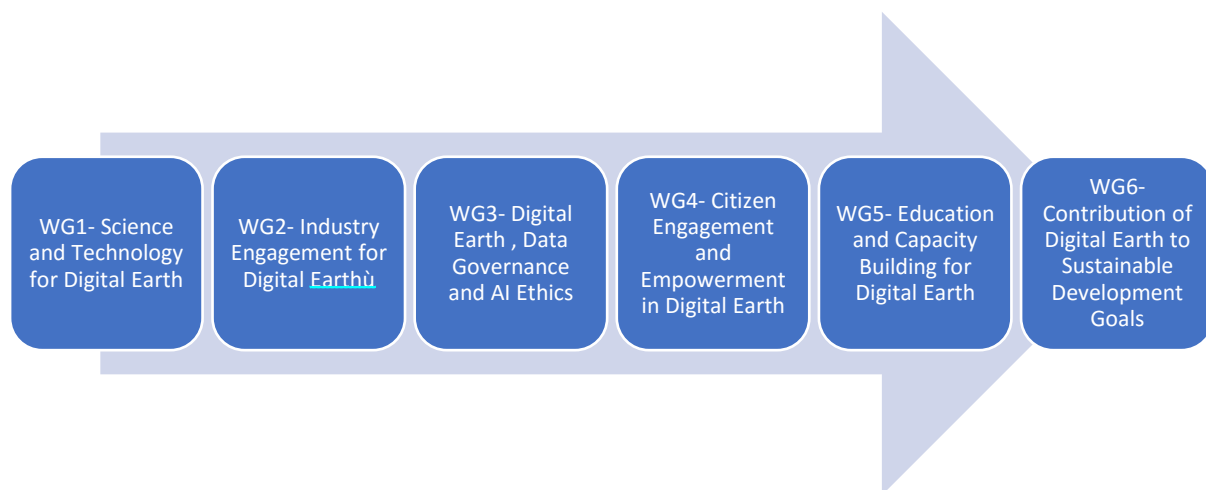**ISDE Workshop on Data Governance and AI Ethics (29/9-1/10/2021): Key Emerging Issues**

Background

The International Society for Digital Earth (ISDE), founded in 2006, is an international organization promoting academic exchange, science and technology innovation, education and international collaboration towards Digital Earth. ISDE's mission is to benefit society by promoting the development and realization of Digital Earth.

In line with its mission ISDE convenes international symposia, summits, and other meetings, with lectures, communications, discussions and, as appropriate, tutorials, exhibitions, technical visits and social events. Since 1999, ISDE held two series of international academic conferences in different countries worldwide respectively the International Symposium on Digital Earth and the Digital Earth Summit. Up to now, 11 symposia and 8 summits with different and relevant topics have been organized in 13 different countries, attracting more than 10,000 participants.

The ISDE has recently established six Working Groups addressing key topics of relevance to implement the vision of Digital Earth, as shown below.

This workshop was organised by the Working Group on Digital Earth Data Governance and AI Ethics. The aim of the workshop was to highlight some of the key similarities and differences in perspectives from different groups of stakeholders (government, industry, academia and civil society) and different parts of the world on two key related topics: data governance and AI ethics, which are at the forefront of the current digital transformation of society.

The workshop was attended by 25 participants from government, academia, industry and the voluntary sector coming from Africa, the Americas, Asia, and Europe (see programme in Annex). This document summarises some of the key issues addressed in the workshops and identifies next steps for the ISDE to develop these issues further.

The workshop confirmed that data governance and AI ethics are strongly interrelated. In the same way as the development of AI is strongly related to that of the availability and quality of the data that underpins it, so the ethical development of AI rests on the ethical governance of data and the algorithms to process them.

On AI ethics

Technology companies, academia, civil society organizations, and governments are now talking incessantly about AI ethics principles and the values embedded in algorithms. There is a deluge of statements of principles / values for AI ethics. But we know next to nothing about the implementation of AI ethics principles in the real world. More often than not, it is civic action, not abstract principles, nor technical fixes, that saves the day, as exemplified by the mobilization of civil society organisations in the Netherlands against SYRI, the Dutch government's algorithm-based fraud detection system, and in the US against the inclusion of a citizenship question in the 2020 Census.

Whilst it is possible to agree on high-level principles, such the UNESCO recommendations on AI ethics agreed by 193 nations (subject to approval at the next general assembly in December 2021), translating them into practice, tools, and verification frameworks is difficult.

Since ethical principles and guidelines are based on moral values, and these are often context and culture dependent, there may be shared universal principles but there are also many local variations. Adapting the general to the local context is important to maximise the benefits to society.

The global nature of the digital transformation creates a tension between global practices and tools and local implementations and ecosystems. Should ethical principle be universally enforced or should they be umbrella principles that are locally adapted and implemented? An example of good practice is the mapping of general ethical principles on individual business practices to identify bottlenecks and areas that need strengthening.

In the global data economy characterized by "winner takes all", with few global platforms dominating the world economy, there may be little room for local developments, but there is nonetheless room for adapting and reinventing global technologies and methods to suit local culture and needs (as exemplified by practices for native American Indians presented at the workshop).

Geographic information has some special characteristics compared to other types of information, for the opportunities it offers to integrate multiple datasets around a common geographic footprint. Location is also regarded as personal data in the EU General Data Protection Regulation. With this in mind, GeoEthics, or the ethical handling of geographic data, has an important role to play in the general discussion on the ethics of data and AI, and one that the geospatial community represented by the ISDE should take responsibility for.

On data governance

Much of the discussion on data governance focuses on issues of data protection and privacy of personal data. These are indeed very important issues and the workshop highlighted at various points the tensions between the rights (and responsibilities) of individuals versus those of the community.

In this respect, the COVID-19 pandemic has highlighted these tensions particularly well, for example during the lockdown with restrictions imposed on the individual liberty of movement, or on restrictions on privacy for the contact tracing, or more recently over the right/responsibility of getting vaccinated.

Different cultures value the rights of the individual differently with respect to the community. For example, Western nations tend to be more individualistic than nations in Africa (e.g. Ubuntu principles) or Asia, which tend to be more community-focused. Not only is it necessary to be careful in making assumptions or generalisations across cultures, but it should also be acknowledged how such cultural values shape different forms of data governance.

We need to recognize that personal data (incl. location) can be framed differently by different political cultures:
- as a tradeable private good in return for another private good (incl. money),
- as something that constitutes who we are, and therefore is unalienable, and needs to be protected by law,
- as something to be delegated to a trusted entity and traded with a public good (e.g. security),
- as something that does not exist anymore and we should get over with.

The governance of such data depends on how our cultural/political framing. The problem is that we disagree on how to frame data. Real-world solutions for data governance will be hybrids of the above ideal types and outcomes of public deliberation.

Data governance encompasses more than just data protection and privacy. It includes for examples issues of sovereignty and the distribution of the added value.

Data sovereignty refers to the ability to exert authority over the data generated by an individual, organization, or society to enable outcomes beneficial to the provider or society at large. It also refers to the ability to distribute the value generated from data to maximise the benefits to society. The broader principle of technological sovereignty is usually adopted to define subjects, public administrations, or governments gaining control of technologies, content and infrastructures, reducing the influence of IT commercial enterprises and of foreign States in which these companies reside.

Value generation comes from data integration, analysis, and modelling but requires significant investments in data, infrastructure, knowledge and skills. Since these assets are unequally distributed, so is the ability to generate value from data. Redistributing value

includes therefore investing in the assets that can empower a wider generation of value across societies.

Good data governance requires multi-stakeholder dialogue and participation. It is not just down to governments or commercial interests. Effective participation requires openness to the redistribution of power, else it is just a tokenistic façade.

Good data governance is also more than just regulation via legal means, it includes business models, incentives and other market or social mechanisms, technological instruments, and social/civic action. It is not only about economic and political processes but also about human/civic rights.

Different cultural views about rights and obligations mean different views on what constitutes good data governance. There is a noticeable tension between market-driven approaches and more socially-driven ones, and between consumer rights versus civic rights. In digitally-transformed societies, access to data and technology should be a right as much as the right to education.

In the European Union, there are a few emerging models of data governance that try to widen the platform of beneficiaries of data value added such as data cooperatives, urban civic platforms, and data intermediaries, although some ambivalence between market and social approaches is noticeable.

The broad legislative effort in the European Union on the governance of data and AI can be a source of inspiration to others, as was the case with the General Data Protection Regulation that has been widely copied and adapted in other parts of the world.

Notwithstanding the breadth of concepts related to data governance highlighted above, it was noticeable that most of the discussion at the workshop focused on data protection and privacy and the regulation *of* data and technology.

New forms of regulation *with* data and technology received less attention and may need exploring further particularly in view of the increasing gap between the speed of technological development and the slow pace of political and regulatory processes. For example, the use of synthetic population data to develop personalised policies without using personal data, and the use of digital twins or cities and nations to test policies before adoption are all examples of new methods using technology and data to support governance. Partnerships between governments, science and industry are crucial to develop and test new methods.

Governments, businesses and civil societies are by and large ill equipped to understand and engage in data governance and more generally in the governance of the digital transformation. Education, awareness and infrastructures need therefore to be boosted across the board.

The International Society for Digital Earth has an important role to play in promoting international and inter-cultural dialogue on these topics, and contribute to awareness raising and scientific advancements through its research activities and its international journals.

Conclusions

The richness and interconnectedness of the topics discussed at the workshop and summarised above demonstrate that data governance and AI ethics are inextricably linked and need therefore to be addressed together.

Data governance and AI ethics are crucial to implementing the vision of Digital Earth, and therefore should be central themes of the ISDE.

Because of its nature, the ISDE can help mobilize the geospatial community and focus on the governance and ethics of geospatial information and geo-AI applications, whilst acknowledging that many of the issues involved transcend the geographic domain and are more general in nature.

As indicated in the workshop there is a plethora of initiatives on data and AI ethics but much of the focus is on principles with few examples of implementation turning the principles into verifiable practice.

As ethics and value have a strong cultural dimension, there is a need to collect and analyse examples of good practice that account for these cultural variations and understand better how general principles adapt to local contexts.

With these considerations in mind, the ISDE should support a scientific review of existing literature on AI ethics to systematise existing knowledge, and help collect and analyse multi-cultural cases of good practice in the geospatial domain implementing these principles.

As noted in the workshop, governance is more than just about regulation but needs to include economic, social, and technological mechanisms in addition to legal ones. In particular, the speed of technological change, and the slow pace of political and legal processes, requires a new mix of responses to keep the pace and be able to govern the direction of development.

In this new challenge, governments, research, civil society organisations and industry need to work together in a global effort as no sector or nation alone can succeed. The global effort to address the COVID-19 pandemic shows that this is possible when there is sufficient will to act.

Education and awareness raising on data governance, AI ethics and the challenges of the digital transformation are also crucial at all levels from local to global and in governments, industry, the scientific community and civil society.

Given the key roles for data governance and AI ethics of science and technology, industry, citizen participation and engagement, education and awareness, as well as all the areas of

application that are addressed by the Sustainable Development Goals means that all the Working Groups of the ISDE need to be engaged in meeting the challenges identified.

The ISDE can therefore provide an important platform for catalysing efforts, promoting knowledge sharing and advancing research.

Next Steps

The ISDE Working Group on data governance and AI ethics will lead the preparation of a position paper on the importance of these topics building on the discussions and material presented at the workshop and in collaboration with the participants in the workshop and other Working Groups of the ISDE (time frame end 2021-early 2022).

The Working Group will also initiate a scientific review of the literature on data governance and AI ethics and the collection and analysis of case studies of implementation in different cultural environments with a primary focus on the geospatial domain.

In this endeavour, the Working Group will seek to strengthen its collaboration with UNESCO to support the implementation of its recommended AI ethics principles, and endeavour to support the scientific effort through research partnerships funded by European and international research programmes (timeframe 2022-23).

The Working Group will explore together with the other ISDE Working Groups the possibility of developing a new open access manual of Digital Earth focused on data governance and AI ethics including the review of general principles and the collection and analysis of the case-studies of data governance and AI ethics implementation in different settings (timeframe 2023-24).

The Working Group will also take every opportunity to raise awareness, disseminate its activities, and strengthen its membership at national and international conferences and industry-led events (timeframe 2021-24).

Annex: Workshop Programme

ISDE Workshop on Data Governance and AI Ethics
Online, 29 September-1ˢᵗ October

Wednesday 29ᵗʰ September: Data Governance in a Digitally-Transformed Society

10.00-10.20	Welcome and Introduction: A. Annoni, Y. Georgiadou, M. Craglia
10.20-10.50	Keynotes: Yola Georgiadou: chair
	Data Governance and data value: Maria Savona (Univ. of Sussex)
10.50-12.00	Panel discussion: Global perspective from governments (A. Annoni: chair) Steven Luitjens (Ministry of Interior, Netherlands) Ingrid Schneider (Univ. Hamburg, Germany) Mzukisi Qobo (University of the Witwatersand) Juanle Wang (Chinese Academy of Science) Dragana Avramov (Population and Social Policy Consultants)
12.00-14.00	Break
14.00-15.00	Panel discussion: Global perspective from Industry (H. Scholten: chair) Richard Budel (Simplicities) Sanjay Kumar, (Geospatialmedia) Abhay Mittal (SkyMapG)
15.00-16.00	Panel discussion: Global perspective from Research and NGOs (M. Craglia: chair) Nandimi Chani (IT for Change) Marina Micheli (European Commission) Suchith Anand (Global Open Data for Agriculture and Nutrition)
16.00-16.10	Summary and Wrap up of the day

Thursday 30ᵗʰ September: AI Ethics in the Age of the Machine

10.00-10.10	Welcome and Introduction: M. Craglia
10.10-11.00	Keynotes: S. Tolan: chair UNESCO framework on the ethics of AI: Vladimir Šucha (EC, Policy Adviser to UNESCO) AI Ethics and the Global South: Yola Georgiadou/C. Gevaert (Univ. Twente, NL)
11.00-12.00	Panel discussion: Global perspective from governments (M. Carman: chair) Gianluca Misuraca (International Outreach for a Human-Centric Approach to AI) Zaffar Sadiq Mohamed-Ghouse (SpatialVision) Tshilidzi Marwala, (Univ. Johannesburg)

12.00-14.00	Break
14.00-15.00	Panel discussion: Global perspective from Industry (H. Scholten: chair) Lokendra Chauhan (World Geographic Information Council) Cassandra Moons (TomTom) Nikhil Kumar, MapMyIndia Chris Tucker, (American Geographical Society)
15.00-15.20	Keynote: Y. Georgiadou: chair Community-based AI principles, Joseph Robertson (Bravebearanalytics)
15.20-16.20	Panel discussion: Global perspective from Research and NGOs (C. Gevaert: chair) Eric Salobir (Human Technology Foundation) Mary Carman, (University of the Witwatersrand, South Africa) Renee Sieber (McGill Univ., Canada)
16.20-16.30	Summary and Wrap up of the day

Friday 1st October: Framing the Analysis

10.00-10.15	Data Governance and AI Ethics: One world or two?
10.15-11.30	General Discussion: M. Craglia and Y. Georgiadou: chairs Making sense of the kaleidoscope: views from different stakeholders' perspectives and different geographies. Introduction by C. Gavaert and M. Micheli
11.30-12.00	Implications for ISDE and next steps (A. Annoni)
12.00	End of workshop