

DCAA Operations Technical Services Data Analytics

April 11, 2024

Topics

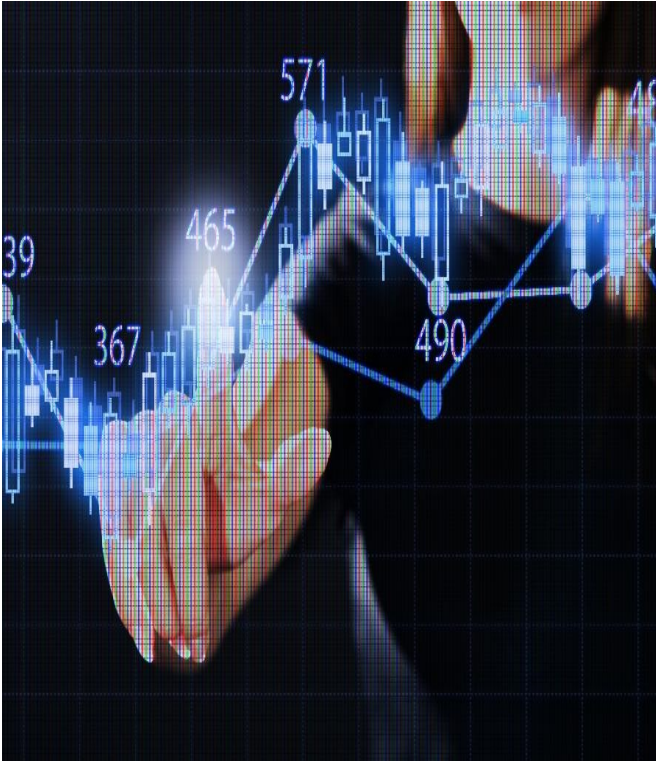
- DCAA OTS Organization
- Data Analytics Branch
- Success Stories

OTS Mission

Operations Technical Services (OTS) provides high level technical support to field audit offices and the DCAA Headquarter Directorate in three primary areas:

- Data Analytics
- Quantitative Methods
- Contractor Compensation

What is Data Analytics?



- Data Analytics are defined in the AICPA Guide to Audit Data Analytics as the “science and art of discovering and analyzing patterns, identifying anomalies, and extracting other useful information in data underlying or related to the subject matter of an audit through analysis, modeling, and visualization for the purpose of planning or performing the audit.”
- Data Analytics is the science of examining raw data with the purpose of drawing conclusions about that information.

Data Analytics Branch

- Staffed by Data Analytics Technical Specialists (DATS) and Operations Research Analysts
- Provide complex data analytic procedure guidance
- Develop models to monitor and/or evaluate contractor data/assertions
- Exchange, transform, and load (ETL) complex contractor data for analysis

Examples of Power BI Models at DCAA

- Bill of Material (BOM) Unit pricing analysis – compares proposed BOM to historical Purchase Order History
- Data Prep & Profile – will remove zeros out and low dollar transactions from data set
- Materiality Threshold – will identify accounts subject to audit using the Materiality Threshold framework
- Indirect Trend analysis – specifically designed for incurred cost audits
- Provisional Billing Rate – designed to address the steps in the audit program
- Floorcheck Reconciliation – reconciles interview, timesheet and labor distribution data

Success Story #1 – The Challenge

- Proposal Audit – Direct Material
- Very large proposal for the procurement of vehicles
- Complex Bill of Materials (BOM)
 - Approximately 40 BOMs divided thru 5 workbooks that were all over 100MB in size
 - The BOMs had thousands of formulas and circular routing to find actual source information
 - Difficult to open each individual file, much less to perform meaningful audit procedures
 - Risk identified – Non-Application of quantity discounts across the BOMs, Other assumptions

Success Story #1 – What we did

- Developed a baseline understanding of the IPO
 - Input – Material prices, quantity and escalation
 - Process – Formulas
 - Output – BOMs
- Used Power Query in Microsoft Excel by loading the Inputs and Performed our own Processing, which mirrored the contractor's output
- Compared our processing to the proposed BOMs

Success Story #1 – Outcome

- Recalculation showed the contractor did not consistently follow the formulas, which was not disclosed
- We were able to perform greater analysis with data in this format
 - Recalculated the BOMs with quantity discounts by the timeframe
 - Used as support for an Estimating System Deficiency

Success Story #2 – The Challenge

- Incurred Cost – Depreciation Account
- Midsize Contractor
- Mix of Gov't and non-Gov't work
- Large increase (\$XM) in Depreciation Account from previous years
 - Depreciation is an accounting practice used to spread the cost of a tangible or physical asset over its useful life.

Success Story #2 – What we did

- We analyzed the depreciation data, noted a recurring date “3/5/20XX” in the data
- Discussed with the contractor, specifically this date, found the contractor changed ownership on this date
 - Per GAAP a complete revaluation of all assets to market value was done
- This practice is compliant with GAAP, but not FAR/CAS
- Performed a recalculation of depreciation by grouping the assets and creating an expectation for normal depreciation

Success Story #2 – Outcome

- Significant questioned costs, agreed to by contractor
- Contractor agreed to change basis of estimate
- CAS noncompliance identified
- Approximately \$XM Questioned Cost

Success Story #3 – The Challenge

- Proposal Audit – Direct Material
- Significant number of “low dollar” materials
- Sale of aircraft
- Two Proposals, performed back-to-back
- Recently completed contract

Success Story #3 – What we did

- Auditors used the “BOM Model” to compare the unit prices from the BOM to the contractors Purchase Order History
 - Contractor provides purchase order history by part from previous purchases
- This technique quickly gives a great insight into the risk for each individual part number

Success Story #3 – Outcome

- This risk-based approach lets us pinpoint specific parts
- Resulted in significant questioned costs
- Contractor resubmitted BOM with lower unit prices due to audit procedures

Questions?