



## FISCAL IMPACT STATEMENT

<b>DATE SUBMITTED:</b>	<b>JUNE 28, 2018</b>
<b>NAME OF INITIATIVE:</b>	<b>ENTERPRISE DATA PLATFORM AND DATA WAREHOUSE – PHASE I</b>
<b>REGULATOR/BUSINESS SPONSOR:</b>	<b>INTERNAL ADMINISTRATION (EX1) SUBCOMMITTEE</b>
<b>NAIC STAFF SUPPORT:</b>	<b>SCOTT MORRIS, CHIEF TECHNOLOGY OFFICER</b>
<b>REQUESTED INITIATIVE START DATE:</b>	<b>AUGUST 6, 2018</b>
<b>ANTICIPATED COMPLETION DATE:</b>	<b>MARCH 31, 2019</b>
<b>TOTAL REVENUE EXPECTED (2018):</b>	<b>\$0</b>
<b>(2019):</b>	<b>\$0</b>
<b>TOTAL EXPENSE REQUESTED (2018):</b>	<b>\$226,323*</b>
<b>(2019):</b>	<b>\$100,554*</b>
<b>TOTAL CAPITAL REQUESTED (2018):</b>	<b>\$0</b>
<b>(2019):</b>	<b>\$0</b>

\*Expenses are net of cost share with NIPR.

### I. Executive Summary:

A significant element of the recently released *State Ahead* strategic plan, approved by the membership in 2018, is to optimize use of the data collected by the organization to benefit both regulators and consumers. To support this goal the NAIC plans to implement a central, standardized data storage location – an enterprise data platform containing an analytics data warehouse and business data catalog – to ensure consistency in the reporting, analysis, and application of security of the data collected by the NAIC and NIPR.

This fiscal outlines the initiative to design and build the necessary technical infrastructure and processes. An enterprise data catalog tool will be implemented to enable the data management framework of governance standards and policies delivered as part of the Enterprise Data Strategy, Governance, and Management project, which is presented as a separate fiscal for consideration. Together, the framework and platform will support *State Ahead* objectives regarding data, business intelligence, artificial intelligence, and predictive modeling. The fully populated platform, when completed in future projects, will enable better performance for complex analysis and improve the organization’s ability to assimilate and utilize data from external sources.

The Enterprise Data Platform will become the central point for data collection across all business areas, thereby requiring use of the new structure for their data. This platform will be the primary location for data analysis and synthesis. It will also fit in with the NAIC's plans to have a one-stop shop for accessing all NAIC data. Future phases will include adding additional data to the platform, integrating advanced analytics tools, creating data marts, and implementing the one-stop shop. The initial phases are intended to set a solid base with subsequent phases building additional capabilities.

Benefits to be gained by investing in this initiative include:

- *Enhanced analytics capabilities.* The data platform, once implemented and populated, will provide a centralized location for all of the association's collected data sets. Aggregation of the organization's data assets on a single platform will increase the quality and effectiveness of analysis and reporting by enabling external data to be combined with existing data from a variety of sources for more complex analysis.
- *Increased availability of information about data assets.* The business data catalog will contain documented attributes for all data sets with the ability to determine the origins of the data and track how the attributes have changed.
- *Increased Data Security.* Users will access a data mart adhering to NAIC security standards rather than directly accessing production databases to obtain data, thereby ensuring consistency in the application of security or metadata labels to assist users in identifying the definition or origin of the data.
- *Increased flexibility for production database structure.* Changes to production database structures often are not feasible since customers or consumers utilizing the data from NAIC and NIPR's applications currently rely on the database structure to remain stable. The enterprise data platform will provide managed, well-organized data marts which users will access to generate analytics instead of production databases. As a result, the production database structure can be modified as needed by applications without negatively impacting external users.

## **II. Key Deliverables:**

The key deliverables used to measure the success of this initiative include:

- Implement the enterprise data catalog tool to manage, catalog, and govern the metadata, that is, the set of data that describes and gives information about other data within the platform.
- Configure the tool with data management policies established by the Enterprise Data Strategy, Governance, and Management project.
- Train NAIC and NIPR technical and business staff on use of the enterprise data catalog tool.
- Deliver the final design of a centralized, standardized data platform with the ability to extract, transform, and load data from operational data stores, such as data from database applications, files, or documents, as they are populated.
- Implement automated processes to load and maintain data in the platform.
- Establish and document expectations, standards, and procedures for use of the data platform and data warehouse to guide the development of new applications and dashboards.
- Extract, transform, and load data tables supporting the Property/Casualty Credit Branded Risk portion of the Financial Profile to the platform, as a pilot.

- Deliver a platform roadmap based on the priorities identified within the data implementation roadmap created by the Enterprise Data Strategy, Governance, and Management project to support of future phases of the initiative.

### III. Financial and Organizational Impact:

The financial impact of this project is summarized below within two categories of expenses: computing and consulting.

#### A. Computing

Computing cost of \$50,000 is requested in 2018 to run the cloud-based data platform via Amazon Web Services (AWS). These run costs will continue and will be \$120,000 in 2019. The NAIC's portion of these costs will be \$37,710 in 2018 and \$90,504 in 2019; NIPR's portion of these costs will be \$12,290 in 2018 and \$29,496 in 2019.

#### B. Consulting

This fiscal requests consulting expertise, with a portion of the engagements to be cost-shared with NIPR. The NAIC's portion of these requests totals \$194,950 in 2018 and \$10,050 in 2019. NIPR's share of the consulting engagements is \$77,550 in 2018 and \$4,950 in 2019. In addition, a portion of the NAIC's staff augmentation consulting will be offset by \$6,337 in 2018 as a result of credits for the NAIC staff work charged to NIPR under the NAIC/NIPR Licenses and Services Agreement.

The consulting requests include:

- Staff augmentation consultant (NAIC-\$37,500 in 2018) to transition operational work for one NAIC database administrator in order to dedicate time to this initiative.
- Data Governance and Management specialists (NAIC-\$150,750 and NIPR-\$74,250 in 2018), with expertise in data governance best practices and the new Enterprise Data Catalog tool being implemented. This includes:
  - Workshops with data asset subject matter experts
  - Creation of data governance framework, including standards, policies, and procedures for data management
- Implementation services (NAIC-\$6,700 in 2018, NIPR-\$3,300 in 2018) to set up a beta environment to be used by regulators to create and test Tableau dashboards.
- Security Penetration testing (NAIC-\$10,050 in 2019, NIPR-\$4,950 in 2019) to reduce the vulnerability of security threats to the data platform and data warehouse.

See **Attachment I** for further financial details.

#### Business Area Impacts

- *Finance/Budgeting* – Business areas and Finance will have the ability to readily see the cost to operate the data platform and data warehouse in the Cloud.
- *Human Resources and People Managers* – new skills and roles will be required, staff will need to be trained, and organizational changes may be required to support new processes.
- *IT Security* – security will be established in the data warehouse to meet compliance rules and protect data, applications, and infrastructure for cloud computing.

- *IT Development and Operations* – new standards and procedures will be defined and communicated to development teams to set expectations for where and how data is stored.

#### **IV. Risk Management Plan:**

The NAIC has purchased the Enterprise Data Catalog module from Informatica. Additionally, there are other modules that support data governance, management, and quality. While this project will implement the module required to meet the deliverables outlined in this fiscal, additional modules may be identified as needed or desired at some point in the future as processes and policies become better defined. This risk is being minimized by implementing the strategy in phases, thereby providing the opportunity to assess needs without purchasing tools that may contain unnecessary functionality.

Inherent with the implementation and adoption of new technology are a number of other risks, as outlined below:

- AWS run costs may exceed estimates for the platform and amount of data that will be delivered within the scope of this fiscal. Future costs will be impacted by the implementation roadmap delivered in Phase I and on platform adoption. This risk will be managed by close monitoring of actual AWS run costs during this first phase and adjusting costs as necessary as future phases are initiated.
- There is a risk that operational and analytics data will not yield the same results. This risk will be mitigated by using technical and business data experts to thoroughly validate results as data is loaded to the platform.
- Adoption of new technology and capabilities by regulators may be slow, resulting in increased costs due to the need to maintain legacy systems for an extended period of time. This risk will be managed by the creation of an implementation roadmap that will prioritize and sequence the migration of data to the platform.
- Other initiatives and internal users may need to leverage the data platform being delivered by this project before the prototype has been completed, creating a risk that there may not be bandwidth to support all needs at the same time. This risk will be mitigated by creating an implementation roadmap for data migration to the platform based on business and member priorities.

#### **V. Security Impact:**

Personally identifiable information (PII) and other sensitive data will be loaded to the data platform and managed through the data governance program established as part of the Enterprise Data Strategy, Governance, and Management project. The data governance standards, policies, and procedures will be implemented in the Enterprise Data Catalog tool, significantly improving the handling of data sets by applying standardized processes and implementing the oversight of data stewardship. These additions will allow the organization to quickly and easily identify all data assets and asset attributes such as the existence of PII data elements and confidentiality requirements.

2018 Budget  
 Fiscal Impact Statement Project Cost Analysis  
 Project/Initiative: Enterprise Data Platform & Data Warehouse Phase I  
 Business Entity: NAIC

Description	2018 Budget Spread				2018 Total	2019 Budget	2020 Budget
	August	September	October	November			
<b>Total Revenues</b>	-	-	-	-	-	-	-
<b>A. Computing</b>							
AWS Computing Costs	10,000	10,000	10,000	10,000	10,000	120,000	120,000
NIPR Credit for AWS Computing Costs	(2,458)	(2,458)	(2,458)	(2,458)	(2,458)	(29,496)	(29,496)
	7,542	7,542	7,542	7,542	7,542	90,504	90,504
NAIC Net Cost for the AWS Computing Costs							
<b>B. Consulting</b>							
Enterprise Data Catalog Implementation consulting	-	60,000	60,000	60,000	45,000	225,000	
NIPR Credit for Enterprise Data Catalog Implementation	-	(19,800)	(19,800)	(19,800)	(14,850)	(74,250)	
NAIC Net Cost for the Enterprise Data Catalog Implementation consulting		40,200	40,200	40,200	30,150	150,750	
Professional Services - Tableau Beta Implementation	-	-	10,000	-	-	10,000	
NIPR Credit for Tableau Beta Implementation	-	-	(3,300)	-	-	(3,300)	
NAIC Net Cost for the Tableau Beta Implementation consulting		-	6,700	-	-	6,700	
Staff Augmentation consulting	18,750	18,750				37,500	
NIPR Credit for NAIC Staff Data Platform/Warehouse project resources	(2,867)	(3,470)				(6,337)	
NAIC Net Cost for the Staff Augmentation consulting	15,883	15,280				31,163	
Penetration Testing Consulting	-	-	-	-	-	15,000	
NIPR Credit for Penetration Testing Consulting	-	-	-	-	-	(4,950)	
NAIC Net Cost for the Penetration Testing consulting		-	-	-	-	10,050	
<b>Total Expenses</b>	<b>7,542</b>	<b>63,625</b>	<b>69,722</b>	<b>47,742</b>	<b>37,692</b>	<b>100,554</b>	<b>90,504</b>
<b>Revenues Over (Under) Expenses</b>	<b>(7,542)</b>	<b>(63,625)</b>	<b>(69,722)</b>	<b>(47,742)</b>	<b>(37,692)</b>	<b>(100,554)</b>	<b>(90,504)</b>