Avoiding Injury

NASA's new software system neatly handles safety, health and security data.
By Beth Dickey

In 15 months from 2003 to 2005, the number of workplace incidents reported at NASA facilities nationwide rose nearly 1,700 percent. An epidemic of sudden clumsiness was not the reason for the spike in accidents and close calls. It happened when the space agency switched from 33 separate safety information databases that languished on desktop computers to a single one that thrives on the Internet.

"If you have a browser, you can run it. That's the beauty of the whole thing," says Nathan Giles, president and CEO of Efficient Enterprise Engineering Inc., an up-and-coming Tempe, Ariz., firm doing business as Ex3. The sharable storehouse for safety statistics was the brainchild of Giles. He was an independent consultant in 1994 when he wrote software that helped Intel Corp. fulfill its obligations to the Occupational Safety and Health Administration.

Within five years, the semiconductor giant had a $25 million reduction in workers' compensation costs and Giles had a new corporation, created specifically to do continued business with Intel. "We were so successful with the system that it expanded, expanded and expanded until we crossed all the environmental, health, safety and security, and productivity lines," Giles says. Intel won the National Safety Council's Green Cross for Safety Medal, and Giles parlayed the industry buzz about Ex3 into a government contract to do the same kind of thing for NASA.

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Increase in workplace incident reports after NASA installed its safety information database

$9 million

Estimated annual outlay to run previous databases

$3 million

Cost of implementing new system and training

The system, run on SQL or Oracle servers, consists of more than 30 integrated modules designed to handle every aspect of an organization's safety, health and security concerns. Only trained data entry specialists could use NASA's legacy system. Anyone familiar with Microsoft Office will know how to use Ex3's product. Data are entered just once. The information can be shared immediately across an organization on a need-to-know basis. It saves the cost of redundant databases and enhances data retrieval. It also makes quick work of the reports agencies are required to file periodically with OSHA.

NASA ran its old Incident Reporting Information System, or IRIS, on a clumsy mainframe. Only a few people at each of the agency's 10 field centers knew how to use it, and the likelihood of it breaking down during the initiation of a report was high. Each field center had its own method for tracking data. There was little participation in the collection of safety records, and NASA headquarters in Washington had little insight into the safety status. That was the impetus for the agency's search for newer technology that transcended organizational silos to upgrade and improve IRIS.

Knowledge is power, after all. "With safety, the more people you have involved in the process, the better job you do," says Giles. Now, for the first time, agency managers have a single place to go for an instant analysis of their safety situation. Lost-day case rates and other performance measures can be reported in

seconds at the centers, within organizations, or across the agency. Contractor safety performance

information also is available at a moment's notice. Having all this information at the proverbial fingertips can help the agency strengthen its prevention programs, because it can track accident trends and save money on workers' compensation claims.

NASA is the first federal agency to adopt the Web-based system for safety reporting. The system consolidated dozens of databases from 13 NASA facilities into a single user-friendly system for a fraction of the $9 million a year outlay Ex3 estimates the agency originally had. Initial implementation of the Web-based enhancement cost $1.5 million. Training and expanded functionality cost another $1.5 million.

Ex3 recently won a five-year contract renewal worth $5 million to $8 million and shared in a NASA Group Achievement Award. "Our ultimate goal was to establish and maintain a comprehensive mishap repository and data collection system for NASA that is efficient and can be used by safety managers for mishap analysis and prevention, and we believe we are seeing the positive outcomes we expected," says Jim Lloyd, NASA's deputy chief of safety and mission assurance.

NASA is the company's first agency-wide implementation. Ex3's other government users are Los Alamos National Laboratory in New Mexico and the Hanford Spent Nuclear Fuel Project in Idaho. Last year, Hanford contractor Fluor Hanford Inc. reported an 87 percent reduction in injuries since 1996. It caught the attention of Pentagon officials who, in pursuit of a 50 percent to 60 percent reduction in workplace accidents, visited Hanford in Richland, Wash., to find out what makes its safety programs such a success. Ex3 also lists the Air Force, Army, Marines and Navy among its clients for Web-based hazard assessment and risk management training.

The experience at NASA convinced Giles that he could market to federal agencies with just as much need but much less money to invest. He set up a clearinghouse approach in which several agencies pay several hundred thousand dollars each to use the same database. They cannot see each other's data without permission. They get the same benefits as a large agency for a fraction of the cost. The Small Business Administration is the first to budget for and procure the service.

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