Deqing meeting of the Working Group on Legal and Policy Frameworks for Geospatial Information Management
17 – 18 November 2018

INTRODUCTION

Preamble

This meeting was the first face-to-face expert meeting of the Working Group on Legal and Policy Frameworks for Geospatial Information Management held on the margins of the inaugural United Nations World Geospatial Information Congress (19 – 21 November 2018). The meeting was hosted by the Ministry of Natural Resources of China and the Government of the Zhejiang Province at Novotel Deqing Moganshan Hotel. The list of participants can be accessed at: http://ggim.un.org/meetings/2018-WG-Legal-Policy-Framework/documents/List_of_Participants_final.pdf and all presentations delivered at the meeting can be accessed at: http://ggim.un.org/meetings/2018-WG-Legal-Policy-Framework/.

Expectations of the meeting

At the commencement of the meeting, the Chair and participants shared their expectations, and they were:

- To build sense of teamwork amongst the membership of the working group, especially as this was the first time the group had met face to face.
- Provide a forum for members and invited participants to exchange experiences in identifying and dealing with legal and policy challenges in geospatial information management, such as:
    - the growing dependency on geospatial information;
    - improving accuracy of geospatial information as a result of new technology such as precise positioning or unmanned aerial systems;
    - The need for geospatial information to be 'machine readable';
    - Digitalisation and data protection; and
    - The lack of awareness of legal and policy challenges more broadly within Member States.
- Provide an opportunity to connect with other expert and working groups, in particular the Expert Group on Land Administration and Management. (It was noted that there is also an OGC Land Administration Domain Working Group as well as work within ISO TC 211 regarding the Land Administration Domain Model (ISO 19152: 2012), and the Working Group may wish to connect with)

Desired outcomes

The meeting discussed and agreed that the desired outcomes of this Deqing meeting were:
- A revised work plan for the biennium 2019-2020;
- To progress from outline to concept to a white paper on legal challenges based on observations, findings and lessons from the use case exercise; and
- To note reporting opportunities (to include the white paper in the Working Group's report to the Committee of Experts at its ninth session in August 2019).

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Final discussions on follow-through actions

It was agreed, as an outcome of the meeting, the following actions:

1) Simon Costello (Geoscience Australia) to prepare initial record of the meeting
2) Participants to add their notes and comments to this initial draft
3) Convene a sub-group to review all notes and identify any areas of common interest that should be added to the work plan for 2019-2020
4) UN Secretariat to post online all presentations
5) The working group to prepare a 'white paper' on the issues/implications/consequences/ solutions/measures/approach. Kevin Pomfret (Centre for Spatial Law and Policy) to initiate a draft. The preparation of the 'white paper' will need to consider the information collected, the analysis and findings from the use case exercise carried out. The white paper could possibly cover deliverables E2.3 and E2.5 in the existing work plan of the Working Group. This white paper is to be included in the report to the Committee of Experts at its ninth session in August 2019
6) Malgorzata Drewniak (Lantmateriet, Sweden) to add the development of the component document of the Implementation Guide of the Integrated Geospatial Information Framework aligned with Strategic Pathway #2 to the revised work plan.
7) Malgorzata to add the proposed 'table top' exercises to the revised work plan. (The exercise need be conceptualized and scoped, and to include developing countries and the private sector)
8) Working Group to discuss at a next meeting how this 'table top' exercises might work, taking into consideration whether a use case related to one or more of the Sustainable Development Goals indicators could be used, and how to utilise the expertise of professionals who have worked across both developed and developing countries
9) Malgorzata to initiate action to support the 'table top' exercise, vis-à-vis the relationship with Sustainable Development Goals indicators
10) Simon to prepare a paper on what to do with engaging the legal profession nationally.
11) Simon to report back to the Working Group on the legal and policy issues raised in Geoscience Australia's trial in partnering with private sector on delivery of national imagery and transport datasets

Next meetings

It was agreed that:

- The Sub-group reviewing the work plan to meet via teleconference in December (date to be confirmed).
- An online meeting of the Working Group be convened via teleconference in late January/February (date to be confirmed.)

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PROGRESS AGAINST WORK PLAN

Role and reputation of working group

It was acknowledged that the Working Group had achieved a lot in a short period of time, including the release of the Compendium, and the work done on the use case. The large number of requests from other Member States for either translations of the Compendium or opportunities for hosting workshops to address legal and policy issues and challenges showed that the scope of the work is relevant and of interest to Member States.

It was commented that other expert and working groups are looking to this Working Group for leadership on legal and policy issues, in particular for data sharing across borders. The Arctic Spatial Data Infrastructure, and responsibilities for geospatial information in the open seas beyond Member State jurisdiction, were given as examples of where leadership is sought. Governance frameworks, and steps for making data more openly available, were highlighted as particular issues.

Review of areas of focus

The Working Group recalled that the first year of its work prioritised discussion on challenges relating to areas of focus on privacy, security, intellectual property and licensing.
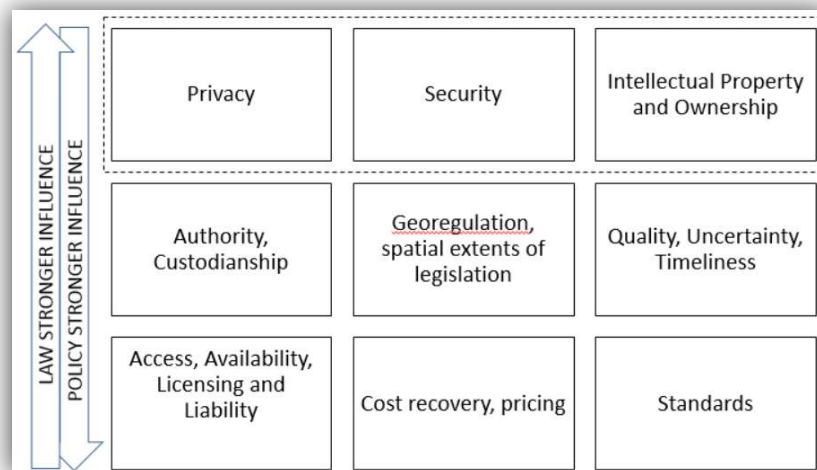
Authority and custodianship

The Working Group discussed challenges regarding the 'Authority' area of focus. National geospatial information agencies seek to understand the legal basis on which they undertake their work, and their role compared to alternatives such OpenStreetMap. A question to address - do our agencies have sufficient authority under legislation, regulation, policy or some other decision to:

- Undertake our day-to-day work?
- Understand who is involved in the supply chain for fundamental geospatial information, so that those stakeholders can be brought together to discuss data sharing arrangements?
- Direct other agencies to share geospatial information, for the purposes of mapping, to support policy or operations outside of their portfolio, and more broadly into the community?

- Manage the creation and delivery of geospatial information, to avoid duplication and manage capacity?
- Advocate and advise on geospatial information to government?

These common issues emerged strongly from the presentations during the meeting.

The Working Group discussed the continuum of mechanisms that support authority, such as tools for compliance, for coercion, and for collaboration. It was mentioned that the US Congress had recently passed a Geospatial Act, which moves the recognition of authority in the US Government from policy to legislation. The Act also contains examples of mechanisms which can deal with some of the legal and policy challenges being explored by the Working Group, such as separation of intelligence/security uses of geospatial information from other (civil) uses.

As part of discussions throughout the meeting, it was suggested that the role of national geospatial information agencies should cover:
- Understanding what the legal framework and broader policy environment within its country
- Participate more actively and broadly in legal discussions
- Utilise lawyers to help link geospatial information to other parts of law

The Working Group agreed that it should look at this area of focus, and possible tools to support national agencies, in its future work plan.

Challenges with open data

Malgorzata presented on challenges observed with open data. These included:
- No common definition of what 'open data' is
- The political drivers behind opening data often do not align with protection requirements
- Cannot control the integration of "harmless information" which may result in sensitivities. Legislation is often imposed on data which should be open, when risk-based approaches could be used instead.

These can lead to following responses:
- "I don't know which data should be made open"
- "It's not mandatory to do this, so why should I bother!"
- "I'm better off being safe than sorry, and I don't want people to see that the quality of my data as it might be poor, so I'll lock up everything".

It was observed that it is impossible to completely open data in many countries, and that the balance between security and open use can vary between countries depending upon individual country's circumstances. There should be a set of principles to define which datasets should be protected from the public or from foreign countries.

It was suggested that data custodian should use the following diagram as a guide to help determine where its datasets sit in the pyramid on the left, and where they should sit. Based on the previous diagram:
- By definition, fundamental geographic data should be harmless, and therefore open. It should therefore not contain information which might be deemed 'sensitive'.

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- Should be managed using trust-based tools, such as "reactive" laws and policies or risk management approaches.
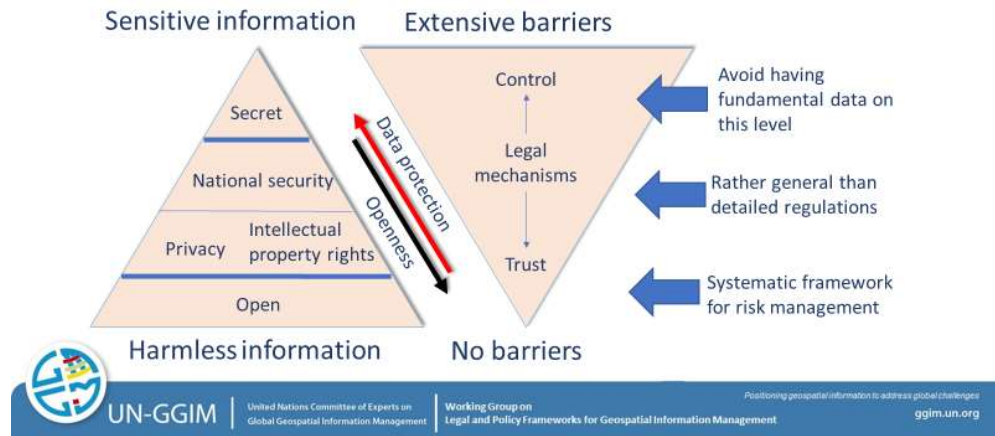
It was also observed that that the delivery of data openly as a service, rather than the data itself, could potentially fulfil some requirements of national security, data security and privacy whilst still meeting broader user needs.

Review of goals

Malgorzata discussed the goals and deliverables of the Working Group as contained in its work plan, and highlighted progress against the work plan. The goals reflect the challenges in each of the areas of focus.

	Effect/Goals	Description
E1	Sound license terms and conditions that limit use of geospatial information to protect economic or other interests	Promote standardized terms and conditions for specific user needs, recognizing the need to account for cultural differences and diversity
E2	Sound legal and policy restrictions that limit use of geospatial information to protect privacy or national security interests	Promote development of legal and policy frameworks, in relation to all focus areas, to build trust from the public concerning how data is managed by agencies especially when using new technology
E3	Lawyers participate as early as possible in the business development process	Promote development of a strategy and common guides for lawyers, business and technical developers

GOAL E2

One challenge that was raised regarding Goal E2 of the current work plan was the need to find "the right balance" between making geospatial information open, and providing an appropriate level of protection for privacy and security interests.

The 2004 Rand Report highlighted that much of the publicly-available geospatial information was not viewed as increasing the risk of terrorism attacks – see https://www.rand.org/news/press/2004/03/25.html. There were other examples of similar risk assessments that have occurred in Australia, where the mapping authority sought advice from the intelligence agency around the risk of openly available infrastructure information.

> *The Working Group noted that too much "openness" could be seen as creating too much risk, but also didn't want to lock up data.*

GOAL E3

This goal was motivated by the response of the Committee of Experts related to the development of a convention on geospatial information by the International Bar Association. The Committee of Experts, UN Secretariat for UN-GGIM and the IBA engaged one another and interacted on why such a convention would not work. The IBA ended up discontinuing the development of the convention.

The Committee of Experts agreed that this Working Group needed to continue to engage with lawyers as it is beneficial, and that there is benefits with greater understanding within the legal community on the role, relevance and usefulness of geospatial information.

A participant shared his own personal experiences where cooperation does not exist between lawyers and other professions. Where everyone brings their own perspectives, and likened the situation to a jigsaw puzzle – don't have all the pieces, but cannot see the whole picture. It was stressed that technical and legal professions need to engage, but one profession needs to take the first step. It was suggested that the geospatial profession needs to be more proactive. Malgorzata suggested that consideration should be given to the channels used to engage with the legal profession.

Overall goals

The working group agreed that the end goal of a legal and policy framework for geospatial information is *to maximise the utility of geospatial information, but protect our agencies against potential business and security risks.*

The working group identified tools that are part of a legal and policy framework, and noted that often the creation of a law is not necessarily the most appropriate solution to dealing with a challenge.

	LAW MAKERS	PUBLIC AUTHORITIES	OTHER GROUPS
BINDING, e.g. 'forces of law'	Laws Treaties	Regulations Ordinances	N/A
NON-BINDING	N/A	Policies Agreements	Standards Best practice guides

Implementation of a legal and policy framework should consider which of the above tools:
- Might be used to manage risk around a challenge that arises from use of geospatial information?
- Work best given the broader legal and policy framework, and cultural views towards issues like privacy and security, that exist in the country?

- Provides the best trade-off between the competing drivers of opening up geospatial information for economic development, and avoiding privacy, security, business or commercial risks?
- Provide the best flexibility for managing future changes in the legal and policy framework caused by changes like new technologies?
- Ensures that datasets defined as 'fundamental' remain desensitised and open?
- Are enforceable?

Malgorzata used the analogy of 'turning on a tap' to describe how different geospatial legal and policy issues fit within broader data discussions:

	What factors control whether the data can be "turned on" in the first place?	What factors control the flow of data?
ISSUES	Governance Access & Delivery Platforms Sharing & Licensing Policies	Intellectual Property Business Continuity National Security Privacy Quality Liability Sharing & Licensing Policies Standards
CONTEXT	These are issues specifically related to geospatial agencies.	These are issues that are part of broader data.
ROLE OF GEOSPATIAL AGENCIES	Geospatial agencies need to work together to remove duplication of effort, and improve efficiency of delivery.	Geospatial agencies need to be part of broader data discussions and have 'a seat at the table'.

Deliverables and Activities

Malgorzata summarised current progress to date against the deliverables and activities.

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The Use Case

Kevin outlined the ideas being explored behind the use case. The use case aimed to gather facts to show what legal and policy challenges might exist. The use case had to explore a situation where:

- More than one country was involved
- The event and response to it had to be longer term, not an immediate response
- New technologies were involved were no regulatory framework exists
- Different types of geospatial information were used, which might be governed by different laws and policies (e.g. telecommunications, military, aviation, etc)
- Open data would be used, noting that from a legal point of view open data still has a licence and that any licensing restrictions still need to be understood.

It was noted that national security and privacy were common issues identified by responders. A lot of sector-specific laws and their impact beyond their sector need to be dealt with; one example raised was whether regulations governing survey-level data would be applied to imagery collected by drones.

The Working Group is still working on the use case. The Working Group noted that further analysis of the information supplied for the use case would be desirable. It was observed that a wider group of countries providing input would be useful; it was noted that countries which had responded to the use case already had existing legal frameworks, and there might be some useful perspectives provided from countries who do not have such frameworks in place.

Malgorzata outlined a possible approach to analysing the information in the use case, which was further elaborated by Kevin:

- Identify the legal and policy problems around collection, use and sharing that member states have described
- Identify the consequences if the problem is not addressed, and to whom (data producers, public authorities, and data users)
- Identify possible solutions, to minimise harmful consequences and maximise benefits – for example, can legislation be changed; if not can alternative pathways such as agreements work?
- Identify how we might measure whether the solution has worked.

Next steps for the use case were discussed, and:

1) We want to get input from 'people on the ground' so we can capture issues we haven't thought about.
2) More views from the private sector and NGOs.
3) More engagement with the legal community, such as experts in IP, liability, privacy, government/contract law. We can also provide advice as they may not understand unique policy impacts of geospatial information.

This additional information should be gathered through 'table top' exercises involving lawyers, other government agencies, industry bodies, etc.

The exercises could be undertaken at a national level if useful. Australia is about to embark on exploring how to partner with industry to provide national imagery coverage and transport data, which will require exploring legal and policy options. It was indicated that Australia would be keen to explore this and share learnings back with this Working Group. Another option is to explore a use case around building information modelling, that would explore liability, IP and commercial-in-confidence issues, possibly using learnings from Singapore. It was also observed that engaging with experts who have worked in both developed and developing countries to share their experiences would also be useful.

Table top exercises to be added to work plan. Working group to consider how the table top exercise might work. Simon to report back to working group on trial exercise in Australia.

The idea of a use case around one or more of the Sustainable Development Goals was also raised. This could involve multinational NGOs (e.g. Gates Foundation, World Wildlife Fund) and/or regional committees of UN-GGIM.

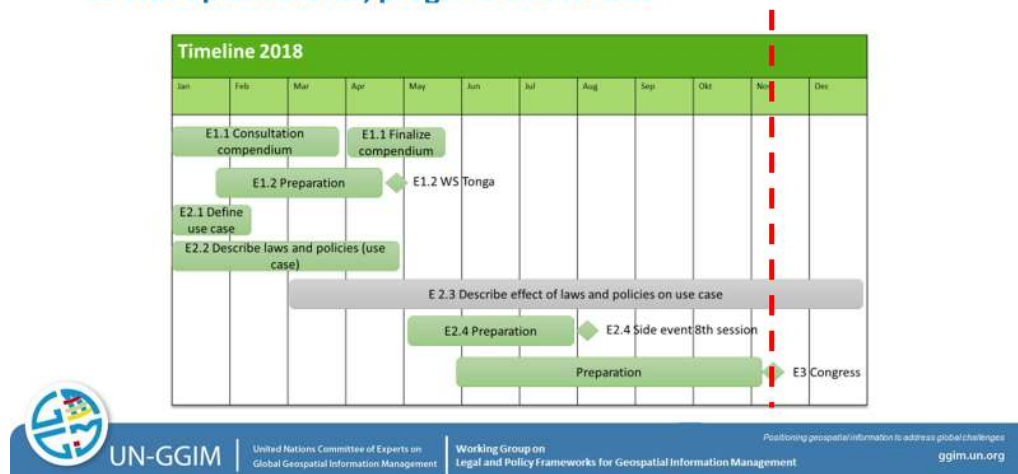UN-GGIM | United Nations Secretariat
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Kun gave an additional example, out of session, of challenges around the introduction of autonomous vehicles as a potential other use case, raising areas of interest around the adaptability of open geospatial data policy and the difficulties that might arise for the application of autonomous vehicle maps. Kun also observed, out of session, that exploring additional use cases would be useful, but that both the use cases and the country context are classified based upon similarities such as legislative status, developed/developing status, society development, geospatial maturity, etc. It was suggested that the Working Group consider different guidelines for different situations.

The Integrated Geospatial Information Framework

Teo advised that the Committee of Experts has asked that this Working Group reviews the development of the implementation guide aligned with Strategic Pathway 2 of the Integrated Geospatial Information Framework.

The Working Group were advised that there are three phases to the IGIF:
- The overarching strategic framework – endorsed by UN-GGIM at the 8th session.
- Implementation Guide – to be endorsed by UN-GGIM at the 9th session.
- Country-level Action Plans – to be developed as required by countries.

The Committee of Experts will be seeking lessons and principles that can be drawn from the use case. Kevin felt that these principles should be developed from engagement with legal expertise, and wider groups, and then include steps which cover:
- An understanding of the existing legal and policy framework in a member state. Does a framework exist already, and if so what in the current framework hinders easy use of geospatial information? What is the current legal system? What are the cultural and historical aspects of the 'rule of law'?
- An understanding of the impact of that legislation on geospatial data. For example, how does a country's intellectual property laws apply to geospatial information?
- An understanding of the impact of new technologies on law
- An understanding of what the downstream legal and policy challenges might be if a particular option for data collection was allowed to be used (e.g. the consequences of choosing to use crowdsourced information against commercial information against existing authoritative information)
- Identify and develop 'best practice' that member states can use to develop new frameworks, or modernise existing frameworks.

The Working Group will need to determine when it is ready to share its findings from the use case.

The Working Group's work is likely to overlap with other strategic pathways, such as Governance, Partnerships, and Standards. The Group discussed with the Secretariat how this might work. One option may be that we document our discussions and provide that perspective early to those parties developing the implementation guide aligned with the other strategic pathways.

The Implementation Guide should consider using Malgorzata's pyramid diagrams, to help custodians decide the sensitivities of the data they manage, and provide guidance on the "risks", the consequences if the risks are not addressed, and the tools for managing the risk.

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The Working Group will need to include activities in its Work Plan that cover work for Strategic Pathway 2 of the IGIF, and input into other IGIF strategic pathways. This work should include principles drawn from analysis of information in the use case.

It was suggested that the information in the use case provided by members should be reviewed regularly. Cristina highlighted that Mexico's input is already outdated due to the introduction of new legislation regarding unmanned aerial systems (drones). Kun agreed with this, noting the importance of understanding how open geospatial data policy can be adapted to changing technology, giving the example of the introduction of autonomous vehicles in the United States and Germany. This suggests another purpose for the use case, to monitor the impact of changes in legislation on what may come out of the use case.

The Working Group agreed that an ongoing review of the contents of the use case would be useful.

The Working Group discussed possible other purposes of the use case. The original intent of the use case was to capture a 'static example' of legal and policy problems, but given the example from Mexico, the Working Group also wants to understand what underlying causes or mechanisms might drive changes in countries' responses through time. For example:

- Unmanned aerial systems (drones) are new technology that can change and increase the amount of available geospatial data
- Initially, concerns will be raised around privacy and security
- But then as data becomes more available, people may see a greater benefit in having access to that data, so there may be a desire to open up data collected from unmanned aerial systems for other purposes.

Collaboration with the Expert Group on Land Administration and Management

Kees de Zeeuw, the chair of the Expert Group on Land Administration and Management, presented on the work that the Expert Group is doing, a framework for effective land administration.

The framework aims to provide guidance on how Member States can efficiently and effectively document, record and recognise people-to-land relationships in all its forms. The outcomes for the framework included:

- Collect once, use many times
- Reduce duplication
- Recognise a plurality of tenure types
- Maintain data security
- Support Interoperability
- Ease of maintenance and sustainable
- Ease of accessibility
- Sufficient capacity

This framework will cover functions recognizing tenure including land registrations, of which 'mapping' is a subset, but follows the same structure and similar strategic pathways of the Integrated Geospatial Information Framework. It's the implementation of IGIF in the land sector. Some of the specific differences with the pathways included a focus on fit-for-purpose documentation and secure tenure

rights, and support for disaster management. Descriptions of the pathways will deliberately be kept short – possibly in the form of slides rather than text – to make the framework easier to read and implement.

The Expert Group will be looking to the Working Group for inputs into their framework, in particular into pathways defining options to achieve legal, policy and institutional cohesion, common implementation of law, and the development of best practice policies and guides. There are also shared objectives around advocating the importance of the two groups' work, maintaining awareness of progress, and getting broader input into developing the strategic pathways from groups outside of 'geospatial'. Kees noted that OGC is now involving lawyers' associations in the development of standards and data models.

The Working Group agreed that both groups needed to ensure that systems were developed that are:
- Future proofed against changing technology – for example, that use of high-precision positioning to improve the cadastre to 10cm accuracy could be recognised legally.
- Able to follow evolving or emerging uses, not single uses
- Simple to initially construct.
- Able to utilise private-public partnerships, but maintain an 'authority' role for government agencies.

The two groups agreed that there was always a role for government in guaranteeing trust in fundamental geospatial information.

Presentations from members

Members of the Working Group shared current challenges and experiences. Many member states face issues in coordinating data sharing across their countries, at national and subnational levels, describing fragmentation of the governance of geospatial information as a common problem. Member states also agreed that regulation needs to support user needs; that geospatial information agencies have a 'coordinating' role that brings data producers and users together, that the role is to promote/advocate what geospatial information can do. Existing legal barriers exist that prevent achievements of these goals.

Australia outlined the view that open information supports economic development and innovation. New data policies and legislation are being introduced that allow citizens to access information about themselves, that is held by government, and which support a risk-based approach to managing privacy and security issues around this data. There is also a recognition that location can provide a link between environmental, business and other information for decision making. More national datasets identified in its national Foundation Spatial Data Framework are being made available openly, and the use of openly-available national geospatial datasets is being monitored through platforms. As a federation, Australia must deal with the challenges of working with a number of levels of government to share geospatial information and create national datasets.

Canada outlined the strong link of geospatial information, and associated policies, into broader digital economy drivers.

China has introduced the *Law of Surveying & Mapping* covering certification of professionals and for unmanned aerial systems. This law also encourages the sharing of geospatial information across government and business, the establishment of business continuity processes to protect data, and covers privacy and IP issues. The production of maps for automated driving is now controlled by certified

producers in order to maintain accuracy of content. Better sharing of data within government is being seen as an outcome of the merger of formerly separate government agencies. The Working Group discussed whether such a law applies to the core database, or to the products derived from the database.

Finland is about to publish its national spatial data policy, which identifies fundamental geospatial information and how they support the running of society. Four main outcomes for the policy were identified: business competitiveness, better services for business and citizens, efficient administration, and community preparedness/comprehensive security. The policy will fit with broader government policies to make as much government data as open as possible, and fit with the existing European legal and policy frameworks. Seven activities were identified as priorities: release of national addressing datasets, an improved positioning system that supports intelligent transport, a spatial platform for security agencies to share information, a common spatial data ecosystem, improved cooperation between government and business, expertise development, and legislation changes to improve data availability.

Malaysia's government has a strong recognition of the role geospatial information plays in sustainable development and environmental protection, but that sharing of data across government and agencies remains the biggest barrier. Malaysia shared problems with the development of the current framework for managing Malaysia's geospatial information, which was not developed by the mapping authority and did not properly engage stakeholders in its development. Replacement legislation and policies will be developed for the surveying and mapping activities by the National Mapping Authority where it will engage the relevant stakeholders. The Working Group agreed that stakeholder engagement is important.

Digitalisation is a strong government priority in Sweden, with the policy wanting to take advantage of new technologies to provide new business opportunities and revenue, and create an innovative and efficient public service. A lot of legislation and existing analogue processes will need to be modernised to support this. Four focus areas to test digitalisation were identified involving a number of government agencies - improved food supply chains, improved building planning and construction, environmental information, and entrepreneurship. Safe and efficient access to fundamental data, and exchange of data across government, are outcomes of this policy. Further outcomes include the alignment of geospatial data policies with other policies, the desire to understand policy needs first before building infrastructure to meet those needs, and to avoid building infrastructure based on dataset silos.

Building legal expertise that is relevant to geospatial information, developing legal as well as technical infrastructure, and having repeatable processes to respond to regular natural disasters, are major challenges in the South Pacific. Increasingly complex policy questions require easy access to fundamental geospatial information, but much data remains locked up in individual agencies that is only easily accessed through personal connections. There is recognition that if geospatial information supports the economy, then better collaboration, easy entry points, and more sustainable data is required. Tonga is working with other Pacific Island nations to raise awareness of relevant common issues in the region via the *Pacific Geospatial and Surveying Council* Strategy 2017 - 2027, with specific issues including understanding the cost/benefit of various licensing options and the types of laws and policies required.

Coordination of geospatial information management across government by the national geospatial authority remains an issue in Mexico. Challenges are more around governance and political, rather than technical. Many agencies are responsible for data, but no one is in charge of national policy, and agencies do not share a common purpose for geospatial information. A further issue is that custodians have different levels of technology, platforms, skills and funding, so it is difficult to apply a national policy. Specific issues mentioned include that the mapping agency does not have a recognised authority, that

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individual agencies do not share data, and agencies do not see how their data supports multiple uses and users beyond their immediate portfolio. Mexico would like the private sector to be more involved in contributing to 'common good', and is exploring shared licensing to reduce costs for satellite imagery.

Lesley raised issues from her research into geospatial data supply chains:

- Ontologies describe the relationships between data. Who owns these and who has responsibility for managing them? How to share ontologies as well as data? Can ontologies be developed that make creating licensing easier?
- Who owns, or should own, the IP in visualisations created from open data? Who is responsible for the warranty of the data and how would provenance work?

Simon raised an example from Australia on the last point which explored how a lack of clear policy around this led to safety of navigation issues, and failure of innovation by multinational software companies.