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ENTERPRISE CHALLENGE: Information as an Asset - Data Analytics Inside the DON

CHALLENGE ISSUED:
03.26.2015

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DESCRIPTION OF NEED/PROBLEM

The United States Navy is a complex human-centric organization, which collects vast amounts of personnel-related data across a myriad of disconnected, manual and automated processes, with supporting IT systems that do not share information in timely and consistent ways.

In order to handle large, complex data sets of structured and unstructured data from over 40 databases in multiple systems a solution is needed that:

- Gathers, processes, analyzes, integrates, and disseminates data in real-time with the existing information technology sources in order to conduct higher level analytics
- Uses statistical methods and visualizations in order to clarify and explain data relationships and to discover previously unknown relationships among entities and events
- Provides modeling tools and offers a variety of choices of analysis algorithms on the structured and unstructured gathered data
- Provides decision support through predictive analysis which allows for timely decision making in response to changing conditions reflected in the gathered data
- Caters to a variety of end-users from the mid-level users to the executive level
- Is capable of protecting sensitive personal and medical information (e.g., Personally Identifiable Information (PII) and Health Insurance Portability and Accountability Act (HIPAA) protected information)

CONTRIBUTING FACTORS

The most prevailing factor behind the issue is the large amount of data collected by the U.S. Navy in disparate database systems. Each day the Navy collects roughly 100+ terabytes of data. Much of the collected data is subject to the DoD Information Assurance Certification and Accreditation Process (DIACAP) / Risk Management Framework cyber security requirements. Sailors' personal data must be safeguarded according to DoD Personally Identifiable Information (PII) standards and Health Insurance Portability and Accountability Act (HIPAA) standards. These requirements result in the need for the proposed solution to implement role-based user access.

The preferred solution will service a large population of potential users in the U.S. Navy (military and civilian) resulting in a large user base. This requires a business model that is affordable in terms of licensing and life-cycle support and maintenance. The solution is not anticipated to be a replacement for current capabilities but rather a tool within the Authoritative Data Environment that will work with existing and future systems/capabilities.

CAPABILITY GAPS AND IMPACT ON AFFECTED PARTIES

Currently there is limited capability within the U.S. Navy to conduct detailed data modeling, mining, and predictive analytics. An analytics capability must ingest large volumes of data, in various forms, and use statistical methods and visualizations in order to identify data relationships. This includes the ability to aggregate and apply various predictive modeling / analytical techniques to individual, operational, health, environmental, and other characteristic data on personnel.

These analyses are intended to develop relationship models, which will help inform leadership on taking proactive actions. An example is decision-making for retention and recruitment. Currently these decisions can be based on predictions regarding the force, while the Navy would like to add the ability to determine when and where to apply resources to reduce stress within at-risk personnel and their families. Such a capability is typical and implies use of new technologies to perform statistical analysis to derive cause-and-effect relationships. Data from these types of analyses will be presented in easy-to-read formats using various visualization techniques.

STAKEHOLDER IDENTIFICATION

Deputy Chief of Naval Operations for (DCNO) for Manpower, Personnel, Training, and Education (MPTE) (N1) made up of six major staff organizations responsible for policy, requirements, and resources.

Two ECH II commands (execution BSO 22): Navy Personnel Command (NPC) and Naval Education and Training Command (NETC), each with ECH III/IV commands and organized/ supporting seven major Lines of Business (LOBs) comprising:

- Recruiting and Accessions
- Personnel
- Distribution
- Position Management
- Workforce Development
- Fleet & Family Support
- Financial Management

Fleet organizations from N1s at the major staff level as well as Type Commanders (TYCOMS), groups, and individual operating units/squadrons.

Over 300,000 individual sailors.

REFERENCES

Data_flood, Helping the Navy Address the Rising Tide of Sensor Information
http://www.rand.org/content/dam/rand/pubs/research_reports/RR300/RR315/RAND_RR315.pdf

How do we Deal with a Flood of Data
http://futureforce.navylive.dodlive.mil/2014/06/how-do-we-deal-with-a-flood-of-data/
https://www.youtube.com/watch?v=vhwdaI9YYd8&authuser=1

PII Standards
http://www.doncio.navy.mil
http://www.gsa.gov/portal/content/104256

Cyber Security
Most DOD IA standards can be found at: http://iase.disa.mil
www.dtic.mil/whs/directives/corres/pdf/851001_2014.pdf

ODAA's website (CAC only)
https://usff.portal.navy.mil/sites/fcc-c10f/odaa/default.aspx

Department of Navy Issuances (Directives, Manuals, ..)
http://doni.daps.dla.mil/default.aspx

Health Insurance Portability and Accountability Act (HIPAA)
www.hipaa.com

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TO RESPOND TO THIS ENTERPRISE CHALLENGE

1. Go to **www.public.navy.mil/spawar/PEOEIS/InnovationCell**
2. Download and complete the **"Respond to an Enterprise Challenge" pdf form,** then submit it via email to **PEOEISInnovationCell@navy.mil**