Predictive Analytics and Tableau Empower the Naval Dealfighter

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Agenda

Who is DASN(AP) eBusiness?
What we've done with tableau
How it has propelled us to meet mission
Why and how we use predictive analytics
About DASN(AP)
eBusiness Policy
Mission:
The DASN(AP) eBusiness Policy and Oversight (eBPO) Division acts as a trusted agent to ensure the current and future success of the Department of the Navy’s (DoN’s) eBusiness environment by applying an optimal balance of insight and oversight to the DoN’s acquisition & procurement functions and supporting business systems.

Business Analytics Vision:
DASN(AP) eBPO will achieve a sustainable and adaptable data-driven environment capable of capturing information at the source, exchanging with systems and stakeholders electronically, and facilitating data-driven decision-making at local and leadership levels within a compliant and auditable design.
A complex and varied environment supports the Navy’s business mission

DoD is unique from a commercial business as we must comply with laws and regulations dictating how we conduct business and the stakeholders with whom we must share data. The federated nature of the Agency further drives complexity with a diverse set of internal DoD data sources and trading partners and a plethora of Federal and Public partners…
The DOD business system environment....
The environment is complicated to manage and even more complicated to expose data in a meaningful way …
DASN(AP) Data Demands…

- What are our total obligations?
- Are we complying with policy? With whom do we contract? Total Obligations
- How much are we spending on service contracts?
- Policy Compliance
- Competition Goals
- Secretary of the Navy Manual Contracts
- What portion of our contracts are manual? Expenditure What are we buying
- Data Transmission In what formats are we sending data?
- Service Contracts Are we complying with data standards?
- Deputy Assistant Secretary of the Navy Purchases
- Department of Defense Assistant Secretary of the Navy
- Head of Contracting Offices Is our electronic data flowing?
- Electronic Contract Data Formats Electronic Payment
- Data Standard Compliance Are we meeting small business goals?
- Are we meeting competition goals?
- What portion of our payments are electronic?
- How much have we spent so far?
- Small Business Goals Vendor Contracts
Individual flat tables were generated in/ received from each system.

Common data fields for selected reports were standardized and the data was flattened and combined into a single Excel tables for reporting.

The report had to be regenerated every time the data changed and the volume of data became more than Excel could handle.

Additional, calculated fields were added to the data.

Response time to report requests ranged from 1 to 2 days for predefined and 4-5 days for ad hoc reports depending on the volume, number of sources, and complexity of the report.
Individual reports are automatically generated in or received via API from each system, in most cases.

Standard Postgre Database tables are automatically loaded and updated as new data is received.

Tableau Server accesses the database tables to update standard dashboards and generate ad hoc dashboards.

Dashboards are interactive and allow for dynamic drilling and data analysis/decision making.

Response time has been reduced to minutes from days.
We aggregate data across multiple disparate data sources to generate actionable executive dashboards aiding in high-level analysis and decision making.

These dashboard will be demo’ed to showcase how the interactive nature of Tableau enables us to quickly navigate and drill into our data for executive consumption.
Transactional Dashboards

- Our aggregated dashboards rely on timely and quality data to feed the decision makers; Law requires our data be accurate, complete, and shared in compliance with regulation.

- This requires us to not only aggregate the data for executive reporting, but to monitor the health of data flow and gates to ensure the data is getting where it needs to go operationally.
Humans are No longer Smarter than Machines

A human eye can identify patterns that are anomalous just by looking at these graphs. But sometimes the shifts are not as obviously drawn out and continuous human monitoring of the channels is not feasible.
Predictive Analytics Allows for Proactive Analysis

We iteratively generate an algorithm using historic transaction information that can mimic the analysis we are able to perform manually and proactively alert the requisite POCs when something looks awry based on expectations.
Today we use Knime to Accomplish this Analysis

→ Knime algorithms “listen” to the data Flows and proactively generate .tbe files illuminating anomalous activity. Tableau server then distributes the anomaly reports supplemented by additional descriptive detail and dashboards.
This is Part of our Larger Adaptive Acquisition Data Framework

This is where Tableau has been a true differentiator allowing for consumable visualization of the underlying data and analytics.
Thank you!
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