



The Computerworld Honors Program

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STATUS:
Laureate

Organization:

Los Angeles County Department of Public Social Services (DPSS) and Chief Executive Office Service Integration Branch (CEO-SIB)

Organization URL:

<http://www.ladpss.org/>
<http://ceo.lacounty.gov/SIB/>

Project Name:

Los Angeles County Data Mining Solution for Child Care Welfare Fraud Detection

What social/humanitarian issue was the project designed to address? What specific metrics did you use to measure the project's success?

Los Angeles County has faced an increase in fraud related to the California Work Opportunity and Responsibility to Kids (CalWORKs) Stage 1 Child Care Program. In many cases, organized fraud rings perpetrate the fraud. The county provides financial assistance and employment services to families with minor children who have income and property below certain state limits. LA County is using analytics to insure that the families truly in need are the ones receiving benefits. Fraud not only reduces the money available to those in need, it hurts public confidence in a vital program. L.A. County is fighting fraud, enhancing investigations and preventing improper payments to those who would take advantage of the system. By doing so, they help the most vulnerable members of the community, save millions in taxpayer dollars and restore faith in the system. The first metric was the completion of a successful data mining pilot related to the detection and prevention of public assistance fraud. The pilot achieved an 85 percent accuracy rate in detecting collusive fraud rings. Estimates of cost avoidance were calculated in three areas, totaling \$6.8 million: (1) new fraud referrals, resulting in an annual gross cost avoidance of at least \$2.2 million; (2) early detection of fraud, resulting in avoidance of \$1.6 million; (3) increased efficiency, resulting in avoidance of \$3 million. Additional ongoing metrics include: early detection of suspicious cases; early detection of suspicious child care providers; detection of previously unknown suspicious participants; detection of previously unknown suspicious child care

providers; early fraud detection; increased efficiencies in investigation process; detection of colluding behavior; improved inter-agency collaboration.

Please describe the technologies used and how those technologies were deployed in an innovative way. Also, please include any technical or other challenges that were overcome for the successful implementation of the project.

Using predictive models and peer group analysis to detect behavioral anomalies in the utilization of child care services, fraud risk scores were developed to decrease the number of false positive cases assigned to investigators. Staff prioritized their work to focus on cases with a high level of suspicion by ranking cases assigned to them by this unique score. The system analyzes social networks to detect if individuals are likely to commit fraud, based on a fraud risk score. Social network analysis also supports the identification of collusive fraud rings as well as adding companion cases to ongoing investigations. L.A. The county uses the SAS Fraud Framework for Government and incorporates SAS data mining technology with social network analysis, predictive analysis, rules management and forecasting techniques. SAS Business Intelligence has been used to generate an information portal and reports to monitor and share information on fraudulent cases. During development and implementation, the extensive coordination and collaboration among the numerous DPSS sections, CEO-SIB and SAS was a challenge as the project had many technical, program and operational aspects. Now, the challenges include the need to add more data sources, and the system is so effective it has substantially increased the workload for investigators.

Please list the specific humanitarian benefits the project has yielded so far.

The humanitarian benefits come when the families that need help most receive it, instead of fraudsters. The successes and benefits below are helping to make that happen. System alerts have led to fraud referrals that would not have been identified without the technology. In its first eight months of operation, the system has produced 169 additional referrals for child care fraud investigations; 125 from front-end Triage review, plus an additional 44 referrals initiated directly by investigators upon review of other active investigations. Additionally, another 57 non-child care related referrals were initiated as a direct result of Triage review. The deployment of predictive models has allowed Department of Public Social Services Welfare Fraud Prevention and Investigations (WFP&I) staff to identify and expedite the review of suspicious cases much earlier than waiting on referrals from contracted Child Care Alternative Payment Program agencies or other referral sources. Additionally, using the social network analysis functionality, WFP&I uncovered two conspiracy groups consisting of 16 cases much earlier, thereby significantly reducing the duration of fraudulent activities. By identifying cases that match historical patterns of fraudulent activity, fraud investigators can focus on cases with a higher probability of fraud. Consequently, improved efficiencies in the investigative process have been achieved, since fraud investigators have more time to devote to the review of these high-risk cases. The project has facilitated collaboration between DPSS and the District Attorney's (DA) Office. Representatives from the DA's Office have concluded that the technology is highly useful in identifying child care fraud and expediting the transfer of major fraud cases from DPSS to the DA's Office.

Please provide the best example of how the project has benefited a specific individual, enterprise or organization. Feel free to include personal quotes from individuals who have directly benefited from the work.

L.A. County established a network consisting of participant and provider nodes and illustrated their relationships. They looked at whether this small network fit into the larger scheme of networks, in which participants are in collusion with other child care providers. With the technology, they identified strong central nodes, and in one case had a child care provider

servicing many nodes of participants engaging in collusion activities. The investigation is currently being conducted on six separate conspiracy allegations that were a direct result of data mining review by investigative staff. The aspect of the network that proved most value for fraud investigators was the social relationship network display (Appendix 2). This display shows a web of complex relations linked, for example, by common telephone numbers and addresses. Instant access to this network of child care recipients and child care providers has saved fraud investigators innumerable hours of casework preparation. "It would take me months or years to uncover all of the relations shown in DMS," said one investigator. "On one of my cases, with a single click of my mouse, DMS provided leads to additional evidence which would have otherwise taken weeks, possibly months to uncover. This included evidence such as address, and name of potential unreported employer and a second potential residence address. DMS also showed a connection between my suspect and two other suspects on two other cases." Also, one investigator, who was nearing the conclusion of a 10-person conspiracy investigation, ran the main suspect's name through DMS Social Network and discovered seven potential additional co-conspirators that she would not have discovered otherwise.