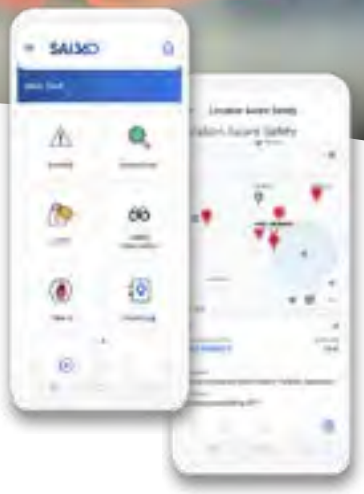


SAI360

WHITEPAPER

Why Evolving Your OHS Program Requires Reengineering Data Study

Occupational Health and Safety (OHS) departments have access to more data than ever. Data determines a course of action, the design of interventions, the effectiveness of workforce policies, and ultimately the value OHS departments bring to the business. For the OHS professional, who is responsible for the overall health and safety of workers, having more data allows more timely and effective interventions and can enhance the focus on the company's health and safety program.

However, data is only useful if it is accurate, timely, and relevant, in essence and quality. Since a great deal of OHS data is provided voluntarily by employees, there is always the potential for error. The collection of poor data quality can lead to inaccurate conclusions and wrong decision-making.

Organizations must evolve in the way they collect and analyze data and have a carefully thought-through data management strategy in place. That has OHS looking into predictive analytics, machine learning, data lakes, data warehouses, and other Internet of Things (IoT) innovations. Cloud data storage is one of the critical steps forward for advanced analytical tools to provide trending and forecasting. These technologies offer superior ways to collect and analyze data that are essential for advancing OHS programs.

Bottom line: OHS cannot just rely on the increasing volume of data. Careful attention needs to be given to how, why, what, when and where the data is collected. In some cases, reengineering data collection to ensure data quality may be necessary. The purpose of this paper is to review OHS data collection processes, offer guidance on removing friction, and provide strategies for improving data quality. With an assurance of quality, OHS data can be used to advance health and safety programs, as well as pursue other data-driven technology innovations like predictive analytics.

THE ROLE OF OHS DATA

OHS collects data, develops metrics and generates output - all to answer these three main questions:

How are we doing? — describe OHS's performance

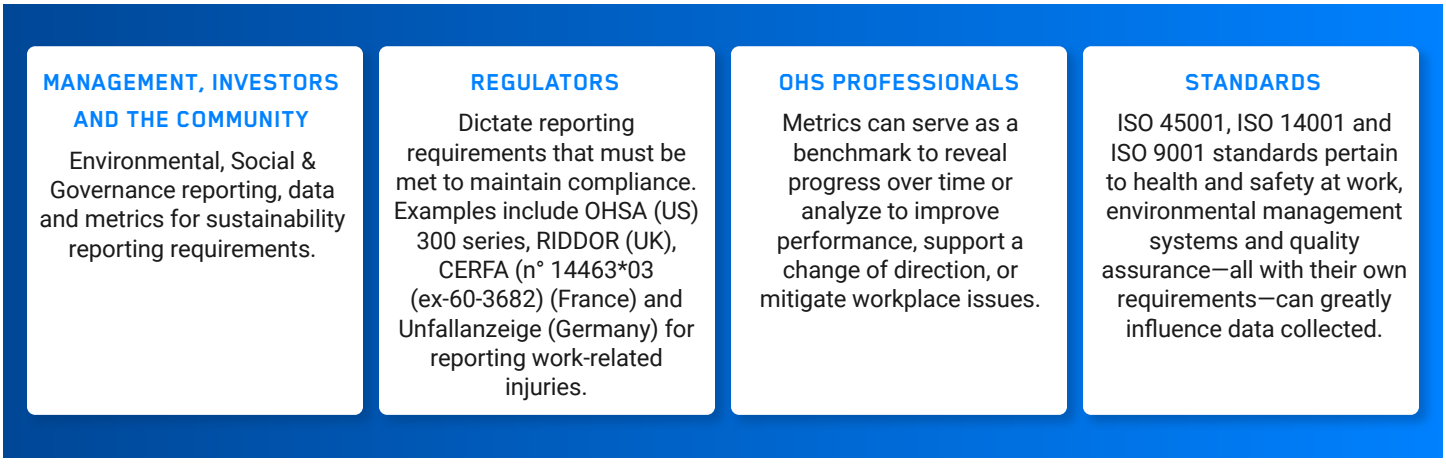
Where are we going? — depict meaningful trends toward goals

What can we do to improve or change direction? — determine possible interventions to implement to mitigate issues and improve performance

OHS DATA STAKEHOLDERS

OHS data metrics are of interest to management, employees, regulators and a number of other stakeholders. And the type of data being requested varies based on the stakeholder as illustrated below.

In serving stakeholders' requests, much of the information collected relates to OHS workflows or processes, which drives accountability in OHS tasks and aids in producing evidence for audits.



SOURCING DATA FOR OHS REPORTING AND DECISION SUPPORT

Data sourcing is where the rubber meets the road for OHS professionals. The level of success in collecting data determines the amount of quality data and the percentage of trash.

OHS DATA COMES FROM MULTIPLE SOURCES

- Manually supplied by employees, contractors or other third parties
- System integrations such as human resource solutions, asset management systems, laboratory information systems and other internal systems
- Sensors and other IoT devices such as environmental monitoring equipment
- Other external sources such as location information and weather conditions

For every OHS data source, the tools used for collecting data can vary widely, from paper and spreadsheets to software and mobile applications to application program interfaces (APIs) and file-based imports. The challenge for OHS is that harmonizing and managing data from different sources takes a lot of time and effort. Without careful planning and pruning, it is easy to collect meaningless data that creates noise and reduces confidence in the data being presented.

ELEMENTS OF SOUND DATA COLLECTION

There are four elements to consider when collecting OHS data from multiple sources. The goal isn't to simply check the box. It is important to explore where things can go wrong and right with each element in order to gain a clearer understanding and avoid picking up extraneous data during the collection process.

VALIDITY – REFERS TO HOW DATA WAS COLLECTED, ITS PURPOSE, AND LIMITATIONS

Knowing the circumstances around data collection is as essential as the data itself. For example, what assumptions were made during data collection? Was any information excluded or dropped? These details around data collection affect the ability to interpret the analysis outcome correctly.

A common challenge with data validity stems from misclassification. For example, in incident reporting, employees are asked to judge the severity of the incident or injury. If an employee or manager has a different understanding of how to classify or categorize the data reported, it introduces an unpredictable bias to the dataset. Simply put, if your metrics involve incident severity as an outcome or as a measure (or any similar value you use to slice and dice other data), this bias can be forcing the outcome away from the "true value" either to be more or less severe than what workers actually experience. Or consider the example of collecting data from all divisions except the night shift; any conclusions won't apply to the night shift and should be disclosed.

Data validity comes down to one's confidence that the data was accurately evaluated and interpreted in the analyses or metrics the data will be used for. The confidence level increases with stated assumptions about the data that can be factored in.

TIMELINESS–APPLIES TO THE SHELF LIFE OF COLLECTED DATA

Data collection must be prompt enough to be effectively used. Data that sits on the shelf for too long can result in diminished value. Mobile apps used in data collection are helping address the issue of timeliness.

COMPLETENESS–A SELF-CHECK FOR OHS PROFESSIONALS COLLECTING DATA

With completeness, OHS professionals should ask: “Am I missing something?” “Am I asking the right questions?” “Have I identified all the risk factors?” For example, if you are evaluating the workforce for hearing loss and fail to recognize the age of employees, that might affect the conclusions. Considering the age factor influencing a hearing loss survey is essential for completeness.

Completeness is the missing element that comes to mind when you approach data collection with a questioning mindset.

EFFICIENCY–LOWER THE FRICTION FOR PROVIDING RESPONSES

The harder it is for people or systems to provide responses, the more likely you are to collect trash. It is data you do not need. The goal is to design efficient data entry without encouraging pencil whipping. Lower friction streamlines the time and resources needed to collect quality data.

CORE PRINCIPLES TO FOLLOW FOR MEANINGFUL DATA COLLECTION

With data validity, timeliness, completeness, and efficiency providing a solid framework for OHS’s data collection, below is some guidance on evaluating and improving your current data requirements and collection approaches.

BEFORE WE DIVE FURTHER, LET'S CLARIFY SOME BASIC TERMS USED IN THE MANAGEMENT OF DATA

- **Data field:** A data field is the smallest subdivision of stored data that can be accessed. So incident data fields may include Incident Date, Incident Summary, Classification.
- **Forms:** Forms provide a structured layout for fields, allowing ease of data capture.
- **Workflow:** Automated tasks that occur in a particular order for a defined process or procedure such as for managing incidents.

DATA COLLECTION STEPS USING A WHAT, HOW AND WHY APPROACH

WHAT	HOW	WHY
Evaluate data requirements and current data **based on metrics and outputs required.**	1. Define desired outputs and set expectations for your data collection. Frame it by problems you are trying to solve. Determine what answers you want from your data and frame your questions around that.	Removing unnecessary data will increase efficiency.
	2. Triage and review current data collection processes. Check for unnecessary form fields by justifying the inclusion of each field. Ensure fields are needed to evaluate and answer one or more of your stated problems or questions.	
	3. Address any outliers. If a field is nice to have or is not tied to your requirements, but would interfere with completing the form, cut it. Distinguishing between essential and extraneous leads to trimmed-down forms with less opportunity for trash collection.	
	4. If the data currently collected is extensive, this may appear long and time-consuming. Take an agile approach and break the evaluation process into smaller chunks.	
Identify data limitations and gaps	1. Identify limitations with your current data. Ensure no groups are being excluded from your data collection efforts. For example, are you excluding data from shift workers or contractors that will help you understand specific trends? Are there areas where the scoring, classifications or judgements being made aren't consistent between individuals?	The more complete the data, the better decision making can be.
	2. Identify any gaps between stated requirements and intentions. Determine what data is required that you are not already collecting.	
Review data collection methods and accessibility	1. Document your current data collection workflow and identify any areas for improved efficiency.	Increase the timeliness and accuracy of responses from your employees, contractors and other stakeholders.
	2. Design data collection forms with your employees in mind. Design for ease of use and speed.	
	3. Keep in mind the areas of data collection where you may need flexibility—to change the questions being asked or the values that can be selected at any point in time.	
	4. Reconsider fields that ask employees to enter the time of the incident or current weather conditions. Both responses can be satisfied with an automatic data feed. It's less work for your employees and more accurate as an automated function.	
	5. Consider skipping incentives for data collection. Offering incentives for data collection can lead to underreporting or increased bias. Save incentives for participation in incident investigations or suggestions for work improvements.	
Re-assess your communication of OHS outcomes	1. Consider the needs of each specific set of stakeholders. What do you want to tell them? When and how often should they be kept informed? What is the best format to communicate these outcomes to them?	Continually improve your data collection efforts with ongoing participation.
	2. Include context: Data collection and analysis lead to numbers and outputs but can lack meaning without commentary. Add information to data collection that explains what is going on.	
	3. Remember: Your employees, contractors and other stakeholders are critical in ensuring the completeness and timeliness of OHS data. Managing stakeholders as part of this journey is a critical success factor.	

ACCELERATE DATA COLLECTION AND ANALYSIS WITH A TECHNOLOGY SOLUTION

Technology solutions can streamline and automate processes for data collection and facilitate analysis. The chosen solution should facilitate incorporating the sound elements previously stated, including validity, timeliness, completeness and efficiency.

DATA DEMANDS MORE FROM OHS PROFESSIONALS

The role of data hasn't changed. It's still about how we're doing, where we're going, and what can be done to improve or change direction. What has changed is the amount of data being generated, the tools for collecting quality data, the risk of collecting junk, and increasing data demands from stakeholders.

It is tempting to meet the challgen by trying the newest technologies such as predictive analytics. In OHS's world, that shiny object is predictive analytics. There is nothing wrong with pursuing innovation, but integration and achieving promised benefits will be challenging. It may be better to start small, maximize learning, and evolve your program while gaining buy-in from stakeholders.

A more vigorous data collection process produces quality data essential for meaningful analysis and IoT tools like predictive analytics. With quality data and a technology solution designed for managing OHS data and advanced processes, your OHS department will grow and prosper and be viewed as a vital contributor to the organization.

A 360-DEGREE APPROACH TO EVOLVING YOUR OHS PROGRAM

SAI360 offers over 35 pre-configured modules that enable and accelerate OHS functions, including incident management, audit management, business planning, stakeholder management, obligations management, and regulatory content. The modular approach is highly configurable, delivering a faster time to value, or organizations can be selective in digitizing processes.

The SAI360 EHS&S offering comes with a simple, intuitive user interface, an engine that delivers reporting to stakeholder preferences, powerful data analytics, and a mobile app, Roam, for capturing data and driving productivity while eliminating outdated processes.

Request a demo to see first-hand SAI360's OHS capabilities.