year co-Chair terms in August 2018.

The purpose of the CWG, established by the Americas Caucus Principals, is to coordinate and build on institutional and technical capabilities of its member countries, and to leverage the resources of other regional and global initiatives to support the implementation of the GEO Strategic Plan 2016-2025 for the benefit of the Americas. The CWG's duties include: advising the GEO Principals of the Americas Caucus on the activities of the priority areas; adopting an inclusive approach; identifying and communicating local, national, and regional interests of the AmeriGEO member countries and stakeholders for activity planning; promoting and coordinating regionalization of GEO global and foundational activities; fostering national and regional cooperation; working towards common AmeriGEO objectives; recommending indicators of success and monitoring progress towards AmeriGEO objectives; and demonstrating the value of EO through its uses, especially in decision-making.

The TOR outlines AmeriGEO's Coordination Working Group leadership structure though two co-chairs; membership that includes up to two representatives per country; meetings annually in person and monthly by telecon; reporting to the Americas Caucus; and costs incurred being the responsibility of the GEO member countries that incur them. AmeriGEO is currently co-chaired by the United States of America, in the person of Dr. Angelica Gutierrez-Magness of the National Oceanic and Atmospheric Administration (NOAA) and Chile, in the person of Luciano Francisco Parodi Gambetti Ministry of Foreign Affairs.

Communications with the AmeriGEO community is through email, telecoms, AmeriGEO Weeks, and a community web platform (www.amerigeoss.org). AmeriGEO also maintains Facebook (https://www.facebook.com/AmeriGEOSS) and Twitter accounts (https://twitter.com/AmeriGEOSS).

AfriGEO – GEO Africa

Organizational structure

The main function of the AfriGEO Management Arrangement is to coordinate the execution of the agreed activities in each of the areas of intervention, and to ensure the achievement of the agreed objectives. The Management Arrangement includes:

- Africa Caucus (AC) – responsibilities include the nomination of the Members of the Steering Committee;
- Steering Committee (SC);
- The Secretariat (RCMRD[3]).

[3] The Regional Centre for Mapping of Resources for Development (RCMRD) was established in 1975 under the auspices of the United Nations Economic Commission for Africa (UNECA) and the African Union (AU). It is an inter-governmental organization and currently has contracting Member States in the Eastern and Southern Africa Regions.

Project coordinator and supporting organization

The coordination of the Initiative is undertaken by the Secretariat, with guidance and leadership the host institution (RCMRD).

Advisory / steering committee

The Steering Committee (SC) provides policy and strategic guidance for the implementation of AfriGEO including priority actions, Coordination Team activities and resource allocation. The SC should meet at least once a year and or when needed. The SC decisions should be taken by consensus. The Africa Caucus nominates the Members of the SC on the basis of:

1. African country is a Member of GEO;
2. One Member State per geographical region (Northern, Western, Central, Eastern, Southern and Indian Ocean Countries (IOC);
3. Member State representation at GEO Principal or Alternate level;

At its first meeting, the Steering Committee should nominate two Co-Chairs to serve for the duration of the two-year term of the Steering Committee.

The current, 2020 – 2022, AfriGEO Steering Committee members are: Egypt (Co-Chair), South Africa (Co-Chair), Gabon, Madagascar, Senegal, Uganda and AfriGEO Secretariat (RCMRD).

Communication with partners and participants

The communication with partners and participants is routed through the Secretariat and the office of the Caucus Chair at the time. We have leeway to work with the communication at GEO and we shall rely on this avenue when appropriate.

AOGEO – GEO Asia Oceania

Asia-Oceania Caucus - GEO Principals

The Asia-Oceania Caucus is the decision-making body consisting of GEO Principals in the Asia-Oceania. It provides high-level political support and ensures necessary resources to implement the AOGEO. The Asia-Oceania Caucus meets annually to review reports from the Coordination Board, endorse updates on the work plan and provide guidance to the AOGEO implementation.

AOGEO Coordination Board

The AOGEO Coordination Board is the executive management body. It consists of the experts serving as the representative of GEO Member in AO region or the Task The Coordination Board works by Members' consensus. The Coordination board bridges political and technical guidance and connects AOGEO objectives to implementation by determining mission, goals, long-term plans and high-level policies of AOGEO and its action plan, ensuring the sustainable activities of AOGEO, and communicating about the direction and the activities of the AOGEO to the GEO community and other Regional GEOs.

he Coordination Board reports to the Caucus and observes the work plan implementation between Caucus Meetings. It assembles the AOGEO Annual Report based on progress updates from Task Groups. The Coordination Board may make recommendations on new tasks to the Asia-Oceania Caucus and establish subsidiary bodies to support the administrative affairs or specific activities. Communications with other Regional GEOs, GEO Secretariat and Programme Board may also be coordinated by the Coordination Board.

AOGEO Symposium (formerly GEOSS Asia-Pacific Symposium)

The annual regional Forum to exchange broad scientific and technical views on Earth observations and their applications as well as to report progress of tasks in the GEO Principals are invited to the Forum. Inheriting the GEOSS Asia-Pacific Symposium which initiated in 2007, participants deeply discuss and decide the direction of the AOGEO activities, which is published as an Official Statement of the Symposium. The AOGEO Symposium is held annually by Japan, a host country and GEO Secretariat. In 2019 the 12th AOGEO Symposium will be held in Canberra, Australia.

AOGEO Workshop (formerly International AOGEOSS Conference)

The annual AOGEO Workshop held in the first half of each year is a focused meeting with three components: a focus workshop on a priority topic for AOGEO, a capacity building activity and a Coordination Board This meeting was initially established by China in Deqing. In 2019 the 2ndAOGEO Workshop will be held in Jakarta.

AOGEO User Reference Group

The AOGEO User Reference Group is a group of end user representatives from each of the Integrated Priority Studies and donors from all. The role of this group is to provide advice to the AOGEO Coordination Board on the end user impact of AOGEO activities, requirements for future activities and to advocate for further activity within and outside the GEO community.

Task Groups

Task Groups implement tasks agreed by AOGEO Members or GEO Participating Task Groups will have to contribute to the AOGEO work plan in line with the AOGEO objectives. Task Groups will conduct much of their work by own activities including communications over teleconferences and emails. They meet annually at the AOGEO Symposium and other international conference in Asia Oceania region. Participation in GEO Symposium and GEO Plenary is greatly encouraged. Task Groups will provide progress update to the AOGEO Coordination Board who assembles the AOGEO Annual Report.

AOGEO Secretariat

AOGEO Secretariat should coordinate and collaborate with AOGEO contributors, representatives of users, supporters and observers, it should support the Coordination Board and provide a professional support service to the Task The Secretariat functions are cooperatively shared by four Members as follows:

- Liaison and Coordination among AOGEO Members by Australia
- Public Relation such as making brochure for GEO events by China
- AOGEO Website management by Japan
- AOGEO Case Study Project management by Republic of Korea

Strategy for communication with participants and stakeholders, including the main communications channels

In addition to the annual AOGEO meetings. AOGEO should hold ad hoc meetings, user workshops and training courses. The day to day communications are maintained through email lists for Coordination purposes.

Board, Task Group Leads and the broader AOGEO community. AOGEO also communicates through existing mechanisms such as the GEO blog and CEOS newsletter.

EuroGEO

The EuroGEO governance aims to be as simple and flexible as possible while allowing for increased inclusion, greater engagement and leadership. It is structured around working groups on two levels addressing the EuroGEO 3Cs: *Coordinate Combine and Cooperate*.

The Coordination Group (Coordinate)

The Coordination Group (co-chaired by the Commission) shall oversee the implementation of the EuroGEO strategic actions, assess progress against identified objectives and regularly report to the GEO High Level Working Group, which governs the European GEO Caucus. Particular focus shall be on:

- Monitoring the implementation of the EuroGEO roadmap;
- Reviewing and selecting EuroGEO pilot applications/services to be developed and scaled up;
- Ensuring synergies between selected EuroGEO pilot applications, relevant GEO actions, Copernicus and Horizon 2020 activities;
- Monitoring and documenting user uptake and engagement by the Caucus members;
- Establishing ad-hoc implementation working groups as appropriate and facilitating cross-communication between these groups;
- Monitoring the impact of EuroGEO against Key Performance Indicators (KPIs), as part of a continuous monitoring and progress evaluation process including a quantification of committed and used resources;
- Providing recommendations for the evolution of the EuroGEO.

Action Groups (Combine and Cooperate)

The Action Groups are voluntary bottom-up groups that are overseen by the EuroGEO Coordination Group, to either develop the selected EuroGEO application pilots or conduct other actions foreseen in the EuroGEO roadmap. These groups comprise representatives identified by the supporting Caucus' members depending on the relevance of their activities. The Action Groups report to the Coordination Group and, when appropriate, directly to the GEO HLWG.

Nine Action Groups were set up in 2018 and are currently ongoing with further developing applications in the topical areas of agriculture/food, land use/land coverage, urban, disaster resilience, biodiversity and ecosystems, marine, climate, atmosphere and energy. This governance structure has been established in 2017 and could, on the base of current experiences, be revised in the coming years if appropriate.

The key communication channel is the EuroGEO Website, which will present the initiative, its aims and activities, the members and links to both the pilot applications and the resources and data. Communication between participants and stakeholders takes place via dedicated meetings and workshops, in particular the annual EuroGEO Workshop.