

# Developing a Legal and Policy Framework for Geospatial Information Management

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## Introduction<sup>2</sup>

A transparent and consistent legal and policy framework is necessary to enable geospatial information management in a nation because it directly impacts the availability, accessibility, exchange, application and management of geospatial information. This paper will begin by identifying several important factors to consider when developing the appropriate legal and policy framework. It will then identify the various elements of such a legal and policy framework. These elements include those that are legally binding – such as laws, regulations, contracts and other legal agreements – and non-binding, such as policies or best practices. The strengths and weaknesses of each element will be discussed as well as their applicability to the public and private sector within a geospatial ecosystem.

The paper will then explain the impact that key legal and policy issues have on geospatial information management. Some of these issues are directly related to the geospatial community within a nation. Others impact a number of other government agencies and industry sectors. These include data protection/privacy, intellectual property rights, national security and data quality/liability.

The paper will conclude with a discussion of why a nation should conduct a “gap analysis” to identify the current state of its legal and policy framework for geospatial information management. This section will explain why stakeholders from government, industry, NGO’s and academia, including their legal representatives, should be included in this exercise.

## Considerations When Developing a Legal and Policy Framework

There are several important considerations when developing the appropriate legal and policy framework for geospatial information management within a nation.

- Geospatial community is an ecosystem - The geospatial community within a nation can be considered an ecosystem, consisting of stakeholders in government, industry, academia, and NGO’s. Private citizens also are playing an increasingly important role in this ecosystem. Each stakeholder in the ecosystem is often both a data collector and data user, sometimes at the same time. As a result, laws and policies that are designed to regulate the collection or use of geospatial information in one segment of the ecosystem will often have an impact on the other segments.
- A number of different laws and regulations impact geospatial information management. There are a number of different laws and policies that must be considered when

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considering geospatial information management. Some apply to the government agencies that are responsible for the collection of geospatial information within a nation. For example, surveying is often regulated by one government body while another agency is responsible for developing the nation's spatial data infrastructure. In addition, there are a number of laws, including contract law, intellectual property law, national security law, liability and privacy laws that indirectly impact the collection, use and distribution of geospatial information. Also, there a growing number of platforms (i.e. satellites, aircraft, mobile devices, internet of things) that collect geospatial information. These are often subject to their own regulatory oversight. As a result, developing a legal and policy framework for geospatial information management is a complex and timely endeavor.

- Legal systems vary considerably. Legal systems between nations vary greatly. Some nations' legal systems are based upon common law, while others are civil law based. Some have strong executive leadership, while others have strong legislative bodies or parliaments. Some governments have centralized authority, while others have a more federated approach – with local authorities having great authority. Each also has its own nomenclature to define legal documents, such as laws, decrees, ordinances, edicts. These differences must be considered in developing a legal and policy framework.
- There are many different types of geospatial information. Geospatial information consists of a variety of different data types. Each of these datasets have unique legal and policy issues that must be considered in developing a legal and policy framework.
- Geospatial information is versatile. The power of geospatial information is in part based upon its versatility. A single data set can be used for a variety of different purposes. This is challenging from a legal standpoint because while one use may be beneficial to a society, another use may be considered as a threat. Moreover, while the geospatial communities across the globe will generally agree as to the benefits of collecting and sharing geospatial information, there are significant differences between nations as to the potential risks. For example, some nations are more concerned about the potential privacy risks, others are more concerned about national security concerns. A legal and policy framework must adequately balance the potential benefits with the perceived risks within a nation.
- Geospatial technology is rapidly changing. The technology for the collection, use, storage and distribution of geospatial information is rapidly changing. As a result, such a framework must be flexible to make sure that these new innovative technologies can be effectively utilized while still addressing any potential risks.

Due to these considerations, there is no one framework that can be used for all nations. Each nation must develop a legal and policy framework that addresses its unique legal system, culture and history as well as the state of development of its geospatial community.

## Key Components of a Legal and Policy Framework

Often when the geospatial community discusses the need for a legal and policy framework, the assumption is an overarching law that addresses all the key issues is needed. While such a law can be effective, it is only one tool that can be used to create (or revise) a geospatial information management legal and policy framework. There are many other tools that should be considered. Some of these tools, like laws, are binding. However, others are non-binding and more informal, based upon consent. While some of these tools can cover both the public and private sectors of a nation's geospatial ecosystem, others are effective against one sector.

### **Binding Elements**

#### 1. Legislation and Laws

The geospatial community often uses the terms “legislation” or “laws” when referring to elements of a legal and policy framework that are binding. However, it is important to note that there are many other equivalent terms that are used that have essentially the same effect. These include decrees, orders, ordinances and regulations.

Although laws can be generated or created in a number of different ways, each have several similarities, including:

- They are the most easily enforceable;
- It can take a long time to have them adopted or approved;
- If poorly crafted, they can actually hinder geospatial information management; and,
- Once passed, they are difficult to change.

#### 2. Contracts and Other Agreements

Contracts and other forms of agreements between parties also play an important role in geospatial information management. Such agreements are legally enforceable between the parties. For example, a government agency may enter into a license agreement to acquire rights in satellite imagery from a commercial provider. It may also pay a drone operator to collect geospatial information. Alternatively, one government agency may enter into a data sharing agreement with another government agency as part of a spatial data infrastructure initiative. As a result, contract law should be considered an important part of a legal and policy framework for geospatial information management.

Contracts differ from laws in several important ways. For example, it often takes less time to negotiate and sign an agreement. Also, an agreement can be narrowly tailored; most laws tend to be broad. However, agreements only are enforceable between the organizations that enter or sign them. In addition, agreements generally will terminate after a certain period, after which they must be renegotiated.

### 3. Treaties and other international obligations

Nations are parties to a number of binding international obligations. Many of these will impact geospatial information management within a nation. For example, 176 countries are signatories to the Berne Convention for the Protection of Literary and Artistic Works, which protects the intellectual property rights of certain geospatial information products and services.<sup>3</sup> Similarly, in 1986 the UN General Assembly adopted the UN Principles Relating to Remote Sensing of Earth from Space (the “Principles”).<sup>4</sup> Although not a formal treaty, a number of countries abide by the Principles, in addition to more formal treaties involving space-related activities, when developing a satellite remote sensing program.

#### **Non-binding Elements**

There are also elements in a legal and policy framework that do not have the force of law. These non-binding elements include policies, standards, norms and best practices. While these elements may not be enforceable under law, they play an important role in the utilization of geospatial information in a nation. Moreover, in time, these informal elements can become law.

For example, until recently one of the primary documents outlining the roles of U.S. government agencies in the collection and sharing of geospatial information was OMB Circular A-16 (the “Circular”). The Circular, which is issued by the Office of Management and Budget, an office with the Executive Office of the President of the United States, is not a law but simply “provides direction for federal agencies that produce, maintain, or use spatial data either directly or indirectly in the fulfillment of their mission and provides for improvements in the coordination and use of spatial data.”<sup>5</sup> Many components of OMB Circular A-16 were incorporated into the Geospatial Data Act which recently became law in the U.S.<sup>6</sup>

Standards are another example of a non-legally binding mechanism that can impact a legal and policy framework for geospatial information management. For example, the Open Geospatial Consortium has published standards that facilitate the sharing of geospatial information between organizations. The adoption of these standards by key government agencies responsible for geospatial information management will have a broad impact across a nation’s geospatial ecosystem. Government agencies can also make standards binding by including them into requests for proposals (RFPs) or contracts.

There are a number of benefits associated with these non-binding elements. One of the primary benefits is that they are much easier to develop and implement than laws and regulations. As a result, they can be more flexible, which makes them easier to adopt. They also can remain in

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<sup>3</sup> Berne Convention for the Protection of Literary and Artistic Works, <https://www.wipo.int/treaties/en/ip/berne/> (accessed February 11, 2019)

<sup>4</sup> UN Principles relating to remote sensing of the Earth from space, <http://www.un.org/documents/ga/res/41/a41r065.htm> (accessed February 11, 2019).

<sup>5</sup> OMB Circular A-16, <https://www.fgdc.gov/policyandplanning/a-16/index.html> (accessed February 11, 2019)

<sup>6</sup> Geospatial Data Act, <https://www.fgdc.gov/gda/geospatial-data-act-of-2018.pdf> (accessed February 11, 2019)

force longer than an agreement and can apply to both the public and private sectors. In addition, they are the easiest to modify to adapt to new technologies or legal issues that may arise.

However, there also limitations that must be considered. Since these non-binding elements do not have the force of law, they generally cannot be enforced in a court. Also, they usually only apply to a limited group that has self-selected to abide by them. However, market pressure and integrating non-binding elements in formal legal instruments (such as including standards in contracts) can increase their adoption.

### Critical Aspects of a Legal and Policy Framework for Geospatial Information Utilization

When constructing a legal and policy framework for geospatial information management, it is important to identify the problems to be addressed. Once these issues are understood, possible solutions can be identified by using the binding and non-binding elements described above.

#### Issues that Impact Governance and Accountability

At a high level there generally are two types of issues to be addressed. The first set of issues concern which organization(s) are responsible for implementation and accountability for geospatial information management. In other words, which organization(s) are responsible for ensuring that the spigot for geospatial information is turned on and made available upon acceptable terms.

##### 1. Designation of Lead Organization

One critical considerations is whether to designate a lead organization that is primarily responsible for geospatial utilization within a nation. This organization would have the authority to coordinate activities between the various stakeholders. In addition, it would be the focal point on budget and finance issues. A lead organization can play a vital role for a nation to both initiate and follow through on geospatial information management initiatives.

##### 2. Data Collection and Governance

Another matter with a direct impact on geospatial information utilization that is typically addressed in a legal and policy framework is whether any particular government agency - or private sector party licensed and/or approved by a government agency - has exclusive authority to collect certain types of geospatial information. There are several reasons why the collection of geospatial information may be limited to certain approved entities. For example, national mapping agencies, or certain military departments may wish to be responsible for collecting certain types of information for national security purposes. Alternatively, it may be important for licensed surveyors to collect certain types of authoritative mapping data.

##### 3. Sector/Platform Specific Laws

There also are a number of sector specific laws and policies that must be considered in a legal and policy framework for geospatial information management. Many of these laws and policies are closely related to the geospatial community – for example surveying, or land administration. Others are more indirect, such as satellite remote sensing – which tend to be the responsibility of space or military agencies– and aerial collection of geospatial information – which are subject to laws and policies governing aviation. However, all play an important role in the availability of geospatial information within a nation. For example, strict licensing requirements for surveyors may limit the number of people and organizations that are collecting geospatial information. Similarly, national security concerns over satellite remote sensing data may make it difficult for certain segments of the geospatial ecosystem to acquire valuable satellite imagery.

### Issues that Indirectly Impact Geospatial Information Management

The second set of issues to consider in a legal and policy framework are those that impact the flow of geospatial information. Many of these are addressed as part of a nation’s broader legal and policy framework. For example, data protection/privacy or intellectual property rights in geospatial information. As a result, a nation’s geospatial community is not likely to be able to unilaterally decide what the laws and policies should be on these issues. However, stakeholders should understand the impact that these issues have on geospatial information and participate in all discussions involving amending or updating these laws.

#### 1. Intellectual property rights

Geospatial products and services are increasingly created by combining geospatial information from a variety of sources. However, the intellectual property rights in data are different than in other nontangible assets, such as software. This uncertainty can have significant impact on geospatial information management within a nation. It can result in complex data licenses, as the data providers try to protect their rights through contract rather through law. This complexity increases the difficulty for data consumers to determine if and how they can use the geospatial information. A legal and policy framework that enables geospatial information management will help clarify the intellectual property rights in respect to geospatial information for both data providers and data consumers. There are also non-binding ways to reduce the friction associated with uncertainty over intellectual property rights. For example, in the United Kingdom, the Ordnance Survey website includes a guide to licensing.<sup>7</sup> Alternatively, efforts can be made to encourage lawyers to learn more about the various types of geospatial information and how it is collected and used, so that they will be better prepared to advise their clients.

#### 2. Privacy/Data Protection

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<sup>7</sup> OS Open Data Acknowledgements, <https://www.ordnancesurvey.co.uk/business-and-government/licensing/using-creating-data-with-os-products/os-opendata.html> (accessed February 11, 2019)

There is a growing trend across the globe to regulate the collection and use of personal information that could be used to identify an individual or infringe upon his or her privacy. Increasingly, government regulators are recognizing that many types of geospatial information are a powerful tool for such improper uses. As a result, laws are being passed to regulate the collection and use of certain types of geospatial information.<sup>8</sup> These laws currently do not include satellite/aerial imaging or traditional mapping technologies, however, this is likely to change as technologies as concerns over drones and mobile devices grow. Even if these traditional types of geospatial information are not regulated, there is a risk that broad data protection laws may limit the ability of the geospatial community to access and use the vast amount of new geospatial-enabled information that is now being collected. For example, laws and regulations that treat geospatial information collected by some platforms (i.e. drones) differently than others (i.e. satellites or manned aircraft) are likely to frustrate and confuse data consumers.

### 3. Liability

As applications that utilize geospatial information grow, so will disagreements over which organizations are responsible for data quality issues or the misuse of geospatial information. Consequently, it is helpful for a legal and policy framework for geospatial information management to clarify issues of liability. There are several ways in which a legal and policy framework can address liability concerns associated with geospatial information. For example, in some countries government agencies are protected by sovereign immunity – i.e. they are immune from being sued for actions they take that are related to their governmental function. Such protections can be included in a nation’s constitution or in its laws. Another way to allocate risks associated with data quality is through agreements. For example, a government agency can obligate its vendors to comply with certain geospatial standards. If these standards are not followed, the vendor can be responsible for any damages that arise. Alternatively, government agencies can include in their vendor contracts provisions that waive or limit the liability of vendors. This will make it easier for vendors to perform tasks that have inherent risks associated with data that are difficult to quantify.

### 4. National Security

Some government officials are concerned that the broad availability of certain types of geospatial information is a risk to homeland or national security. This is due, in part, because in many countries geospatial technologies were initially developed and or used by military or intelligence departments. As a result, these departments often are concerned about any new geospatial technologies and/or new applications that collect or use geospatial information. While such apprehension is understandable given the respective agencies’ mandates, as described above, overly restrictive laws and policies

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<sup>8</sup> See e.g. the General Data Protection Regulation (GDPR) (<https://eur-lex.europa.eu/legal-content/en/ALL/?uri=CELEX:32016R0679>) and the California Consumer Privacy Act of 2018 ([https://leginfo.ca.gov/faces/billTextClient.xhtml?bill\\_id=201720180AB375](https://leginfo.ca.gov/faces/billTextClient.xhtml?bill_id=201720180AB375)) (accessed June 30, 2018)

that are intended to limit the collection and use of geospatial information for national security purposes often will have much broader consequences.

### Role of Data Sharing Agreements/Data Licenses

Another critical element to a legal and policy framework for geospatial information management is the data sharing/license agreements of geospatial information used by government agencies. This is because in order for geospatial information to be fully utilized, government agencies must be willing to share information with other agencies (and with the private sector). Such sharing must take place between national government agencies, as well as with subnational government agencies and international organizations.

Unfortunately, sharing by and between government agencies is often limited. There are many reasons for this lack of sharing. For example, having control over information often is considered to be power. Therefore, any sharing of geospatial information is considered by some officials to be a weakening of a government agency's authority. Another concern government agencies have in sharing is that they will be responsible – either legally or in the court of public opinion - if the geospatial information is used improperly or is otherwise not fit for another agency's purpose. Some government agencies will claim that they are unwilling to share data due to national security concerns. Privacy concerns are also commonly used as an excuse for not sharing data, even if a country does not have a formal data protection/privacy regime.

A data sharing/license agreement is a complex legal document that can address these concerns by balancing the needs of the user (the “licensee”) with those of the data provider (the “licensor”). If a license is too restrictive – i.e. provides the licensor too many protections, the licensee may not be able to generate the necessary value from its use. On the other hand, a government agency may worry that if the license is too permissive – i.e. the licensor has limited protections – it will be held liable for any damages that arise from the use of the geospatial information. In developing the licensing component of a legal and policy framework for geospatial information, it is important to consider both the risks and benefits.

One way to generate greater sharing of geospatial information between government agencies is through legislation. For example, INSPIRE and the regulations promulgated thereunder directs government agencies in Europe to share information.<sup>9</sup> However as explained above, developing legislation can take many years.

Fortunately, there are other informal ways for agencies to share information that are much easier to initiate. For example, some government agencies enter inter Memorandum of Understanding (MOUs) with other agencies to share certain data sets. Such MOUSs generally are not legally binding but can still address many of the parties' respective concerns and serve as a basis for building trust. Alternatively, agencies can enter into formal data sharing agreements. These tend to be more formal and address the concerns in more detail.

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<sup>9</sup> Commission Regulation (EU) No 268/2010 of 29 March 2010 implementing Directive 2007/2/EC of the European Parliament and of the Council as regards the access to spatial data sets and services of the Member States by Community institutions and bodies under harmonised conditions, <https://eur-lex.europa.eu/legal-content/EN/ALL/?uri=CELEX%3A32010R0268> (accessed February 11, 2019)

As data sharing becomes more accepted within a government, it can be easier to develop legislation that mandates such sharing. Such legislation can include many of the details in the MOUs or data sharing agreements, such as the type of geospatial information to be shared, under what conditions and which parties are responsible for data quality. It might also include what rights the agency receiving the geospatial information has to share it with others. It might also outline how privacy and national security concerns should be addressed. For example, legislation might create a committee of senior officials that would adjudicate any disagreements as to whether data can be shared and under what parameters.

### Open Data Licenses

An increasingly common way in which government data is made available is through “Open Data” initiatives. In some cases, the requirement to make data open is through a law. However, more often these initiatives begin as government policies. In many cases these initiatives are developed by government agencies that do not have a strong understanding of geospatial information. As a result, these policies often do not take into consideration some of the unique legal and policy challenges associated with geospatial information described above. Therefore, it is critical for the geospatial community to actively participate in government-wide open data discussions to make sure their interests are protected.) A more detailed discussion of Open Data Licenses for geospatial information can be found in the Compendium for the Licensing of Geospatial Information<sup>10</sup>.)

### The Role of a Gap Analysis

It is important for a government to identify the reason(s) for wanting to change the existing legal and policy framework. It is also important to identify what the legal and policy framework should accomplish when the process is complete. Finally, it should identify steps that can be taken to achieve the stated goals. A gap analysis is an effective means to achieve these results.

#### Step 1 – Identifying the Existing Legal and Policy Framework.

The first step in this process is to understand the current country’s existing legal and policy framework when deciding what additions or changes are needed for geospatial information management. This step should include bringing together representatives from stakeholders across the country’s geospatial ecosystem to create an inventory of laws and policies that impact geospatial information management. This “geospatial council” should consist of both users and data providers from government, industry as well as NGOs and the academic and research communities. It should also consist of lawyers that understand the legal issues that must be addressed by the various stakeholders.

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<sup>10</sup> Compendium on Licensing of Geospatial Information, [http://ggim.un.org/ggim\\_20171012/docs/meetings/GGIM7/Agenda%20%20-%20Compendium%20on%20Licensing%20of%20Geospatial%20Information.pdf](http://ggim.un.org/ggim_20171012/docs/meetings/GGIM7/Agenda%20%20-%20Compendium%20on%20Licensing%20of%20Geospatial%20Information.pdf) (accessed December 17, 2018)

### Step 2 - Identify the gaps

Once the inventory is completed, a government can then analysis the gap between the desired legal and policy framework and existing framework. One method is to conduct one or more tabletop exercises with relevant stakeholders. The tabletop exercise should be based upon relevant use cases involving the collection, use and sharing of geospatial information across the entire geospatial ecosystem.

### Step 3 - Addressing the Gaps.

Once the objectives have been defined, and the gaps identified, the “geospatial council” can then make recommendations on how best to address the gaps. One approach is to consider the elements of a legal and policy framework discussed above as tools in a toolbox. The council should consider which tool – e.g. law, regulation, policy, best practice, agreement, etc. - works best to address each gap. For example, does an informal policy work or is a law or regulation required? It may be helpful to consider how other countries approached these issues and then try to tailor that approach to the country’s existing legal and policy framework.

### Conclusion

Having the appropriate legal and policy framework is a critical element for geospatial information management. Such a framework is particularly important since it impacts so many other critical strategic pathways. There are a number of elements in a legal and policy framework – some of which are binding elements, while others are non-binding. Each of these elements are necessary to address the wide range of legal and policy issues that impact the collection, use, storage and distribution of geospatial information. Some of these issues are directly related to geospatial information management. Others are more indirectly related to geospatial information management but are also important. A gap analysis is one method to develop the most suitable legal and policy framework for a nation. Such an analysis is best conducted by including representatives from the entire geospatial ecosystem, including lawyers.