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Department of Defense  
OFFICE OF PREPUBLICATION AND SECURITY REVIEW

# DoD Response to NDAA 2017 Report 114-840: pp1125-1126

## Enhanced Use of Data Analytics to Improve Acquisition Program Outcomes

May 31, 2019

The estimated cost of this report or study for the Department of Defense is approximately \$306,455 in Fiscal Year 2019. This includes \$250,000 in expenses and \$56,455 in DoD labor

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# Background

**The conferees direct the Secretary of Defense, not later than 1 year after the date of the enactment of this Act, to brief the Armed Services Committees of the Senate and House of Representatives on the use of data analysis, measurement, and other evaluation-related methods in DOD acquisition programs.**

## **The briefing shall address:**

- The extent to which data analytics capabilities have been implemented within the military services, DOD laboratories, test centers, and Federally Funded Research and Development Centers (FFRDC) to provide technical support for acquisition program management;
- The potential to increase the use of analytical capabilities for acquisition programs and offices to improve acquisition outcomes;
- The amount of funding for intramural and extramural research and development activities to develop and implement data analytics capabilities in support of improved acquisition outcomes;
- Any potential improvements, based on private-sector best practices, in the efficiency of current data collection and analysis processes that could minimize collection and delivery of data by, from, and to government organizations;
- Steps being taken to appropriately expose acquisition data in an anonymized fashion to researchers and analysts;
- An assessment of whether the curriculum at the National Defense University (NDU), the Defense Acquisition University (DAU), and appropriate private-sector academic institutions includes appropriate courses on data analytics and other evaluation-related methods and their application to defense acquisitions.



# 1. To what extent have data analytics capabilities been implemented?

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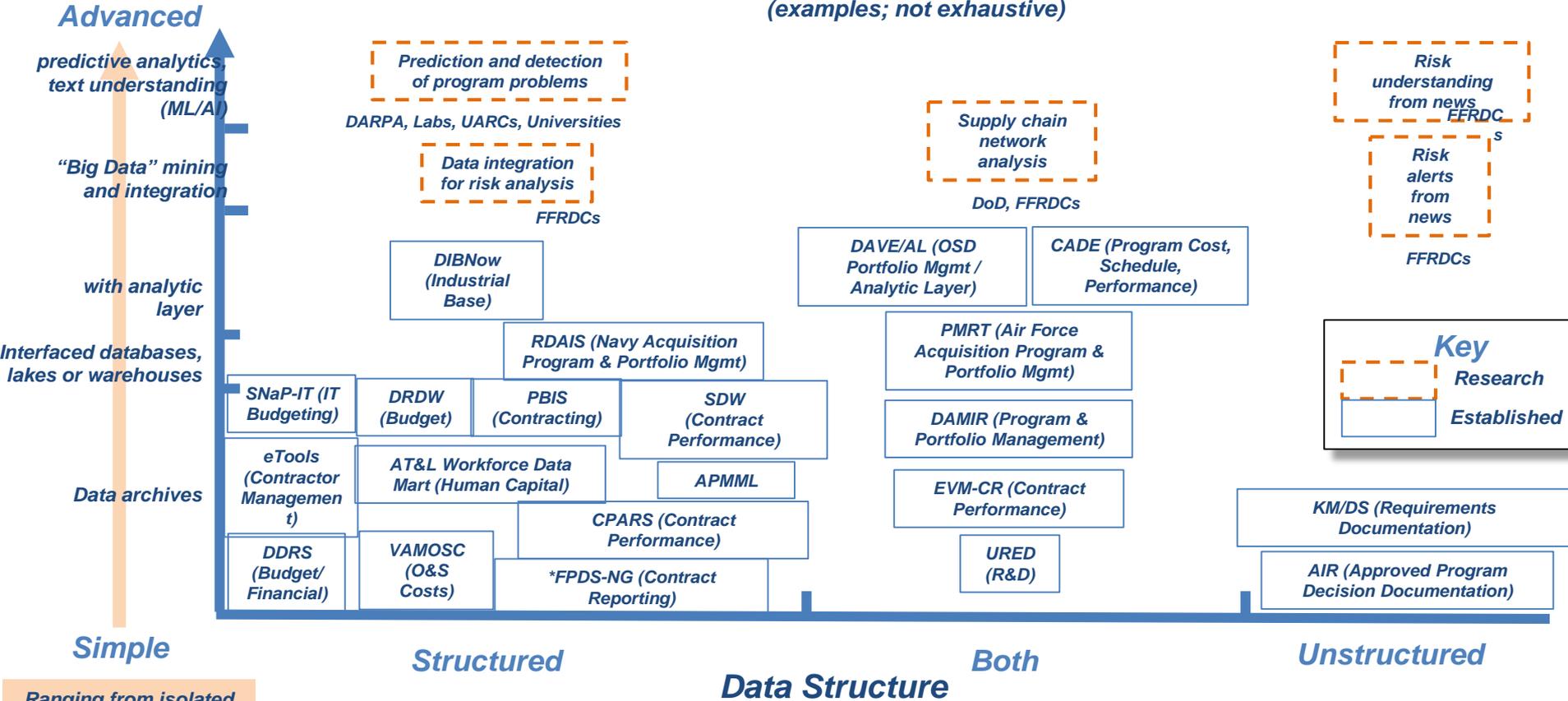
## **Findings:**

- DoD has implemented a wide variety of data analytics capabilities to support acquisition management as well as to improve acquisition outcomes.
  - Specifically military services currently use commercial of the shelf (COTS) as well as government of the shelf (GOTS) data management and business intelligence capabilities to manage its acquisition assets and continue to make strides to add industry standard data analytics capabilities as they are introduced to the market
  - DoD laboratories and test centers use modeling and simulation tools, industry standard statistical analytic tools, and DoD acquisition data stores in day to day operations
  - FFRDC's use the most up to date industry standard data analytic tools, have a robust staff of masters and Ph.D. level research analysts and data scientists, and have need-to-know-access to DoD acquisition data stores



# Current State of DoD Analytic Capabilities

## DoD Acquisition Business-Intelligence Analytic Capabilities (examples; not exhaustive)



Ranging from isolated databases to integrated analytics with data

Sources: DAVE (2019), RAND interpretation of “Data Opportunities” from DAVE, RAND (2017), and adapted from McKinsey Analytics (2018)

Notes: \*FPDS-NG is a GSA information system, but is heavily utilized in DoD acquisition, so we included it here. The presented systems are a sample of the total available to DoD’s workforce. We chose to present these information systems based on subject matter expertise and information from official documentation.



## 2. What is the potential to increase the use of analytic capabilities to improve acquisition outcomes?

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### **Findings:**

- Continually inform the acquisition community about the analytic tools and capabilities that are available to them via Office of the Under Secretary of Defense for Acquisition and Sustainment (OUSD)(A&S) and service websites, newsletters, town halls, and via enterprise email
- Periodically update analytic tool availability via the DoD Joint Service Provider and the use of virtual machines
- Establish a policy that all acquisition personnel shall be granted access to all acquisition data stores using a single Common Access Card (CAC) sign on authority



### 3. How much R&D funding is there to develop and implement analytic capabilities?

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#### **Findings:**

- 31 Research Development Test and Engineering (RDT&E) program elements (PEs) in the FY 2019 DoD budget request mention defense acquisition analytics
  - ~\$200 million, depending on extent within each PE
- ~ \$520 million/year are being requested for RDT&E on information technology systems (up from \$313 million Presidents Budget (PB) 18)
  - \$188 million for acquisition systems (PB19)
  - \$332 million for logistics and supply-chain management systems (PB19)



## 4. What private-sector best practices that could minimize collection and delivery of data by, from, and to government organizations?

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### **Findings:**

- Establish a data governance structure (DoD has implemented this)
- Designate a single authoritative source of each data and promote data sharing
- Use of application program interfaces as a data transfer medium between acquisition organizations internal and external to DoD
- Establish the minimum viable set of data elements required for DoD acquisition
- Emphasize that data are corporate-wide assets, not owned by local units



## 5. What steps are being taken to expose anonymized data to researchers and analysts?

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### **Findings:**

- Generally, the DoD is not anonymizing acquisition data for various reasons
- Challenges:
  - Anonymizing data is very difficult
  - Aggregating data can increase data sensitivity and classification



## 6. Do training institutions include appropriate courses on data analytics and other methods and their application to defense acquisitions?

### Findings:

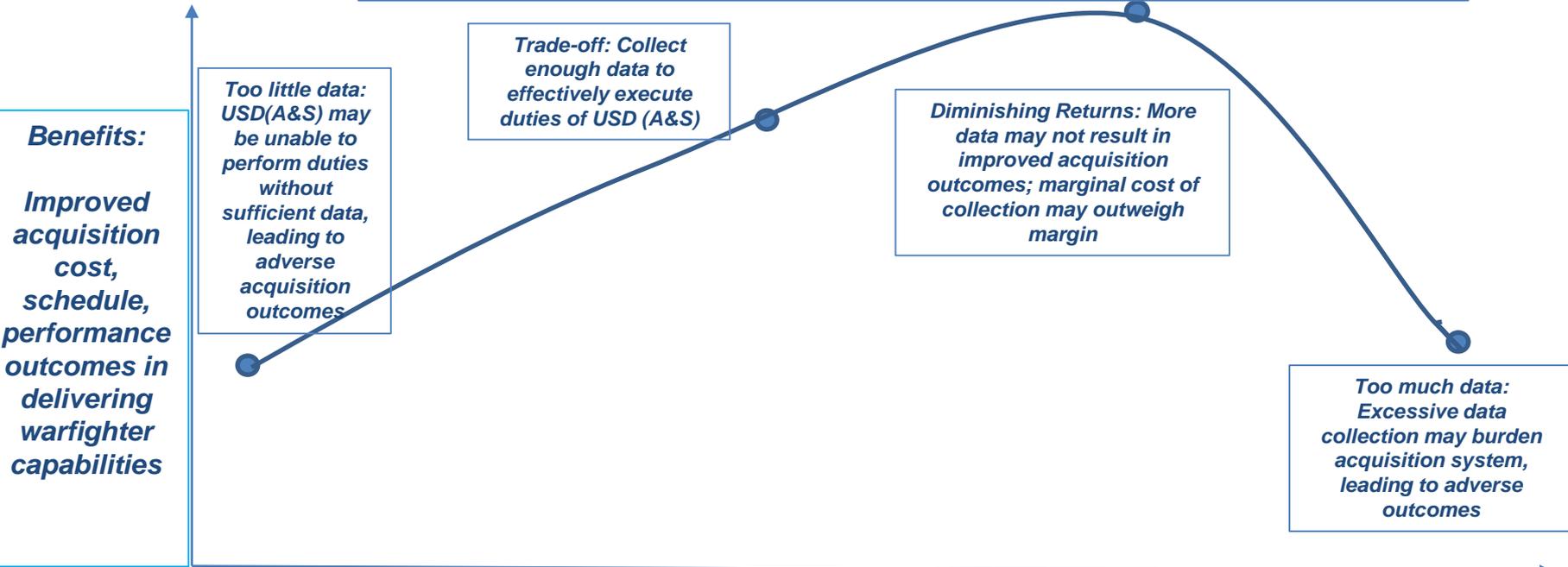
- Yes
- DAU
  - 71/504 (14.1%) DAU courses have some form of data analytics with application to acquisition
  - The remaining 433 (86%) courses offer other evaluation methods related to defense acquisition application
- NDU
  - 2 courses in data analytics and 5 courses in acquisition related topics
- Naval Postgraduate School (NPS)
  - Offers substantial courses in data analytics or other evaluation methods with application to defense acquisition
  - MBA's in Acquisition and Contract Management, Systems Acquisition Management
  - MS in Contract Management, Program Management, Cost Estimating and Analysis, Systems Engineering Analysis
  - Graduate Certificate in Data Science
- Air Force Institute of Technology (AFIT)
  - Offers substantial data analytics courses with applications to acquisition similar to NPS.
- Some private sector academic institutions include appropriate courses on data analytics and other evaluation methods and their application to defense acquisition\*

\* Georgia Tech, American University, George Mason University, Georgetown University, George Washington University, Johns Hopkins University, Stanford, University of Michigan, Google, IBM, and the DoD Cyber Crime Center (DC3) Cyber Training Academy



# Conceptual Framework: Minimum Viable Acquisition Data Set Requirement

*DoD intends to come to agreement on the minimum amount of acquisition data required to inform the update to the replacement Selected Acquisition Report to address NDAA FY18 SEC 1051 and our other reporting needs*



*Investment in Acquisition Data Collection, Management, Governance, etc. (Financial, Service Acquisition Executive/Program Executive Officer/Program Manager Time, etc.)*

*Benefits of data must be balanced against costs of data governance, management, security, collection, and storage*