



COMMENTS ON THE NATIONAL GEOSPATIAL DATA ASSET (NGDA) PORTFOLIO MANAGEMENT PROCESS

A Paper of the National Geospatial Advisory Committee
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I. Overview

The Federal Geographic Data Committee (FGDC) provided guidance to the National Geospatial Advisory Committee (NGAC) for 2016, asking the NGAC to provide feedback on the FGDC's implementation of the National Geospatial Data Asset (NGDA) portfolio management process and to provide input on potential strategic actions based on the results of the NGDA Management Plan evaluation. This paper provides the NGAC response to this study question.

II. Background

In 2010, the Office of Management and Budget (OMB) issued Supplemental Guidance to OMB Circular A-16. Circular A-16 (*“Coordination of Geographic Information and Related Spatial Activities”*) is the primary Federal policy document promoting the coordinated use, sharing, and dissemination of geospatial data; and the implementation of the National Spatial Data Infrastructure (NSDI). The Supplemental Guidance clarifies the roles and responsibilities of FGDC agencies in meeting Circular A-16 requirements and, for the first time, requires the identification of specific datasets that are to be managed through the A-16 process as NGDAs. The Supplemental Guidance also outlines a process for geospatial portfolio management. Portfolio management is the process of tracking, maintaining, expanding, and aligning assets and resources to address and solve the business needs of an enterprise. The NGDA/portfolio management approach is incorporated into the 2014-2016 NSDI Strategic Plan under Goal 2, “Ensure Accountability and Effective Development and Management of Federal Geospatial Resources.”

Over the past 2 years, FGDC member agencies have established the foundation for implementation of the A-16 NGDA Portfolio management process. This effort has included:

- Identifying NGDA roles for Executive Champions, Theme Leads, and Dataset Managers
- Establishing the baseline NGDA Dataset inventory and registration on Data.gov/GeoPlatform.gov
- Developing geospatial investment definitions to improve terminology consistency across the portfolio
- Completing a comprehensive assessment of the 177 geospatial data resources identified as National Geospatial Data Assets, and
- Developing reports and a dashboard to share the results.

For the initial assessment, FGDC tasked the identified Dataset Managers of each NGDA dataset with completing the evaluations, called the Lifecycle Maturity Assessment (LMA). All LMAs were completed and the results are now publicly accessible to stakeholders and the public via geoplatform.gov in Dataset and Theme Summary Reports.

NGAC commends the federal geospatial NGDA community for its approach and efforts to assess the progress and performance of the NGDA data resources through the inaugural LMA and related performance dashboard. The NGDA assessment is an important component of FGDC's charge to manage the federal portfolio of geospatial data. Portfolio management for national-level geospatial data is a

difficult proposition, given that the responsibilities and budget resources are distributed across many federal departments and programs.

In past meetings NGAC has discussed the importance of inventorying, evaluating, and publishing status indicators for the layers in the NGDA inventory with respect to the statutory and other identified requirements of national level stakeholders. NGAC strongly advocated for the collection of meaningful information describing the completeness, data quality, currency, and accessibility of each dataset.

The recently released NGDA LMA Performance Dashboard is accessible to users logged into Geoplatform.gov, provides theme-level summary reports and an overview of this dataset-level assessment through a web-based dashboard interface. This performance dashboard also allows users to delve into assessment indicators for each NGDA. The full LMA responses, including free-text portions of the survey, for individual NGDAs are [available](#) in the Dataset Reports.

III. LMA Questions

Nineteen questions, shown below, were completed, using a five-point maturity scale that ranged from No Activity Planned to Mature/Consistent. Overall scores and categorized scores are provided for each dataset layer, as are links, where available, to each NGDA layer's metadata and performance information for published data web services.

1. Is there a re-occurring process to obtain funding support?
2. Are open government and transparency processes followed?
3. Is there staffing knowledgeable to ensure continuity?
4. Are business requirements formalized for the dataset?
5. Have partners and stakeholders been involved in requirements definition?
6. Is there a QA process?
7. Is there a process to identify and address data sensitivities?
8. Are data standards established and used?
9. Is there a process to periodically assess redundant data maintenance efforts?
10. Is there a process for obtaining data related to this dataset?
11. Is metadata in an FGDC endorsed format?
12. Have geographic coverage goals been completed?
13. Is there a process for providing open access to the data?
14. Is there a maintenance/update process?
15. Is there a data correction process?
16. Are requirements evaluated?
17. Is there a process to provide information on proper use?
18. Are processes periodically reevaluated to ensure application of the appropriate technology?
19. Is the dataset archived?

IV. Measuring Value of the LMA Process

The main measure of the LMA and its performance dashboard will be its success in connecting hands-on dataset stewards, program managers, and agency executives with the reality that NGDA Datasets are public assets and should be sustained in a similar manner as required for physical assets. Just like a bridge in the interstate highway system, asset condition -- in the form of quality, completeness, currency, and accessibility -- must be planned for, supported, and periodically reassessed. While difficult to measure, the FGDC should consider establishing a baseline, and monitoring progress of stakeholder views and practices relating to data as an enterprise asset. And, of course, to heighten its value, it certainly makes sense to continue outreach efforts that promote awareness of the LMA review process and results.

V. NGDA Dataset Designation and Potential Tiering

The current NGDA dataset list has 177 layers identified, and there are likely other candidates for inclusion as NGDAs that have not yet been identified. For several reasons, it is not advised to use the size of the NGDA list as a significant metric for the management of the geospatial portfolio. It is undesirable to incentivize unnecessary growth of the overall NGDA list or unproductive sub-setting of existing NGDA datasets. However, agencies should continue to evaluate possible additions or modifications to the list of NGDA datasets with the goal that the list represents the full set of truly important national assets.

Overall, the NGDAs may benefit from a tiered classification. One possible approach would be to divide the layers into three tiers, with tier 1 representing required layers that have a combination of the broadest user base and the most dynamic data content. Tiers 2 and 3 would consist of NGDAs that are employed for more targeted uses, are static, time-specific snapshots, or are most valuable to specific communities of users. Tiering the NGDAs could improve the usability of the geoplatform website and associated NGDA layer information. In addition to improving access to the NGDAs that are the most utilized, tiering could also be used to prioritize the LMA re-evaluations.

VI. Importance of Web Services

The LMA dashboard provides icon-based links to information on the reliability and response speeds for web services that have been published and are registered with the geoplatform. Published data web services allow users to connect to the most current version of a data resource, but, the efficacy of a web service serving the needs of end users is highly dependent on the discoverability and dependability of the delivery mechanism, as well as the maturity of the data content. In particular, the current approach for monitoring and reporting of the reliability of the response expected from the web services is innovative and should prove valuable to data stewards and users alike. While this first step of integrating web services into the geoplatform and the NGDA LMA dashboard is a small part of the larger effort, NGAC suggests that this concept deserves expanded attention, with respect to content and functionality, in future iterations of the geoplatform site.

VII. Longitudinal Value

One issue that the LMA process will want to consider in the future is how to track change over time. An inherent, but possibly unavoidable, weakness of the LMA questions is that they are subjective in nature. The responses are dependent on the dataset manager's frame-of-reference. On the day of survey completion, is the dataset manager putting their best foot forward toward deserved acclaim? Or, are they making a case for much needed ongoing support? Ideally, the best balance is struck, but where it is not, longitudinal analysis will be of marginal value. Similar issues are experienced with any survey response, and, with respect to geospatial maturity specifically, this issue has been observed in NSGIC's State Geospatial Maturity Assessment (GMA), now that multiple vintages of results are available. This issue may not be solvable, but the 'subjectivity issue' should be appropriately communicated and analysts should be encouraged to perform more rigorous qualitative information gathering before drawing firm conclusions.

VIII. Content and User Interface

For its initial release, the content and the user-interface of the performance dashboard is relatively easy for a 'data-user' audience to peruse and understand. In the future it is suggested that the assessment questions and their weighting could be reexamined and possibly simplified. A goal for such refinement would be making the most important information rise above other factors that, while useful, are not headliners for a data asset's maturity and needs.

It may be valuable to gather additional information describing the frequency with which datasets are expected to be updated, and, where possible, the update schedule. This may be useful to users but may also inform the organization and management of future LMA dashboard updates. Some NGDA layers are obviously static, such as the 2010 Census tabulation units (blocks, tracts, etc.), and do not deserve the same treatment as layers that should be in a constant state of update, like roads or federal land ownership and designations. Several layers may not be receiving the update attention that the broader user community needs. For example, zip code delivery areas and voting precincts may be needed outside of the Census Bureau, which produces them for each decennial period.

Further refinement of the performance dashboard user interface is suggested for future iterations. Suggestions for consideration include:

- Removing the requirement to login to geoplatform.gov before viewing the dashboard
- In addition to the formatted reports and the web-based dashboard, publishing the raw data as a single .csv or other machine-readable file may prove useful to data users, researchers, or other interested parties and would further align with open data initiatives
- Establishing a consistent URL-based approach for providing a cross links among the theme strategic plans, the Dataset Reports, the LMA results, the performance dashboard pages, and the NGDA metadata, to include permanent URLs for each layer's LMA
- Incorporating links to dataset requirement descriptions and QA process documents, when not available in the metadata

- Eliminating the popup chart window, or allowing it to access all results, across all questions/categories, at one click (or from a dedicated URL)
- Inclusion of short notes for each assessment score, that the dataset manager could use to explain their rating or what can be done in the future to make improvements
- Providing a mechanism that allows geoplatform users, once logged in, to provide feedback directly to the NGDA dataset managers with regard to dataset plans, maturity, and content
- Offering a short *YouTube*-style video that introduces the LMA and dashboard, as this would likely be of benefit to users of this information resource, as well as stakeholders and participants who supported the effort

IX. Recognition of Achievement to Date

Completing the inaugural Dataset Reports and LMA is a significant achievement that undoubtedly involved dedication and effort by hands-on dataset stewards, program managers, department-level GIOs, executive champions, and of course, coordination and facilitation by FGDC staff. Hopefully, the success of this project receives an appropriate level of recognition that will help position this initiative for a sustained future that builds on the current product, both in terms of content, but also in terms of the institutional adoption necessary to ensure efficient collection and publishing of future assessments, which will be critical for A-16 NGDA Portfolio management to be successful.

X. Conclusion

The initial Dataset reports provide an important baseline for the layer-specific lifecycle maturity assessment process. The reports also provide public-facing insight into NGDA layer maturity that can be viewed by citizens, professionals, and decision-makers. This is a solid step in the right direction toward implementing a portfolio management process that feels tangible and is relevant to stakeholders at all levels. Support for the staff who are critical in this effort needs to be maintained and integrated into agency workflows. Connecting data stewards and users in the geospatial community to portfolio management tools, that are openly published, should increase their engagement in the process and, therein, heighten the prospect of substantial returns from investment in geospatial data.

The LMA results and associated dashboard should be continued and refined in future years to best inform the overall management, operations, and resource allocation needed for the optimal ‘care and feeding’ of these critical national information assets. It is likely that the tools and processes developed for the NGDA, can serve as a model for non-spatial federal data assets, but also for data assets managed across other non-federal organizations.

This paper was approved at the June 2016 meeting of the NGAC. The paper was prepared by a subcommittee that included the following members: Mr. Bert Granberg (Chair), Ms. Amber Reynolds, Mr. Tony Spicci, Dr. Harvey Thorleifson, and Mr. Jason Warzinik.