Solving the Dilemma

for Environment, Health, Safety, Security & Productivity Data Management

When used in conjunction with a corporate *injury-Free* or *zero-incident* philosophy, a successful implementation of an environment, health, safety, security and productivity data management system has proven to be the most effective tool for proactive reduction of accidents, injuries, lost days, and related expenses. Comprehensive data recording and reporting of issues related to health and safety throughout your organization is now easy through web-based access. Enterprise-wide access to current information increases management's ability to make informed and timely decisions while effective action assignment tracking and reporting increases accountability for health and safety of your staff.

Ex3®

Abstract

No industry is immune to data management failures. Whether its health care, financial services or consumer products, all industries pay dearly for failed, incorrect or outdated data collection and management. Errors can cost a company millions of dollars, cause employee dissatisfaction and result in bad decision-making by management.

While many companies and government organizations have taken great steps to implement effective master data management in some business areas, many are still dependant on excel spreadsheets and home-grown systems to maintain critical data related to environment, health, safety and security of their employees. The use of spreadsheets has proven to lead to inaccurate or incomplete data limiting management capability to make accurate and timely decisions. The spreadsheets tend to be outdated and time-consuming. Even more important, they often miss information necessary to track and maintain incident and action request for future prevention.

Additionally, development of home-grown systems within an enterprise creates an information architecture that exists in silos across the organization. Although each separate unit may be fully operational and competent by itself, in many organizations the disparate systems don't interact with others. The lack of interaction, therefore, leads to duplicate or outdated information which again adds to the improbability that one system or another reflects current and accurate data.

The bottom line is that the organization's healthy business environment is created as an end result of the data it has successfully supported. Whether this data is safe-keeping of its customers' social security numbers or an employees accurate medical records or OSHA-compliant safety reports, an effective data management system enables the enterprise to develop a strong and valuable data governance program. An enterprise-wide data management program will ultimately enable the organization to have an accurate and well-integrated use of the data to help drive its productivity, profitability and business success.

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1 Environment, Health, Safety, Security & Productivity Data Management

Data management across a global enterprise goes well beyond the ability of its separate business units to collect data for access at a future date. Of course, a key goal of data management is the ability to automate the time consuming and redundant data entry challenges. However, the bigger challenge lies in consolidating the data within a system that allows for a centralized access point to provide the opportunities for key management to gain better perspective of how the organization is performing and be better prepared for planning and strategizing.

The challenges of data management is further exasperated while working with environmental, health, safety and security data. The nature of this data is such that each division within an organization has over its lifetime developed separate ways of collecting and accessing the data. The safety system rarely speak to the security system and the industrial hygiene group seldom benefit from plethora of information accessible to the medical group.

Then there are challenges associated with cultures and languages across a global enterprise. Even if the data is translated accurately, is it real-time? Has there been an update since the office in the US closed for the evening and the office in Asia started the day? What about the cultural differences that create unique challenges? Is the data somehow lost in translation?

Even more critical, there's always the unexpected. How would the spreadsheets survive in flooding or hurricane? Does the organization have the capacity to safe-guard the data against natural or economic disasters such as earthquake or unforeseen acts of terrorism?

In recent years, many organizations have taken great steps in implementing effective data management systems in some business areas. However, many have stalled on a solid Environmental, Health & Safety Data Management System (EHSDMS) mainly because the financial benefits of a new initiative has been obscure. The immediate return on investment is not always as apparent in an EHSDMS when compared to a new sales and marketing system (for example) which is revenue-generating. However, the two business case studies that are outlined below have proven the greatest ROI in implementing and using an EHSDMS with the help of Efficient Enterprise Engineering d/b/a Ex3, based out of Tempe, Arizona.

Both cases clearly define the many benefits that each organization experienced not just in terms of financial profitability -- but also in employee productivity and accountability.

Process-Driven Approach

For an data management system to work effectively within an enterprise, it is essential to first understand the specific requirements of the current business process. Clearly defined and consistent business process at the very foundation of the project has proven to be the key to the success of all projects. Automated systems rely on consistency. It is impossible to automate chaos. The Ex3 approach to implementing a EHSDMS begins with a Business Process Analysis phase (BPA) with an extensive effort to gain an in-depth understanding of the current processes, systems, personnel environment, and goals of the customer organization.

Understanding the current process along with understanding the desired goal helps your organization to determine the level of process re-engineering required for success. Understanding your current systems defines what data is available in support of your ultimate goal and any changes required to achieve that goal. Understanding the personnel environment defines a picture of the dedication, willingness, and support of the organization from the top management levels on down. It is critical that each of these pieces fit together. If your organization has high goals but a data poor environment, then the level of support and buy-in required from management and end-users becomes even more critical to the success of the project.

The process-driven approach identifies the organization's challenges early on for a successful project management control and implementation.

Enterprise-wide & Web-based Solution

Your organization can now leverage the power, speed, and accessibility of the Internet to solve the dilemma for an effective data management system.

Instead of building an infrastructure to support an enterprise-wide software solution, you can use your existing Internet connection to distribute a data management system and provide a single interface for data collection. A web-based program instantly provides this distributed software to your workforce, no matter where they may be located and can run on every desktop or laptop in your company.

Your web-based solution should include access to the core functionality of the application, customization of which fields your company requires, and the ability to expand the core functionality to include more modules.

Modularity and Scalability

All organizations, large, medium or small, have their unique identifiers, requirements and needs. While all business units play a critical role in an overall healthy business environment in your organization, some may receive a larger share of labor, budget and responsibility. Therefore, when selecting a data management system, your organization would reach greater success when each individual unit is prepared to take ownership of a module within the enterprise-wide EHSDMS solution. Demanding your security group to also maintain the industrial hygiene system creates unnecessary chaos and will potentially lead to a broken system.

The best practice has proven to allow for a modular development and implementation of your EHSDMS. The modular approach to system design allows the application to offer a variety of capabilities with the ability to expand as requirements change and user needs dictate. Your organization is never 'stuck' with a one-size-fits-all solution as the modules are designed to integrate and share data seamlessly.

2 Case Studies

Intel

Intel Corporation is a leader in EHS performance and has a track record of heightening the health and safety performance of not only their employees but also the contractors that work for them and the communities in which they are located. The Ex3 EHS Data Management System (EHSDMS) has been in production for over 10 years at Intel, allowing managers to better their case investigations, management and gather indicators to further lower if not eliminate injuries and illnesses from the workplace. In 2001, the National Safety Council awarded the Green Cross for Safety to Intel for "exemplary commitment to workplace safety." The following are some the exemplary results achieved by Intel in partnership with Ex3:

◊ Decrease in Worker's Compensation reports from 1119 cases to 485 over a 5-year period. (This was as the overall head count rose dramatically from 41,138 to 69,353 employees)

◊ Decreased Worker's Compensation Case cost per employee of $110 to $33 per case over a 5-year period.

◊ Lower Lost Day Case (LDC) time away: A saving of over $10 million dollars a year through effective case management and by placing identified employees on modified work programs. Prior to the Ex3 system implementation, average days away were 14. Since implementation, average has been reduced to 2 days.

◊ Fewer recordable injuries and illnesses and Lost Day Cases (LDC): case managers were able to lower the Recordable rate which was 3.6 in 1993 to a world-leading .20 in 2004, saving over $65 million dollars through LDC reduction.

◊ Armed with the ability to focus their decision on specific areas, managers instituted programs that resulted in the reduction of Cumulative Trauma Disorders (CTDs) by over 70 percent. Because detailed and granular data is entered into the application in real-time, managers immediately have the ability to accurately see what is happening in their organization.

◊ Corporate-wide data roll-up that typically has to take 2-4 months to accomplish and was available only on an annual basis now takes only seconds to produce and is real-time across the organization.

◊ Action Request Management Module (AR Module) of Ex3 EHSDMS has allowed for greater impact on closing Action Request cases. In the past, only 31% of the ARs assigned over a one-year would achieve 'closed' status.. Now, the AR module has helped to close 93% of open ARs.

◊ Costs that were avoided or saved with Medical Monitoring Management: employees have the ability to enter and update dynamic questionnaires without a visit to nursing office leading to the following savings. Tech time saved: $90,500 per year; nurse time saved: $64,500 per year; data entry time saved: $90,500 per year; cost avoidance - biostatistician: $17,000 per year; Total Medical Monitoring Savings: $262,500 per year

◊ Dollars saved by placing workers on modified duty (salary and replacement salary): $6,170,720.00 per year*

NASA

The Incident Reporting Information System or IRIS was in place at NASA, prior to the current version as a desktop system for selected users. The end-users were designated as "data entry" specialist whose job was to gather and record data on mishaps and close calls. The data collected was to support both the NASA NPG 8621 and the OSHA 29 CFR 1960 reporting requirements. The philosophy behind the data collection was that investigators and supervisors would supply to the data entry specialists the relevant data for reporting beginning with an initial report on the 1672A (for safety) and 1627B (for medical). The safety office would then have the responsibility to collect subsequent relevant data such as property damage, lost or restricted days, details of the event and track the investigation to closure, finally documenting cause codes.

The legacy system was meant to be a "reporting system" and data was gathered to that end. With the exception of a query interface, there was no provision in the legacy system to trend and analyze. Data entry was largely unstructured and free text resulting in many different types of entries and an inability to relate and validate data sets and information.

In addition, the system itself, as a desktop system, frequently encountered firewall issues which limited data entry. Inadvertently, as the field centers began to develop their own system for data entry a data communication "gap" was created.

In May of 2003, NASA selected the Ex3 EHS Data Management System and implementation of the Ex3 system was completed at all NASA centers by June of 2004. All NASA centers are using the Ex3 system for reporting health and safety data.

In addition to being a replacement of obsolete functionality, the design and scalability of the new system is leading to changes in how the data is being gathered across NASA. Previously, only selected data entry personnel had access. Today, the Ex3 system is utilized by supervisor and safety investigators for direct entry and analysis. The role of the data entry specialist is also evolving to more of a data quality assurance and independent assessor function.

In June 2005, The NASA Group Achievement Award was presented to the NASA and Ex3 combined project team for "exceptional support in the design, build, and NASA Agency deployment of a new Web-based enhanced Incident Reporting and Information System." This is the most prestigious group award given to NASA and contractor employees, according to NASA Human Resources. Below are some of the benefits realized through the use of the Ex3 EHSDMS.

◊ Improved communications between safety professionals, supervisors, medical and workers compensations, and on- and off-site contractors have been achieved. Standard reports are now being provided. The NASA/ Ex3 system provides a means of "one stop" data collection allowing for standardized reports to be auto-generated for senior management and analysts.

◊ Information access: "the right information to the right people at the right time". The system implementation has resulted in the elimination of multiple dysfunctional and redundant databases. "One NASA" database with web accessibility is ready for use by all new projects and contractors. Information is now easily accessible to senior management.

◊ Tracking and closure of corrective actions: the NASA/Ex3 system supports the assignment,

notification & tracking of corrective actions along with instant visibility into status, "time to closure."

◊ Structured data entry, trending, analysis and standardized entry have allowed for improved reporting and data collection while immediate performance metric for analysis support management decision-making processes.

◊ Above all, efficient engineering of the NASA processes and safety systems has streamlined tracking of all "incidents" including building and facility inspections, fire safety inspections, and security incidents to report unprecedented cost savings for the agency.

3 Conclusion

There are multiple drivers for implementing an Environment, Health, Safety, Security & Productivity Data Management system within an organization. The larger the workforce, the more critical it is to find the most effective method to manage and maintain the pertinent information about your organization's most important asset, your people.

Automation of your EH&S process and reporting is just the first step on the right track. The data management and maintenance of this process does not have to be a daunting task if you use the right experts. With the right EHSDMS in place, you can be confident that your critical data is secure, can be accessed promptly and will be your most effective tool for your workplace health, safety and security decision-making.

Sources:

Dickey, Beth "Avoiding Injury: NASA's New Software System Neatly Handles Safety, Health and Security Data" from GovExec.com Magazine September 15, 2006

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