
MEMORANDUM

Legislative Fiscal Office
900 Court St. NE, Room H-178
Salem, Oregon 97301
Phone 503-986-1828
FAX 503-373-7807

To: Joint Legislative Committee on Information Management and Technology
From: Sean McSpaden, Principal Legislative IT Analyst
John Terpening, Legislative Analyst
Date: February 26, 2016
Subject: DOGAMI - Information Technology Assessment - Budget Note Report
LFO Analysis and Recommendations

Agency Request: During the 2015 session, the Legislature adopted and attached a budget note to the Oregon Department of Geology and Mineral Industries (DOGAMI) budget bill - SB 5512 (2015). The budget note directed DOGAMI to work with the Office of the State Chief Information Officer (OSCIO) to conduct a comprehensive assessment of the agency's information technology related operations. The assessment was to include, but not be limited to, an evaluation of the following: IT organizational structure, policies and practices, management and staffing, funding and expenditures, and governance; inventory of current systems, hardware, software, data resources, and applications; business drivers and organizational mandates for information technology and data management; current operational and technical deficiencies and gaps; current, and any potential alternative methods, for data exchange and providing online access to data resources; operation and technical requirements for systems, data, and applications; and, requirements necessary for any recommended changes or enhancements to IT management, staffing, funding, policies, and practices.

A report on this comprehensive assessment was submitted as required to the Legislative Fiscal Office (LFO) and DOGAMI and OSCIO are scheduled to jointly present the assessment to the Joint Legislative Committee on Information Management and Technology (JLCIMT) and to the Joint Committee on Ways and Means during the 2016 legislative session.

The agency requests that the JLCIMT acknowledge receipt of the report.

A. LFO Analysis

DOGAMI has 42 full-time employees (11 are currently classified as Information Systems Specialists) responsible for providing earth science information and regulation. DOGAMI's Geological Survey and Services Program develops maps, reports, and data to help Oregon manage natural resources and prepare for natural hazards such as earthquakes, tsunamis, landslides, floods, volcanoes, coastal erosion, and climate change. The program relies on the acquisition, storage, management, analysis, and sharing of very large quantities of geographic information systems (GIS) data. Currently, this data describes and maps over two-thirds of Oregon's populated areas at a very high resolution. This data is used to produce a number of GIS-derived products that are electronically distributed to the public, private industry, and governments at the local, state, and federal levels. DOGAMI estimates that this GIS data is expected to grow from 123 terabytes (TB) today to nearly 300 TB by 2021. The individual file sizes that must be manipulated and electronically transferred both internally and externally are often in excess of 50 gigabytes (GB). OSCIO indicates that, compared to most state agency IT

operations, these are very large data sets and files. The organization, management, and distribution of GIS data should be considered the primary work and challenge of DOGAMI's IT operation.

DOGAMI's Mineral Land Regulation and Reclamation Program (MLRR) oversees the state's mineral production and works to minimize impacts of natural resource extraction and to maximize the opportunities for land reclamation. This DOGAMI program is tasked with licensing and regulating extractive industries in Oregon. The program uses many of the products derived from the Geological Survey and Services Program to do its work. The MLRR program also must maintain extensive licensing, inspection, and restoration records for the many hundreds of sites in Oregon. However, the MLRR program is still very much dependent on an outdated licensing/permitting system and on paper records. Transitioning to a modern licensing/permitting system and to digital record keeping will be one of the program's biggest challenges.

The DOGAMI IT assessment report conducted by OSCIO identified a variety of issues, concerns, and gaps that require near, medium, and long-term resolution related to:

- IT Governance, business structure, policies, practices, management and staffing, procurement, funding, and expenditures.
- Needed realignment of job classifications for 11 current Information Systems Specialist (ISS) positions that function as GIS specialists and were not hired to directly support DOGAMI IT infrastructure and systems into natural resource specialist or other appropriate classifications.
- Aging, highly customized, and out of warranty desktop/laptop computers, servers, network architecture, and adhoc software licensing practices.
- The need to replace and modernize the MLRR Program licensing/permitting system.
- LIDAR and geospatial data storage architecture and capacity.

Within the report, OSCIO recommends that DOGAMI:

- 1) Complete the reclassification of the 11 existing Information System Specialist positions into more appropriate classifications.
- 2) Request legislative authorization to hire two permanent Information Systems Specialist (ISS) positions to conduct planning, budgeting, policy, and process development as well as provide advanced IT and GIS operational support to the agency.
- 3) Request the support of the OSCIO and DAS Procurement to educate agency management and staff on general and IT related state purchasing and procurement rules, policies, procedures, and as well as products and services the agency has access to via state contracts or through the OSCIO Enterprise Technology Services unit.
- 4) Discontinue daily maintenance and running of hardware and software that are not directly required for agency mapping and geospatial data processing needs. This could come from a combination of outsourcing (third party/OSCIO) and partnering with other state entities or completely outsourcing the following services, including (but not limited to):
 - a) Email and messaging services.
 - b) Local and Wide Area (LAN/WAN) network management.
 - c) Development or off-the-shelf purchase of a modern MLRR licensing/permitting system.
 - d) Web services development and management, including file transfer services for DOGAMI geospatial data and website hosting.
 - e) Backup and disaster recovery services.
- 5) Develop a storage management and distribution architecture modeled on best practices for LIDAR data management.

- 6) Focus DOGAMI's IT operations on the agency's core business, the organization and processing of geospatial data. That plan should include (but not be limited to):
 - a) Building a virtualized server environment for those server functions not outsourced above.
 - b) Building a server environment around a flexible, expandable storage technology that can utilize deduplication technologies.
 - c) Housing this infrastructure in an alternative location (not the current DOGAMI location at the Portland State Office Building - PSOB) where providing 1GB or better throughput to the local network is cost effective and where proper security, HVAC, and power protection can be assured.
 - d) Provide connectivity to outsourced web services for distribution of agency data and map products.
- 7) Develop and present a plan and 2017-19 budget request to the Office of the State CIO, Governor, and Legislature for implementing these recommendations.

DOGAMI and OSCIO staff are currently in the process of jointly developing a tactical IT remediation plan designed to address and mitigate the highest priority issues found during the assessment. This tactical plan will include the migration of some services into OSCIO Enterprise Technology Services (e.g., email, storage, data backups and recovery, networking, server management, etc.) and increasing IT contract services support available to the agency for at least the near/medium term. DOGAMI and OSCIO indicate their desire to present the tactical plan to the JLCIMT and the Emergency Board during the May 2016 Legislative Days to request the additional funding, position authority, and/or expenditure limitation required to address the highest priority deficiencies identified within the report.

B. LFO Recommendations

The Legislative Fiscal Office (LFO) recommends that the Joint Legislative Committee on Information Management and Technology acknowledge receipt of the report. Further, LFO recommends that DOGAMI:

- Continue to work closely with and regularly provide progress status reports to OSCIO, the Department of Administrative Services (DAS) Chief Financial Office (CFO), and LFO.
- Partner with OSCIO to jointly develop and present the DOGAMI tactical IT remediation plan to the Joint Legislative Committee on Information Management and Technology and the Emergency Board during the May 2016 Legislative Days, including any requests for additional resources to carry out the plan.
- Develop and present a plan and a supporting 2017-19 budget request to OSCIO, the Governor, and the Legislature for implementing these recommendations as part of the 2017-19 biennial budget development process.

- Motion on the LFO recommendations