Case Study

COMBATING FRAUD, WASTE AND ABUSE USING AI

The U.S. Department of Health and Human Services, Office of Inspector General (HHS OIG) is the largest grant-making organization in the federal government with a mission to protect the health of all Americans and to provide essential human services. To live this mission, HHS OIG has a grants analytics portal (GAP), developed by the Office of the Chief Data Officer (OCDO), which brings several grants data sets together and leverages artificial intelligence (AI) to bring the most useful data forward to identify common and irregular patterns that indicate possible cases of fraud.

Agency Challenges

HHS OIG had to overcome multiple challenges to introduce more automation and AI to support fraud analytics.

- Grant fraud
- Grantee funds mismanagement
- Inefficient use of auditor's time aggregating disparate data sets
- Long processing times
- Data acquisition and access
- Large volume of data
- Dependence on tips and known bad actors to identify new fraud schemes
- Inconsistent data interpretation

Solution

To solve the challenges that HHS OIG was experiencing, Excella proposed an innovative analytics tool to modernize how people, process, and technology support results-oriented accountability for grants. The Grants Analytics Portal (GAP) solution was built in close collaboration with the OIG to provide faster and easier access to key data for the OIG auditors and investigators, transforming a mostly manual and time-consuming process into an automated, interactive dashboard that highlights areas for immediate action.

Making Grants Audit Data More Accessible

The GAP proactively surfaces important information from independent third-party audits of grantees as required by OMB Circular A-133. These audits are rigorous and thorough, but the primary end-product of these audits is a narrative in a text-based (PDF) document. There is a vast amount of unstructured data that defies easy aggregation, analysis, and comparison using traditional analytics methods. The GAP turns the A-133 single audit reports into machine readable text. Rather than reading through more than 30,000 documents a year, OIG staff has a database they can query which reduces hours spent manually searching for information. OIG has also used text data to mine key grant documents for identifiers that can be used to link several different data sets together much faster than manually pairing related data.

Using Neural Networks to Combat Fraud

The A-133 single audits contain key audit findings related to the internal controls of certain grant recipients, however, not all the pages of the A-133 single audit contain "findings." The GAP uses a neural network model to determine which pages in the A-133 single audit report are findings pages, which helps to identify the most important pages of that report for OIG staff. Once the audit findings pages are identified, text analytics techniques distinguish findings that aren't required to be reported on the structured data forms. Those findings are primarily financial findings about an organization's internal controls, which are very useful for OIG staff to better understand a grant recipient organization.

The AI model seeks key information in the text of the audit results and recognizes patterns that are irregular or are known to indicate the presence of risk or fraud. These tailored results are then presented to users. Now, instead of only having a large list of grantees and their associated audit reports, an OIG staff member can see a list of the grants with a likelihood of fraud alongside how many indicators of fraudulent or risky behaviors the audits discovered. This means the OIG can more effectively make informed decisions on which grantees need further examination including, investing in a formal agency investigation.

Applying Machine Learning to Reduce Fraud, Waste, and Abuse

Now, the OIG has a standardized approach and view of the synthesized data reducing processing time and eliminating the dependency on others. Through the centralization of grants data and the identification of key data and patterns using machine learning models, the OCDO has revolutionized how auditors and investigators serve in the OIG, review the approximately 40,000 annual audits, (containing anywhere from 20 to 200 pages), and more effectively and efficiently identify useful information.

The GAP radically changed the ability of HHS OIG to oversee grant monies given to external third parties by the US Department of Health and Human Services (HHS). The GAP equips HHS OIG operatives to reduce waste, fraud, and abuse in HHS grants by providing an aggregated view of all grantees and executing proactive analytics to flag high risk or potentially fraudulent behaviors. GAP enables OIG operatives to more effectively target bad actors and increase the efficiency of ongoing audits, investigations, and evaluations.

Results

- Significant increase in the number of A-133 audit report findings individually reviewed for risk and fraud annually
- Equipped 1,600 HHS OIG employees with additional tools to reduce fraud, waste and abuse in the HHS system
- Streamlined the audit reporting, evaluations, and investigations process that supports the oversight of $494 billion in grants to 21,000 recipients annually
- Transformed the grant oversight structure, combining information about the grantee from several disparate government databases into a singular, detailed grantee profile
- Reduced dependence on tips and known bad actors to identify new fraud schemes